

# IEC Contactor Specifications

Bulletin Numbers 100/104-K, 100/104-C, 100/104S-C, 100/104-E, 100S-E, 100/104-D, 100S-D, 100-G, 100Q-C

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## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

| Resource                                                                                                                                                                                  | Description                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>                                                                                               | Provides general guidelines for installing a Rockwell Automation industrial system. |
| Product Certifications website, <a href="https://www.rockwellautomation.com/global/certification/overview.page">https://www.rockwellautomation.com/global/certification/overview.page</a> | Provides declarations of conformity, certificates, and other certification details. |

You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

# Product Line Overview

## IEC Contactors

|                          |                                                                                                                                                                      |                                                                                                                                                                                     |                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                       |                                                                                            |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bulletin No.             | 100-K/104-K                                                                                                                                                                                                                                           | 100-C/104-C                                                                                                                                                                                                                                                          | 100-E/104-E                                                                                                                                                                                                                                              | 100-D/104-D                                                                                                                                                                                                                                                                                                                                                                                                              | 100-G                                                                                                                                                                         |
| Screw Terminals          | ✓                                                                                                                                                                                                                                                     | ✓                                                                                                                                                                                                                                                                    | Thru-hole                                                                                                                                                                                                                                                | Thru-hole, threaded (630...860 A)                                                                                                                                                                                                                                                                                                                                                                                        | Thru-hole                                                                                                                                                                     |
| Spring Terminals         | ✓ (5...9 A)                                                                                                                                                                                                                                           | ✓ (9...16 A)                                                                                                                                                                                                                                                         | —                                                                                                                                                                                                                                                        | —                                                                                                                                                                                                                                                                                                                                                                                                                        | —                                                                                                                                                                             |
| Max. Current $I_e$       | 12 A                                                                                                                                                                                                                                                  | 97 A                                                                                                                                                                                                                                                                 | 2650 A                                                                                                                                                                                                                                                   | 860 A                                                                                                                                                                                                                                                                                                                                                                                                                    | 1200 A                                                                                                                                                                        |
| Current Rating           | 5...12 A                                                                                                                                                                                                                                              | 9...97 A                                                                                                                                                                                                                                                             | 116...2650 A                                                                                                                                                                                                                                             | 115...860 A                                                                                                                                                                                                                                                                                                                                                                                                              | 550...1200 A                                                                                                                                                                  |
| Features                 | <ul style="list-style-type: none"> <li>Mini-contactors</li> <li>Uniform panel mounting dimensions</li> <li>Panel mounting or mounting on 35 mm DIN Rail</li> <li>AC or DC coil control</li> <li>Made of environmentally friendly materials</li> </ul> | <ul style="list-style-type: none"> <li>Panel mounting or mounting on 35 mm DIN Rail</li> <li>AC or DC coil control</li> <li>Reversible coil terminals (line or load side)</li> <li>Common accessories</li> <li>Made of environmentally friendly materials</li> </ul> | <ul style="list-style-type: none"> <li>Panel mounting</li> <li><b>E116...E370</b> AC/DC electronic coil with optional PLC interface</li> <li><b>E400...E2650</b> AC/DC with PLC interface</li> <li>Made of environmentally friendly materials</li> </ul> | <ul style="list-style-type: none"> <li>Panel mounting only</li> <li>Made of environmentally friendly materials</li> <li>AC or DC coil control (conventional or electronic)</li> <li>Integrated PLC interface (electronic coil)</li> </ul>                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Panel mounting</li> <li>AC or DC coil control</li> <li>Horizontal or vertical interlock</li> <li>Latching</li> <li>4th pole</li> </ul> |
| Contacts                 | 3 power poles with internal N.O. or N.C. auxiliary contact, or 4 power poles.<br>Optional front-mounted 2- or 4-pole external auxiliary contact block.                                                                                                | 3 power poles with internal N.O. or N.C. auxiliary contact or 4 power poles (9...23 A). Optional front- or side-mounted 1-, 2- or 4-pole external auxiliary contact block.                                                                                           | 3 main poles with 2 auxiliary contacts (1 N.O. and 1 N.C.)<br>Optional side-mounted 2-pole external auxiliary contact block.                                                                                                                             | 3 power poles with external N.O. and N.C. side-mounted auxiliary contact. Optional side-mounted 2-pole external auxiliary contact blocks                                                                                                                                                                                                                                                                                 | 3 power poles with N.O. and N.C. front-mounted auxiliary contact. Optional 4th pole and auxiliary contacts                                                                    |
| Coil Voltages            | AC = 24...600V, 50/60Hz<br>DC = 12...250V                                                                                                                                                                                                             | AC = 12...600V, 50/60Hz<br>DC = 9...250V                                                                                                                                                                                                                             | 24...500V 50/60 Hz/DC                                                                                                                                                                                                                                    | <b>Conventional Coils</b><br><b>Cat. Nos. 100-D115...D180</b><br>AC: 24...550V 50 Hz, 24...600V 60Hz, 100...277V 50/60Hz<br>DC: 24...250V DC<br><b>Electronic Coils</b><br><b>Cat. Nos. 100-D115...D300</b><br>AC: 24...500V 50/60 Hz<br>DC: 24...255V DC<br><b>Cat. Nos. 100-D420</b><br>AC: 42...500V 50/60 Hz<br>DC: 48...255V DC<br><b>Cat. Nos. 100-D630...D860</b><br>AC: 100...500V 50/60 Hz<br>DC: 110...255V DC | AC = 110...480V, 50/60Hz<br>DC = 100...440V                                                                                                                                   |
| Optional Overload Relays | Electronic or bimetallic                                                                                                                                                                                                                              | Electronic or bimetallic                                                                                                                                                                                                                                             | Electronic                                                                                                                                                                                                                                               | Electronic                                                                                                                                                                                                                                                                                                                                                                                                               | Electronic                                                                                                                                                                    |
| Optional Accessories     | <ul style="list-style-type: none"> <li>Front-mount auxiliary contacts</li> <li>Surge suppressors</li> <li>Electronic timers</li> <li>Mechanical interlocks</li> </ul>                                                                                 | <ul style="list-style-type: none"> <li>Front or side-mount auxiliary contacts</li> <li>Surge suppressors</li> <li>Electronic or pneumatic timers</li> <li>Mechanical interlocks</li> <li>Mechanical latches</li> </ul>                                               | <ul style="list-style-type: none"> <li>Side-mount auxiliary contacts</li> <li>Mechanical interlocks</li> <li>Terminal lugs</li> <li>Terminal shields</li> <li>Connecting bars</li> </ul>                                                                 | <ul style="list-style-type: none"> <li>Side-mount auxiliary contacts</li> <li>Surge suppressors</li> <li>IP20 terminal blocks</li> <li>Terminal shields</li> <li>Terminal covers</li> <li>Connecting components</li> <li>Terminal lugs</li> <li>Mechanical/electrical interlocks</li> </ul>                                                                                                                              | <ul style="list-style-type: none"> <li>Auxiliary contact</li> <li>4th pole</li> <li>Vertical interlock</li> <li>Horizontal interlock</li> <li>Mechanical latch</li> </ul>     |
| Standards/Certifications | <ul style="list-style-type: none"> <li>UL</li> <li>CSA</li> <li>IEC</li> <li>CE Marked</li> <li>CCC</li> </ul>                                                                                                                                        | <ul style="list-style-type: none"> <li>UL</li> <li>CSA</li> <li>IEC</li> <li>CE Marked</li> <li>CCC</li> </ul>                                                                                                                                                       | <ul style="list-style-type: none"> <li>EN/IEC</li> <li>CE Marked</li> <li>cULus</li> <li>CCC</li> <li>EAC</li> <li>C-tick</li> </ul>                                                                                                                     | <ul style="list-style-type: none"> <li>UL</li> <li>CSA</li> <li>IEC</li> <li>CE Marked</li> <li>CCC (115...180 A - conventional coil; 140...860 A - electronic coil)</li> </ul>                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>UL</li> <li>CSA</li> <li>IEC</li> <li>CE Marked</li> </ul>                                                                             |

# Safety Contactors

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                        |
| <b>Bulletin No.</b>  | <b>1005-C/1045-C</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>1005-E</b>                                                                                                                                                                                                                                                                                                                            | <b>1005-D</b>                                                                                                                                                                                                                                                                                                                                                                                                             |
| Screw Terminals      | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Thru-hole                                                                                                                                                                                                                                                                                                                                | Thru-hole, threaded (630...860 A)                                                                                                                                                                                                                                                                                                                                                                                         |
| Max. Current $I_e$   | 97 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 750 A                                                                                                                                                                                                                                                                                                                                    | 860 A                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Current Rating       | 9...97 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 116...750 A                                                                                                                                                                                                                                                                                                                              | 115...860 A                                                                                                                                                                                                                                                                                                                                                                                                               |
| Features             | <ul style="list-style-type: none"> <li>Positively guided/mechanically linked auxiliary contacts</li> <li>Front-mounted auxiliary contacts:               <ul style="list-style-type: none"> <li>Permanently fixed</li> <li>Protective cover to prevent manual operation</li> <li>Red contact housing for easy identification</li> <li>Incorporates IEC 947-5-1 "Mechanically Linked" symbol</li> <li>Optional gold-plated bifurcated versions</li> </ul> </li> <li>AC and DC operating coils</li> <li>SUVA third-party certification</li> </ul> | <ul style="list-style-type: none"> <li>Mirror contact performance on auxiliary contacts</li> <li>Red N.C. low-power auxiliary contact used for feedback circuit</li> <li>SUVA third-party certification</li> <li>AC/DC operating coils</li> <li>"Mirror Contact" symbol on front</li> </ul>                                              | <ul style="list-style-type: none"> <li>Mirror contact performance on auxiliary contacts, which are required in feedback circuit for modern safety applications.</li> <li>The N.C. auxiliary contacts will not change state when a power contact welds.</li> <li>SUVA third-party certification</li> <li>AC and DC operating coils</li> <li>"Mirror Contact" symbol</li> </ul>                                             |
| Contacts             | 3 main poles with N.C. mechanically linked or mirror feedback contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3 main poles with N.C. mirror feedback contacts                                                                                                                                                                                                                                                                                          | 3 main poles with N.C. mirror feedback contacts                                                                                                                                                                                                                                                                                                                                                                           |
| Coil Voltages        | AC = 12...600V, 50/60Hz<br>DC = 12...250V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 24...500V 50/60 Hz/DC                                                                                                                                                                                                                                                                                                                    | <b>Conventional Coils</b><br><b>Cat. Nos. 1005-D115...D180</b><br>AC: 24...550V, 50 Hz; 24...600V, 60Hz; 100...277V, 50/60Hz<br>DC: 24...250V<br><br><b>Electronic Coils</b><br><b>Cat. Nos. 1005-D115...D300</b><br>AC: 24...500V, 50/60 Hz<br>DC: 24...255V<br><b>Cat. Nos. 1005-D420</b><br>AC: 42...500V 50/60 Hz<br>DC: 48...255V<br><b>Cat. Nos. 1005-D630...D860</b><br>AC: 100...500V, 50/60 Hz<br>DC: 110...255V |
| Optional Accessories | <ul style="list-style-type: none"> <li>Side-mount auxiliary contacts</li> <li>Surge suppressors</li> <li>Electronic timers</li> <li>Mechanical interlocks</li> </ul>                                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>Side-mount auxiliary contacts</li> <li>Terminal shields</li> <li>Terminal lugs</li> <li>Terminal enlargements</li> <li>Terminal extensions</li> <li>Connection bars for 140G molded case circuit breakers, 140MG motor protection circuit breakers, and 140MG motor circuit protectors</li> </ul> | <ul style="list-style-type: none"> <li>Side-mount auxiliary contacts</li> <li>Surge suppressors</li> <li>IP20 terminal blocks</li> <li>Terminal shields</li> <li>Terminal covers</li> <li>Connecting components</li> <li>Terminal lugs</li> <li>Mechanical/electrical interlocks</li> </ul>                                                                                                                               |
| Standards Compliance | <ul style="list-style-type: none"> <li>EN/IEC 60947-4</li> <li>IEC 60947-5-1 Annex L — Mechanically Linked Contacts</li> <li>IEC 60947-4-1 Annex H — Mirror Contacts</li> <li>UL 508</li> <li>CSA C22.2 No. 14</li> <li>EN50205</li> </ul>                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>EN/IEC 60947-4-1</li> <li>IEC 60947-4-1, Annex F — Mirror Contacts</li> <li>UL 60947-4-1</li> <li>CSA C22.2, No. 60947-4-1</li> </ul>                                                                                                                                                             | <ul style="list-style-type: none"> <li>EN/IEC 60947-4</li> <li>IEC 60947-4-1</li> <li>IEC 60947-4-1/A1: 2002-09, Annex F</li> <li>UL 508</li> <li>CSA C22.2, No. 14</li> </ul>                                                                                                                                                                                                                                            |
| Certifications       | <ul style="list-style-type: none"> <li>cULus Listed (File No. E3125; Guide NLDX, NLDX7)</li> <li>SUVA Third-Party Certified</li> <li>CE Marked</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>cULus Listed (File No. E41850; Guide No. NLDX, NLDX7)</li> <li>CE Marked</li> <li>CCC</li> <li>UL</li> <li>CSA</li> <li>EAC</li> <li>RCM (C-tick)</li> <li>SUVA Third-Party Certified</li> </ul>                                                                                                  | <ul style="list-style-type: none"> <li>cULus Listed (File No. E3125; Guide No. NLDX, NLDX7)</li> <li>SUVA Third-Party Certified</li> <li>CE Marked</li> <li>CCC (115...180 A - conventional coil; 140...860 A - electronic coil)</li> </ul>                                                                                                                                                                               |

# 100-K/104-K Miniature Contactors

## Product Selection

- 3-Pole AC- and DC-Operated Contactors
- Compact size
- Same dimensions for AC and DC
- Full-voltage non-reversing and reversing contactors
- 5, 9, and 12 A contactors rated at 690V
- IP2X finger protection
- Optional integrated surge suppressor
- Compatible with Bulletin 193-K bimetallic overload relay
- Mirror contacts per IEC 60947-4-1 and mechanically linked contacts per IEC 60947-5-1 on main unit



Bulletin 100-K miniature contactors are designed for commercial and light industrial applications where panel space is at a premium. These miniature devices, while 45 mm wide, are shallower and have less panel depth requirements than standard IEC contactors.

The miniature contactors have been designed with flexibility in mind. They are available with AC or DC operating coils, several contact ratings, and optional 2- or 4-pole adder decks in a variety of auxiliary contact configurations.

## 3-Pole AC- and DC-Operated Contactors

| Rated Operational Current $I_e$<br>[A] |      | Ratings for switching AC motors - AC-2, AC-3, AC-4 |          |      |      |            |       |         |       |       |       | Auxiliary Contacts                                                                    |                                                                                       | Pkg. Qty. <sup>(1)</sup> | Cat. No.    |
|----------------------------------------|------|----------------------------------------------------|----------|------|------|------------|-------|---------|-------|-------|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------|-------------|
|                                        |      | 3-phase kW (50 Hz)                                 |          |      |      | Hp (60 Hz) |       |         |       |       |       |  |  |                          |             |
| 40 °C                                  |      | 230V                                               | 400/415V | 500V | 690V | 1-Phase    |       | 3-Phase |       |       |       |                                                                                       |                                                                                       |                          |             |
| AC-3                                   | AC-1 |                                                    |          |      |      | 115V       | 230V  | 200V    | 230V  | 460V  | 575V  |                                                                                       |                                                                                       |                          |             |
| Screw Terminals                        |      |                                                    |          |      |      |            |       |         |       |       |       |                                                                                       |                                                                                       |                          |             |
| 5                                      | 20   | 1.5                                                | 2.2      | 2.2  | 2.2  | 1/2        | 1     | 1-1/2   | 1-1/2 | 3     | 3     | 1                                                                                     | 0                                                                                     | 1                        | 100-K05⊗10  |
|                                        |      |                                                    |          |      |      |            |       |         |       |       |       | 0                                                                                     | 1                                                                                     | 1                        | 100-K05⊗01  |
| 9                                      | 20   | 3                                                  | 4        | 4    | 4    | 1/2        | 1-1/2 | 2       | 2     | 5     | 5     | 1                                                                                     | 0                                                                                     | 1                        | 100-K09⊗10  |
|                                        |      |                                                    |          |      |      |            |       |         |       |       |       | 0                                                                                     | 1                                                                                     | 1                        | 100-K09⊗01  |
| 12                                     | 20   | 3                                                  | 5.5      | 5.5  | 5.5  | 3/4        | 2     | 3       | 3     | 7-1/2 | 7-1/2 | 1                                                                                     | 0                                                                                     | 1                        | 100-K12⊗10  |
|                                        |      |                                                    |          |      |      |            |       |         |       |       |       | 0                                                                                     | 1                                                                                     | 1                        | 100-K12⊗01  |
| Spring Clamp Terminals                 |      |                                                    |          |      |      |            |       |         |       |       |       |                                                                                       |                                                                                       |                          |             |
| 5                                      | 10   | 1.5                                                | 2.2      | 2.2  | 2.2  | 1/3        | 3/4   | 1-1/2   | 1-1/2 | 3     | 3     | 1                                                                                     | 0                                                                                     | 1                        | 100-KR05⊗10 |
|                                        |      |                                                    |          |      |      |            |       |         |       |       |       | 0                                                                                     | 1                                                                                     | 1                        | 100-KR05⊗01 |
| 9                                      | 10   | 2.2                                                | 4        | 4    | 4    | 1/3        | 1     | 2       | 2     | 5     | 5     | 1                                                                                     | 0                                                                                     | 1                        | 100-KR09⊗10 |
|                                        |      |                                                    |          |      |      |            |       |         |       |       |       | 0                                                                                     | 1                                                                                     | 1                        | 100-KR09⊗01 |

(1) May be ordered in package quantities of 20. Add letter M to the end of the cat. no. Example: **100-K09ZJ10M**.

⊗ Coil voltage code — see [page 7](#).

## 4-Pole AC- and DC-Operated Contactors

| Rated Operational Current $I_e$ [A] |      | Ratings for switching AC motors - AC-2, AC-3 |          |      |      |            |       |         |       |       |       | Contact Configuration, Main Poles                                                   |                                                                                     | Pkg. Qty. <sup>(1)</sup> | Cat. No.    |
|-------------------------------------|------|----------------------------------------------|----------|------|------|------------|-------|---------|-------|-------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------|-------------|
|                                     |      | 3-phase kW (50 Hz)                           |          |      |      | Hp (60 Hz) |       |         |       |       |       |  |  |                          |             |
|                                     |      |                                              |          |      |      | 1-Phase    |       | 3-Phase |       |       |       |                                                                                     |                                                                                     |                          |             |
| 40 °C                               |      | 230V                                         | 400/415V | 500V | 690V | 115V       | 230V  | 200V    | 230V  | 460V  | 575V  | N.O.                                                                                | N.C.                                                                                |                          |             |
| AC-3                                | AC-1 |                                              |          |      |      |            |       |         |       |       |       |                                                                                     |                                                                                     |                          |             |
| 5                                   | 20   | 1.5                                          | 2.2      | 2.2  | 2.2  | 1/2        | 1     | 1-1/2   | 1-1/2 | 3     | 3     | 4                                                                                   | 0                                                                                   | 1                        | 100-K05⊗400 |
|                                     |      |                                              |          |      |      |            |       |         |       |       |       | 3                                                                                   | 1                                                                                   | 1                        | 100-K05⊗300 |
|                                     |      |                                              |          |      |      |            |       |         |       |       |       | 2                                                                                   | 2                                                                                   | 1                        | 100-K05⊗200 |
| 9                                   | 20   | 3                                            | 4        | 4    | 4    | 1/2        | 1-1/2 | 2       | 2     | 5     | 5     | 4                                                                                   | 0                                                                                   | 1                        | 100-K09⊗400 |
|                                     |      |                                              |          |      |      |            |       |         |       |       |       | 3                                                                                   | 1                                                                                   | 1                        | 100-K09⊗300 |
|                                     |      |                                              |          |      |      |            |       |         |       |       |       | 2                                                                                   | 2                                                                                   | 1                        | 100-K09⊗200 |
| 12                                  | 20   | 3                                            | 5.5      | 5.5  | 5.5  | 3/4        | 2     | 3       | 3     | 7-1/2 | 7-1/2 | 4                                                                                   | 0                                                                                   | 1                        | 100-K12⊗400 |
|                                     |      |                                              |          |      |      |            |       |         |       |       |       | 3                                                                                   | 1                                                                                   | 1                        | 100-K12⊗300 |
|                                     |      |                                              |          |      |      |            |       |         |       |       |       | 2                                                                                   | 2                                                                                   | 1                        | 100-K12⊗200 |

(1) May be ordered in package quantities of 20. Add letter M to the end of the cat. no. Example: **100-K09ZJ400M**.

⊗ Coil voltage code — see [page 7](#).

## Reversing AC- and DC-Operated Contactors

Bulletin 104-K reversing contactors are factory assembled and include contactors, mechanical interlock (Cat. No. 100-KMCH) and wiring kit (Cat. No. 100-KPR) for power and control circuit (electrical interlock).

| Rated Operational Current $I_e$ [A] |      | Ratings for switching AC motors - AC-2, AC-3, AC-4 |          |      |      |            |      |         |       |       |       | Auxiliary Contacts per Contactor <sup>(1)</sup>                                       |                                                                                       | Cat. No.   |
|-------------------------------------|------|----------------------------------------------------|----------|------|------|------------|------|---------|-------|-------|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------|
|                                     |      | 3-phase kW (50 Hz)                                 |          |      |      | Hp (60 Hz) |      |         |       |       |       |  |  |            |
|                                     |      |                                                    |          |      |      | 1-Phase    |      | 3-Phase |       |       |       |                                                                                       |                                                                                       |            |
| 40 °C                               |      | 230V                                               | 400/415V | 500V | 690V | 115V       | 230V | 200V    | 230V  | 460V  | 575V  | N.O.                                                                                  | N.C.                                                                                  |            |
| AC-3                                | AC-1 |                                                    |          |      |      |            |      |         |       |       |       |                                                                                       |                                                                                       |            |
| 5                                   | 20   | 1.5                                                | 2.2      | 2.2  | 2.2  | —          | —    | 1-1/2   | 1-1/2 | 3     | 3     | 0                                                                                     | 1                                                                                     | 104-K05⊗02 |
| 9                                   | 20   | 3                                                  | 4        | 4    | 4    | —          | —    | 2       | 2     | 5     | 5     | 0                                                                                     | 1                                                                                     | 104-K09⊗02 |
| 12                                  | 20   | 3                                                  | 5.5      | 5.5  | 5.5  | —          | —    | 3       | 3     | 7-1/2 | 7-1/2 | 0                                                                                     | 1                                                                                     | 104-K12⊗02 |

(1) Used for electrical interlocking

⊗ Coil voltage code — see [page 7](#).

## Coil Voltage Codes

### Coil Voltage Code for screw type terminal versions

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60 Hz: Cat. No. 100-K09Ø10 becomes Cat. No.100-K09D10.

| AC Voltages [V] | 24 | 110 | 120 | 230 | 240 | 400 | 480 | 600 |
|-----------------|----|-----|-----|-----|-----|-----|-----|-----|
| 50 Hz           | —  | D   | —   | —   | —   | —   | —   | —   |
| 60 Hz           | —  | —   | D   | —   | —   | —   | B   | VC  |
| 50/60 Hz        | KJ | —   | —   | KF  | KA  | KN  | —   | —   |

| DC Voltages [V]       | 12 | 24 | 110 | 125 | 220 | 250 |
|-----------------------|----|----|-----|-----|-----|-----|
| Standard              | ZQ | ZJ | ZD  | ZS  | ZA  | ZT  |
| with Integrated Diode | —  | DJ | —   | —   | —   | —   |

### Coil Voltage Code for spring clamp type terminal versions

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60 Hz: Cat. No. 100-KR09Ø10 becomes Cat. No.100-KR09D10.

| AC Voltages [V] | 24 | 110 | 120 | 230 |
|-----------------|----|-----|-----|-----|
| 50 Hz           | —  | D   | —   | —   |
| 60 Hz           | —  | —   | D   | —   |
| 50/60 Hz        | KJ | —   | —   | KF  |

| DC Voltages [V]       | 24 | 110 |
|-----------------------|----|-----|
| Standard              | ZJ | ZD  |
| with Integrated Diode | DJ | —   |

## Assignment of Contacts

Table valid for: AC / DC = 0.85...1.1 x U<sub>s</sub>, T<sub>amb</sub> = -25 °C...+60 °C, normal position (horizontal rail mounting)

### Device Combinations in Accordance with IEC 60947-1 / -4-1

| Auxiliary Contact Blocks <sup>(1)</sup> |                 | 100-K Miniature Contactors (AC and DC Control) |                                        |                                        |                                           |                                           |                                           |
|-----------------------------------------|-----------------|------------------------------------------------|----------------------------------------|----------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
|                                         | Circuit Diagram | Control                                        | 100-K05⊗10<br>100-K09⊗10<br>100-K12⊗10 | 100-K05⊗01<br>100-K09⊗01<br>100-K12⊗01 | 100-K05⊗400<br>100-K09⊗400<br>100-K12⊗400 | 100-K05⊗300<br>100-K09⊗300<br>100-K12⊗300 | 100-K05⊗200<br>100-K09⊗200<br>100-K12⊗200 |
|                                         |                 |                                                |                                        |                                        |                                           |                                           |                                           |
| Front Mounting                          |                 |                                                |                                        |                                        |                                           |                                           |                                           |
| 100-KFA02E                              |                 | AC/DC                                          | (2)                                    | 01 + 02 = 03 <sup>(3)</sup>            | (2)                                       | (2)(3)                                    | —                                         |
| 100-KFC02                               |                 | AC/DC                                          | 10 + 02 = 12                           | —                                      | 00 + 02 = 02                              | 00 + 02 = 02 <sup>(3)</sup>               | —                                         |
| 100-KFA11E                              |                 | AC/DC                                          | (2)                                    | 01 + 11 = 12                           | (2)                                       | (2)                                       | (2)                                       |
| 100-KFB11                               |                 | AC/DC                                          | 10 + 11 = 21                           | —                                      | 00 + 11 = 11                              | 00 + 11 = 11                              | 00 + 11 = 11                              |
| 100-KFC11                               |                 | AC/DC                                          | 10 + 11 = 21                           | (2)                                    | 00 + 11 = 11                              | 00 + 11 = 11                              | 00 + 11 = 11                              |
| 100-KFA20E                              |                 | AC/DC                                          | (2)                                    | 01 + 20 = 21                           | (2)                                       | (2)                                       | (2)                                       |
| 100-KFC20                               |                 | AC/DC                                          | 10 + 20 = 30                           | (2)                                    | 00 + 20 = 20                              | 00 + 20 = 20                              | 00 + 20 = 20                              |
| 100-KFA04E                              |                 | AC/DC                                          | (2)(3)                                 | —                                      | (2)(3)                                    | —                                         | —                                         |
| 100-KFC04                               |                 | AC/DC                                          | 10 + 04 = 14 <sup>(3)</sup>            | —                                      | 00 + 04 = 04 <sup>(3)</sup>               | —                                         | —                                         |
| 100-KFA13E                              |                 | AC/DC                                          | (2)                                    | 01 + 13 = 14 <sup>(3)</sup>            | (2)                                       | (2)(3)                                    | —                                         |
| 100-KFC13                               |                 | AC/DC                                          | 10 + 13 = 23                           | (2)(3)                                 | 00 + 13 = 13                              | 00 + 13 = 13 <sup>(3)</sup>               | —                                         |
| 100-KFA22Z                              |                 | AC/DC                                          | (2)                                    | 01 + 22 = 23 <sup>(3)</sup>            | (2)                                       | (2)(3)                                    | —                                         |
| 100-KFB22                               |                 | AC/DC                                          | 10 + 22 = 32                           | —                                      | 00 + 22 = 22                              | 00 + 22 = 22 <sup>(3)</sup>               | —                                         |
| 100-KFC22                               |                 | AC/DC                                          | 10 + 22 = 32                           | (2)(3)                                 | 00 + 22 = 22                              | 00 + 22 = 22 <sup>(3)</sup>               | —                                         |
| 100-KFA31Z                              |                 | AC/DC                                          | (2)                                    | —                                      | (2)(4)                                    | —                                         | —                                         |

| Auxiliary Contact Blocks <sup>(1)</sup> |                 | 100-K Miniature Contactors (AC and DC Control) |                                        |                                        |                                           |                                           |                                           |
|-----------------------------------------|-----------------|------------------------------------------------|----------------------------------------|----------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
|                                         | Circuit Diagram | Control                                        | 100-K05⊗10<br>100-K09⊗10<br>100-K12⊗10 | 100-K05⊗01<br>100-K09⊗01<br>100-K12⊗01 | 100-K05⊗400<br>100-K09⊗400<br>100-K12⊗400 | 100-K05⊗300<br>100-K09⊗300<br>100-K12⊗300 | 100-K05⊗200<br>100-K09⊗200<br>100-K12⊗200 |
|                                         |                 |                                                |                                        |                                        |                                           |                                           |                                           |
| 100-KFC31                               |                 | AC/DC                                          | 10 + 31 = 41 <sup>(4)</sup>            | —                                      | 00 + 31 = 31 <sup>(4)</sup>               | —                                         | —                                         |
| 100-KFA40E                              |                 | AC/DC                                          | (2)                                    |                                        | (2)                                       | (2)                                       | (2)                                       |
| 100-KFC40                               |                 | AC/DC                                          | 10 + 40 = 50                           | (2)                                    | 00 + 40 = 40                              | 00 + 40 = 40                              | 00 + 40 = 40                              |

(1) For other operating limits, please contact your local Rockwell Automation sales office or Allen-Bradley distributor

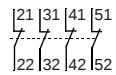
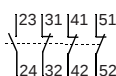
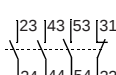
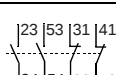
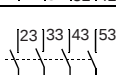
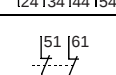
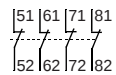
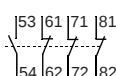
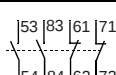
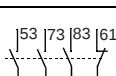
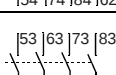
(2) Combination possible but not recommended, due to repeating or not consecutive sequence numbering

(3)  $T_{amb}$  max. +40 °C

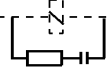
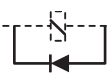
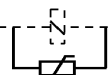
(4)  $T_{amb}$  max. +40 °C and only allowed for coil voltage 24V DC or 230V AC

# Accessories

## Auxiliary Contact Blocks

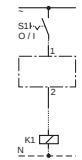
|                                                                                     | Description                                                                                                                                                                                                                                                                                                                                            | Connection Diagrams                                                                 |  |  | For Use With     | Pkg. Qty. | Cat. No.             |                        |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------|-----------|----------------------|------------------------|
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |                                                                                     | N.O.                                                                              | N.C.                                                                              |                  |           | Screw Type Terminals | Spring Clamp Terminals |
|    |                                                                                                                                                                                                                                                                                                                                                        |    | 0                                                                                 | 2                                                                                 | 100-K05...K12    | 1         | 100-KFC02            | 100-KRFC02             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |    | 1                                                                                 | 1                                                                                 | 100-K05...K12    | 1         | 100-KFC11            | 100-KRFC11             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |    | 2                                                                                 | 0                                                                                 | 100-K05...K12    | 1         | 100-KFC20            | 100-KRFC20             |
|    | Front-Mounted Auxiliary Contacts <ul style="list-style-type: none"> <li>Auxiliary contact blocks 2- and 4-pole versions</li> <li>Choice of contact configurations</li> <li>Snap on, no tools required</li> <li>Electronic-compatible bifurcated contacts for signals down to 15V/2 mA</li> <li>Mirror Contact performance per IEC 60947-4-1</li> </ul> |    | 0                                                                                 | 4                                                                                 | 100-K05...K12    | 1         | 100-KFC04            | 100-KRFC04             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |    | 1                                                                                 | 3                                                                                 | 100-K05...K12    | 1         | 100-KFC13            | 100-KRFC13             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |    | 3                                                                                 | 1                                                                                 | 100-K05...K12    | 1         | 100-KFC31            | 100-KRFC31             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |   | 2                                                                                 | 2                                                                                 | 100-K05...K12    | 1         | 100-KFC22            | 100-KRFC22             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |  | 4                                                                                 | 0                                                                                 | 100-K05...K12    | 1         | 100-KFC40            | 100-KRFC40             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |  | 0                                                                                 | 2                                                                                 | 100/104-K, 700-K | 1         | 100-KFA02E           | 100-KRFA02E            |
|  |                                                                                                                                                                                                                                                                                                                                                        |  | 1                                                                                 | 1                                                                                 | 100/104-K, 700-K | 1         | 100-KFA11E           | 100-KRFA11E            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |  | 2                                                                                 | 0                                                                                 | 100/104-K, 700-K | 1         | 100-KFA20E           | 100-KRFA20E            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |  | 0                                                                                 | 4                                                                                 | 100/104-K, 700-K | 1         | 100-KFA04E           | 100-KRFA04E            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |  | 1                                                                                 | 3                                                                                 | 100/104-K, 700-K | 1         | 100-KFA13E           | 100-KRFA13E            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |  | 2                                                                                 | 2                                                                                 | 100/104-K, 700-K | 1         | 100-KFA22Z           | 100-KRFA22Z            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |  | 3                                                                                 | 1                                                                                 | 100/104-K, 700-K | 1         | 100-KFA31Z           | 100-KRFA31Z            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |  | 4                                                                                 | 0                                                                                 | 100/104-K, 700-K | 1         | 100-KFA40E           | 100-KRFA40E            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |                                                                                     |                                                                                   |                                                                                   |                  |           |                      |                        |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                        |                                                                                     |                                                                                   |                                                                                   |                  |           |                      |                        |

## Control Modules

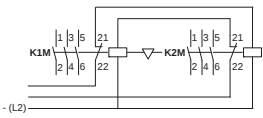
|                                                                                   | Description                                                                                                                                                                                                                                                                          |                  |                              | Connection Diagrams                                                                | For Use With                | Pkg. Qty.        | Cat. No.    |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------|------------------------------------------------------------------------------------|-----------------------------|------------------|-------------|
|  | Mechanical Interlock <ul style="list-style-type: none"> <li>For interlocking of two adjacent contactors No added width to contactor assembly</li> <li>Front mount plug-in type</li> <li>Optional auxiliary contact blocks and suppressor modules mount onto the interlock</li> </ul> |                  |                              |  | 100/104-K/-KR,<br>700-K/-KR | 1                | 100-KMCH    |
|  | Surge Suppressor <ul style="list-style-type: none"> <li>Plug-in type</li> <li>Limits surge voltage on coil drop-off</li> </ul>                                                                                                                                                       | RC Suppressor    | 24...48V AC                  |  | 100/104-K/-KR,<br>700-K/-KR | 1 <sup>(1)</sup> | 100-KFSC50  |
|                                                                                   |                                                                                                                                                                                                                                                                                      |                  | 110...280V AC                |                                                                                    |                             | 1 <sup>(1)</sup> | 100-KFSC280 |
|                                                                                   |                                                                                                                                                                                                                                                                                      |                  | 380...480V AC                |                                                                                    |                             | 1 <sup>(1)</sup> | 100-KFSC480 |
|                                                                                   |                                                                                                                                                                                                                                                                                      | MOV Suppressor   | 12...55V AC, 12...77V DC     |  | 100/104-K/-KR,<br>700-K/-KR | 1 <sup>(1)</sup> | 100-KFSV55  |
|                                                                                   |                                                                                                                                                                                                                                                                                      |                  | 56...136V AC, 78...180V DC   |                                                                                    |                             | 1 <sup>(1)</sup> | 100-KFSV136 |
|                                                                                   |                                                                                                                                                                                                                                                                                      |                  | 137...277V AC, 181...250V DC |                                                                                    |                             | 1 <sup>(1)</sup> | 100-KFSV277 |
|                                                                                   |                                                                                                                                                                                                                                                                                      | Diode Suppressor | 12...250V DC                 |  | 100/104-K/-KR,<br>700-K/-KR | 1 <sup>(1)</sup> | 100-KFSD250 |

(1) May be ordered in package quantities of 10. Add letter M to the end of the cat. no. Example: 100-KFSC50M.

## Timers

|                                                                                    | Description                                                                                                                               |                        | Connection Diagrams                                                                | For Use With     | Pkg. Qty. | Cat. No.  |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------------------------------|------------------|-----------|-----------|
|  | Solid-State Timing Element <ul style="list-style-type: none"> <li>110...250V AC or DC</li> <li>Includes 35 mm Hat Rail adapter</li> </ul> | On-Delay,<br>0.1...3 s |  | 100/104-K, 700-K | 10        | 100-KT3S  |
|                                                                                    |                                                                                                                                           | On-Delay,<br>1...30 s  |                                                                                    |                  |           | 100-KT30S |

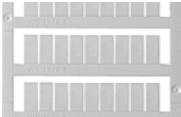
## Connecting Components

|                                                                                     | Description                                                                                                                                                                                                                                                 |                                                                                      | For Use With    | Pkg. Qty.        | Cat. No.     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------|------------------|--------------|
|  | ECO Connecting Module — 12 A <ul style="list-style-type: none"><li>For DOL and reversing starters</li><li>Eco-starters mount on single DIN Rail (140M on DIN Rail)</li><li>Electrical and mechanical interconnection of 140M and 100-K contactors</li></ul> | Connects:<br>140M-C circuit breakers with 100-K contactors                           | 140M-C to 100-K | 1 <sup>(1)</sup> | 140M-C-PEK12 |
|  | Power Wiring Kit <ul style="list-style-type: none"><li>For Reversing and Star/Delta combinations. Star-point bridge not included.</li><li>Min. interruption time 50 ms</li></ul>                                                                            |  | 100-K           | 1                | 100-KPR      |
|  | Feeder Terminal for Compact Bus Bars <ul style="list-style-type: none"><li>Max. current 34 A</li></ul>                                                                                                                                                      | Supply of compact bus bars                                                           | 100-K           | 1                | 100-KWT      |
|  | Three-Phase Compact Bus Bars <ul style="list-style-type: none"><li>Max. current 34 A</li></ul>                                                                                                                                                              | For 100SK, 5...12 A contactors 45 mm spacing (3 connections) <sup>(2)</sup>          | 100-K           | 1                | 100-KW453    |
|                                                                                     |                                                                                                                                                                                                                                                             | For 100-K, 5...12 A contactors 45 mm spacing (4 connections) <sup>(2)</sup>          | 100-K           | 1                | 100-KW454    |

(1) May be ordered in package quantities of 10. Add letter M to the end of the cat. no. Example: 140M-C-PEK12M.

(2) Combinations possible. Example: For 6 contactor connections use one cat. no. 100-KW453 and one cat. no. 100-KW454.

**Marking Systems**

|                                                                                   | Description                                                                                                  | Pkg. Qty. | Cat. No.   |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------|------------|
|  | Label Sheet <ul style="list-style-type: none"><li>• 105 self-adhesive paper labels each, 6 x 17 mm</li></ul> | 10        | 100-FMS    |
|  | Snap-In Marker Card                                                                                          | 5         | 1492-M6X12 |

# Specifications

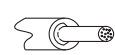
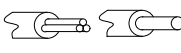
|                                                                                   |       |      | 100-KR |     | 100/104-K |      |      |
|-----------------------------------------------------------------------------------|-------|------|--------|-----|-----------|------|------|
|                                                                                   |       |      | 05     | 09  | 05        | 09   | 12   |
| <b>AC-1 Active Power Load (50 Hz); Ambient temperature 40 °C</b>                  |       |      |        |     |           |      |      |
| Rated Operational Current, $I_e$                                                  | ≤500V | [A]  | 10     | 10  | 20        | 20   | 20   |
|                                                                                   | 690V  | [A]  | 10     | 10  | 20        | 20   | 20   |
|                                                                                   | 230V  | [kW] | 4      | 4   | 8         | 8    | 8    |
|                                                                                   | 240V  | [kW] | 4      | 4   | 8.3       | 8.3  | 8.3  |
|                                                                                   | 400V  | [kW] | 6.9    | 6.9 | 14        | 14   | 14   |
|                                                                                   | 415V  | [kW] | 7      | 7   | 14        | 14   | 14   |
|                                                                                   | 500V  | [kW] | 8.7    | 8.7 | 17        | 17   | 17   |
|                                                                                   | 690V  | [kW] | 12     | 12  | 24        | 24   | 24   |
| <b>AC-1 Active Power Load (50 Hz); Ambient temperature 60 °C</b>                  |       |      |        |     |           |      |      |
| Rated Operational Current, $I_e$                                                  | ≤500V | [A]  | 10     | 10  | 16        | 16   | 16   |
|                                                                                   | 690V  | [A]  | 10     | 10  | 16        | 16   | 16   |
|                                                                                   | 230V  | [kW] | 4      | 4   | 6.4       | 6.4  | 6.4  |
|                                                                                   | 240V  | [kW] | 4      | 4   | 6.7       | 6.7  | 6.7  |
|                                                                                   | 400V  | [kW] | 6.9    | 6.9 | 11        | 11   | 11   |
|                                                                                   | 415V  | [kW] | 7      | 7   | 12        | 12   | 12   |
|                                                                                   | 500V  | [kW] | 8.7    | 8.7 | 14        | 14   | 14   |
|                                                                                   | 690V  | [kW] | 12     | 12  | 19        | 19   | 19   |
| <b>Switching of 3-phase Motors; (50 Hz) Ambient temperature 60 °C, AC-2, AC-3</b> |       |      |        |     |           |      |      |
| Rated Operational Current, $I_e$                                                  | 230V  | [A]  | 6.3    | 8.5 | 6.3       | 11.3 | 11.3 |
|                                                                                   | 240V  | [A]  | 6.3    | 8.5 | 6.3       | 11.3 | 11.3 |
|                                                                                   | 400V  | [A]  | 4.9    | 8.5 | 4.9       | 8.5  | 11.5 |
|                                                                                   | 415V  | [A]  | 4.9    | 8.5 | 4.9       | 8.5  | 11.5 |
|                                                                                   | 500V  | [A]  | 3.9    | 6.8 | 3.9       | 6.8  | 9.2  |
|                                                                                   | 690V  | [A]  | 2.8    | 4.9 | 2.8       | 4.9  | 6.7  |
|                                                                                   | 230V  | [kW] | 1.5    | 2.2 | 1.5       | 3    | 3    |
|                                                                                   | 240V  | [kW] | 1.5    | 2.2 | 1.5       | 3    | 3    |
|                                                                                   | 400V  | [kW] | 2.2    | 4   | 2.2       | 4    | 5.5  |
|                                                                                   | 415V  | [kW] | 2.2    | 4   | 2.2       | 4    | 5.5  |
|                                                                                   | 500V  | [kW] | 2.2    | 4   | 2.2       | 4    | 5.5  |
|                                                                                   | 690V  | [kW] | 2.2    | 4   | 2.2       | 4    | 5.5  |
| <b>Load Carrying Capacity per UL/CSA</b>                                          |       |      |        |     |           |      |      |
| General Purpose Current (enclosed)                                                |       | [A]  | 9      | 9   | 12        | 15   | 18   |
| Rated power (enclosed)<br>1-phase                                                 | 115V  | [A]  | 7.2    | 7.2 | 9.8       | 9.8  | 13.8 |
|                                                                                   | 230V  | [A]  | 6.9    | 8   | 8         | 10   | 12   |
|                                                                                   | 115V  | [Hp] | 1/3    | 1/3 | 0.5       | 0.5  | 0.75 |
|                                                                                   | 230V  | [Hp] | 3/4    | 1   | 1         | 1.5  | 2    |
| Rated power (enclosed)<br>3-phase                                                 | 200V  | [A]  | 6.9    | 7.8 | 6.9       | 7.8  | 11   |
|                                                                                   | 230V  | [A]  | 6      | 6.8 | 6         | 6.8  | 9.6  |
|                                                                                   | 460V  | [A]  | 4.8    | 7.6 | 4.8       | 7.6  | 11   |
|                                                                                   | 575V  | [A]  | 3.9    | 6.1 | 3.9       | 6.1  | 9    |
|                                                                                   | 200V  | [Hp] | 1.5    | 2   | 1.5       | 2    | 3    |
|                                                                                   | 230V  | [Hp] | 1.5    | 2   | 1.5       | 2    | 3    |
|                                                                                   | 460V  | [Hp] | 3      | 5   | 3         | 5    | 7.5  |
|                                                                                   | 575V  | [Hp] | 3      | 5   | 3         | 5    | 7.5  |

| 100/104-K                                                                    |                          |          | 05   | 09   | 12   |
|------------------------------------------------------------------------------|--------------------------|----------|------|------|------|
| <b>Switching of 3-phase Motors, (50 Hz); Ambient temperature 60 °C, AC-4</b> |                          |          |      |      |      |
|                                                                              | 230V                     | [A]      | 6.3  | 11.3 | 11.3 |
|                                                                              | 240V                     | [A]      | 6.3  | 11.3 | 11.3 |
|                                                                              | 400V                     | [A]      | 4.9  | 8.5  | 11.5 |
|                                                                              | 415V                     | [A]      | 4.9  | 8.5  | 11.5 |
|                                                                              | 500V                     | [A]      | 3.9  | 6.8  | 9.2  |
|                                                                              | 690V                     | [A]      | 2.8  | 4.9  | 6.7  |
|                                                                              | 230V                     | [Hp]     | 1.5  | 3    | 3    |
|                                                                              | 240V                     | [Hp]     | 1.5  | 3    | 3    |
|                                                                              | 400V                     | [Hp]     | 2.2  | 4    | 5.5  |
|                                                                              | 415V                     | [Hp]     | 2.2  | 4    | 5.5  |
|                                                                              | 500V                     | [Hp]     | 2.2  | 4    | 5.5  |
|                                                                              | 690V                     | [Hp]     | 2.2  | 4    | 5.5  |
| <b>AC-4 at approximately 200,000 operations</b>                              |                          |          |      |      |      |
|                                                                              | 230V                     | [A]      | 2.3  | 3.9  | 3.9  |
|                                                                              | 240V                     | [A]      | 2.3  | 3.9  | 3.9  |
|                                                                              | 400/415V                 | [A]      | 2    | 3.6  | 3.6  |
|                                                                              | 500V                     | [A]      | 1.9  | 3.2  | 3.2  |
|                                                                              | 230V <sup>(1)</sup>      | [Hp]     | 0.37 | 0.75 | 0.75 |
|                                                                              | 240V <sup>(1)</sup>      | [Hp]     | 0.37 | 0.75 | 0.75 |
|                                                                              | 400V <sup>(1)</sup>      | [Hp]     | 0.75 | 1.5  | 1.5  |
|                                                                              | 415V <sup>(1)</sup>      | [Hp]     | 0.75 | 1.5  | 1.5  |
|                                                                              | 500V <sup>(1)</sup>      | [Hp]     | 0.75 | 1.5  | 1.5  |
|                                                                              | Max. switching frequency | Ops/hour | 250  | 250  | 250  |
| <b>Wye-Delta (60 Hz)</b>                                                     |                          |          |      |      |      |
|                                                                              | 200V                     | [Hp]     | 2.2  | 3    | 5    |
|                                                                              | 230V                     | [Hp]     | 2.2  | 3    | 5    |
|                                                                              | 460V                     | [Hp]     | 5    | 7.5  | 10   |
|                                                                              | 575V                     | [Hp]     | 5    | 7.5  | 10   |
| <b>Star-Delta Starting (50 Hz)</b>                                           |                          |          |      |      |      |
|                                                                              | ≤ 230V                   | [A]      | 11.3 | 20   | 20   |
|                                                                              | ≤ 240V                   | [A]      | 11.3 | 20   | 20   |
|                                                                              | 400V                     | [A]      | 8.5  | 15.5 | 15.5 |
|                                                                              | 415V                     | [A]      | 8.5  | 15.5 | 15.5 |
|                                                                              | 500V                     | [A]      | 6.8  | 12.4 | 12.4 |
|                                                                              | 690V                     | [A]      | 4.9  | 8.9  | 8.9  |
|                                                                              | 230V <sup>(1)</sup>      | [kW]     | 3    | 5.5  | 5.5  |
|                                                                              | 240V <sup>(1)</sup>      | [kW]     | 3    | 5.5  | 5.5  |
|                                                                              | 400V <sup>(1)</sup>      | [kW]     | 4    | 7.5  | 7.5  |
|                                                                              | 415V <sup>(1)</sup>      | [kW]     | 4    | 7.5  | 7.5  |
|                                                                              | 500V <sup>(1)</sup>      | [kW]     | 4    | 7.5  | 7.5  |
|                                                                              | 690V <sup>(1)</sup>      | [kW]     | 4    | 7.5  | 7.5  |

(1) Power ratings at 50 Hz: Preferred values according to IEC 60072-1

| 100/104-K                                                                                                    |          |       | 05   | 09    | 12    |
|--------------------------------------------------------------------------------------------------------------|----------|-------|------|-------|-------|
| <b>Switching of Power Transformers, AC-6a (50 Hz)</b>                                                        |          |       |      |       |       |
| Inrush Current                                                                                               | =n       |       |      |       |       |
| Rated transformer current                                                                                    |          |       |      |       |       |
| n= 30                                                                                                        | ≤ 230V   | [A]   | 2.9  | 5.4   | 5.4   |
|                                                                                                              | ≤ 240V   | [A]   | 2.9  | 5.4   | 5.4   |
|                                                                                                              | ≤ 400V   | [A]   | 2.4  | 4.1   | 5.4   |
|                                                                                                              | ≤ 415V   | [A]   | 2.4  | 4.1   | 5.4   |
|                                                                                                              | ≤ 500V   | [A]   | 1.8  | 3.2   | 3.2   |
|                                                                                                              | 230V     | [kVA] | 1.2  | 2     | 2     |
|                                                                                                              | 240V     | [kVA] | 1.2  | 2     | 2     |
|                                                                                                              | 400V     | [kVA] | 1.7  | 2.8   | 3.4   |
|                                                                                                              | 415V     | [kVA] | 1.7  | 2.8   | 3.4   |
|                                                                                                              | 500V     | [kVA] | 1.7  | 2.8   | 3.4   |
|                                                                                                              | 690V     | [kVA] | 2    | 4     | 5     |
| <b>Switching of Lamps</b>                                                                                    |          |       |      |       |       |
| Gas discharge lamps AC-5a, 40 °C                                                                             |          |       |      |       |       |
| open                                                                                                         | [A]      |       | 18   | 18    | 18    |
| enclosed                                                                                                     | [A]      |       | 14.5 | 14.5  | 14.5  |
| Individually compensated:                                                                                    |          |       |      |       |       |
| Max. capacitance at expected                                                                                 |          |       |      |       |       |
| Short-circuit current of                                                                                     | 10 kA    | [μF]  | 750  | 750   | 750   |
|                                                                                                              | 20 kA    | [μF]  | 400  | 400   | 400   |
| Filament AC-5b                                                                                               | 230/240V | [A]   | 5    | 9     | 9     |
| <b>Switching of Low Inductive Loads in Home Appliances and Similar Applications per IEC 61095 (50 Hz)</b>    |          |       |      |       |       |
| AC-7a                                                                                                        | 230V     | [A]   | 20   | 20    | 20    |
|                                                                                                              | 400V     | [A]   | 20   | 20    | 20    |
| <b>Switching of Motor Load for Home Appliances (50 Hz)</b>                                                   |          |       |      |       |       |
| AC-7b                                                                                                        | 230V     | [A]   | 6    | 11    | 11    |
|                                                                                                              | 400V     | [A]   | 6    | 11    | 11    |
| <b>Switching of Hermetically Sealed Cooling Compressor Motors - manual reset of overload release (50 Hz)</b> |          |       |      |       |       |
| AC-8a                                                                                                        | 400V     | [A]   | 11   | 18    | 18    |
|                                                                                                              | 500V     | [A]   | 10   | 15    | 15    |
| <b>Switching of DC Loads</b>                                                                                 |          |       |      |       |       |
| Non-inductive or slightly inductive loads or resistance furnaces DC-1, 60 °C                                 |          |       |      |       |       |
| 1 pole                                                                                                       | 24V      | [A]   | 6    | 9     | 9     |
|                                                                                                              | 48/60V   | [A]   | 4/1  | 6/1.5 | 6/1.5 |
|                                                                                                              | 110V     | [A]   | 0.6  | 1     | 1     |
|                                                                                                              | 220V     | [A]   | 0.2  | 0.3   | 0.3   |
|                                                                                                              | 440V     | [A]   | 0.08 | 0.1   | 0.1   |
| 2 poles in series                                                                                            | 24V      | [A]   | 6    | 9     | 9     |
|                                                                                                              | 48/60V   | [A]   | 6    | 8     | 8     |
|                                                                                                              | 110V     | [A]   | 4    | 6     | 6     |
|                                                                                                              | 220V     | [A]   | 0.8  | 1.2   | 1.2   |
|                                                                                                              | 440V     | [A]   | 0.2  | 0.3   | 0.3   |
| 3 poles in series                                                                                            | 24V      | [A]   | 6    | 9     | 9     |
|                                                                                                              | 48/60V   | [A]   | 6    | 9     | 9     |
|                                                                                                              | 110V     | [A]   | 6    | 9     | 9     |
|                                                                                                              | 220V     | [A]   | 3    | 4     | 4     |
|                                                                                                              | 440V     | [A]   | 0.4  | 0.6   | 0.6   |

| 100/104-K                                                                 |                         |           | 05          | 09  | 12  |
|---------------------------------------------------------------------------|-------------------------|-----------|-------------|-----|-----|
| <b>Shunt-wound Motors</b>                                                 |                         |           |             |     |     |
| <b>Starting, reverse current braking, reversing, stepping DC-3, 60 °C</b> |                         |           |             |     |     |
| 3 poles in series                                                         | 24V                     | [A]       | 5           | 9   | 9   |
|                                                                           | 48/60V                  | [A]       | 4           | 6   | 6   |
|                                                                           | 110V                    | [A]       | 2           | 3   | 3   |
|                                                                           | 220V                    | [A]       | 0.8         | 1.2 | 1.2 |
|                                                                           | 440V                    | [A]       | 0.15        | 0.2 | 0.2 |
| <b>Series-wound Motors</b>                                                |                         |           |             |     |     |
| <b>Starting, reverse current braking, reversing, stepping DC-5, 60 °C</b> |                         |           |             |     |     |
| 3 poles in series                                                         | 24V                     | [A]       | 5           | 9   | 9   |
|                                                                           | 48/60V                  | [A]       | 2           | 3   | 3   |
|                                                                           | 110V                    | [A]       | 0.6         | 1   | 1   |
|                                                                           | 220V                    | [A]       | 0.1         | 0.1 | 0.1 |
| Short Time Withstand $I_{CW}$ , 60 °C                                     | 10 s                    | [A]       | 60          | 96  | 96  |
| <b>Resistance and Power Dissipation</b>                                   |                         |           |             |     |     |
| Main current circuit resistance                                           | [mΩ]                    |           | 2.2         | 2.2 | 2.2 |
| Power dissipation by all circuits at $I_e$ AC-3/400V                      | [W]                     |           | 0.3         | 0.9 | 0.9 |
| <b>Total power dissipation</b>                                            |                         |           |             |     |     |
| At $I_e$ AC-3/400V                                                        | AC control              | [W]       | 2.1         | 2.7 | 2.7 |
|                                                                           | DC control (electronic) | [W]       | 2.9         | 3.5 | 3.5 |
| <b>Lifespan</b>                                                           |                         |           |             |     |     |
| Mechanical AC control                                                     | [Mil. operations]       |           | 15          | 15  | 15  |
| Mechanical DC control                                                     | [Mil. operations]       |           | 15          | 15  | 15  |
| Electrical AC-3 (400 V)                                                   | [Mil. operations]       |           | 0.7         | 0.7 | 0.7 |
| <b>Weight</b>                                                             |                         |           |             |     |     |
| AC                                                                        | Non-Rev.                | kg (lbs.) | 0.16 (0.35) |     |     |
|                                                                           | Rev.                    | kg (lbs.) | 0.4 (0.88)  |     |     |
| DC                                                                        | Non-Rev.                | kg (lbs.) | 0.2 (0.44)  |     |     |
|                                                                           | Rev.                    | kg (lbs.) | 0.48 (1.06) |     |     |

|                                                                                      |              | 100-KR                                                                                |                           | 100/104-K                                                                                            |    |    |
|--------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------|----|----|
|                                                                                      |              | 05                                                                                    | 09                        | 05                                                                                                   | 09 | 12 |
| Conductor Cross Sections - Main Contacts Terminal type                               |              |  |                           |  <sup>(1)</sup> |    |    |
|   | 1 conductor  | [mm <sup>2</sup> ]                                                                    | 0.50...2.5                | 0.75...2.5                                                                                           |    |    |
|                                                                                      | 2 conductors | [mm <sup>2</sup> ]                                                                    | 0.50...2.5                | 0.75...2.5                                                                                           |    |    |
|  | 1 conductor  | [mm <sup>2</sup> ]                                                                    | 0.75...2.5 <sup>(2)</sup> | 1...4                                                                                                |    |    |
|                                                                                      | 2 conductors | [mm <sup>2</sup> ]                                                                    | 0.75...2.5 <sup>(2)</sup> | 1...2.5+1...4                                                                                        |    |    |
| Recommended torque                                                                   |              | [N·m]                                                                                 | —                         | 1.2                                                                                                  |    |    |
| Cross section per UL/CSA                                                             |              | [AWG]                                                                                 | 18...14 <sup>(2)</sup>    | 18...12                                                                                              |    |    |
| Recommended torque                                                                   |              | [lb-in]                                                                               | —                         | 10.6                                                                                                 |    |    |

(1) Pozidriv No. 2 / Blade No. 3 screw

(2) Fine- or coarse-stranded only

## Short-Circuit Coordination Data

See <https://www.rockwellautomation.com/global/support/global-sccr.page> for complete short-circuit current ratings.

| 100/104-K                                                                                                            |     | 05                            | 09 | 12 |
|----------------------------------------------------------------------------------------------------------------------|-----|-------------------------------|----|----|
| <b>Short Circuit Coordination (Max. Fuse or Circuit Breaker Rating) Per IEC 60947-4-1 (contactor and fuses only)</b> |     |                               |    |    |
| DIN Fuses- gG, gL                                                                                                    |     | 50 kA Available Fault Current |    |    |
| Type "1"(690V)                                                                                                       | [A] | 35                            | 35 | 35 |
| Type "2"(400V)                                                                                                       | [A] | 16                            | 20 | 20 |
| <b>Per UL 508 and CSA 22.2 No. 14 (contactor and fuses or circuit breaker only)</b>                                  |     |                               |    |    |
| <b>UL Class K5 and RK5 Fuses</b>                                                                                     |     | 5 kA Available Fault Current  |    |    |
| UL Listed Combination (600V)                                                                                         | [A] | 40                            | 40 | 40 |
| <b>UL Class CC and CSA HRCI-MISC Fuses</b>                                                                           |     |                               |    |    |
| UL Listed Combination (600V)                                                                                         | [A] | 30                            | 30 | 30 |
| <b>UL Class J and CSA HRCI-J Fuses</b>                                                                               |     | 50 kA Available Fault Current |    |    |
| UL Listed Combination (600V)                                                                                         | [A] | 30                            | 30 | 30 |

## Coil Data

| 100/104-K              |               |                     | 05                                     | 09 | 12 |
|------------------------|---------------|---------------------|----------------------------------------|----|----|
| Operating Limits       |               |                     |                                        |    |    |
| 50 Hz, 60 Hz, 50/60 Hz | pick-up       | [x U <sub>s</sub> ] | 0.85...1.1                             |    |    |
|                        | dropout       | [x U <sub>s</sub> ] | 0.2...0.75                             |    |    |
| DC (conventional)      | pick-up       | [x U <sub>s</sub> ] | 0.8...1.1<br>0.7...1.25 <sup>(1)</sup> |    |    |
|                        | dropout       | [x U <sub>s</sub> ] | 0.1...0.75                             |    |    |
| Coil Consumption       |               |                     |                                        |    |    |
| 50 Hz, 60 Hz, 50/60 Hz | pick-up       | [VA]                | 35                                     |    |    |
|                        | hold-in       | [VA/W]              | 5/1.8                                  |    |    |
| DC (conventional)      | pick-up       | [W]                 | cold 3.0, warm 2.6                     |    |    |
|                        | hold-in       | [W]                 | cold 3.0, warm 2.6                     |    |    |
| Operating Times        |               |                     |                                        |    |    |
| AC                     | closing delay | [ms]                | 15...40                                |    |    |
|                        | opening delay | [ms]                | 15...33                                |    |    |
| With RC module         | closing delay | [ms]                | 15...28                                |    |    |
| DC (conventional)      | opening delay | [ms]                | 18...40                                |    |    |
|                        | closing delay | [ms]                | 6...12                                 |    |    |
| With integrated diode  | opening delay | [ms]                | 8...12                                 |    |    |
| With external diode    | opening delay | [ms]                | 35...50                                |    |    |

(1) For 9, 12, 24, and 110V DC coils

## Auxiliary Contacts and Auxiliary Contact Blocks

| Conventional Coils                                                 |                                                                                       |     | Internal   | Front mounted |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----|------------|---------------|
| Switching of AC Loads                                              |                                                                                       |     |            |               |
| AC-12 $I_{th}$                                                     | at 40 °C                                                                              | [A] | 10         | 10            |
|                                                                    | at 60 °C                                                                              | [A] | 6          | 6             |
| AC-15 at rated voltage of                                          | 24V                                                                                   | [A] | 6          | 3             |
|                                                                    | 42/48V                                                                                | [A] | 6          | 3             |
|                                                                    | 120V                                                                                  | [A] | 6          | 3             |
|                                                                    | 230V                                                                                  | [A] | 3          | 2             |
|                                                                    | 240V                                                                                  | [A] | 3          | 2             |
|                                                                    | 400V                                                                                  | [A] | 1.8        | 1.2           |
|                                                                    | 415V                                                                                  | [A] | 1.8        | 1.2           |
|                                                                    | 500V                                                                                  | [A] | 1.4        | 1.0           |
|                                                                    | 690V                                                                                  | [A] | 1.0        | 0.6           |
| Switching of DC Loads                                              |                                                                                       |     |            |               |
| DC-12 L/R < 1 ms resistive loads at                                | 24V DC                                                                                | [A] | 6          | —             |
|                                                                    | 48V DC                                                                                | [A] | 4          | —             |
|                                                                    | 110V DC                                                                               | [A] | 0.6        | —             |
|                                                                    | 220V DC                                                                               | [A] | 0.2        | —             |
|                                                                    | 440V DC                                                                               | [A] | 0.08       | —             |
| DC-14L/R <15 ms inductive loads with economy resistor in series at | 24V DC                                                                                | [A] | 4          | —             |
|                                                                    | 48V DC                                                                                | [A] | 2.5        | —             |
|                                                                    | 110V DC                                                                               | [A] | 0.4        | —             |
|                                                                    | 220V DC                                                                               | [A] | 0.12       | —             |
|                                                                    | 440V DC                                                                               | [A] | 0.05       | —             |
| DC-13 switching electromagnets at                                  | 24V DC                                                                                | [A] | 2.8        | 2.3           |
|                                                                    | 48V DC                                                                                | [A] | 1.2        | 1             |
|                                                                    | 110V DC                                                                               | [A] | 0.55       | 0.55          |
|                                                                    | 220V DC                                                                               | [A] | 0.27       | 0.27          |
|                                                                    | 440V DC                                                                               | [A] | 0.15       | 0.15          |
| Fuse gG                                                            |  | [A] | 10         | 10            |
|                                                                    |  | [A] | 10         | 10            |
| Min. switching capacity according to IEC 60947-5-4                 |                                                                                       |     | 15V/ 10 mA | 15V/ 2 mA     |
| Load Carrying Capacity per UL/CSA                                  |                                                                                       |     |            |               |
| Rated voltage                                                      | AC                                                                                    | [V] | max.600    |               |
| Continuous rating                                                  | 40 °C                                                                                 | [A] | 10         |               |
| Switching capacity                                                 | AC                                                                                    | [A] | A600       | B600          |
| Rated voltage                                                      | DC                                                                                    | [V] | max.600    |               |
| Switching capacity                                                 | DC                                                                                    | [A] | Q600       |               |

## General

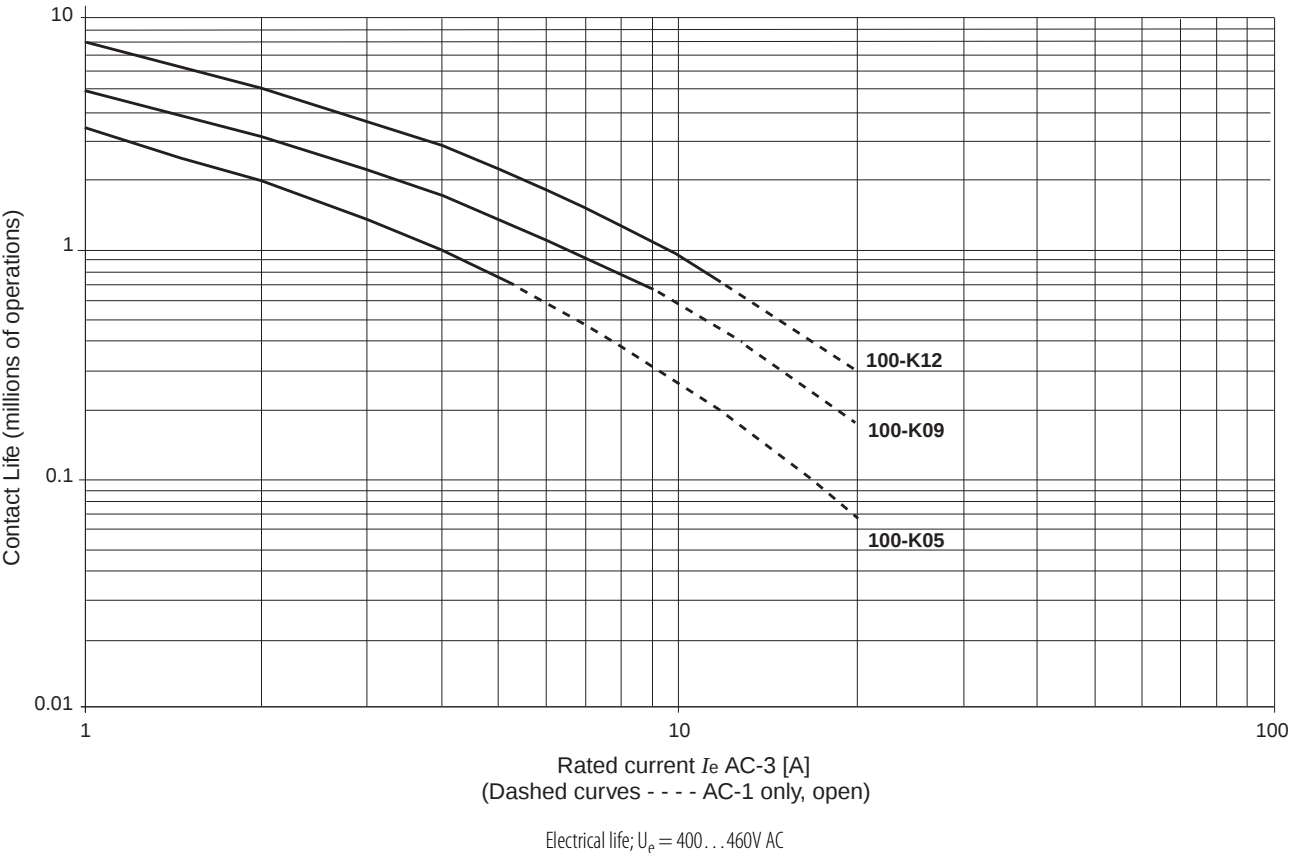
| Attribute                                          |      | Value                                                           |
|----------------------------------------------------|------|-----------------------------------------------------------------|
| <b>Rated Isolation Voltage <math>U_i</math></b>    |      |                                                                 |
| IEC                                                | [V]  | 690                                                             |
| UL_CSA                                             | [V]  | 600                                                             |
| Rated Impulse Voltage Withstand $U_{imp}$          | [kV] | 6                                                               |
| <b>Rated Voltage <math>U_e</math></b>              |      |                                                                 |
| AC 50/60 Hz                                        | [V]  | 230, 240, 400, 415, 460, 500, 575, 690                          |
| DC                                                 | [V]  | 24, 48, 110, 220, 440                                           |
| Insulation Class of the Coil                       |      | Class F per IEC 60085<br>Class 105 insulation system per UL 508 |
| Rated coil frequency                               |      | AC 50/60 Hz, DC                                                 |
| Ambient Temperature                                |      |                                                                 |
| Storage                                            | [°C] | -55...+80                                                       |
| Operation at rated voltage                         | [°C] | -25...+60                                                       |
| at 70 °C                                           |      | 15% current reduction against 60 °C values                      |
| Climatic Withstand                                 |      | IEC60068-2-30                                                   |
| Max. Altitude of Installation Site                 | [m]  | 2000 NN, per IEC60947-4                                         |
| Protection Class                                   |      | IP2X                                                            |
| Single contactor cover                             |      | —                                                               |
| Contactor with frame terminal block                |      | —                                                               |
| Auxiliary contact                                  |      | IP2X                                                            |
| Protection against Accidental Contact              |      | —                                                               |
| Resistance to Shock                                |      | IEC60068-2                                                      |
| Resistance to Vibration                            |      | IEC60068-2                                                      |
| Mechanically Linked Contacts IEC60947-5-1, Annex L |      | 100-K... (on main device)                                       |
| Mirror Contacts IEC60947-4 Annex F                 |      | 100-K... +100-KF...                                             |

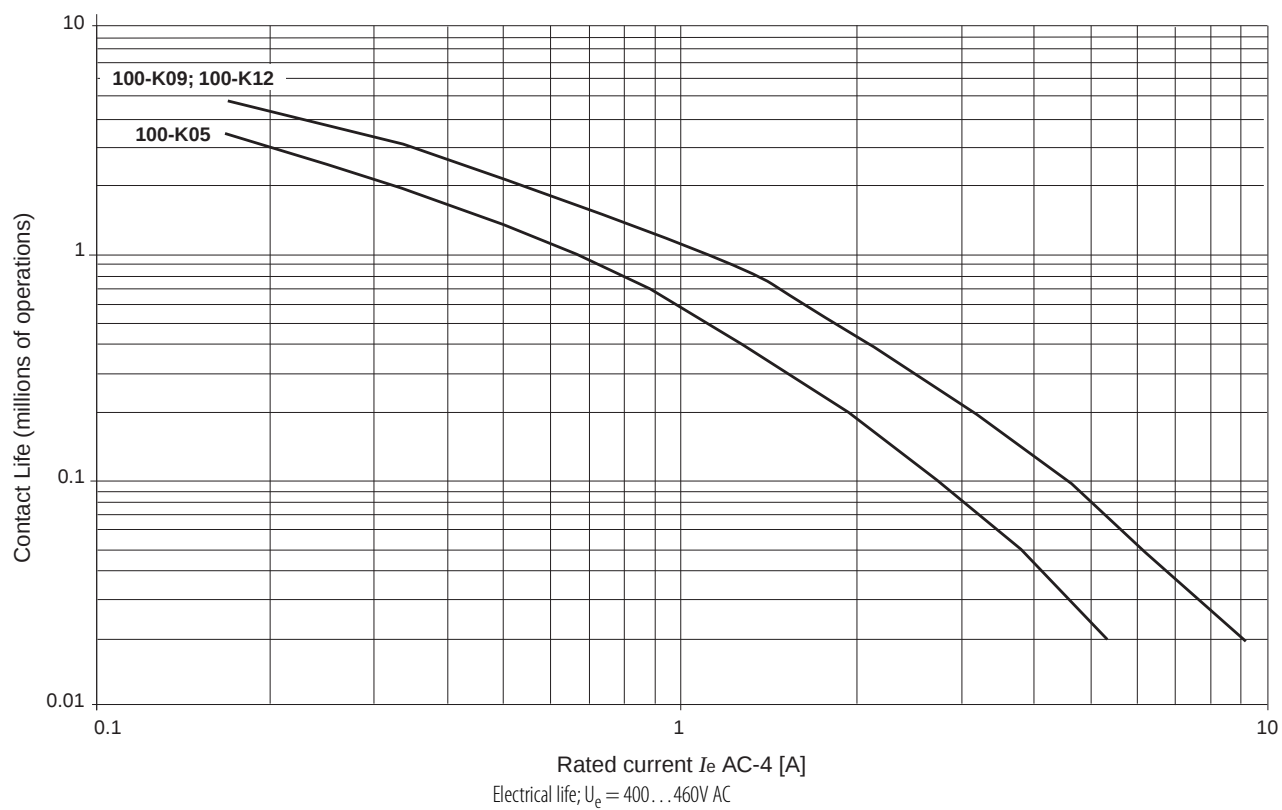
## Standards Compliance and Certifications

| Standards Compliance                                                       | Certifications                                    |
|----------------------------------------------------------------------------|---------------------------------------------------|
| IEC/EN 60947-1,-4-1,-5-1,-5-4                                              | CE Marked                                         |
| UL 508                                                                     | CCC                                               |
| CSA 22.2. No. 14                                                           | cULus Listed (File No. E41850, Guide NLDX, NLDX7) |
| NF F 62-000                                                                |                                                   |
| Meets the material restrictions for European Directive 2002/95/IEC-EU-RoHS |                                                   |

# Life-Load Curves

Figure 1 - AC-3, Switching of squirrel-cage motors while starting /AC-1, Non- or slightly inductive loads, resistance furnaces

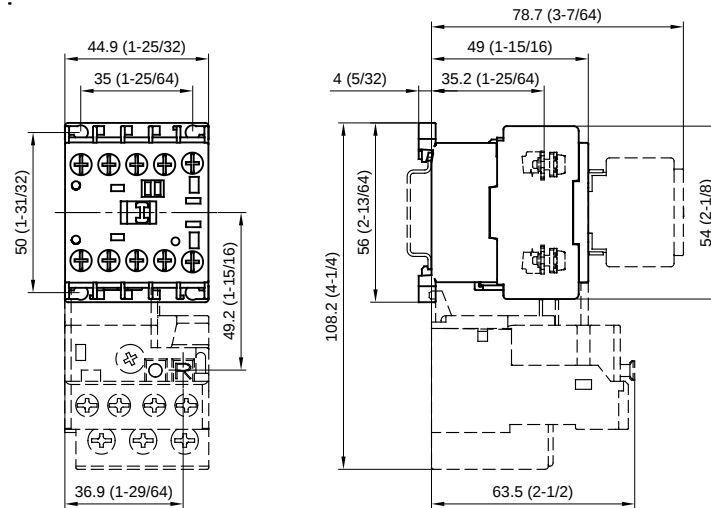


**Figure 2 - AC-4, Stepping of squirrel-cage motors**

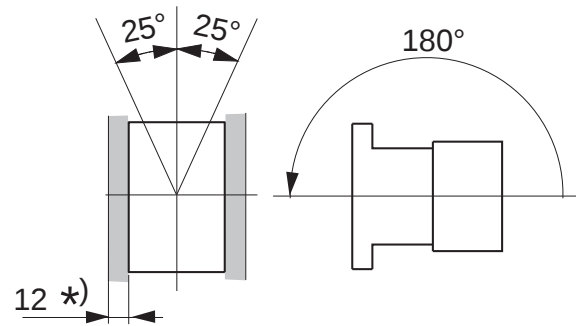
# Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

**Figure 3 - 100-K Miniature Contactor with 193-K Overload Relay**



**Figure 4 - Mounting Position**



\*) -Minimum distance to grounded parts or walls

Notes:

# 100-C/104-C, 100S-C/104S-C, 100Q-C Contactors

## Product Selection—100-C/104-C Contactors

- Compact sizes from 4...55 kW/5...75 Hp (9...97 A)
- Common accessories for all contactor sizes
- Front and side mounting of auxiliary contacts
- Electronic and pneumatic timing modules
- Space-saving coil-mounted control modules
- Reversible coil terminations (line or load side)
- All devices can be attached to 35 mm DIN mounting Rail
- Environmentally friendly materials



100-C Contactor



104-C Reversing Contactor

The Bulletin 100-C/104-C IEC contactor family, along with a wide range of common accessories and Bulletin 193 solid-state overload relays, provides the most compact and flexible starter component system available.

### 3-Pole AC- and DC-operated Contactors

| Rated Operational Current $I_e$ [A] |      | Ratings for switching AC motors - AC-2, AC-3, AC-4 |          |      |      |            |        |         |       |       |        | Auxiliary Contacts                                                                  |                                                                                     | Cat. No. <sup>(1)</sup> |
|-------------------------------------|------|----------------------------------------------------|----------|------|------|------------|--------|---------|-------|-------|--------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|
|                                     |      | 3-phase kW (50 Hz)                                 |          |      |      | Hp (60 Hz) |        |         |       |       |        |  |  |                         |
|                                     |      | 230V                                               | 400/415V | 500V | 690V | 1-Phase    |        | 3-Phase |       |       |        |                                                                                     |                                                                                     |                         |
| AC-3                                | AC-1 |                                                    |          |      |      | 115V       | 230V   | 200V    | 230V  | 460V  | 575V   | N.O.                                                                                | N.C.                                                                                |                         |
| 40 °C                               |      |                                                    |          |      |      |            |        |         |       |       |        |                                                                                     |                                                                                     |                         |
| 9                                   | 32   | 3                                                  | 4        | 4    | 4    | 1/2        | 1-1/12 | 2       | 2     | 5     | 7-1/12 | 1                                                                                   | 0                                                                                   | 100-C09⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C09⊗01              |
| 12                                  | 32   | 4                                                  | 5.5      | 5.5  | 5.5  | 1/2        | 2      | 3       | 3     | 7-1/2 | 10     | 1                                                                                   | 0                                                                                   | 100-C12⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C12⊗01              |
| 16                                  | 32   | 5.5                                                | 7.5      | 7.5  | 7.5  | 1          | 3      | 5       | 5     | 10    | 15     | 1                                                                                   | 0                                                                                   | 100-C16⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C16⊗01              |
| 23                                  | 32   | 7.5                                                | 11       | 13   | 10   | 2          | 3      | 5       | 7-1/2 | 15    | 15     | 1                                                                                   | 0                                                                                   | 100-C23⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C23⊗01              |
| 30                                  | 65   | 10                                                 | 15       | 15   | 15   | 2          | 5      | 7-1/2   | 10    | 20    | 25     | 0                                                                                   | 0                                                                                   | 100-C30⊗00              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 1                                                                                   | 0                                                                                   | 100-C30⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C30⊗01              |
| 37                                  | 65   | 11                                                 | 18.5/20  | 20   | 18.5 | 3          | 5      | 10      | 10    | 25    | 30     | 0                                                                                   | 0                                                                                   | 100-C37⊗00              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 1                                                                                   | 0                                                                                   | 100-C37⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C37⊗01              |
| 43                                  | 85   | 13                                                 | 22       | 25   | 22   | 3          | 7-1/2  | 10      | 15    | 30    | 30     | 0                                                                                   | 0                                                                                   | 100-C43⊗00              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 1                                                                                   | 0                                                                                   | 100-C43⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C43⊗01              |
| 55                                  | 85   | 15                                                 | 30       | 30   | 30   | 5          | 10     | 15      | 20    | 40    | 40     | 0                                                                                   | 0                                                                                   | 100-C55⊗00              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 1                                                                                   | 0                                                                                   | 100-C55⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C55⊗01              |
| 60                                  | 100  | 18.5                                               | 32       | 37   | 32   | 5          | 10     | 15      | 20    | 40    | 50     | 0                                                                                   | 0                                                                                   | 100-C60⊗00              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 1                                                                                   | 0                                                                                   | 100-C60⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C60⊗01              |
| 72                                  | 100  | 22                                                 | 40       | 45   | 40   | 5          | 15     | 20      | 25    | 50    | 60     | 0                                                                                   | 0                                                                                   | 100-C72⊗00              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 1                                                                                   | 0                                                                                   | 100-C72⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C72⊗01              |
| 85                                  | 100  | 25                                                 | 45       | 55   | 45   | 7-1/2      | 15     | 25      | 30    | 60    | 60     | 0                                                                                   | 0                                                                                   | 100-C85⊗00              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 1                                                                                   | 0                                                                                   | 100-C85⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C85⊗01              |
| 97                                  | 130  | 30                                                 | 55       | 55   | 55   | 10         | 20     | 30      | 30    | 75    | 75     | 0                                                                                   | 0                                                                                   | 100-C97⊗00              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 1                                                                                   | 0                                                                                   | 100-C97⊗10              |
|                                     |      |                                                    |          |      |      |            |        |         |       |       |        | 0                                                                                   | 1                                                                                   | 100-C97⊗01              |

(1) For screwless terminals on 100-C09...C16, add an "R" after the letter "C" in the catalog number. Example: Cat. No. 100-C09 $\otimes$ 10 becomes 100-CR09 $\otimes$ 10. The AC-1 rating for the 100-CR is limited to 25 A.

$\otimes$  Coil voltage code and terminal position—see [page 24](#)

## 4-Pole AC- and DC-Operated Contactors

| Rated Operational Current $I_e$ [A] |      | Ratings for switching AC motors - AC-2, AC-3 |          |      |      |            |       |          |       |       |       | Contact Configuration, Main Poles                                                   |                                                                                     | Cat. No. <sup>(1)</sup> |
|-------------------------------------|------|----------------------------------------------|----------|------|------|------------|-------|----------|-------|-------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|
|                                     |      | 3-phase kW (50 Hz) <sup>(2)</sup>            |          |      |      | Hp (60 Hz) |       |          |       |       |       |  |  |                         |
|                                     |      |                                              |          |      |      | 1-Phase    |       | 3-Phase* |       |       |       |                                                                                     |                                                                                     |                         |
| 40 °C                               |      | 230V                                         | 400/415V | 500V | 690V |            |       |          |       |       |       |                                                                                     |                                                                                     |                         |
| AC-3                                | AC-1 |                                              |          |      |      | 115V       | 230V  | 200V     | 230V  | 460V  | 575V  | N.O.                                                                                | N.C.                                                                                |                         |
| 9                                   | 32   | 3                                            | 4        | 4    | 4    | 1/2        | 1-1/2 | 2        | 2     | 5     | 7-1/2 | 4                                                                                   | 0                                                                                   | 100-C09⊗400             |
|                                     |      |                                              |          |      |      |            |       |          |       |       |       | 3                                                                                   | 1                                                                                   | 100-C09⊗300             |
|                                     |      |                                              |          |      |      |            |       |          |       |       |       | 2                                                                                   | 2                                                                                   | 100-C09⊗200             |
| 12                                  | 32   | 4                                            | 5.5      | 5.5  | 5.5  | 1/2        | 2     | 3        | 3     | 7-1/2 | 10    | 4                                                                                   | 0                                                                                   | 100-C12⊗400             |
|                                     |      |                                              |          |      |      |            |       |          |       |       |       | 3                                                                                   | 1                                                                                   | 100-C12⊗300             |
|                                     |      |                                              |          |      |      |            |       |          |       |       |       | 2                                                                                   | 2                                                                                   | 100-C12⊗200             |
| 16                                  | 32   | 5.5                                          | 7.5      | 7.5  | 7.5  | 1          | 3     | 5        | 5     | 10    | 10    | 4                                                                                   | 0                                                                                   | 100-C16⊗400             |
|                                     |      |                                              |          |      |      |            |       |          |       |       |       | 3                                                                                   | 1                                                                                   | 100-C16⊗300             |
|                                     |      |                                              |          |      |      |            |       |          |       |       |       | 2                                                                                   | 2                                                                                   | 100-C16⊗200             |
| 23                                  | 32   | 7.5                                          | 11       | 13   | 10   | 2          | 3     | 5        | 7-1/2 | 15    | 15    | 4                                                                                   | 0                                                                                   | 100-C23⊗400             |
|                                     |      |                                              |          |      |      |            |       |          |       |       |       | 3                                                                                   | 1                                                                                   | 100-C23⊗300             |
|                                     |      |                                              |          |      |      |            |       |          |       |       |       | 2                                                                                   | 2                                                                                   | 100-C23⊗200             |
| 37                                  | 75   | 11                                           | 18.5/20  | 20   | 18.5 | 3          | 5     | 10       | 10    | 25    | 30    | 4                                                                                   | 0                                                                                   | 100-C40⊗400             |
|                                     |      |                                              |          |      |      |            |       |          |       |       |       | 2                                                                                   | 2                                                                                   | 100-C40⊗200             |
| 85                                  | 130  | 25                                           | 45       | 55   | 45   | 7-1/2      | 15    | 25       | 30    | 60    | 50    | 4                                                                                   | 0                                                                                   | 100-C90⊗400             |
|                                     |      |                                              |          |      |      |            |       |          |       |       |       | 2                                                                                   | 2                                                                                   | 100-C90⊗200             |

(1) For screwless terminals on 100-C09...C16, add an "R" after the letter "C" in the catalog number. Example: Cat. No. 100-C09⊗10 becomes 100-CR09⊗10. The AC-1 rating for the 100-CR is limited to 25 A.

(2) Three-phase ratings apply only to contactors with at least three N.O. power poles.

⊗ Coil voltage code and terminal position— see [page 24](#).

## Reversing AC- and DC-Operated Contactors

| Rated Operational Current $I_e$ [A] |      | Ratings for switching AC motors - AC-2, AC-3, AC-4 |          |      |      |            |       |         |       |       |       | Auxiliary Contacts per Contactor                                                    |                                                                                     | Cat. No.   |
|-------------------------------------|------|----------------------------------------------------|----------|------|------|------------|-------|---------|-------|-------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------|
|                                     |      | 3-phase kW (50 Hz)                                 |          |      |      | Hp (60 Hz) |       |         |       |       |       |  |  |            |
| 40 °C                               |      | 230V                                               | 400/415V | 500V | 690V | 1-Phase    |       | 3-Phase |       |       |       | N.O.                                                                                | N.C. <sup>(1)</sup>                                                                 |            |
| AC-3                                | AC-1 |                                                    |          |      |      | 115V       | 230V  | 200V    | 230V  | 460V  | 575V  |                                                                                     |                                                                                     |            |
| 9                                   | 32   | 3                                                  | 4        | 4    | 4    | 1/2        | 1-1/2 | 2       | 2     | 5     | 7-1/2 | 1                                                                                   | 1                                                                                   | 104-C09⊗22 |
| 12                                  | 32   | 4                                                  | 5.5      | 5.5  | 5.5  | 1          | 2     | 3       | 3     | 7-1/2 | 10    | 1                                                                                   | 1                                                                                   | 104-C12⊗22 |
| 16                                  | 32   | 5.5                                                | 7.5      | 7.5  | 7.5  | 1          | 3     | 5       | 5     | 10    | 15    | 1                                                                                   | 1                                                                                   | 104-C16⊗22 |
| 23                                  | 32   | 7.5                                                | 11       | 13   | 10   | 2          | 3     | 5       | 7-1/2 | 15    | 20    | 1                                                                                   | 1                                                                                   | 104-C23⊗22 |
| 30                                  | 65   | 10                                                 | 15       | 15   | 15   | 2          | 5     | 7-1/2   | 10    | 20    | 25    | 0                                                                                   | 1                                                                                   | 104-C30⊗02 |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 1                                                                                   | 104-C30⊗22 |
| 37                                  | 65   | 11                                                 | 18.5/20  | 20   | 18.5 | 3          | 5     | 10      | 10    | 25    | 30    | 0                                                                                   | 1                                                                                   | 104-C37⊗02 |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 1                                                                                   | 104-C37⊗22 |
| 43                                  | 85   | 13                                                 | 22       | 25   | 22   | 3          | 7.5   | 10      | 15    | 30    | 30    | 0                                                                                   | 1                                                                                   | 104-C43⊗02 |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 1                                                                                   | 104-C43⊗22 |
| 55                                  | 85   | 15                                                 | 30       | 30   | 30   | 5          | 10    | 15      | 20    | 40    | 40    | 0                                                                                   | 1                                                                                   | 104-C55⊗02 |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 1                                                                                   | 104-C55⊗22 |
| 60                                  | 100  | 18.5                                               | 32       | 37   | 32   | 5          | 10    | 15      | 20    | 40    | 50    | 0                                                                                   | 1                                                                                   | 104-C60⊗02 |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 1                                                                                   | 104-C60⊗22 |
| 72                                  | 100  | 22                                                 | 40       | 45   | 40   | 5          | 15    | 20      | 25    | 50    | 60    | 0                                                                                   | 1                                                                                   | 104-C72⊗02 |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 1                                                                                   | 104-C72⊗22 |
| 85                                  | 100  | 25                                                 | 45       | 55   | 45   | 7-1/2      | 15    | 25      | 30    | 60    | 60    | 0                                                                                   | 1                                                                                   | 104-C85⊗02 |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 1                                                                                   | 104-C85⊗22 |
| 97                                  | 130  | 30                                                 | 55       | 55   | 55   | 10         | 15    | 30      | 30    | 75    | 75    | 0                                                                                   | 1                                                                                   | 104-C97⊗02 |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 1                                                                                   | 104-C97⊗22 |

(1) The N.C. auxiliary contact is supplied as part of the mechanical/electrical interlock.

⊗ Coil voltage code and terminal position — see [page 24](#).

## Coil Voltage Codes

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60 Hz: Cat. No. 100-C09 $\otimes$ 10 becomes Cat. No.100-C09D10.

| AC Voltages [V] | 12 | 24 | 32 | 36 | 42 | 48 | 100 | 100...<br>110 | 110 | 120 | 127 | 200 | 200...<br>220     | 208 | 208...<br>240 |
|-----------------|----|----|----|----|----|----|-----|---------------|-----|-----|-----|-----|-------------------|-----|---------------|
| 50 Hz           | R  | K  | V  | W  | X  | Y  | KP  | —             | D   | P   | S   | KG  | L                 | —   | —             |
| 60 Hz           | Q  | J  | —  | V  | —  | X  | —   | KP            | —   | D   | —   | —   | KG                | H   | L             |
| 50/60 Hz        | —  | KJ | —  | —  | —  | KY | KP  | —             | KD  | —   | —   | KG  | KL <sup>(1)</sup> | —   | —             |

(1) Not available on 100/104-C90 or -C97 contactors.

| AC Voltages [V] | 220...<br>230     | 230 | 230...<br>240 | 240 | 277 | 347 | 380 | 380...<br>400 | 400 | 400...<br>415 | 440 | 480 | 500 | 550 | 600 |
|-----------------|-------------------|-----|---------------|-----|-----|-----|-----|---------------|-----|---------------|-----|-----|-----|-----|-----|
| 50 Hz           | F                 | —   | VA            | T   | —   | —   | —   | N             | —   | G             | B   | —   | M   | C   | —   |
| 60 Hz           | —                 | —   | —             | A   | T   | I   | E   | —             | —   | —             | N   | B   | —   | —   | C   |
| 50/60 Hz        | KL <sup>(1)</sup> | KF  | —             | KA  | —   | —   | —   | —             | KN  | —             | KB  | —   | —   | —   | —   |

(1) Not available on 100/104-C90 or -C97 contactors.

| DC Voltages [V] |                                  | 9  | 12 | 24 | 24                | 36 | 36...48 | 48 | 48...72 | 60 | 64 |
|-----------------|----------------------------------|----|----|----|-------------------|----|---------|----|---------|----|----|
| 100-C09...C55   | Electronic with Integrated Diode | —  | EQ | EJ | QJ <sup>(1)</sup> | —  | EW      | —  | EY      | —  | —  |
| 100-C60...C97   | with Integrated Diode            | DR | DQ | DJ | —                 | DW | —       | DY | —       | DZ | DB |

(1) "QJ" coil has faster dropout time (16...21 ms).

| DC Voltages [V] |                                  | 72 | 80 | 110 | 110...125 | 115 | 125 | 220 | 220...250 | 230 | 250 |
|-----------------|----------------------------------|----|----|-----|-----------|-----|-----|-----|-----------|-----|-----|
| 100-C09...C55   | Electronic with Integrated Diode | —  | —  | —   | ED        | —   | —   | —   | EA        | —   | —   |
| 100-C60...C97   | with Integrated Diode            | DG | DE | DD  | —         | DP  | DS  | DA  | —         | DF  | DT  |

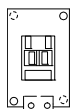
## Coil Terminal Position

All contactors are delivered with the coil terminals located on the line side.

For load side coil terminations, insert a "U" prior to the coil voltage code. Ordering example: Cat. No. 100-C09UD10.



Cat. No.100-C09 $\otimes$ 10 Line Side



Cat. No.100-C09U $\otimes$ 10 Load Side

## Assignment of Contacts

Table valid for: AC / DC = 0.85...1.1 x U<sub>g</sub>, T<sub>amb</sub> = -25 °C...+60 °C, normal position (horizontal rail mounting)

### Device Combinations in Accordance with IEC 60947-1 / -4-1

| Auxiliary Contact Blocks |         | 100-C Contactors (AC and DC Control) |                                                          |                                                          |                                                                                                                      |                                                                                              |                                                              |                                                                                              |
|--------------------------|---------|--------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Circuit Diagram          | Control |                                      | 100-C09_⊗10<br>100-C12_⊗10<br>100-C16_⊗10<br>100-C23_⊗10 | 100-C09_⊗01<br>100-C12_⊗01<br>100-C16_⊗01<br>100-C23_⊗01 | 100-C30_⊗00<br>100-C37_⊗00<br>100-C43_⊗00<br>100-C55_⊗00<br>100-C60_⊗00<br>100-C72_⊗00<br>100-C85_⊗00<br>100-C97_⊗00 | 100-C09_⊗400<br>100-C12_⊗400<br>100-C16_⊗400<br>100-C23_⊗400<br>100-C40_⊗400<br>100-C90_⊗400 | 100-C09_⊗300<br>100-C12_⊗300<br>100-C16_⊗300<br>100-C23_⊗300 | 100-C09_⊗200<br>100-C12_⊗200<br>100-C16_⊗200<br>100-C23_⊗200<br>100-C40_⊗200<br>100-C90_⊗200 |
|                          |         |                                      |                                                          |                                                          |                                                                                                                      |                                                                                              |                                                              |                                                                                              |
|                          |         | Side Mounting <sup>(1)</sup>         |                                                          |                                                          |                                                                                                                      |                                                                                              |                                                              |                                                                                              |
| 100-SB01                 |         | AC/DC                                | 10 + 01 = 11                                             | 01 + 01 = 02 <sup>(3)</sup>                              | 00 + 01 = 01                                                                                                         | 00 + 01 = 01                                                                                 | 00 + 01 = 01                                                 | 00 + 01 = 01                                                                                 |
| 100-SB10                 |         | AC/DC                                | 10 + 10 = 20 <sup>(3)</sup>                              | 01 + 10 = 11                                             | 00 + 10 = 10                                                                                                         | 00 + 10 = 10                                                                                 | 00 + 10 = 10                                                 | 00 + 10 = 10                                                                                 |
| 100-SB02                 |         | AC/DC                                | 10 + 02 = 12 <sup>(3)</sup>                              | —                                                        | 00 + 02 = 02                                                                                                         | 00 + 02 = 02                                                                                 | 00 + 02 = 02                                                 | 00 + 02 = 02                                                                                 |
| 100-SB11                 |         | AC/DC                                | 10 + 11 = 21 <sup>(3)</sup>                              | 01 + 11 = 12 <sup>(3)</sup>                              | 00 + 11 = 11                                                                                                         | 00 + 11 = 11                                                                                 | 00 + 11 = 11                                                 | 00 + 11 = 11                                                                                 |
| 100-SB20                 |         | AC/DC                                | 10 + 20 = 30 <sup>(3)</sup>                              | 01 + 20 = 21 <sup>(3)</sup>                              | 00 + 20 = 20                                                                                                         | 00 + 20 = 20                                                                                 | 00 + 20 = 20                                                 | 00 + 20 = 20                                                                                 |
| 100-SBL11 <sup>(2)</sup> |         | AC/DC                                | 10 + L11 = L21 <sup>(3)</sup>                            | 01 + L11 = L12 <sup>(3)</sup>                            | 00 + L11 = L11                                                                                                       | 00 + L11 = L11                                                                               | 00 + L11 = L11                                               | 00 + L11 = L11                                                                               |

(1) Up to 8 auxiliary contacts possible: contactor + front mounted (AC max. 4 N.C. / DC max. 4 N.C.), side mounted (AC max. 2 N.O. / DC max. 2 N.O. and max. 2 N.C.).

(2) Early make and/or late break.

(3) Double numbering: because of double numbering only left-side mounting is recommended.

## Device Combinations in Accordance with IEC 60947-1 / -4-1

| Auxiliary Contact Blocks |         | 100-C Contactors (AC and DC Control) |                                                                                             |                                                                                             |                                                                                                                                                                                         |                                                                                                                                                 |                                                                                                 |                                                                                                                                                 |
|--------------------------|---------|--------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Circuit Diagram          | Control |                                      | <div>100-C09_⊗10</div> <div>100-C12_⊗10</div> <div>100-C16_⊗10</div> <div>100-C23_⊗10</div> | <div>100-C09_⊗01</div> <div>100-C12_⊗01</div> <div>100-C16_⊗01</div> <div>100-C23_⊗01</div> | <div>100-C30_⊗00</div> <div>100-C37_⊗00</div> <div>100-C43_⊗00</div> <div>100-C55_⊗00</div> <div>100-C60_⊗00</div> <div>100-C72_⊗00</div> <div>100-C85_⊗00</div> <div>100-C97_⊗00</div> | <div>100-C09_⊗400</div> <div>100-C12_⊗400</div> <div>100-C16_⊗400</div> <div>100-C23_⊗400</div> <div>100-C40_⊗400</div> <div>100-C90_⊗400</div> | <div>100-C09_⊗300</div> <div>100-C12_⊗300</div> <div>100-C16_⊗300</div> <div>100-C23_⊗300</div> | <div>100-C09_⊗200</div> <div>100-C12_⊗200</div> <div>100-C16_⊗200</div> <div>100-C23_⊗200</div> <div>100-C40_⊗200</div> <div>100-C90_⊗200</div> |
|                          |         |                                      |                                                                                             |                                                                                             |                                                                                                                                                                                         |                                                                                                                                                 |                                                                                                 |                                                                                                                                                 |
|                          |         | Front Mounting <sup>(1)</sup>        |                                                                                             |                                                                                             |                                                                                                                                                                                         |                                                                                                                                                 |                                                                                                 |                                                                                                                                                 |
| 100-FA02,<br>100-FAB02   |         | AC/DC                                | 10 + 02 = 12                                                                                | 01 + 02 = 03                                                                                | 00 + 02 = 02                                                                                                                                                                            | 00 + 02 = 02                                                                                                                                    | 00 + 02 = 02                                                                                    | 00 + 02 = 02                                                                                                                                    |
| 100-FA11,<br>100-FAB11   |         | AC/DC                                | 10 + 11 = 21                                                                                | 01 + 11 = 12                                                                                | 00 + 11 = 11                                                                                                                                                                            | 00 + 11 = 11                                                                                                                                    | 00 + 11 = 11                                                                                    | 00 + 11 = 11                                                                                                                                    |
| 100-FB11,<br>100-FBB11   |         | AC/DC                                | —                                                                                           | —                                                                                           | 00 + 11 = 11                                                                                                                                                                            | 00 + 11 = 11                                                                                                                                    | 00 + 11 = 11                                                                                    | 00 + 11 = 11                                                                                                                                    |
| 100-FC11,<br>100-FCB11   |         | AC/DC                                | 10 + 11 = 21                                                                                | —                                                                                           | —                                                                                                                                                                                       | —                                                                                                                                               | —                                                                                               | —                                                                                                                                               |
| 100-FA20,<br>100-FAB20   |         | AC/DC                                | 10 + 20 = 30                                                                                | 01 + 20 = 21                                                                                | 00 + 20 = 20                                                                                                                                                                            | 00 + 20 = 20                                                                                                                                    | 00 + 20 = 20                                                                                    | 00 + 20 = 20                                                                                                                                    |
| 100-FBL11 <sup>(2)</sup> |         | AC/DC                                | —                                                                                           | —                                                                                           | 00 + L11 = L11                                                                                                                                                                          | 00 + L11 = L11                                                                                                                                  | 00 + L11 = L11                                                                                  | 00 + L11 = L11                                                                                                                                  |
| 100-FA22,<br>100-FAB22   |         | AC/DC                                | 10 + 22 = 32                                                                                | 01 + 22 = 23                                                                                | 00 + 22 = 22                                                                                                                                                                            | 00 + 22 = 22                                                                                                                                    | 00 + 22 = 22                                                                                    | 00 + 22 = 22                                                                                                                                    |
| 100-FB22,<br>100-FBB22   |         | AC/DC                                | —                                                                                           | —                                                                                           | 00 + 22 = 22                                                                                                                                                                            | 00 + 22 = 22                                                                                                                                    | 00 + 22 = 22                                                                                    | 00 + 22 = 22                                                                                                                                    |
| 100-FC22,<br>100-FCB22   |         | AC/DC                                | 10 + 22 = 32                                                                                | —                                                                                           | —                                                                                                                                                                                       | —                                                                                                                                               | —                                                                                               | —                                                                                                                                               |
| 100-FA31,<br>100-FAB31   |         | AC/DC                                | 10 + 31 = 41                                                                                | 01 + 31 = 32                                                                                | 00 + 31 = 31                                                                                                                                                                            | 00 + 31 = 31                                                                                                                                    | 00 + 31 = 31                                                                                    | 00 + 31 = 31                                                                                                                                    |
| 100-FA40,<br>100-FAB40   |         | AC/DC                                | 10 + 40 = 50                                                                                | 01 + 40 = 41                                                                                | 00 + 40 = 40                                                                                                                                                                            | 00 + 40 = 40                                                                                                                                    | 00 + 40 = 40                                                                                    | 00 + 40 = 40                                                                                                                                    |
| 100-FAL22 <sup>(2)</sup> |         | AC/DC                                | 10 + L22 = L32                                                                              | 01 + L22 = L23                                                                              | 00 + L22 = L22                                                                                                                                                                          | 00 + L22 = L22                                                                                                                                  | 00 + L22 = L22                                                                                  | 00 + L22 = L22                                                                                                                                  |
| 100-FA04,<br>100-FAB04   |         | AC/DC                                | 10 + 04 = 14                                                                                | 01 + 04 = 05                                                                                | 00 + 04 = 04                                                                                                                                                                            | 00 + 04 = 04                                                                                                                                    | 00 + 04 = 04                                                                                    | 00 + 04 = 04                                                                                                                                    |

| Auxiliary Contact Blocks |         | 100-C Contactors (AC and DC Control)                     |                                                          |              |                                                                                                                      |                                                                                              |                                                              |                                                                                              |
|--------------------------|---------|----------------------------------------------------------|----------------------------------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Circuit Diagram          | Control |                                                          |                                                          |              | 100-C30_⊗00<br>100-C37_⊗00<br>100-C43_⊗00<br>100-C55_⊗00<br>100-C60_⊗00<br>100-C72_⊗00<br>100-C85_⊗00<br>100-C97_⊗00 | 100-C09_⊗400<br>100-C12_⊗400<br>100-C16_⊗400<br>100-C23_⊗400<br>100-C40_⊗400<br>100-C90_⊗400 | 100-C09_⊗300<br>100-C12_⊗300<br>100-C16_⊗300<br>100-C23_⊗300 | 100-C09_⊗200<br>100-C12_⊗200<br>100-C16_⊗200<br>100-C23_⊗200<br>100-C40_⊗200<br>100-C90_⊗200 |
|                          |         | 100-C09_⊗10<br>100-C12_⊗10<br>100-C16_⊗10<br>100-C23_⊗10 | 100-C09_⊗01<br>100-C12_⊗01<br>100-C16_⊗01<br>100-C23_⊗01 |              |                                                                                                                      |                                                                                              |                                                              |                                                                                              |
|                          |         |                                                          |                                                          |              |                                                                                                                      |                                                                                              |                                                              |                                                                                              |
| 100-FA13,<br>100-FAB13   |         | AC/DC                                                    | 10 + 13 = 23                                             | 01 + 13 = 14 | 00 + 13 = 13                                                                                                         | 00 + 13 = 13                                                                                 | 00 + 13 = 13                                                 | 00 + 13 = 13                                                                                 |
| 100-FB02,<br>100-FBB02   |         | AC/DC                                                    | 10 + 02 = 12                                             | 01 + 02 = 03 | 00 + 02 = 02                                                                                                         | 00 + 02 = 02                                                                                 | 00 + 02 = 02                                                 | 00 + 02 = 02                                                                                 |
| 100-FB20,<br>100-FBB20   |         | AC/DC                                                    | 10 + 20 = 30                                             | 01 + 20 = 21 | 00 + 20 = 20                                                                                                         | 00 + 20 = 20                                                                                 | 00 + 20 = 20                                                 | 00 + 20 = 20                                                                                 |
| 100-FC31,<br>100-FCB31   |         | AC/DC                                                    | 10 + 31 = 41                                             | 01 + 31 = 32 | 00 + 31 = 31                                                                                                         | 00 + 31 = 31                                                                                 | 00 + 31 = 31                                                 | 00 + 31 = 31                                                                                 |

- (1) Up to 8 auxiliary contacts possible: contactor + front mounted (AC max. 4 N.C. / DC max. 4 N.C.), side mounted (AC max. 2 N.O. / DC max. 2 N.O. and max. 2 N.C.).  
(2) Early make and/or late break.

# Product Selection—100S-C/104S-C Safety Contactors

- Mechanically linked N.C. auxiliary contacts
- Front-mounted auxiliary contacts
  - Gold bifurcated
  - Permanently fixed
  - Protective cover to prevent manual operation
  - Red contact housing for easy identification
  - “Mechanically Linked” or “Mirror Contact” symbol
- AC and DC operating coils
- SUVA Third-Party certification



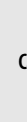
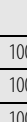
100S-C Safety Contactor



104S-C Reversing Safety Contactor

Bulletin 100S-C/104S-C safety contactors provide mechanically linked positively guided contacts, required in feedback circuits of modern safety applications. The mechanically linked N.C. auxiliary contacts will not change state when a power pole welds. In addition, the gold-plated bifurcated auxiliary contacts are ideally suited for low-energy applications or feedback control circuits with multiple series-connected N.C. auxiliary contacts.

## 3-Pole AC- and DC-operated Contactors

| Rated Operational Current $I_e$ [A] |      | Ratings for switching AC motors - AC-2, AC-3, AC-4 |          |      |      |            |       |         |       |       |       | Auxiliary Contacts                                                                  |                                                                                      | Cat. No. <sup>(1) (2)</sup>  |
|-------------------------------------|------|----------------------------------------------------|----------|------|------|------------|-------|---------|-------|-------|-------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------|
|                                     |      | 3-phase kW (50 Hz)                                 |          |      |      | Hp (60 Hz) |       |         |       |       |       |  |  |                              |
| 40 °C                               |      | 230V                                               | 400/415V | 500V | 690V | 1-Phase    |       | 3-Phase |       |       |       | N.O.                                                                                | N.C.                                                                                 |                              |
|                                     |      |                                                    |          |      |      | 115V       | 230V  | 200V    | 230V  | 460V  | 575V  |                                                                                     |                                                                                      |                              |
| AC-3                                | AC-1 |                                                    |          |      |      |            |       |         |       |       |       |                                                                                     |                                                                                      |                              |
| 9                                   | 32   | 3                                                  | 4        | 4    | 4    | 1/2        | 1-1/2 | 2       | 2     | 5     | 7-1/2 | 0                                                                                   | 5                                                                                    | 100S-C09⊗05BC                |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C09⊗14BC                |
| 12                                  | 32   | 4                                                  | 5.5      | 5.5  | 5.5  | 1/2        | 2     | 3       | 3     | 7-1/2 | 10    | 0                                                                                   | 5                                                                                    | 100S-C12⊗05BC                |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C12⊗14BC                |
| 16                                  | 32   | 5.5                                                | 7.5      | 7.5  | 7.5  | 1          | 3     | 5       | 5     | 10    | 15    | 0                                                                                   | 5                                                                                    | 100S-C16⊗05BC                |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C16⊗14BC                |
| 23                                  | 32   | 7.5                                                | 11       | 13   | 10   | 2          | 3     | 5       | 7-1/2 | 15    | 15    | 0                                                                                   | 5                                                                                    | 100S-C23⊗05BC                |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C23⊗14BC                |
| 30                                  | 65   | 10                                                 | 15       | 15   | 15   | 2          | 5     | 7-1/2   | 10    | 20    | 25    | 0                                                                                   | 4                                                                                    | 100S-C30⊗04BC                |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C30⊗14BC                |
| 37                                  | 65   | 11                                                 | 18.5/20  | 20   | 18.5 | 3          | 5     | 10      | 10    | 25    | 30    | 0                                                                                   | 4                                                                                    | 100S-C37⊗04BC                |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C37⊗14BC                |
| 43                                  | 85   | 13                                                 | 22       | 25   | 22   | 3          | 7-1/2 | 10      | 15    | 30    | 30    | 0                                                                                   | 4                                                                                    | 100S-C43⊗04BC                |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C43⊗14BC                |
| 55                                  | 85   | 15                                                 | 30       | 30   | 30   | 5          | 10    | 15      | 20    | 40    | 40    | 0                                                                                   | 4                                                                                    | 100S-C55⊗04BC                |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C55⊗14BC                |
| 60                                  | 100  | 18.5                                               | 32       | 37   | 32   | 5          | 10    | 15      | 20    | 40    | 50    | 0                                                                                   | 4                                                                                    | 100S-C60⊗04BC <sup>(3)</sup> |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C60⊗14BC <sup>(3)</sup> |
| 72                                  | 100  | 22                                                 | 40       | 45   | 40   | 5          | 15    | 20      | 25    | 50    | 60    | 0                                                                                   | 4                                                                                    | 100S-C72⊗04BC <sup>(3)</sup> |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C72⊗14BC <sup>(3)</sup> |
| 85                                  | 100  | 25                                                 | 45       | 55   | 45   | 7-1/2      | 15    | 25      | 30    | 60    | 60    | 0                                                                                   | 4                                                                                    | 100S-C85⊗04BC <sup>(3)</sup> |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C85⊗14BC <sup>(3)</sup> |
| 97                                  | 130  | 30                                                 | 55       | 55   | 55   | 10         | 15    | 30      | 30    | 75    | 75    | 0                                                                                   | 4                                                                                    | 100S-C97⊗04BC <sup>(3)</sup> |
|                                     |      |                                                    |          |      |      |            |       |         |       |       |       | 1                                                                                   | 4                                                                                    | 100S-C97⊗14BC <sup>(3)</sup> |

(1) For other contact configurations and full product details, please contact your local Rockwell Automation sales office or Allen-Bradley distributor.

(2) If standard cross-stamped front-mount auxiliary contacts are required, remove the letter "B" before the letter "C" in the cat. no. Example: Cat. No. 100S-C09⊗05BC becomes Cat. No. 100S-C09⊗05C.

(3) Front- and side-mount auxiliary contacts on Cat. Nos. 100S-C60...C97 conform to mirror contact performance only.

⊗ Coil voltage code and terminal position—see [page 31](#).

## 4-Pole AC- and DC-operated Contactors

| $I_e$ [A] |      | Ratings for Switching AC Motors   |               |      |      |            |       |      |       |       |       | Contact Configuration                                                             |                                                                                     |                                                                                     |                                                                                     | Cat. No. <sup>(1) (2)</sup> |
|-----------|------|-----------------------------------|---------------|------|------|------------|-------|------|-------|-------|-------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------|
|           |      | AC-2, AC-3, AC-4                  |               |      |      | Hp (60 Hz) |       |      |       |       |       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                             |
|           |      | 3-Phase kW (50 Hz) <sup>(3)</sup> |               |      |      |            |       |      |       |       |       | 1-Phase                                                                           |                                                                                     | 3-Phase <sup>(3)</sup>                                                              |                                                                                     |                             |
| AC-3      | AC-1 | 230V                              | 400V/<br>415V | 500V | 690V | 115V       | 230V  | 200V | 230V  | 460V  | 575V  |  |  |  |  |                             |
| 9         | 32   | 3                                 | 4             | 4    | 4    | 1/2        | 1-1/2 | 2    | 2     | 5     | 7-1/2 | N.O.                                                                              | N.C.                                                                                | N.O.                                                                                | N.C.                                                                                | 100S-C09⊗404BC              |
|           |      |                                   |               |      |      |            |       |      |       |       |       | 3                                                                                 | 1                                                                                   | 0                                                                                   | 4                                                                                   | 100S-C09⊗304BC              |
| 12        | 32   | 4                                 | 5.5           | 5.5  | 5.5  | 1/2        | 2     | 3    | 3     | 7-1/2 | 10    | 4                                                                                 | 0                                                                                   | 0                                                                                   | 4                                                                                   | 100S-C12⊗404BC              |
|           |      |                                   |               |      |      |            |       |      |       |       |       | 3                                                                                 | 1                                                                                   | 0                                                                                   | 4                                                                                   | 100S-C12⊗304BC              |
| 16        | 32   | 5.5                               | 7.5           | 7.5  | 7.5  | 1          | 3     | 5    | 5     | 10    | 15    | 4                                                                                 | 0                                                                                   | 0                                                                                   | 4                                                                                   | 100S-C16⊗404BC              |
|           |      |                                   |               |      |      |            |       |      |       |       |       | 3                                                                                 | 1                                                                                   | 0                                                                                   | 4                                                                                   | 100S-C16⊗304BC              |
| 23        | 32   | 7.5                               | 11            | 13   | 10   | 2          | 3     | 5    | 7-1/2 | 15    | 15    | 4                                                                                 | 0                                                                                   | 0                                                                                   | 4                                                                                   | 100S-C23⊗404BC              |
|           |      |                                   |               |      |      |            |       |      |       |       |       | 3                                                                                 | 1                                                                                   | 0                                                                                   | 4                                                                                   | 100S-C23⊗304BC              |

(1) For other contact configurations and full product details, please contact your local Rockwell Automation sales office or Allen-Bradley distributor.

(2) If standard cross-stamped front-mount auxiliary contacts are required, remove the letter "B" before the letter "C" in the cat. no. Example: Cat. No. 100S-C09⊗404BC becomes Cat. No. 100S-C09⊗404C.

(3) Three-phase ratings only apply to contactors with at least three N.O. power poles.

⊗ Coil voltage code and terminal position — see [page 31](#).

## Reversing AC- and DC-Operated Contactors

- 3 Main Contacts
- Includes Mechanical/Electrical Interlock
- Includes Reversing Power Wiring

| Rated Operational<br>Current $I_e$ [A] |      | Ratings for switching AC motors - AC-2, AC-3, AC-4 |              |      |      |            |       |         |       |       |       | Auxiliary Contacts                                                                  |                                                                                     | Cat. No. <sup>(1) (2)</sup>   |
|----------------------------------------|------|----------------------------------------------------|--------------|------|------|------------|-------|---------|-------|-------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|
|                                        |      | 3-phase kW (50 Hz)                                 |              |      |      | Hp (60 Hz) |       |         |       |       |       |  |  |                               |
| 40 °C                                  |      | 230V                                               | 400/<br>415V | 500V | 690V | 1-Phase    |       | 3-Phase |       |       |       |                                                                                     |                                                                                     |                               |
| AC-3                                   | AC-1 |                                                    |              |      |      | 115V       | 230V  | 200V    | 230V  | 460V  | 575V  | N.O.                                                                                | N.C. <sup>(3)</sup>                                                                 |                               |
| 9                                      | 32   | 3                                                  | 4            | 4    | 4    | 1/2        | 1-1/2 | 2       | 2     | 5     | 7-1/2 | 0                                                                                   | 6                                                                                   | 104S-C09⊗012BC                |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C09⊗210BC                |
| 12                                     | 32   | 4                                                  | 5.5          | 5.5  | 5.5  | 1/2        | 2     | 3       | 3     | 7-1/2 | 10    | 0                                                                                   | 6                                                                                   | 104S-C12⊗012BC                |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C12⊗210BC                |
| 16                                     | 32   | 5.5                                                | 7.5          | 7.5  | 7.5  | 1          | 3     | 5       | 5     | 10    | 15    | 0                                                                                   | 6                                                                                   | 104S-C16⊗012BC                |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C16⊗210BC                |
| 23                                     | 32   | 7.5                                                | 11           | 13   | 10   | 2          | 3     | 5       | 7-1/2 | 15    | 15    | 0                                                                                   | 6                                                                                   | 104S-C23⊗012BC                |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C23⊗210BC                |
| 30                                     | 65   | 10                                                 | 15           | 15   | 15   | 2          | 5     | 7-1/2   | 10    | 20    | 25    | 0                                                                                   | 5                                                                                   | 104S-C30⊗010BC                |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C30⊗210BC                |
| 37                                     | 65   | 11                                                 | 18.5/20      | 20   | 18.5 | 3          | 5     | 10      | 10    | 25    | 30    | 0                                                                                   | 5                                                                                   | 104S-C37⊗010BC                |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C37⊗210BC                |
| 43                                     | 85   | 13                                                 | 22           | 25   | 22   | 3          | 7-1/2 | 10      | 15    | 30    | 30    | 0                                                                                   | 5                                                                                   | 104S-C43⊗010BC                |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C43⊗210BC                |
| 55                                     | 85   | 15                                                 | 30           | 30   | 30   | 5          | 10    | 15      | 20    | 40    | 40    | 0                                                                                   | 5                                                                                   | 104S-C55⊗010BC                |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C55⊗210BC                |
| 60                                     | 100  | 18.5                                               | 32           | 37   | 32   | 5          | 10    | 15      | 20    | 40    | 50    | 0                                                                                   | 5                                                                                   | 104S-C60⊗010BC <sup>(4)</sup> |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C60⊗210BC <sup>(4)</sup> |
| 72                                     | 100  | 22                                                 | 40           | 45   | 40   | 5          | 15    | 20      | 25    | 50    | 60    | 0                                                                                   | 5                                                                                   | 104S-C72⊗010BC <sup>(4)</sup> |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C72⊗210BC <sup>(4)</sup> |
| 85                                     | 100  | 25                                                 | 45           | 55   | 45   | 7-1/2      | 15    | 25      | 30    | 60    | 60    | 0                                                                                   | 5                                                                                   | 104S-C85⊗010BC <sup>(4)</sup> |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C85⊗210BC <sup>(4)</sup> |
| 97                                     | 130  | 30                                                 | 55           | 55   | 55   | 10         | 15    | 30      | 30    | 75    | 75    | 0                                                                                   | 5                                                                                   | 104S-C97⊗010BC <sup>(4)</sup> |
|                                        |      |                                                    |              |      |      |            |       |         |       |       |       | 1                                                                                   | 5                                                                                   | 104S-C97⊗210BC <sup>(4)</sup> |

(1) For other contact configurations and full product details, please contact your local Rockwell Automation sales office or Allen-Bradley distributor.

(2) If standard cross-stamped front-mount auxiliary contacts are required, remove the letter "B" before the letter "C" in the cat. no. Example: Cat. No. 104S-C09⊗05BC becomes Cat. No. 104S-C09⊗05C.

(3) One of the N.C. auxiliary contacts is supplied as part of the mechanical/electrical interlock.

(4) Front- and side-mount auxiliary contacts on Cat. Nos. 104S-C60...C97 conform to mirror contact performance only.

⊗ Coil voltage code and terminal position— see [page 31](#).

## Coil Voltage Codes

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60 Hz: Cat. No. 100S-C0905BC becomes Cat. No.100S-C09D05BC.

| AC Voltages [V] | 12 | 24 | 32 | 36 | 42 | 48 | 100 | 100...<br>110 | 110 | 120 | 127 | 200 | 200...<br>220     | 208 | 208...<br>240 |
|-----------------|----|----|----|----|----|----|-----|---------------|-----|-----|-----|-----|-------------------|-----|---------------|
| 50 Hz           | R  | K  | V  | W  | X  | Y  | KP  | —             | D   | P   | S   | KG  | L                 | —   | —             |
| 60 Hz           | Q  | J  | —  | V  | —  | X  | —   | KP            | —   | D   | —   | —   | KG                | H   | L             |
| 50/60 Hz        | —  | KJ | —  | —  | —  | KY | KP  | —             | KD  | —   | —   | KG  | KL <sup>(1)</sup> | —   | —             |

(1) Not available on 100S/104S-C97 contactors.

| AC Voltages [V] | 220...<br>230     | 230 | 230...<br>240 | 240 | 277 | 347 | 380 | 380...<br>400 | 400 | 400...<br>415 | 440 | 480 | 500 | 550 | 600 |
|-----------------|-------------------|-----|---------------|-----|-----|-----|-----|---------------|-----|---------------|-----|-----|-----|-----|-----|
| 50 Hz           | F                 | —   | VA            | T   | —   | —   | —   | N             | —   | G             | B   | —   | M   | C   | —   |
| 60 Hz           | —                 | —   | —             | A   | T   | I   | E   | —             | —   | —             | N   | B   | —   | —   | C   |
| 50/60 Hz        | KL <sup>(1)</sup> | KF  | —             | KA  | —   | —   | —   | —             | KN  | —             | KB  | —   | —   | —   | —   |

(1) Not available on 100S/104S-C97 contactors.

| DC Voltages [V] |                                  | 9  | 12 | 24 | 24                | 36 | 36...48 | 48 | 48...72 | 60 | 64 |
|-----------------|----------------------------------|----|----|----|-------------------|----|---------|----|---------|----|----|
| 100S-C09...C55  | Electronic with Integrated Diode | —  | EQ | EJ | QJ <sup>(1)</sup> | —  | EW      | —  | EY      | —  | —  |
| 100S-C60...C97  | with Integrated Diode            | DR | DQ | DJ | —                 | DW | —       | DY | —       | DZ | DB |

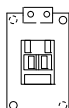
(1) "QJ" coil has faster dropout time (16...21 ms).

| DC Voltages [V] |                                  | 72 | 80 | 110 | 110...125 | 115 | 125 | 220 | 220...250 | 230 | 250 |
|-----------------|----------------------------------|----|----|-----|-----------|-----|-----|-----|-----------|-----|-----|
| 100S-C09...C55  | Electronic with Integrated Diode | —  | —  | —   | ED        | —   | —   | —   | EA        | —   | —   |
| 100S-C60...C97  | with Integrated Diode            | DG | DE | DD  | —         | DP  | DS  | DA  | —         | DF  | DT  |

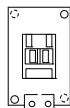
## Coil Terminal Position

All contactors are delivered with the coil terminals located on the line side.

For load side coil terminations, insert a "U" prior to the coil voltage code. Ordering example: Cat. No. 100S-C09UD05BC.



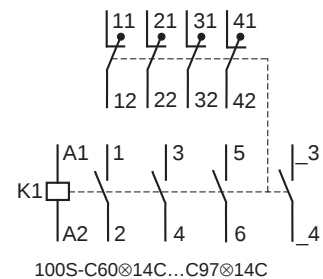
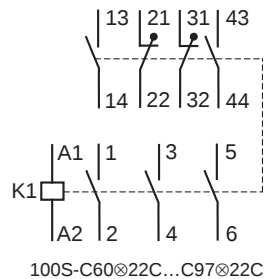
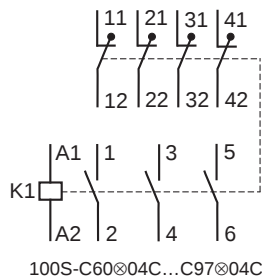
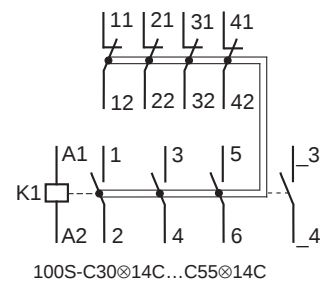
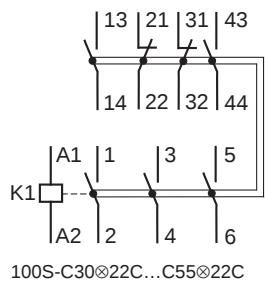
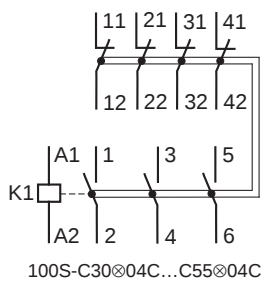
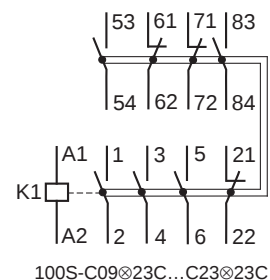
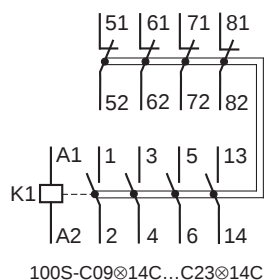
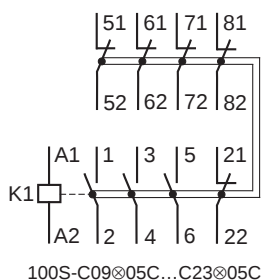
Cat. No.100S-C0905CLine Side



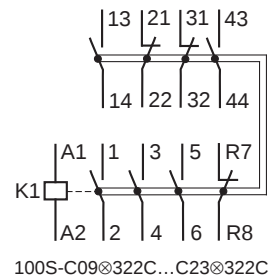
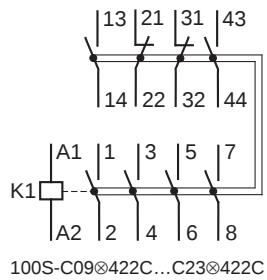
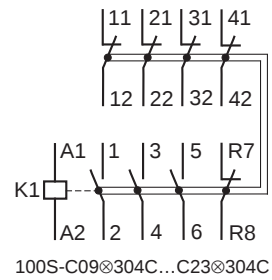
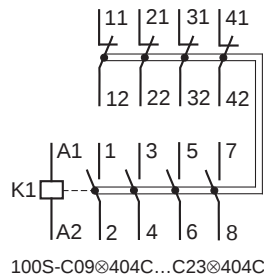
Cat. No.100S-C09U05CLoad Side

## Assignment of Contacts

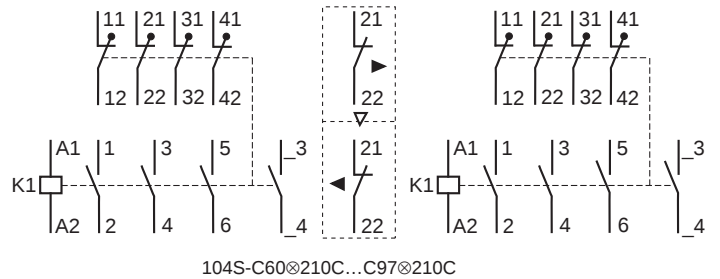
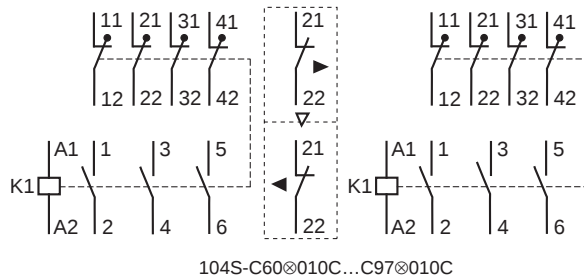
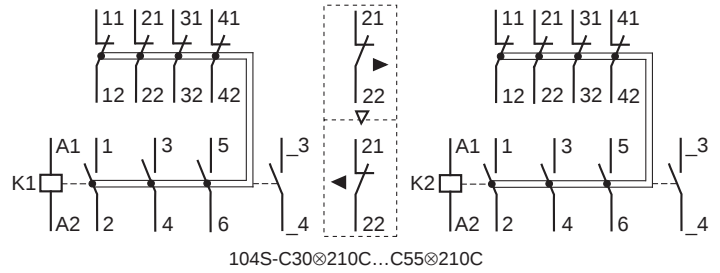
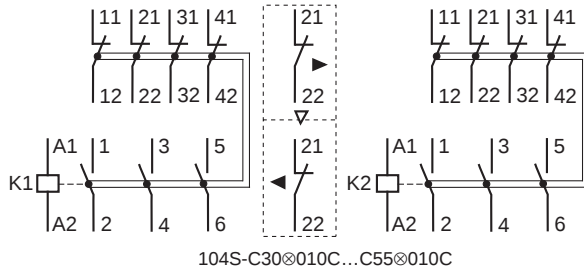
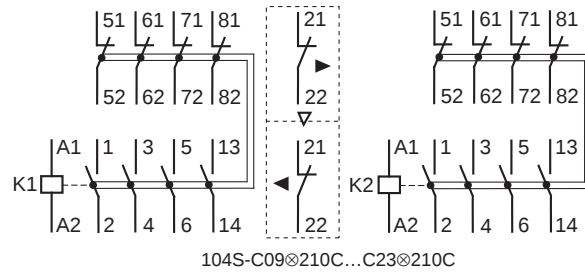
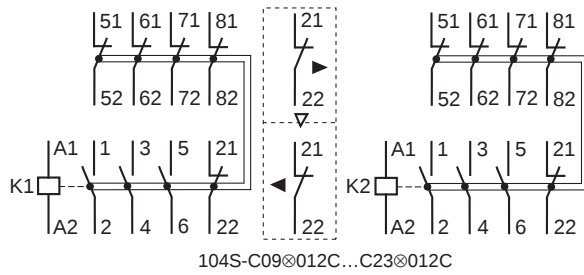
### Safety Contactors with 3 Main Contacts and Standard Front-Mount Auxiliary Contacts



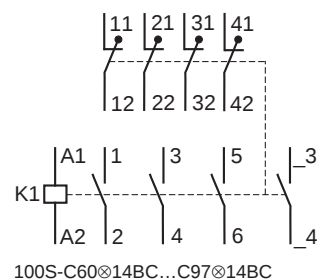
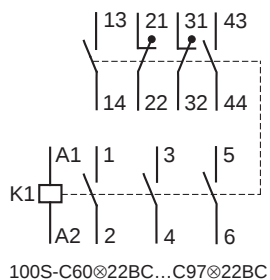
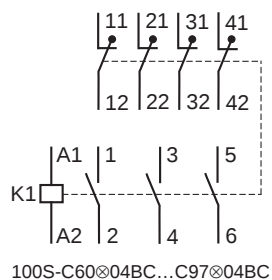
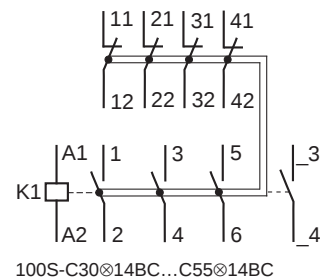
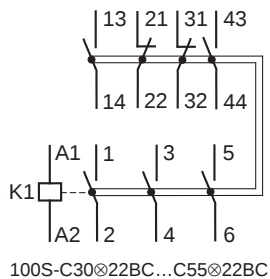
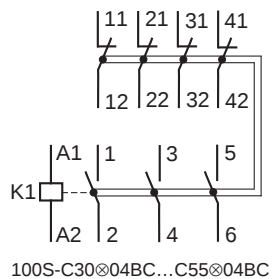
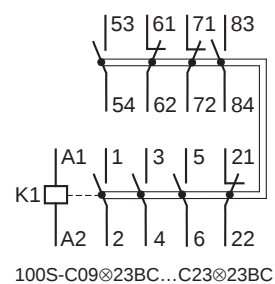
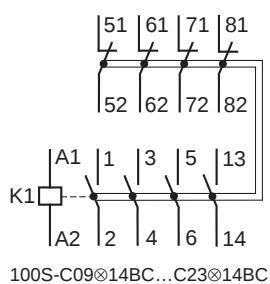
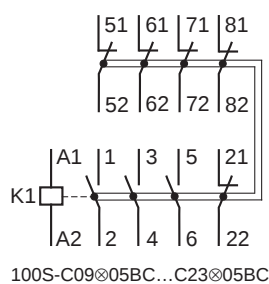
## Safety Contactors with 4 Main Contacts and Standard Front-Mount Auxiliary Contacts



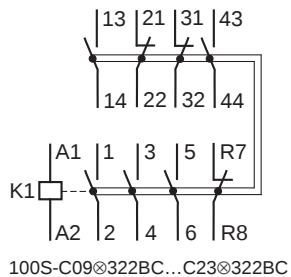
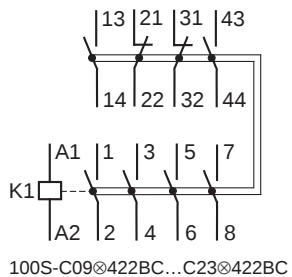
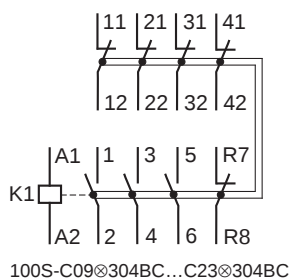
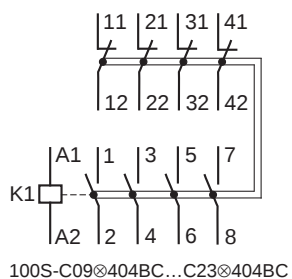
## Safety Reversing Contactors with 3 Main Contacts and Standard Front-Mount Auxiliary Contacts



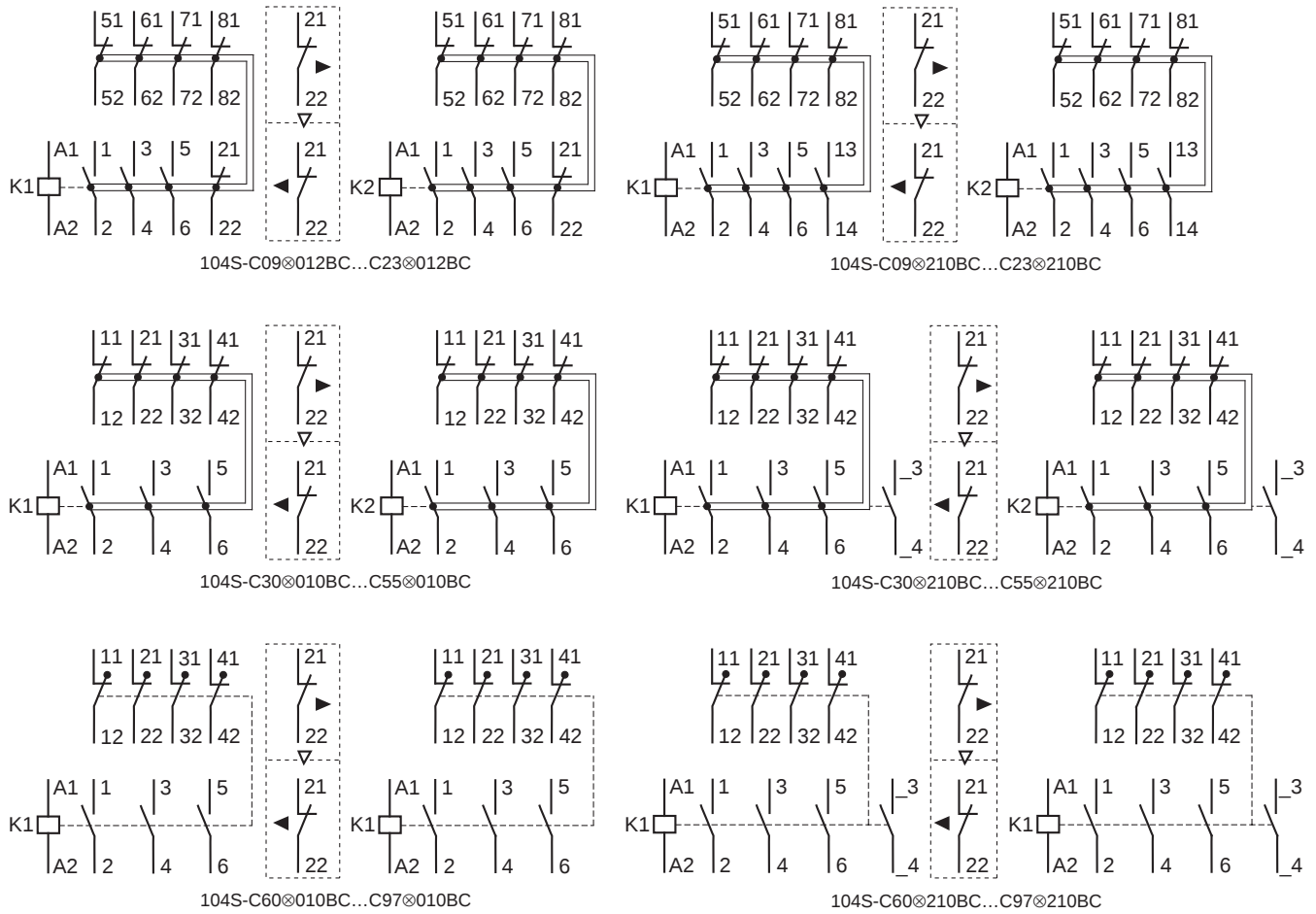
## Safety Contactors with 3 Main Contacts and Bifurcated Front-Mount Auxiliary Contacts



## Safety Contactors with 4 Main Contacts and Bifurcated Front-Mount Auxiliary Contacts



## Safety Reversing Contactors with 3 Main Contacts and Bifurcated Front-Mount Auxiliary Contacts



# Product Selection—100Q-C Capacitor-switching Contactors

- Compact sizes
- Limits high inrush currents
- AC and DC coil control
- Reversible coil terminals
- Panel or 35 mm DIN Rail mounting
- Environmentally friendly materials



The Bulletin 100Q-C Capacitor-Switching contactors are designed for switching banks of capacitors. The unique design uses front-mounted resistor elements that limit the severely high inrush currents seen in these applications. This reduces stress to the contactors and the capacitors, as well as allowing a more compact and economical design without the use of air-core reactors.

## For Applications per IEC 60947-4 (AC-6b)

| Ratings for Switching Capacitor Banks @ 40 °C |      |      |      |      |      |                      |      |      |      |      |      |               |      |             |
|-----------------------------------------------|------|------|------|------|------|----------------------|------|------|------|------|------|---------------|------|-------------|
| 1-Phase 50 Hz (kVar)                          |      |      |      |      |      | 3-Phase 50 Hz (kVar) |      |      |      |      |      | Aux. Contacts |      | Cat. No.    |
| 230V                                          | 240V | 400V | 415V | 500V | 690V | 230V                 | 240V | 400V | 415V | 500V | 690V | N.O.          | N.C. |             |
| 5                                             | 5    | 8.5  | 9    | 10.5 | 15   | 8.5                  | 8.5  | 15   | 15.5 | 18.5 | 25   | 1             | 1    | 100Q-C16⊗11 |
|                                               |      |      |      |      |      |                      |      |      |      |      |      | 2             | 0    | 100Q-C16⊗20 |
| 8                                             | 8.5  | 14   | 14.5 | 17.5 | 24   | 14                   | 14   | 25   | 25   | 30   | 40   | 1             | 1    | 100Q-C37⊗11 |
|                                               |      |      |      |      |      |                      |      |      |      |      |      | 2             | 0    | 100Q-C37⊗20 |

| Ratings for Switching Capacitor Banks @ 40 °C |      |      |      |      |      |                      |      |      |      |      |      |               |      |             |
|-----------------------------------------------|------|------|------|------|------|----------------------|------|------|------|------|------|---------------|------|-------------|
| 1-Phase 50 Hz (kVar)                          |      |      |      |      |      | 3-Phase 50 Hz (kVar) |      |      |      |      |      | Aux. Contacts |      | Cat. No.    |
| 230V                                          | 240V | 400V | 415V | 500V | 690V | 230V                 | 240V | 400V | 415V | 500V | 690V | N.O.          | N.C. |             |
| 5                                             | 5    | 8.5  | 9    | 10.5 | 15   | 8.5                  | 8.5  | 15   | 15.5 | 18.5 | 25   | 1             | 1    | 100Q-C16⊗11 |
|                                               |      |      |      |      |      |                      |      |      |      |      |      | 2             | 0    | 100Q-C16⊗20 |
| 8                                             | 8.5  | 14   | 14.5 | 17.5 | 24   | 14                   | 14   | 25   | 25   | 30   | 40   | 1             | 1    | 100Q-C37⊗11 |
|                                               |      |      |      |      |      |                      |      |      |      |      |      | 2             | 0    | 100Q-C37⊗20 |

## For Applications per UL/CSA

| Ratings for Switching Capacitor Banks |      |                      |      |      |      |               |      |             |
|---------------------------------------|------|----------------------|------|------|------|---------------|------|-------------|
| 1-Phase 60 Hz (kVar)                  |      | 3-Phase 60 Hz (kVar) |      |      |      | Aux. Contacts |      | Cat. No.    |
| 115V                                  | 230V | 200V                 | 230V | 460V | 600V | N.O.          | N.C. |             |
| 2.2                                   | 4.5  | 6.5                  | 7.5  | 15   | 18.5 | 1             | 1    | 100Q-C16⊗11 |
|                                       |      |                      |      |      |      | 2             | 0    | 100Q-C16⊗20 |
| 3.6                                   | 7.5  | 11                   | 12.5 | 20   | 25   | 1             | 1    | 100Q-C37⊗11 |
|                                       |      |                      |      |      |      | 2             | 0    | 100Q-C37⊗20 |

⊗ Coil voltage code — see [page 39](#).

## Coil Voltage Codes

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60 Hz: Cat. No. 100Q-C16Ø11 becomes Cat. No.100Q-C16D11.

| AC Voltages [V] | 12 | 24 | 32 | 36 | 42 | 48 | 100 | 100...<br>110 | 110 | 120 | 127 | 200 | 200...<br>220 | 208 | 208...<br>240 |
|-----------------|----|----|----|----|----|----|-----|---------------|-----|-----|-----|-----|---------------|-----|---------------|
| 50 Hz           | R  | K  | V  | W  | X  | Y  | KP  | —             | D   | P   | S   | KG  | L             | —   | —             |
| 60 Hz           | Q  | J  | —  | V  | —  | X  | —   | KP            | —   | D   | —   | —   | KG            | H   | L             |
| 50/60 Hz        | —  | KJ | —  | —  | —  | KY | KP  | —             | KD  | —   | —   | KG  | KL            | —   | —             |

| AC Voltages [V] | 220...<br>230 | 230 | 230...<br>240 | 240 | 277 | 347 | 380 | 380...<br>400 | 400 | 400...<br>415 | 440 | 480 | 500 | 550 | 600 |
|-----------------|---------------|-----|---------------|-----|-----|-----|-----|---------------|-----|---------------|-----|-----|-----|-----|-----|
| 50 Hz           | F             | —   | VA            | T   | —   | —   | —   | N             | —   | G             | B   | —   | M   | C   | —   |
| 60 Hz           | —             | —   | —             | A   | T   | I   | E   | —             | —   | —             | N   | B   | —   | —   | C   |
| 50/60 Hz        | KL            | KF  | —             | KA  | —   | —   | —   | —             | KN  | —             | KB  | —   | —   | —   | —   |

| DC Voltages [V]                  | 9 | 12 | 24 | 36 | 48 | 60 | 64 | 72 |
|----------------------------------|---|----|----|----|----|----|----|----|
| Electronic with Integrated Diode | — | EQ | EJ | —  | —  | —  | —  | —  |

| DC Voltages [V]                  | 80 | 110 | 110...125 | 115 | 125 | 220 | 220...250 | 230 | 250 |
|----------------------------------|----|-----|-----------|-----|-----|-----|-----------|-----|-----|
| Electronic with Integrated Diode | —  | —   | ED        | —   | —   | —   | EA        | —   | —   |

## Maximum Operational Rates

- 100Q-C16      200 operations/hour
- 100Q-C37      100 operations/hour

|                                                                                     | Description <sup>(1)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Connection Diagrams                                                                 |   |      | For Use With         | Cat. No.                                  |                              |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------|-------------------------------------------|------------------------------|
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | N.O.                                                                                                                                                                   | N.C. |                      | Standard Auxiliary Contact <sup>(2)</sup> | Bifurcated Auxiliary Contact |
|    | <b>Auxiliary Contact Blocks for Front Mounting</b> <ul style="list-style-type: none"> <li>2- and 4-pole</li> <li>Quick and easy mounting without tools</li> <li>Electronic-compatible contacts down to 17V, 5mA</li> <li>Mechanically linked performance between N.O. and N.C. poles and to the main contactor poles (except for L types)</li> <li>Models with equal function with several terminal numbering choices</li> <li>1L = Late break N.C. / early make N.O.</li> <li>Bifurcated version for switching down to 5V, 3 mA also available</li> </ul> |    | 0                                                                                                                                                                      | 2    | 100-C all            | 100-FA02                                  | 100-FAB02                    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     |                                                                                                                                                                        |      | C30⊗00...C97⊗00      | 100-FB02                                  | 100-FBB02                    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 1                                                                                                                                                                      | 1    | 100-C all            | 100-FA11                                  | 100-FAB11                    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     |                                                                                                                                                                        |      | C30⊗00...C97⊗00      | 100-FB11                                  | 100-FBB11                    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     |                                                                                                                                                                        |      | C09⊗10...C23⊗10      | 100-FC11                                  | 100-FCB11                    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 2                                                                                                                                                                      | 0    | 100-C all            | 100-FA20                                  | 100-FAB20                    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     |                                                                                                                                                                        |      | C30⊗00...C97⊗00      | 100-FB20                                  | 100-FBB20                    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 1L                                                                                                                                                                     | 1L   | 100-C all            | 100-FAL11                                 | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     |                                                                                                                                                                        |      | C30⊗00...C97⊗00      | 100-FBL11                                 | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 0                                                                                                                                                                      | 4    | 100-C all            | 100-FA04                                  | 100-FAB04                    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 1                                                                                                                                                                      | 3    | 100-C all            | 100-FA13                                  | 100-FAB13                    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 2                                                                                                                                                                      | 2    | 100-C all            | 100-FA22                                  | 100-FAB22                    |
|  | <b>Auxiliary Contact Blocks for Side Mounting without Sequence Terminal Designations</b> <ul style="list-style-type: none"> <li>1- and 2-pole</li> <li>Two-way numbering for right or left mounting on the contactor</li> <li>Quick and easy mounting without tools</li> <li>Electronic-compatible contacts down to 17V, 10 mA</li> <li>Mirror contact performance to the main contactor poles</li> <li>1L = Late break N.C. / early make N.O.</li> </ul>                                                                                                  |  | 0                                                                                                                                                                      | 1    | 100-C all            | 100-SA01                                  | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 1                                                                                                                                                                      | 0    | 100-C all            | 100-SA10                                  | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 0                                                                                                                                                                      | 2    | 100-C all            | 100-SA02                                  | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 1                                                                                                                                                                      | 1    | 100-C all            | 100-SA11                                  | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 2                                                                                                                                                                      | 0    | 100-C all            | 100-SA20                                  | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 1L                                                                                                                                                                     | 1L   | 100-C all            | 100-SAL11                                 | —                            |
|  | <b>Auxiliary Contact Blocks for Side Mounting with Sequence Terminal Designations</b> <ul style="list-style-type: none"> <li>1- and 2-pole</li> <li>Two-way numbering for right or left mounting on the contactor</li> <li>Quick and easy mounting without tools</li> <li>Electronic-compatible contacts down to 17V, 10 mA</li> <li>Mirror contact performance to the main contactor poles</li> <li>1L = Late break N.C. / early make N.O.</li> </ul>                                                                                                     |  | 0                                                                                                                                                                      | 1    | 100-C                | 100-SB01                                  | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 1                                                                                                                                                                      | 0    | 100-C <sup>(3)</sup> | 100-SB10                                  | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 0                                                                                                                                                                      | 2    | 100-C <sup>(3)</sup> | 100-SB02                                  | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 1                                                                                                                                                                      | 1    | 100-C <sup>(3)</sup> | 100-SB11                                  | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 2                                                                                                                                                                      | 0    | 100-C <sup>(3)</sup> | 100-SB20                                  | —                            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     | 1L                                                                                                                                                                     | 1L   | 100-C <sup>(3)</sup> | 100-SBL11                                 | —                            |

Rockwell Automation Publication 100-TD013G-EN-P - August 2018

## Control Modules

### Timers

|                                                                                     | Description                                                                                                                                                                                                                                                                                                               | Connection Diagrams                                            | For Use With                                                      | Cat. No.     |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------|--------------|
|    | Pneumatic Timing Modules<br>• Pneumatic timing element contacts switch after the delay time. The contacts on the main control relay continue to operate without delay                                                                                                                                                     | On-Delay, 0.3...30 s                                           | 100-C or 700-CF with AC or 24V DC electronic coils <sup>(1)</sup> | 100-FPTA30   |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 2...180 s                                                      |                                                                   | 100-FPTA180  |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | Off-Delay 0.3...30 s                                           | 100-C all, 700-CF all                                             | 100-FPTB30   |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 2...180 s                                                      |                                                                   | 100-FPTB180  |
|    | Electronic Timing Modules — On-Delay<br>• Delay of the contactor or control relay solenoid. The contactor or control relay is energized at the end of the delay time.                                                                                                                                                     | 0.1...3 s                                                      | 100-C or 700-CF with 110...240V, 50/60Hz or 110...250V DC coils   | 100-ETA3     |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 1...30 s                                                       |                                                                   | 100-ETA30    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 10...180 s                                                     |                                                                   | 100-ETA180   |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 0.1...3 s                                                      | 100-C or 700-CF with 24...48VDC coils                             | 100-ETAJ3    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 1...30 s                                                       |                                                                   | 100-ETAJ30   |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 10...180 s                                                     |                                                                   | 100-ETAJ180  |
|   | Electronic Timing Modules — Off-Delay<br>• Delay of the contactor or control relay solenoid. After interruption of the control signal, the contactor or control relay is de-energized at the end of the delay time.                                                                                                       | 0.3...3 s                                                      | 100-C09...C37 or 700-CF with 24V 50/60Hz                          | 100-ETBKJ3   |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 1...30 s                                                       |                                                                   | 100-ETBKJ30  |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 10...180 s                                                     |                                                                   | 100-ETBKJ180 |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 0.3...3 s                                                      | 100-C or 700-CF with 110...240V 50/60Hz coils                     | 100-ETB3     |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 1...30 s                                                       |                                                                   | 100-ETB30    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | 10...180 s                                                     |                                                                   | 100-ETB180   |
|  | Electronic Timing Modules<br>• Delay of the contactor solenoid. Contactor K 3 (Y) is de-energized (off) and K 2 (D) is energized (on) after the end of the set Y end time. (Switching delay at 50 ms.)<br>• Continuous adjustment range<br>• High repeat                                                                  | Transition Time Y Contactor 1...30 s                           | 100-C with 110...240V 50/60Hz coils                               | 100-ETY30    |
|  | Mechanical Interlocks<br>• For interlocking of two contactors.<br>• Common interlock for most Bul. 100-C contactor sizes<br>• Interlocking of different sizes possible<br>• Mechanical and electrical interlocking possible in one module by means of integrated auxiliary contacts<br>• 9 mm dovetail connector included | Mechanical only, without auxiliary contacts                    | 100-C (except 100-C40, -C90)                                      | 100-MCA00    |
|                                                                                     |                                                                                                                                                                                                                                                                                                                           | Mechanical/electrical interlock with 2 N.C. auxiliary contacts | 100-C (except 100-C40, -C90)                                      | 100-MCA02    |
|  | Mechanical Latch<br>• Following contactor latching, the contactor coil is immediately de-energized (off) by the N.C. auxiliary contact (65-66).<br>• Electrical or manual release<br>• 1 N.O. + 1 N.C. auxiliary contacts<br>• Suitable for all Bul. 100-C contactor sizes, 9...97 A                                      | Maximum command duration 0.03...10 s                           | 100-C with AC or 24V DC electronic coils (except 100-C90)         | 100-FL11⊗    |

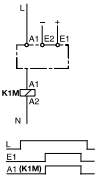
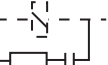
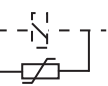
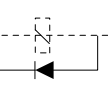
(1) Cannot be used with side-mounted auxiliary contacts on 700-CF DC relays.

**Coil Voltage Code:** The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60 Hz: Cat. No. 100-FL11⊗ becomes Cat. No.100-FL11D

| AC Voltages [V] <sup>(1)</sup> | 24 | 48 | 100 | 110 | 120 | 230...240 | 240 | 277 | 380...400 | 400...415 | 440 | 480 |
|--------------------------------|----|----|-----|-----|-----|-----------|-----|-----|-----------|-----------|-----|-----|
| 50 Hz                          | K  | Y  | KP  | D   | —   | VA        | KA  | —   | N         | G         | B   | —   |
| 60 Hz                          | J  | —  | —   | —   | D   | —         | KA  | T   | —         | —         | N   | B   |

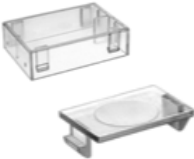
(1) For special voltages, consult your local Rockwell Automation sales office or Allen-Bradley distributor.

## Control Modules (For 100-C09...C97 contactors), Continued

|                                                                                   | Description                                                                                                                                                                                                                                      |                           | Voltage Range                               | Connection Diagrams                                                                 | For Use With                                          | Cat. No.                  |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------------|
|  | DC Interface (Electronic) <ul style="list-style-type: none"> <li>Interface between the DC control signal (PLC) and the AC operating mechanism of the contactor.</li> <li>Requires no additional surge suppression on the relay coils.</li> </ul> |                           | Input: 12V DC<br>Output: 110...240V AC      |  | 100-C with AC coils<br>110...240V AC                  | 100-JE12                  |
|                                                                                   |                                                                                                                                                                                                                                                  |                           | Input: 18...30V DC<br>Output: 110...240V AC |                                                                                     |                                                       | 100-JE                    |
|                                                                                   |                                                                                                                                                                                                                                                  |                           | Input: 48V DC<br>Output: 110...240V AC      |                                                                                     |                                                       | 100-JE48                  |
|  | RC Module<br>AC operating mechanism                                                                                                                                                                                                              | AC operating mechanism    | 24...48V AC, 50/60 Hz                       |  | 100-C with Coils                                      | 100-FSC48 <sup>(1)</sup>  |
|                                                                                   |                                                                                                                                                                                                                                                  |                           | 110...280V AC, 50/60 Hz                     |                                                                                     |                                                       | 100-FSC280 <sup>(1)</sup> |
|                                                                                   |                                                                                                                                                                                                                                                  |                           | 380...480V AC, 50/60 Hz                     |                                                                                     |                                                       | 100-FSC480 <sup>(1)</sup> |
|                                                                                   | Varistor Module<br>AC/DC operating mechanism                                                                                                                                                                                                     | AC/DC operating mechanism | 12...55V AC, 12...77V DC                    |  | 100-C with AC coils or<br>100-C09...C43 with DC coils | 100-FSV55 <sup>(1)</sup>  |
|                                                                                   |                                                                                                                                                                                                                                                  |                           | 56...136V AC/78...180V DC                   |                                                                                     |                                                       | 100-FSV136 <sup>(1)</sup> |
|                                                                                   |                                                                                                                                                                                                                                                  |                           | 137...277V AC/181...350V DC                 |                                                                                     |                                                       | 100-FSV277 <sup>(1)</sup> |
|                                                                                   |                                                                                                                                                                                                                                                  |                           | 278...575V AC                               |                                                                                     |                                                       | 100-FSV575 <sup>(1)</sup> |
|                                                                                   | Diode Module<br>DC operating mechanism                                                                                                                                                                                                           | DC operating mechanism    | 1...30 s<br>10...180 s                      |  | 100-C09...C43 with DC coils                           | 100-FSD250 <sup>(1)</sup> |

(1) For screwless terminals, insert "CR" after the "100-" in the catalog number. Example: Cat No. 100-FSC48 becomes Cat. No.-CRFSC48.

## Assembly Components (For 100-C09...C97 contactors)

|                                                                                     | Description                                                                                                                                                                                                             | For Use With                  | Pkg. Qty. | Cat. No. |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------|----------|
|  | Dovetail Connectors <ul style="list-style-type: none"> <li>For use in contactor and starter assemblies</li> <li>Single Connector — 0 mm spacing</li> </ul>                                                              | 100-C                         | 10        | 100-S0   |
|                                                                                     | Dovetail Connectors <ul style="list-style-type: none"> <li>For use in contactor and starter assemblies</li> <li>Single Connector — 9mm spacing</li> </ul>                                                               |                               | 10        |          |
|  | Protective Covers <ul style="list-style-type: none"> <li>Provides protection against unintended manual operation</li> <li>For contactors and front-mounted auxiliary contacts, pneumatic timers, and latches</li> </ul> | 100-C all                     | 1         | 100-SCCA |
|                                                                                     |                                                                                                                                                                                                                         | 100-FA, -FB, -FC, -FP, -FL    | 10        | 100-SCFA |
|  | Reversing Power Wiring Kits <ul style="list-style-type: none"> <li>For reversing connection with a solid-state or thermal overload relay</li> </ul>                                                                     | 100-C09...C23                 | 1         | 105-PW23 |
|                                                                                     |                                                                                                                                                                                                                         | 100-C30...C37                 | 1         | 105-PW37 |
|                                                                                     |                                                                                                                                                                                                                         | 100-C43...C55                 | 1         | 105-PW55 |
|                                                                                     |                                                                                                                                                                                                                         | 100-C60...C97                 | 1         | 105-PW85 |
|  | DIN (#3) symmetrical hat rail <ul style="list-style-type: none"> <li>35 x 7.5 x 1 m</li> </ul>                                                                                                                          | 140M-D<br>140M-F<br>100-C all | 10        | 199-DR1  |

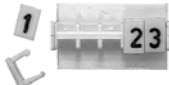
## Wye-Delta/Star-Delta Starter Kits

Wye-Delta power wiring kits are designed to aid in the field assembly of open-transition wye-delta starters that use Bulletin 100-C contactors. These kits include line, load, and start-point (shorting) connections. Assembling a wye-delta starter requires the use of the following additional components:

- Contactors
- Overload Relay
- Cat. No. 100-MCA02 Mechanical/Electrical Interlock Cat. No. 100-ETY30 Electronic Y- Timer
- Cat. No. 100-S9 Base Coupler for 1M to 2M contactor (optional)

|                                                                                   | 3-Phase Rating |          |      |      |            |      |      |      |                        |     |     | Pkg Qty. | Cat. No. |
|-----------------------------------------------------------------------------------|----------------|----------|------|------|------------|------|------|------|------------------------|-----|-----|----------|----------|
|                                                                                   | kW (50 Hz)     |          |      |      | Hp (60 Hz) |      |      |      | Use with Cat. No. 100- |     |     |          |          |
|                                                                                   | 230V           | 380/415V | 500V | 690V | 200V       | 230V | 460V | 575V | Delta                  |     | Wye |          |          |
|                                                                                   |                |          |      |      |            |      |      |      | 1M                     | 2M  | 1S  |          |          |
|  | 5.5            | 7.5      | 7.5  | 7.5  | 5          | 5    | 10   | 10   | C09                    | C09 | C09 | 1        | 170-PW23 |
|                                                                                   | 7.5            | 11       | 11   | 10   | 5          | 7.5  | 15   | 15   | C12                    | C12 | C09 | 1        | 170-PW23 |
|                                                                                   | 10             | 15       | 15   | 13   | 7.5        | 10   | 20   | 20   | C16                    | C16 | C12 | 1        | 170-PW23 |
|                                                                                   | 13             | 22       | 22   | 18.5 | 7.5        | 10   | 25   | 25   | C23                    | C23 | C12 | 1        | 170-PW23 |
|                                                                                   | 17             | 25       | 25   | 25   | 10         | 15   | 30   | 30   | C30                    | C30 | C16 | 1        | 170-PW37 |
|                                                                                   | 20             | 37       | 32   | 32   | 15         | 20   | 40   | 40   | C37                    | C37 | C23 | 1        | 170-PW37 |
|                                                                                   | 22             | 40       | 40   | 40   | 20         | 25   | 50   | 50   | C43                    | C43 | C30 | 1        | 170-PW55 |
|                                                                                   | 30             | 45       | 45   | 45   | 25         | 30   | 60   | 60   | C55                    | C55 | C37 | 1        | 170-PW55 |
|                                                                                   | 32             | 55       | 55   | 55   | 30         | 40   | 75   | 75   | C60                    | C60 | C37 | 1        | 170-PW72 |
|                                                                                   | 40             | 63       | 63   | 63   | 40         | 50   | 100  | 100  | C72                    | C72 | C43 | 1        | 170-PW72 |
|                                                                                   | 50             | 80       | 80   | 80   | 50         | 60   | 125  | 125  | C85                    | C85 | C60 | 1        | 170-PW85 |
|                                                                                   | 50             | 90       | 90   | 90   | 50         | 60   | 125  | 125  | C97                    | C97 | C60 | 1        | 170-PW85 |

### Marking Systems (For 100-C09...C97 contactors)

|                                                                                     | Description                                                                                             | Pkg. Qty. <sup>(1)</sup> | Cat. No. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------|----------|
|  | Label Sheet<br>• 105 self-adhesive paper labels each, 6 x 17 mm                                         | 10                       | 100-FMS  |
|  | Marking Tag Sheet<br>• 106 perforated paper labels each, 6 x 17 mm, to be used with a transparent cover | 10                       | 100-FMP  |
|                                                                                     | Transparent Cover<br>• To be used with marking tag sheets                                               | 100                      | 100-FMC  |
|  | Marking Tag Adapters<br>• To be used with marking tag: System V7                                        | 100                      | 100-FMA1 |
|                                                                                     | Marking Tag Adapters<br>• To be used with marking tag: System 1492 W                                    | 100                      | 100-FMA2 |

(1) Must be ordered in multiples of package quantities

**Terminal Kits (For 100-C09...C97 contactors)**

|                                                                                    | Description                                                                                                                                             | Max. Current Ratings and Wire Sizes       |                                                                                                                                                                        | Pkg. Qty <sup>(2)</sup> | Cat. No.  |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------|
|   | Stab Connector Kit <ul style="list-style-type: none"><li>Dual stab (0.250 in.) for 100-C coil terminals</li><li>For 100-C09...C97 contactors</li></ul>  |                                           |                                                                                                                                                                        | 20                      | 199-SC2   |
|   | Stab Connector Kit <ul style="list-style-type: none"><li>Dual stab (0.250 in.) for 100-C power terminals</li><li>For 100-C09...C23 contactors</li></ul> |                                           |                                                                                                                                                                        | 100                     | 199-SC10  |
|   | 3-Pole Terminal Lug Kit <ul style="list-style-type: none"><li>For Cat. No. 100-C09...C23 (Line side)</li></ul>                                          | IEC @ 40 °C IEC @ 40 °C<br>UL/CSA (Encl.) | 45 A (4...16 mm <sup>2</sup> , fine stranded w/ ferrule) <sup>(1)</sup><br>45 A (4...25 mm <sup>2</sup> , coarse stranded/solid)<br>40 A (#10...4 AWG, stranded/solid) | 1                       | 100-CTN23 |
|                                                                                    | 3-Pole Terminal Lug Kit <ul style="list-style-type: none"><li>For Cat. No. 100-C09...C23 (Load side)</li></ul>                                          | IEC @ 40 °C IEC @ 40 °C<br>UL/CSA (Encl.) | 45 A (4...16 mm <sup>2</sup> , fine stranded w/ ferrule)<br>45 A (4...25 mm <sup>2</sup> , coarse stranded/solid)<br>40 A (#10...4 AWG, stranded/solid)                | 1                       | 100-CTL23 |
|                                                                                    | 3-Pole Terminal Lug Kit <ul style="list-style-type: none"><li>For Cat. No. 100-C30...C37 (Line and load side)</li></ul>                                 | IEC @ 40 °C IEC @ 40 °C<br>UL/CSA (Encl.) | 60 A (4...16 mm <sup>2</sup> , fine stranded w/ ferrule)<br>60 A (4...25 mm <sup>2</sup> , coarse stranded/solid)<br>55 A (#10...4 AWG, stranded/solid)                | 1                       | 100-CT37  |
|   | 1-Pole Terminal Lug Kit <ul style="list-style-type: none"><li>For Cat. No. 100-C43</li></ul>                                                            | IEC @ 40 °C IEC @ 40 °C<br>UL/CSA (Encl.) | 90 A (6...35 mm <sup>2</sup> , fine stranded w/ ferrule)<br>90 A (6...50 mm <sup>2</sup> , coarse stranded/solid)<br>75 A (#8...2 AWG, stranded/solid)                 | 3                       | 100-CT43  |
|                                                                                    | 1-Pole Terminal Lug Kit <ul style="list-style-type: none"><li>For Cat. No. 100-C60...C97</li></ul>                                                      | IEC @ 40 °C IEC @ 40 °C<br>UL/CSA (Encl.) | 130 A (10...70 mm <sup>2</sup> , fine stranded w/ ferrule) 130 A (10...95 mm <sup>2</sup> , coarse stranded/solid)<br>130 A (#8...2/0 AWG, stranded/solid)             | 3                       | 100-CT85  |
|  | 3-Pole Paralleling Kit <ul style="list-style-type: none"><li>For Cat. No. 100-C09...C23</li></ul>                                                       | IEC @ 40 °C IEC @ 40 °C<br>UL/CSA (Encl.) | 100 A (35...70 mm <sup>2</sup> , fine stranded w/ ferrule) 100 A (35...95 mm <sup>2</sup> , coarse stranded/solid)<br>100 A (#0...2/0 AWG, stranded/solid)             | 2                       | 100-CP23  |
|                                                                                    | 3-Pole Paralleling Kit <ul style="list-style-type: none"><li>For Cat. No. 100-C30...C37</li></ul>                                                       | IEC @ 40 °C IEC @ 40 °C<br>UL/CSA (Encl.) | 150 A (35...70 mm <sup>2</sup> , fine stranded w/ ferrule) 150 A (35...95 mm <sup>2</sup> , coarse stranded/solid)<br>150 A (#0...2/0 AWG, stranded/solid)             | 2                       | 100-CP37  |

(1) 16 mm<sup>2</sup> max. according to IEC 60947; actual max. 25 mm<sup>2</sup>

(2) Must be ordered in multiples of the package quantity.

**SEMI-F47 Voltage Sag Immunity Module**

|                                                                                     | Description                                                                                                                                                                                                                              | Input Voltage | For Use With <sup>(1)</sup> | Options                      | Cat. No.     |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------|------------------------------|--------------|
|  | SEMI-F47 Module<br>• Meets SEMI-F47 voltage sag immunity requirements<br>• Direct mounting to coil terminals of 100-C contactors and 700-CF control relays<br>• Requires DC coil contactor<br>• Optional 1...30 s ON-delay timer version | 24...240V AC  | 100-C60...C97               | without timer                | 100-CSF47    |
|                                                                                     |                                                                                                                                                                                                                                          | 110...240V AC | 100-C60...C97               | with 1...30 s ON-delay timer | 100-CSF47A30 |

(1) Contactor must have DC coil at the same voltage as AC input. Example: for 24V AC control, select Cat. No. 100-C09ZJ10 (24V DC coil).

# Renewal Parts

## Replacement Coils for AC Contactors



| AC Standard Control Voltages [V] |           |           | AC Coil Code | 100-C09...100-C16 | 100-C23...100-C37, 100L-C20 | 100-C40, -C43 | 100-C60...100-C85 | 100-C90...100-C97 |
|----------------------------------|-----------|-----------|--------------|-------------------|-----------------------------|---------------|-------------------|-------------------|
| 50 Hz                            | 60 Hz     | 50/60 Hz  |              | Cat. No.          | Cat. No.                    | Cat. No.      | Cat. No.          | Cat. No.          |
| —                                | 12        | —         | Q            | TA006             | TC006                       | TD006         | TE006             | TF006             |
| 12                               | —         | —         | R            | TA404             | TC404                       | TD404         | TE404             | TF404             |
| —                                | 24        | —         | J            | TA013             | TC013                       | TD013         | TE013             | TF013             |
| 24                               | —         | —         | K            | TA407             | TC407                       | TD407         | TE407             | TF407             |
| —                                | —         | 24        | KJ           | TA855             | TC855                       | TD855         | TE855             | TF855             |
| 32                               | 36        | —         | V            | TA481             | TC481                       | TD481         | TE481             | TF481             |
| 36                               | 42        | —         | W            | TA410             | TC410                       | TD410         | TE410             | TF410             |
| 42                               | 48        | —         | X            | TA482             | TC482                       | TD482         | TE482             | TF482             |
| 48                               | —         | —         | Y            | TA414             | TC414                       | TD414         | TE414             | TF414             |
| —                                | —         | 48        | KY           | TA860             | TC860                       | TD860         | TE860             | TF860             |
| 100                              | 100...110 | 100       | KP           | TA861             | TC861                       | TD861         | TE861             | TF861             |
| 110                              | 120       | —         | D            | TA473             | TC473                       | TD473         | TE473             | TF473             |
| —                                | —         | 110       | KD           | TA856             | TC856                       | TD856         | TE856             | TF856             |
| 120                              | —         | —         | P            | TA425             | TC425                       | TD425         | TE425             | TF425             |
| 127                              | —         | —         | S            | TA428             | TC428                       | TD428         | TE428             | TF428             |
| 200                              | 200...220 | 200       | KG           | TA862             | TC862                       | TD862         | TE862             | TF862             |
| —                                | 208       | —         | H            | TA049             | TC049                       | TD049         | TE049             | TF049             |
| 200...220                        | 208...240 | —         | L            | TA296             | TC296                       | TD296         | TE296             | TF296             |
| —                                | —         | 200...230 | KL           | TA864             | TC864                       | TD864         | TE864             | —                 |
| 220                              | 240       | —         | A            | TA474             | TC474                       | TD474         | TE474             | TF474             |
| 220...230                        | 260       | —         | F            | TA441             | TC441                       | TD441         | TE441             | TF441             |
| —                                | —         | 230       | KF           | TA851             | TC851                       | TD851         | TE851             | TF851             |
| 230...240                        | —         | —         | VA           | TA440             | TC440                       | TD440         | TE440             | TF440             |
| 240                              | 277       | —         | T            | TA480             | TC480                       | TD480         | TE480             | TF480             |
| —                                | —         | 240       | KA           | TA858             | TC858                       | TD858         | TE858             | TF858             |
| —                                | 347       | —         | I            | TA065             | TC065                       | TD065         | TE065             | TF065             |
| —                                | 380       | —         | E            | TA067             | TC067                       | TD067         | TE067             | TF067             |
| 380...400                        | 440       | —         | N            | TA071             | TC071                       | TD071         | TE071             | TF071             |
| —                                | —         | 400       | KN           | TA863             | TC863                       | TD863         | TE863             | TF863             |
| 400...415                        | —         | —         | G            | TA457             | TC457                       | TD457         | TE457             | TF457             |
| 440                              | 480       | —         | B            | TA475             | TC475                       | TD475         | TE475             | TF475             |
| —                                | —         | 440       | KB           | TA859             | TC859                       | TD859         | TE859             | TF859             |
| 500                              | —         | —         | M            | TA479             | TC479                       | TD479         | TE479             | TF479             |
| 550                              | 600       | —         | C            | TA476             | TC476                       | TD476         | TE476             | TF476             |

## Replacement Coils for DC Contactors



| DC Control Voltage [V]               | DC Coil Code | 100-C09...100-C16, 100Q-C16 | 100-C23...100-C37, 100Q-C37 | 100-C40...100-C55 (Series A) | 100-C40...100-C55 (Series B) | 100-C60...100-C85 | 100-C90...100-C97 |
|--------------------------------------|--------------|-----------------------------|-----------------------------|------------------------------|------------------------------|-------------------|-------------------|
|                                      |              | Cat. No.                    | Cat. No.                    | Cat. No.                     | Cat. No.                     | Cat. No.          | Cat. No.          |
| 9V Diode <sup>(1)</sup>              | DR           | —                           | —                           | —                            | —                            | TE766M            | TF766M            |
| 12V Electronic <sup>(2)</sup>        | EQ           | TC708E                      | TC708E                      | TD708E                       | TD708E2                      | —                 | —                 |
| 12V Diode                            | DQ           | —                           | —                           | —                            | —                            | TE708M            | TF708M            |
| 24V Electronic <sup>(2)</sup>        | EJ           | TC714E                      | TC714E                      | TD714E                       | TD714E2                      | —                 | —                 |
| 24V Electronic <sup>(3)</sup>        | QJ           | TC714Q                      | TC714Q                      | TD714Q                       | TD714Q2                      | —                 | —                 |
| 24V Diode <sup>(2)</sup>             | DJ           | —                           | —                           | —                            | —                            | TE714M            | TF714M            |
| 36...48V Electronic <sup>(2)</sup>   | EW           | TC719E                      | TC719E                      | TD719E                       | TD719E2                      | —                 | —                 |
| 36V Diode                            | DW           | —                           | —                           | —                            | —                            | TE719M            | TF719M            |
| 48...72V Electronic                  | EY           | TC724E                      | TC724E                      | TD724E                       | TD724E2                      | —                 | —                 |
| 48V Diode                            | DY           | —                           | —                           | —                            | —                            | TE724M            | TF724M            |
| 60V Diode                            | DZ           | —                           | —                           | —                            | —                            | TE774M            | TF774M            |
| 64V Diode                            | DB           | —                           | —                           | —                            | —                            | TE727M            | TF727M            |
| 72V Diode                            | DG           | —                           | —                           | —                            | —                            | TE728M            | TF728M            |
| 80V Diode                            | DE           | —                           | —                           | —                            | —                            | TE729M            | TF729M            |
| 110...125V Electronic <sup>(4)</sup> | ED           | TC733E                      | TC733E                      | TD733E                       | TD733E2                      | —                 | —                 |
| 110V Diode                           | DD           | —                           | —                           | —                            | —                            | TE733M            | TF733M            |
| 115V Diode                           | DP           | —                           | —                           | —                            | —                            | TE734M            | TF734M            |
| 125V Diode                           | DS           | —                           | —                           | —                            | —                            | TE737M            | TF737M            |
| 220...250V Electronic                | EA           | TC747E                      | TC747E                      | TD747E                       | TD747E2                      | —                 | —                 |
| 220V Diode                           | DA           | —                           | —                           | —                            | —                            | TE747M            | TF747M            |
| 230V Diode                           | DF           | —                           | —                           | —                            | —                            | TE749F            | TF749F            |
| 250V Diode                           | DT           | —                           | —                           | —                            | —                            | TE751F            | TF751F            |

(1) Voltage operating range: 0.65...1.3 U<sub>N</sub>(2) Voltage operating range: 0.7...1.25 U<sub>N</sub>

(3) Faster drop-out time (16...21 ms)

(4) Voltage operating range: 0.7...1.25 U<sub>N</sub> at 110V DC

# Specifications

|                                                                            |                 |      | 100/104-C, 100S/104S-C |     |      |                       |      |      |        |        |      |      |      |      |      |        |        |     |
|----------------------------------------------------------------------------|-----------------|------|------------------------|-----|------|-----------------------|------|------|--------|--------|------|------|------|------|------|--------|--------|-----|
|                                                                            |                 |      | 09                     | 12  | 16   | 23                    | 30   | 37   | 40*200 | 40*400 | 43   | 55   | 60   | 72   | 85   | 90*200 | 90*400 | 97  |
| Coil Type:                                                                 | Conventional    |      | X                      | X   | X    | X                     | X    | X    | X      | X      | X    | X    | X    | X    | X    | X      | X      | X   |
|                                                                            | Electronic — EI |      | X                      | X   | X    | X                     | X    | X    | X      | X      | X    | X    | —    | —    | —    | —      | —      | —   |
| AC-1 Active Power Load (50 Hz); Ambient temperature 40 °C                  |                 |      |                        |     |      |                       |      |      |        |        |      |      |      |      |      |        |        |     |
| Rated Operational Current, $I_e$                                           | ≤500V           | [A]  | 32                     | 32  | 32   | 32(40) <sup>(1)</sup> | 65   | 65   | 75     | 75     | 85   | 85   | 100  | 100  | 100  | 130    | 130    | 130 |
|                                                                            | 690V            | [A]  | 32                     | 32  | 32   | 32(40) <sup>(1)</sup> | 65   | 65   | 75     | 75     | 85   | 85   | 100  | 100  | 100  | 130    | 130    | 130 |
| Rated Operational Power, $P_e$                                             | 230V            | [kW] | 13                     | 13  | 13   | 13                    | 26   | 26   | 30     | 30     | 34   | 34   | 40   | 40   | 40   | 52     | 52     | 52  |
|                                                                            | 240V            | [kW] | 13                     | 13  | 13   | 13                    | 27   | 27   | 31     | 31     | 35   | 35   | 42   | 42   | 42   | 54     | 54     | 54  |
|                                                                            | 400V            | [kW] | 22                     | 22  | 22   | 22                    | 45   | 45   | 52     | 52     | 59   | 59   | 69   | 69   | 69   | 90     | 90     | 90  |
|                                                                            | 415V            | [kW] | 23                     | 23  | 23   | 23                    | 47   | 47   | 54     | 54     | 61   | 61   | 72   | 72   | 72   | 93     | 93     | 93  |
|                                                                            | 500V            | [kW] | 28                     | 28  | 28   | 28                    | 56   | 56   | 65     | 65     | 74   | 74   | 87   | 87   | 87   | 113    | 113    | 113 |
|                                                                            | 690V            | [kW] | 38                     | 38  | 38   | 38                    | 78   | 78   | 90     | 90     | 102  | 102  | 120  | 120  | 120  | 155    | 155    | 155 |
| AC-1 Active Power Load (50 Hz); Ambient temperature 60 °C                  |                 |      |                        |     |      |                       |      |      |        |        |      |      |      |      |      |        |        |     |
| Rated Operational Current, $I_e$                                           | ≤500V           | [A]  | 32                     | 32  | 32   | 32                    | 65   | 65   | 60     | 60     | 75   | 75   | 100  | 100  | 100  | 110    | 110    | 110 |
|                                                                            | 690V            | [A]  | 32                     | 32  | 32   | 32                    | 65   | 65   | 60     | 60     | 75   | 75   | 100  | 100  | 100  | 110    | 110    | 110 |
| Rated Operational Power, $P_e$                                             | 230V            | [kW] | 13                     | 13  | 13   | 13                    | 26   | 26   | 24     | 24     | 25   | 25   | 40   | 40   | 40   | 44     | 44     | 44  |
|                                                                            | 240V            | [kW] | 13                     | 13  | 13   | 13                    | 27   | 27   | 25     | 25     | 26   | 26   | 42   | 42   | 42   | 46     | 46     | 46  |
|                                                                            | 400V            | [kW] | 22                     | 22  | 22   | 22                    | 45   | 45   | 42     | 42     | 44   | 44   | 69   | 69   | 69   | 76     | 76     | 76  |
|                                                                            | 415V            | [kW] | 23                     | 23  | 23   | 23                    | 47   | 47   | 43     | 43     | 45   | 45   | 72   | 72   | 72   | 79     | 79     | 79  |
|                                                                            | 500V            | [kW] | 28                     | 28  | 28   | 28                    | 56   | 56   | 52     | 52     | 55   | 55   | 87   | 87   | 87   | 95     | 95     | 95  |
|                                                                            | 690V            | [kW] | 38                     | 38  | 38   | 38                    | 78   | 78   | 72     | 72     | 75   | 75   | 120  | 120  | 120  | 131    | 131    | 131 |
| Switching of 3-phase Motors; (50 Hz) Ambient temperature 60 °C, AC-2, AC-3 |                 |      |                        |     |      |                       |      |      |        |        |      |      |      |      |      |        |        |     |
| Rated Operational Current, $I_e$                                           | 230V            | [A]  | 12                     | 15  | 20   | 26.5                  | 35   | 38   | 38     | 38     | 44   | 56   | 62   | 72   | 85   | 85     | 85     | 96  |
|                                                                            | 240V            | [A]  | 12                     | 15  | 20   | 26.5                  | 35   | 38   | 38     | 38     | 44   | 56   | 62   | 72   | 85   | 85     | 85     | 95  |
|                                                                            | 400V            | [A]  | 9                      | 12  | 16   | 23                    | 30   | 37   | 37     | 37     | 43   | 55   | 60   | 72   | 85   | 85     | 85     | 97  |
|                                                                            | 415V            | [A]  | 9                      | 12  | 16   | 23                    | 30   | 37   | 37     | 37     | 43   | 55   | 60   | 72   | 85   | 85     | 85     | 97  |
|                                                                            | 500V            | [A]  | 7                      | 10  | 14   | 20                    | 25   | 30   | 29     | 30     | 38   | 44   | 55   | 67   | 80   | 80     | 80     | 78  |
|                                                                            | 690V            | [A]  | 5                      | 7   | 9    | 12                    | 18   | 21   | 9      | 21     | 25   | 25   | 34   | 42   | 49   | 22     | 49     | 57  |
| Rated Operational Power, $P_e$                                             | 230V            | [kW] | 3                      | 4   | 5.5  | 7.5                   | 10   | 11   | 11     | 11     | 13   | 15   | 18.5 | 22   | 25   | 25     | 25     | 30  |
|                                                                            | 240V            | [kW] | 3                      | 4   | 5.5  | 7.5                   | 10   | 11   | 11     | 11     | 13   | 15   | 18.5 | 22   | 25   | 25     | 25     | 30  |
|                                                                            | 400V            | [kW] | 4                      | 5.5 | 7.5  | 11                    | 15   | 18.5 | 18.5   | 18.5   | 22   | 30   | 32   | 40   | 45   | 45     | 45     | 55  |
|                                                                            | 415V            | [kW] | 4                      | 5.5 | 7.5  | 11                    | 15   | 20   | 20     | 20     | 22   | 30   | 32   | 40   | 45   | 45     | 45     | 55  |
|                                                                            | 500V            | [kW] | 4                      | 5.5 | 7.5  | 13                    | 15   | 20   | 18.5   | 20     | 25   | 30   | 37   | 45   | 55   | 55     | 55     | 55  |
|                                                                            | 690V            | [kW] | 4                      | 5.5 | 7.5  | 10                    | 15   | 18.5 | 7.5    | 18.5   | 22   | 22   | 32   | 40   | 45   | 18.5   | 45     | 55  |
| Load Carrying Capacity per UL/CSA                                          |                 |      |                        |     |      |                       |      |      |        |        |      |      |      |      |      |        |        |     |
| General Purpose Current (enclosed)                                         |                 | [A]  | 25                     | 25  | 30   | 30                    | 55   | 60   | 60     | 60     | 75   | 75   | 90   | 90   | 100  | 125    | 130    | 120 |
| Rated power (enclosed)<br>1-phase                                          | 115V            | [A]  | 9.8                    | 9.8 | 16   | 24                    | 24   | 34   | 34     | 34     | 34   | 56   | 56   | 56   | 80   | 80     | 80     | 100 |
|                                                                            | 230V            | [A]  | 10                     | 12  | 17   | 17                    | 28   | 28   | 28     | 28     | 40   | 50   | 50   | 68   | 68   | 68     | 68     | 88  |
|                                                                            | 115V            | [Hp] | 0.5                    | 0.5 | 1    | 2                     | 2    | 3    | 3      | 3      | 3    | 5    | 5    | 5    | 7.5  | 7.5    | 7.5    | 10  |
|                                                                            | 230V            | [Hp] | 1.5                    | 2   | 3    | 3                     | 5    | 5    | 5      | 5      | 7.5  | 10   | 10   | 15   | 15   | 15     | 15     | 20  |
| Rated power (enclosed)<br>3-phase                                          | 200V            | [A]  | 7.8                    | 11  | 17.5 | 17.5                  | 25.3 | 32.2 | 32.2   | 32.2   | 32.2 | 48.3 | 48.3 | 62.1 | 78.2 | 78.2   | 78.2   | 92  |
|                                                                            | 230V            | [A]  | 6.8                    | 9.6 | 15.2 | 22                    | 28   | 28   | 28     | 28     | 42   | 54   | 54   | 68   | 80   | 80     | 80     | 80  |
|                                                                            | 460V            | [A]  | 7.6                    | 11  | 14   | 21                    | 27   | 34   | 34     | 34     | 40   | 52   | 52   | 65   | 77   | 65     | 77     | 96  |
|                                                                            | 575V            | [A]  | 9                      | 11  | 17   | 17                    | 27   | 32   | 17     | 32     | 32   | 41   | 52   | 62   | 62   | 22     | 52     | 77  |
|                                                                            | 200V            | [Hp] | 2                      | 3   | 5    | 5                     | 7.5  | 10   | 10     | 10     | 10   | 15   | 15   | 20   | 25   | 25     | 25     | 30  |
|                                                                            | 230V            | [Hp] | 2                      | 3   | 5    | 7.5                   | 10   | 10   | 10     | 10     | 15   | 20   | 20   | 25   | 30   | 30     | 30     | 30  |
|                                                                            | 460V            | [Hp] | 5                      | 7.5 | 10   | 15                    | 20   | 25   | 25     | 25     | 30   | 40   | 40   | 50   | 60   | 50     | 60     | 75  |
|                                                                            | 575V            | [Hp] | 7.5                    | 10  | 15   | 15                    | 25   | 30   | 15     | 30     | 30   | 40   | 50   | 60   | 60   | 20     | 50     | 75  |

(1) Values in ( ) with increased cross-section and cable lug

|                                                                       |                     |          | 100/104-C, 100S/104S-C |       |      |      |       |       |      |      |      |      |      |     |
|-----------------------------------------------------------------------|---------------------|----------|------------------------|-------|------|------|-------|-------|------|------|------|------|------|-----|
|                                                                       |                     |          | 09                     | 12    | 16   | 23   | 30    | 37    | 43   | 55   | 60   | 72   | 85   | 97  |
| Coil Type:                                                            | Conventional        |          | X                      | X     | X    | X    | X     | X     | X    | X    | X    | X    | X    | X   |
|                                                                       | Electronic — EI     |          | X                      | X     | X    | X    | X     | X     | X    | X    | X    | —    | —    | —   |
| Switching of 3-phase Motors, (50 Hz); Ambient temperature 60 °C, AC-4 |                     |          |                        |       |      |      |       |       |      |      |      |      |      |     |
| Rated Operational Current, $I_e$                                      | 230V                | [A]      | 12                     | 15    | 20   | 26.5 | 35    | 38    | 44   | 56   | 62   | 72   | 85   | 96  |
|                                                                       | 240V                | [A]      | 12                     | 15    | 20   | 26.5 | 35    | 38    | 44   | 56   | 62   | 72   | 85   | 95  |
|                                                                       | 400V                | [A]      | 9                      | 12    | 16   | 23   | 30    | 37    | 43   | 55   | 60   | 72   | 85   | 97  |
|                                                                       | 415V                | [A]      | 9                      | 12    | 16   | 23   | 30    | 37    | 43   | 55   | 60   | 72   | 85   | 97  |
|                                                                       | 500V                | [A]      | 7                      | 10    | 14   | 20   | 25    | 30    | 38   | 44   | 55   | 67   | 80   | 78  |
|                                                                       | 690V                | [A]      | 5                      | 7     | 9    | 12   | 18    | 21    | 25   | 25   | 34   | 42   | 49   | 57  |
| Rated Operational Power, $P_e$                                        | 230V                | [kW]     | 3                      | 4     | 5.5  | 7.5  | 10    | 11    | 13   | 15   | 18.5 | 22   | 25   | 30  |
|                                                                       | 240V                | [kW]     | 3                      | 4     | 5.5  | 7.5  | 10    | 11    | 13   | 15   | 18.5 | 22   | 25   | 30  |
|                                                                       | 400V                | [kW]     | 4                      | 5.5   | 7.5  | 11   | 15    | 18.5  | 22   | 30   | 32   | 40   | 45   | 55  |
|                                                                       | 415V                | [kW]     | 4                      | 5.5   | 7.5  | 11   | 15    | 20    | 22   | 30   | 32   | 40   | 45   | 55  |
|                                                                       | 500V                | [kW]     | 4                      | 5.5   | 7.5  | 13   | 15    | 20    | 25   | 30   | 37   | 45   | 55   | 55  |
|                                                                       | 690V                | [kW]     | 4                      | 5.5   | 7.5  | 10   | 15    | 18.5  | 22   | 22   | 32   | 40   | 45   | 55  |
| AC-4 at approximately 200,000 operations                              |                     |          |                        |       |      |      |       |       |      |      |      |      |      |     |
| Rated Operational Current, $I_e$                                      | 230V                | [A]      | 4.3                    | 6.6   | 9    | 9    | 12    | 14    | 16.5 | 22   | 25.5 | 31   | 38   | 44  |
|                                                                       | 240V                | [A]      | 4.3                    | 6.6   | 9    | 9    | 12    | 14    | 16.5 | 22   | 25.5 | 31   | 38   | 44  |
|                                                                       | 400/415V            | [A]      | 4.3                    | 6.6   | 9    | 9    | 12    | 14    | 16.5 | 22   | 25.5 | 31   | 38   | 44  |
|                                                                       | 500V                | [A]      | 4.3                    | 6.6   | 9    | 9    | 12    | 14    | 16.5 | 22   | 25.5 | 31   | 38   | 44  |
|                                                                       | 690V                | [A]      | 4.3                    | 6.6   | 9    | 9    | 12    | 14    | 16.5 | 22   | 25.5 | 31   | 38   | 44  |
| Rated Operational Power, $P_e$                                        | 230V <sup>(1)</sup> | [kW]     | 0.75                   | 1.5   | 2.2  | 2.2  | 3     | 3.7   | 4    | 5.5  | 6.3  | 7.5  | 11   | 11  |
|                                                                       | 240V <sup>(1)</sup> | [kW]     | 0.75                   | 1.5   | 2.2  | 2.2  | 3     | 4     | 4    | 5.5  | 7.5  | 7.5  | 11   | 11  |
|                                                                       | 400V <sup>(1)</sup> | [kW]     | 1.8                    | 3     | 4    | 4    | 5.5   | 6.3   | 7.5  | 11   | 13   | 15   | 20   | 22  |
|                                                                       | 415V <sup>(1)</sup> | [kW]     | 1.8                    | 3     | 4    | 4    | 5.5   | 6.3   | 7.5  | 11   | 13   | 17   | 20   | 22  |
|                                                                       | 500V <sup>(1)</sup> | [kW]     | 2.2                    | 3.7   | 5.5  | 5.5  | 7.5   | 7.5   | 10   | 11   | 15   | 20   | 25   | 30  |
|                                                                       | 690V <sup>(1)</sup> | [kW]     | 3                      | 5.5   | 7.5  | 7.5  | 10    | 11    | 15   | 18.5 | 22   | 25   | 32   | 37  |
| Max. switching frequency                                              |                     | Ops/hour | 250                    | 250   | 220  | 200  | 200   | 200   | 200  | 200  | 120  | 120  | 120  | 120 |
| Wye-Delta (60 Hz)                                                     | 200V                | [Hp]     | 5                      | 5     | 7½   | 7½   | 10    | 15    | 20   | 25   | 30   | 40   | 50   | 50  |
|                                                                       | 230V                | [Hp]     | 5                      | 7½    | 10   | 10   | 15    | 20    | 25   | 30   | 40   | 50   | 60   | 60  |
|                                                                       | 460V                | [Hp]     | 10                     | 15    | 20   | 25   | 30    | 40    | 50   | 60   | 75   | 100  | 125  | 125 |
|                                                                       | 575V                | [Hp]     | 10                     | 15    | 20   | 25   | 30    | 40    | 50   | 60   | 75   | 100  | 125  | 125 |
| UL/CSA Elevator Duty                                                  | 200V                | [A]      | 7.8                    | 11.0  | 11.0 | 17.5 | 25.3  | 25.3  | 32.2 | TBD  | 32.2 | 48.3 | 62.1 | TBD |
|                                                                       | 230V                | [A]      | 6.8                    | 9.6   | 15.2 | 15.2 | 22.0  | 28.0  | 28.0 | TBD  | 42.0 | 54.0 | 68.0 | TBD |
|                                                                       | 460V                | [A]      | 7.6                    | 11.0  | 04.0 | 21.0 | 27.0  | 27.0  | 34.0 | TBD  | 40.0 | 52.0 | 65.0 | TBD |
|                                                                       | 575V                | [A]      | 6.1                    | 9.0   | 11.0 | 17.0 | 22.0  | 27.0  | 32.0 | TBD  | 41.0 | 52.0 | 62.0 | TBD |
|                                                                       | 200V                | [Hp]     | 2                      | 3     | 3    | 5    | 7-1/2 | 7-1/2 | 10   | TBD  | 10   | 15   | 20   | TBD |
|                                                                       | 230V                | [Hp]     | 2                      | 3     | 5    | 5    | 7-1/2 | 10    | 10   | TBD  | 15   | 20   | 25   | TBD |
|                                                                       | 460V                | [Hp]     | 5                      | 7-1/2 | 10   | 15   | 20    | 20    | 25   | TBD  | 30   | 40   | 50   | TBD |
|                                                                       | 575V                | [Hp]     | 5                      | 7-1/2 | 10   | 15   | 20    | 25    | 30   | TBD  | 40   | 50   | 60   | TBD |

(1) Power ratings at 50 Hz: Preferred values according to IEC 60072-1

|                                                  |                     |       | 100/104-C, 100S/104S-C |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------------------------------|---------------------|-------|------------------------|------|------|------|------|------|------|------|------|------|------|------|
|                                                  |                     |       | 09                     | 12   | 16   | 23   | 30   | 37   | 43   | 55   | 60   | 72   | 85   | 97   |
| Coil Type:                                       | Conventional        |       | X                      | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    |
|                                                  | Electronic — EI     |       | X                      | X    | X    | X    | X    | X    | X    | X    | X    | —    | —    | —    |
| Star-Delta Starting (50 Hz)                      |                     |       |                        |      |      |      |      |      |      |      |      |      |      |      |
| Rated Operational Current, $I_e$                 | ≤ 230V              | [A]   | 21                     | 26   | 35   | 46   | 61   | 66   | 76   | 96   | 107  | 125  | 147  | 166  |
|                                                  | ≤ 240V              | [A]   | 21                     | 26   | 35   | 46   | 61   | 66   | 76   | 96   | 107  | 125  | 47   | 165  |
|                                                  | 400V                | [A]   | 16                     | 21   | 28   | 40   | 52   | 64   | 74   | 95.3 | 104  | 125  | 147  | 168  |
|                                                  | 415V                | [A]   | 16                     | 21   | 28   | 40   | 52   | 64   | 74   | 95.3 | 104  | 125  | 47   | 168  |
|                                                  | 500V                | [A]   | 12                     | 17   | 24   | 35   | 43   | 52   | 66   | 76.2 | 95   | 116  | 139  | 135  |
|                                                  | 690V                | [A]   | 8.6                    | 12   | 16   | 21   | 31   | 36   | 43   | 55.4 | 59   | 73   | 85   | 99   |
| Rated Operational Power, $P_e$                   | 230V <sup>(1)</sup> | [kW]  | 5.5                    | 7.5  | 10   | 13   | 17   | 20   | 22   | 30   | 32   | 37   | 45   | 50   |
|                                                  | 240V <sup>(1)</sup> | [kW]  | 5.5                    | 7.5  | 10   | 13   | 18.5 | 20   | 22   | 30   | 32   | 40   | 50   | 50   |
|                                                  | 400V <sup>(1)</sup> | [kW]  | 7.5                    | 10   | 13   | 20   | 25   | 32   | 40   | 45   | 55   | 63   | 80   | 90   |
|                                                  | 415V <sup>(1)</sup> | [kW]  | 7.5                    | 11   | 15   | 22   | 25   | 32   | 40   | 45   | 55   | 63   | 80   | 90   |
|                                                  | 500V <sup>(1)</sup> | [kW]  | 7.5                    | 11   | 15   | 22   | 25   | 32   | 45   | 45   | 63   | 80   | 90   | 90   |
|                                                  | 690V <sup>(1)</sup> | [kW]  | 7.5                    | 10   | 13   | 18.5 | 25   | 32   | 40   | 45   | 55   | 63   | 80   | 90   |
| Switching of Power Transformers, AC-6a (50 Hz)   |                     |       |                        |      |      |      |      |      |      |      |      |      |      |      |
| Inrush Current<br>Rated transformer current      |                     |       | = n                    |      |      |      |      |      |      |      |      |      |      |      |
| n= 30                                            | ≤ 230V              | [A]   | 10.9                   | 10.9 | 10.9 | 10.9 | 20   | 20   | 23   | 23   | 40.8 | 40.8 | 40.8 | 48.5 |
|                                                  | ≤ 240V              | [A]   | 10.9                   | 10.9 | 10.9 | 10.9 | 20   | 20   | 23   | 23   | 40.8 | 40.8 | 40.8 | 48.5 |
|                                                  | ≤ 400V              | [A]   | 10.9                   | 10.9 | 10.9 | 10.9 | 20   | 20   | 23   | 23   | 40.8 | 40.8 | 40.8 | 48.5 |
|                                                  | ≤ 415V              | [A]   | 10.9                   | 10.9 | 10.9 | 10.9 | 20   | 20   | 23   | 23   | 40.8 | 40.8 | 40.8 | 48.5 |
|                                                  | ≤ 500V              | [A]   | 10.9                   | 10.9 | 10.9 | 10.9 | 20   | 20   | 23   | 23   | 40.8 | 40.8 | 40.8 | 48.5 |
|                                                  | ≤ 690V              | [A]   | 10.9                   | 10.9 | 10.9 | 10.9 | 20   | 20   | 23   | 23   | 40.8 | 40.8 | 40.8 | 48.5 |
| Apparent Power                                   | 230V                | [kVA] | 4.3                    | 4.3  | 4.3  | 4.3  | 8    | 8    | 9.2  | 9.2  | 16   | 16   | 16   | 19.3 |
|                                                  | 240V                | [kVA] | 4.5                    | 4.5  | 4.5  | 4.5  | 8.3  | 8.3  | 10   | 10   | 17   | 17   | 17   | 20.2 |
|                                                  | 400V                | [kVA] | 7.5                    | 7.5  | 7.5  | 7.5  | 14   | 14   | 16   | 16   | 28   | 28   | 28   | 33.6 |
|                                                  | 415V                | [kVA] | 7.8                    | 7.8  | 7.8  | 7.8  | 14   | 14   | 17   | 17   | 29   | 29   | 29   | 34.9 |
|                                                  | 500V                | [kVA] | 9.4                    | 9.4  | 9.4  | 9.4  | 17   | 17   | 20   | 20   | 35   | 35   | 35   | 42   |
|                                                  | 690V                | [kVA] | 13                     | 13   | 13   | 13   | 24   | 24   | 27   | 27   | 49   | 49   | 49   | 58   |
| n=20                                             | ≤ 690V              | [A]   | 16.3                   | 16.3 | 16.3 | 16.3 | 30   | 30   | 34.5 | 34.5 | 61.3 | 61.3 | 61.3 | 72.8 |
| n=15                                             | ≤ 690V              | [A]   | 22                     | 22   | 22   | 22   | 40   | 40   | 46   | 46   | 82   | 82   | 82   | 97   |
| 60 Hz Peak Inrush/peak rated transformer current |                     |       |                        |      |      |      |      |      |      |      |      |      |      |      |
| n=30                                             |                     | [A]   | 10.9                   | 10.9 | 10.9 | 10.9 | 20   | 20   | 23   | 23   | 40.8 | 40.8 | 40.8 | 48.5 |
| Apparent Power                                   | 200V                | [kVA] | 3.8                    | 3.8  | 3.8  | 3.8  | 6.9  | 6.9  | 8.0  | 8    | 14.1 | 14.4 | 14.4 | 16.8 |
|                                                  | 208V                | [kVA] | 3.9                    | 3.9  | 3.9  | 3.9  | 7.2  | 7.2  | 8.3  | 8.3  | 14.7 | 14.7 | 14.7 | 17.5 |
|                                                  | 240V                | [kVA] | 4.5                    | 4.5  | 4.5  | 4.5  | 8.3  | 8.3  | 9.6  | 9.6  | 17.0 | 17.0 | 17.0 | 20.2 |
|                                                  | 480V                | [kVA] | 9.1                    | 9.1  | 9.1  | 9.1  | 16.6 | 16.6 | 19.1 | 19.1 | 33.9 | 33.9 | 33.9 | 40.3 |
|                                                  | 600V                | [kVA] | 11.3                   | 11.3 | 11.3 | 11.3 | 20.8 | 20.8 | 23.9 | 23.9 | 42.4 | 42.4 | 42.4 | 50.4 |
|                                                  | 660V                | [kVA] | 12.5                   | 12.5 | 12.5 | 12.5 | 22.9 | 22.9 | 26.3 | 26.3 | 46.6 | 46.6 | 46.6 | 55.4 |
| 60 Hz Peak Inrush/peak rated transformer current |                     |       |                        |      |      |      |      |      |      |      |      |      |      |      |
| n=20                                             |                     | [A]   | 16.3                   | 16.3 | 16.3 | 16.3 | 30   | 30   | 34.5 | 34.5 | 61.3 | 61.3 | 61.3 | 72.8 |
| Apparent Power                                   | 200V                | [kVA] | 5.6                    | 5.6  | 5.6  | 5.6  | 10.4 | 10.4 | 12.0 | 12   | 21.2 | 21.2 | 21.2 | 25.2 |
|                                                  | 208V                | [kVA] | 5.9                    | 5.9  | 5.9  | 5.9  | 10.8 | 10.8 | 12.4 | 12.4 | 22.1 | 22.1 | 22.1 | 26.2 |
|                                                  | 240V                | [kVA] | 6.8                    | 6.8  | 6.8  | 6.8  | 12.5 | 12.5 | 14.3 | 14.3 | 25.5 | 25.5 | 25.5 | 30.3 |
|                                                  | 480V                | [kVA] | 13.6                   | 13.6 | 13.6 | 13.6 | 24.9 | 24.9 | 28.7 | 28.7 | 51.0 | 51.0 | 51.0 | 60.5 |
|                                                  | 600V                | [kVA] | 16.9                   | 16.9 | 16.9 | 16.9 | 31.2 | 31.2 | 35.9 | 35.9 | 63.7 | 63.7 | 63.7 | 75.7 |
|                                                  | 660V                | [kVA] | 18.6                   | 18.6 | 18.6 | 18.6 | 34.3 | 34.3 | 39.4 | 39.4 | 70.1 | 70.1 | 70.1 | 83.2 |

(1) Power ratings at 50 Hz: Preferred values according to IEC 60072-1

|                                                  |                 |       | 100/104-C, 100S/104S-C |      |      |      |      |      |      |      |      |      |      |       |
|--------------------------------------------------|-----------------|-------|------------------------|------|------|------|------|------|------|------|------|------|------|-------|
|                                                  |                 |       | 09                     | 12   | 16   | 23   | 30   | 37   | 43   | 55   | 60   | 72   | 85   | 97    |
| Coil Type:                                       | Conventional    |       | X                      | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     |
|                                                  | Electronic — EI |       | X                      | X    | X    | X    | X    | X    | X    | X    | —    | —    | —    | —     |
| 60 Hz Peak Inrush/peak rated transformer current |                 |       |                        |      |      |      |      |      |      |      |      |      |      |       |
| n=15                                             |                 | [A]   | 22                     | 22   | 22   | 22   | 40   | 40   | 46   | 46   | 82   | 82   | 82   | 97    |
| Apparent Power                                   | 200V            | [kVA] | 7.5                    | 7.5  | 7.5  | 7.5  | 13.9 | 13.9 | 15.9 | 15.9 | 28.4 | 28.4 | 28.4 | 33.6  |
|                                                  | 208V            | [kVA] | 7.8                    | 7.8  | 7.8  | 7.8  | 14.4 | 14.4 | 16.6 | 16.6 | 29.5 | 29.5 | 29.5 | 34.9  |
|                                                  | 240V            | [kVA] | 9.0                    | 9.0  | 9.0  | 9.0  | 16.6 | 16.6 | 19.1 | 19.1 | 34.1 | 34.1 | 34.1 | 40.3  |
|                                                  | 480V            | [kVA] | 18.1                   | 18.1 | 18.1 | 18.1 | 33.3 | 33.3 | 38.2 | 38.2 | 68.2 | 68.2 | 68.2 | 80.6  |
|                                                  | 600V            | [kVA] | 22.6                   | 22.6 | 22.6 | 22.6 | 41.6 | 41.6 | 47.8 | 47.8 | 85.2 | 85.2 | 85.2 | 100.8 |
|                                                  | 660V            | [kVA] | 24.9                   | 24.9 | 24.9 | 24.9 | 45.7 | 45.7 | 52.6 | 52.6 | 93.7 | 93.7 | 93.7 | 110.9 |

|            |                 | 100/104-C, 100S/104S-C |    |    |    |    |    |        |        |    |    |    |    |    |        |        |    |
|------------|-----------------|------------------------|----|----|----|----|----|--------|--------|----|----|----|----|----|--------|--------|----|
|            |                 | 09                     | 12 | 16 | 23 | 30 | 37 | 40*200 | 40*400 | 43 | 55 | 60 | 72 | 85 | 90*200 | 90*400 | 97 |
| Coil Type: | Conventional    | X                      | X  | X  | X  | X  | X  | X      | X      | X  | X  | X  | X  | X  | X      | X      | X  |
|            | Electronic — EI | X                      | X  | X  | X  | X  | X  | X      | X      | X  | X  | —  | —  | —  | —      | —      | —  |

|                                                               |      |        |   |   |     |      |      |      |   |   |    |    |    |    |    |   |   |    |
|---------------------------------------------------------------|------|--------|---|---|-----|------|------|------|---|---|----|----|----|----|----|---|---|----|
| Switching of 3-phase Capacitors, AC-6b (50 Hz) <sup>(1)</sup> |      |        |   |   |     |      |      |      |   |   |    |    |    |    |    |   |   |    |
| Single capacitor 40°C                                         | 230V | [kVar] | 8 | 8 | 8.5 | 9    | 14   | 14   | — | — | 24 | 24 | 28 | 28 | 28 | — | — | 28 |
|                                                               | 240V | [kVar] | 8 | 8 | 8.5 | 9    | 14   | 14   | — | — | 25 | 25 | 29 | 29 | 29 | — | — | 29 |
|                                                               | 400V | [kVar] | 8 | 8 | 10  | 12.5 | 20   | 24   | — | — | 35 | 35 | 48 | 48 | 48 | — | — | 48 |
|                                                               | 415V | [kVar] | 8 | 8 | 10  | 12.5 | 20   | 25   | — | — | 35 | 35 | 50 | 50 | 50 | — | — | 50 |
|                                                               | 500V | [kVar] | 8 | 8 | 10  | 12.5 | 20   | 25   | — | — | 35 | 35 | 50 | 55 | 60 | — | — | 60 |
|                                                               | 690V | [kVar] | 8 | 8 | 10  | 12.5 | 20   | 25   | — | — | 35 | 35 | 50 | 55 | 60 | — | — | 60 |
| Single capacitor 60 °C                                        | 230V | [kVar] | 8 | 8 | 8.5 | 9    | 12.5 | 12.5 | — | — | 18 | 18 | 28 | 28 | 28 | — | — | 28 |
|                                                               | 240V | [kVar] | 8 | 8 | 8.5 | 9    | 12.5 | 12.5 | — | — | 18 | 18 | 29 | 29 | 29 | — | — | 29 |
|                                                               | 400V | [kVar] | 8 | 8 | 10  | 12.5 | 20   | 21.5 | — | — | 30 | 30 | 42 | 48 | 48 | — | — | 48 |
|                                                               | 415V | [kVar] | 8 | 8 | 10  | 12.5 | 20   | 22   | — | — | 30 | 30 | 42 | 50 | 50 | — | — | 50 |
|                                                               | 500V | [kVar] | 8 | 8 | 10  | 12.5 | 20   | 25   | — | — | 30 | 30 | 42 | 50 | 55 | — | — | 55 |
|                                                               | 690V | [kVar] | 8 | 8 | 10  | 12.5 | 20   | 25   | — | — | 30 | 30 | 42 | 50 | 55 | — | — | 55 |
| Group capacitors 40°C                                         | 230V | [kVar] | 5 | 5 | 8   | 9    | 12.5 | 14   | — | — | 20 | 20 | 28 | 28 | 28 | — | — | 28 |
|                                                               | 240V | [kVar] | 5 | 5 | 8   | 9    | 12.5 | 14   | — | — | 20 | 20 | 29 | 29 | 29 | — | — | 29 |
|                                                               | 400V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 48 | 48 | — | — | 48 |
|                                                               | 415V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 50 | 50 | — | — | 50 |
|                                                               | 500V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 50 | 50 | — | — | 50 |
|                                                               | 690V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 50 | 50 | — | — | 50 |
| Group capacitors 60 °C                                        | 230V | [kVar] | 5 | 5 | 8   | 9    | 12.5 | 12.5 | — | — | 18 | 18 | 28 | 28 | 28 | — | — | 28 |
|                                                               | 240V | [kVar] | 5 | 5 | 8   | 9    | 12.5 | 12.5 | — | — | 18 | 18 | 29 | 29 | 29 | — | — | 29 |
|                                                               | 400V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 48 | 48 | — | — | 48 |
|                                                               | 415V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 50 | 50 | — | — | 50 |
|                                                               | 500V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 50 | 50 | — | — | 50 |
|                                                               | 690V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 50 | 50 | — | — | 50 |
| 60 Hz Single Capacitor — 40 °C                                | 200V | [kVar] | 5 | 5 | 8   | 9    | 12.5 | 14   | — | — | 20 | 20 | 28 | 28 | 28 | — | — | 28 |
|                                                               | 230V | [kVar] | 5 | 5 | 8   | 9    | 12.5 | 14   | — | — | 20 | 20 | 29 | 29 | 29 | — | — | 29 |
|                                                               | 460V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 50 | 50 | — | — | 50 |
|                                                               | 600V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 50 | 50 | — | — | 50 |
| 60 Hz Group Capacitors — 40 °C                                | 200V | [kVar] | 5 | 5 | 8   | 9    | 12.5 | 12.5 | — | — | 18 | 18 | 28 | 28 | 28 | — | — | 28 |
|                                                               | 230V | [kVar] | 5 | 5 | 8   | 9    | 12.5 | 12.5 | — | — | 18 | 18 | 29 | 29 | 29 | — | — | 29 |
|                                                               | 460V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 50 | 50 | — | — | 50 |
|                                                               | 600V | [kVar] | 5 | 5 | 8   | 10   | 15   | 20   | — | — | 25 | 25 | 40 | 50 | 50 | — | — | 50 |

(1) Inductance of leads between capacitors in parallel: min. 6  $\mu$ H (100-C09...C30 contactors: min 30  $\mu$ H)

|                                                                                                       |                 | 100/104-C, 100S/104S-C |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
|-------------------------------------------------------------------------------------------------------|-----------------|------------------------|------|------|------|------|------|--------|--------|-----|------|------|------|------|--------|--------|------|
|                                                                                                       |                 | 09                     | 12   | 16   | 23   | 30   | 37   | 40*200 | 40*400 | 43  | 55   | 60   | 72   | 85   | 90*200 | 90*400 | 97   |
| Coil Type:                                                                                            | Conventional    | X                      | X    | X    | X    | X    | X    | X      | X      | X   | X    | X    | X    | X    | X      | X      | X    |
|                                                                                                       | Electronic — EI | X                      | X    | X    | X    | X    | X    | X      | X      | X   | X    | —    | —    | —    | —      | —      | —    |
| Switching of Lamps                                                                                    |                 |                        |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
| Gas discharge lamps AC-5a, 40 °C                                                                      |                 |                        |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
| open                                                                                                  | [A]             | 22.5                   | 25   | 28   | 29   | 40.5 | 45   | 65     | 65     | 77  | 77   | 81   | 85   | 90   | 115    | 115    | 115  |
| enclosed                                                                                              | [A]             | 22.5                   | 25   | 28   | 29   | 37   | 41   | 54     | 54     | 57  | 57   | 77   | 81   | 90   | 95     | 95     | 100  |
| Individually compensated:                                                                             |                 |                        |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
| Max. capacitance at expected                                                                          |                 |                        |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
| Short-circuit current of                                                                              | 10 kA           | [μF]                   | 1000 | 1000 | 1000 | 1000 | 2700 | 2700   | —      | —   | 3200 | 3200 | 4000 | 4000 | 4700   | —      | 4700 |
|                                                                                                       | 20 kA           | [μF]                   | 500  | 500  | 500  | 500  | 1350 | 1350   | —      | —   | 1600 | 1600 | 2000 | 2000 | 2350   | —      | 2350 |
|                                                                                                       | 50 kA           | [μF]                   | 200  | 200  | 200  | 200  | 540  | 540    | —      | —   | 640  | 640  | 800  | 800  | 940    | —      | 940  |
| Filament AC-5b                                                                                        | 230/240V        | [A]                    | 12   | 16   | 18   | 22   | 30   | 37     | 18     | 25  | 43   | 51   | 60   | 70   | 76     | 60     | 90   |
| Switching of Low Inductive Loads in Home Appliances and Similar Applications per IEC 61095 (50 Hz)    |                 |                        |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
| AC-7a                                                                                                 | 230V            | [A]                    | 32   | 32   | 32   | 32   | 45   | 45     | —      | —   | 63   | 63   | —    | —    | —      | —      | —    |
|                                                                                                       | 400V            | [A]                    | 32   | 32   | 32   | 32   | 45   | 45     | —      | —   | 63   | 63   | —    | —    | —      | —      | —    |
|                                                                                                       | 440V            | [A]                    | 32   | 32   | 32   | 32   | 45   | 45     | —      | —   | 63   | 63   | —    | —    | —      | —      | —    |
| Switching of Motor Load for Home Appliances (50 Hz)                                                   |                 |                        |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
| AC-7b                                                                                                 | 230V            | [A]                    | 10.5 | 14   | 19   | 23   | 30   | —      | —      | —   | —    | —    | —    | —    | —      | —      | —    |
|                                                                                                       | 400V            | [A]                    | 9    | 12   | 16   | 20   | 30   | —      | —      | —   | —    | —    | —    | —    | —      | —      | —    |
|                                                                                                       | 440V            | [A]                    | 7.5  | 10   | 13.5 | 18   | 27   | —      | —      | —   | —    | —    | —    | —    | —      | —      | —    |
| Switching of Hermetically Sealed Cooling Compressor Motors - manual reset of overload release (50 Hz) |                 |                        |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
| AC-8a                                                                                                 | 400V            | [A]                    | 12   | 16   | 22   | 32   | 38   | 45     | —      | —   | 63   | 63   | 72   | 85   | 100    | —      | 115  |
|                                                                                                       | 500V            | [A]                    | 12   | 16   | 22   | 32   | 38   | 45     | —      | —   | 63   | 63   | 72   | 85   | 100    | —      | 115  |
|                                                                                                       | 690V            | [A]                    | 8    | 10   | 14   | 20   | 28   | 35     | —      | —   | 42   | 42   | 56   | 67   | 80     | —      | 90   |
| - automatic reset of overload release                                                                 |                 |                        |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
| AC-8b                                                                                                 | 400V            | [A]                    | 5.5  | 7    | 9.3  | 12   | 13   | 14     | —      | —   | 16   | 16   | 24   | 30   | 35     | —      | 35   |
|                                                                                                       | 500V            | [A]                    | 5.5  | 7    | 9.3  | 12   | 13   | 14     | —      | —   | 16   | 16   | 24   | 30   | 35     | —      | 35   |
|                                                                                                       | 690V            | [A]                    | 5.5  | 7    | 9.3  | 12   | 13   | 14     | —      | —   | 16   | 16   | 24   | 30   | 35     | —      | 35   |
| Switching of DC Loads                                                                                 |                 |                        |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
| Non-inductive or slightly inductive loads or resistance furnaces DC-1, 60 °C                          |                 |                        |      |      |      |      |      |        |        |     |      |      |      |      |        |        |      |
| 1 pole                                                                                                | 24V             | [A]                    | 25   | 25   | 32   | 32   | 45   | 45     | 45     | 45  | 50   | 50   | 70   | 80   | 80     | 80     | 80   |
|                                                                                                       | 48/60V          | [A]                    | 20   | 20   | 20   | 20   | 25   | 25     | 25     | 25  | 30   | 30   | 40   | 40   | 40     | 40     | 40   |
|                                                                                                       | 110V            | [A]                    | 6    | 6    | 6    | 6    | 8    | 8      | 10     | 10  | 9    | 9    | 11   | 11   | 11     | 11     | 11   |
|                                                                                                       | 220V            | [A]                    | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5    | 1.5    | 1.5 | 1.5  | 1.5  | 2    | 2    | 2      | 1.8    | 2    |
|                                                                                                       | 440V            | [A]                    | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | 0.4    | 0.4    | 0.5 | 0.5  | 0.5  | 0.5  | 0.5  | 0.5    | 0.5    | 0.5  |
| 2 poles in series                                                                                     | 24V             | [A]                    | 25   | 25   | 32   | 32   | 45   | 45     | 45     | 45  | 50   | 50   | 70   | 80   | 80     | 80     | 80   |
|                                                                                                       | 48/60V          | [A]                    | 25   | 25   | 32   | 32   | 45   | 45     | 45     | 45  | 50   | 50   | 70   | 80   | 80     | 80     | 80   |
|                                                                                                       | 110V            | [A]                    | 25   | 25   | 32   | 32   | 45   | 45     | 45     | 45  | 50   | 50   | 70   | 80   | 80     | 80     | 80   |
|                                                                                                       | 220V            | [A]                    | 8    | 8    | 8    | 10   | 10   | 10     | 10     | 10  | 10   | 10   | 15   | 15   | 15     | 15     | 15   |
|                                                                                                       | 440V            | [A]                    | 1    | 1    | 1    | 1    | 1    | 1      | 1      | 1   | 1    | 1    | 1.5  | 1.5  | 1.5    | 1.5    | 1.5  |
| 3 poles in series                                                                                     | 24V             | [A]                    | 25   | 25   | 32   | 32   | 45   | 45     | —      | —   | 63   | 63   | 90   | 90   | 100    | —      | 100  |
|                                                                                                       | 48/60V          | [A]                    | 25   | 25   | 32   | 32   | 45   | 45     | —      | —   | 50   | 50   | 70   | 90   | 100    | —      | 100  |
|                                                                                                       | 110V            | [A]                    | 20   | 20   | 25   | 25   | 30   | 30     | —      | —   | 35   | 35   | 70   | 90   | 100    | —      | 100  |
|                                                                                                       | 220V            | [A]                    | 6    | 6    | 6    | 10   | 15   | 15     | —      | —   | 20   | 20   | 25   | 80   | 80     | —      | 80   |
|                                                                                                       | 440V            | [A]                    | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6    | —      | —   | 0.6  | 0.6  | 0.6  | 5    | 5      | —      | 5    |

|            |                 | 100/104-C, 100S/104S-C |    |    |    |    |    |        |        |    |    |    |    |    |        |        |    |
|------------|-----------------|------------------------|----|----|----|----|----|--------|--------|----|----|----|----|----|--------|--------|----|
|            |                 | 09                     | 12 | 16 | 23 | 30 | 37 | 40*200 | 40*400 | 43 | 55 | 60 | 72 | 85 | 90*200 | 90*400 | 97 |
| Coil Type: | Conventional    | X                      | X  | X  | X  | X  | X  | X      | X      | X  | X  | X  | X  | X  | X      | X      | X  |
|            | Electronic — EI | X                      | X  | X  | X  | X  | X  | X      | X      | X  | X  | —  | —  | —  | —      | —      | —  |

## Switching of DC Loads, Continued

Shunt-wound Motors, Starting, reverse current braking, reversing, stepping DC-3, 60 °C

|                   |        |     |     |     |     |     |     |     |   |   |     |     |     |     |     |   |   |     |
|-------------------|--------|-----|-----|-----|-----|-----|-----|-----|---|---|-----|-----|-----|-----|-----|---|---|-----|
| 3 poles in series | 24V    | [A] | 25  | 25  | 32  | 32  | 45  | 45  | — | — | 63  | 63  | 90  | 90  | 100 | — | — | 100 |
|                   | 48/60V | [A] | 25  | 25  | 32  | 32  | 45  | 45  | — | — | 50  | 50  | 70  | 70  | 80  | — | — | 80  |
|                   | 110V   | [A] | 20  | 20  | 25  | 25  | 30  | 30  | — | — | 35  | 35  | 70  | 70  | 80  | — | — | 80  |
|                   | 220V   | [A] | 6   | 6   | 6   | 10  | 15  | 15  | — | — | 20  | 20  | 25  | 25  | 30  | — | — | 30  |
|                   | 440V   | [A] | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | — | — | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | — | — | 0.6 |

Series-wound Motors, Starting, reverse current braking, reversing, stepping DC-5, 60 °C

|                   |        |     |     |     |     |     |     |     |   |   |     |     |     |     |     |   |   |     |
|-------------------|--------|-----|-----|-----|-----|-----|-----|-----|---|---|-----|-----|-----|-----|-----|---|---|-----|
| 3 poles in series | 24V    | [A] | 25  | 25  | 32  | 32  | 45  | 45  | — | — | 63  | 63  | 90  | 90  | 100 | — | — | 100 |
|                   | 48/60V | [A] | 25  | 25  | 32  | 32  | 45  | 45  | — | — | 50  | 50  | 70  | 70  | 80  | — | — | 80  |
|                   | 110V   | [A] | 20  | 20  | 25  | 25  | 30  | 30  | — | — | 35  | 35  | 70  | 70  | 80  | — | — | 80  |
|                   | 220V   | [A] | 6   | 6   | 6   | 10  | 15  | 15  | — | — | 20  | 20  | 25  | 25  | 30  | — | — | 30  |
|                   | 440V   | [A] | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | — | — | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | — | — | 0.6 |

|                                          |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------------------------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Short Time Withstand<br>$I_{CW}$ , 60 °C | 10 s | [A] | 170 | 170 | 170 | 215 | 300 | 304 | 304 | 304 | 375 | 375 | 700 | 700 | 700 | 700 | 700 | 840 |
|------------------------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

## Resistance and Power Dissipation

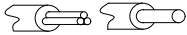
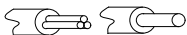
|                                                      |                     |      |      |     |     |     |     |      |      |     |      |      |      |      |      |      |      |     |
|------------------------------------------------------|---------------------|------|------|-----|-----|-----|-----|------|------|-----|------|------|------|------|------|------|------|-----|
| Main current circuit resistance                      |                     | [mΩ] | 2.7  | 2.7 | 2.7 | 2   | 2   | 2    | 2    | 1.5 | 1.5  | 1    | 0.9  | 0.9  | 0.9  | 0.8  | 0.7  | 0.6 |
| Power dissipation by all circuits at $I_e$ AC-3/400V |                     | [W]  | 0.66 | 1.2 | 2.1 | 3.2 | 5.4 | 8.2  | 11.3 | 8.4 | 8.3  | 9.1  | 9.7  | 14   | 19.5 | 11.6 | 20.2 | 17  |
| Total power dissipation<br>At $I_e$ AC-3/400V        | AC control          | [W]  | 3.4  | 3.9 | 4.8 | 6.3 | 8.5 | 11.3 | 8.8  | 9.5 | 11.6 | 12.4 | 14.2 | 18.5 | 24   | 20.6 | 29.2 | 26  |
|                                                      | DC control (conv.)  | [W]  | —    | —   | —   | —   | —   | —    | —    | —   | —    | —    | 13.7 | 18   | 23.5 | 16.6 | 25.2 | 22  |
|                                                      | DC control (elect.) | [W]  | 2.4  | 2.9 | 3.8 | 4.9 | 7.1 | 9.9  | 8    | 8.7 | 10.8 | 11.6 | —    | —    | —    | —    | —    | —   |

## Lifespan

|                         |                |     |     |     |     |     |     |    |    |    |     |   |   |   |   |   |   |
|-------------------------|----------------|-----|-----|-----|-----|-----|-----|----|----|----|-----|---|---|---|---|---|---|
| Mechanical AC control   | [Million ops.] | 13  | 13  | 13  | 13  | 13  | 13  | 10 | 10 | 12 | 12  | 6 | 6 | 6 | 6 | 6 | 6 |
| Mechanical DC control   | [Million ops.] | 13  | 13  | 13  | 13  | 13  | 13  | 10 | 10 | 13 | 13  | 6 | 6 | 6 | 6 | 6 | 6 |
| Electrical AC-3 (400 V) | [Million ops.] | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | —  | —  | 1  | 0.8 | 1 | 1 | 1 | — | — | 1 |

## Weight

|                                 |          |            |             |             |             |             |             |             |             |             |             |             |             |             |             |   |   |             |
|---------------------------------|----------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---|---|-------------|
| AC                              | Non-Rev. | [kg (lbs)] | 0.39 (0.86) | 0.39 (0.86) | 0.39 (0.86) | 0.39 (0.86) | 0.48 (1.06) | 0.49 (1.08) | 0.63 (1.39) | 0.63 (1.39) | 0.51 (1.12) | 0.51 (1.12) | 1.45 (3.20) | 1.45 (3.20) | 1.45 (3.20) | — | — | 1.45 (3.20) |
|                                 | Rev.     | [kg (lbs)] | 0.85 (1.89) | 0.85 (1.89) | 0.85 (1.89) | 0.85 (1.89) | 1.08 (2.39) | 1.08 (2.39) | —           | —           | 1.15 (2.54) | 1.15 (2.54) | 3.14 (6.92) | 3.14 (6.92) | 3.14 (6.92) | — | — | 3.14 (6.92) |
| DC                              | Non-Rev. | [kg (lbs)] | 0.6 (1.32)  | —           | —           | —           | —           | —           | —           | —           | —           | —           | 1.47 (3.24) | 1.47 (3.24) | 1.47 (3.24) | — | — | 1.47 (3.24) |
|                                 | Rev.     | [kg (lbs)] | 1.27 (2.81) | —           | —           | —           | —           | —           | —           | —           | —           | —           | 3.22 (7.1)  | 3.22 (7.1)  | 3.22 (7.1)  | — | — | 3.22 (7.1)  |
| DC (Electronic-EQ, EJ)          | Non-Rev. | [kg (lbs)] | —           | 0.40 (0.88) | 0.40 (0.88) | 0.40 (0.88) | 0.40 (0.88) | 0.49 (1.08) | 0.49 (1.08) | 0.57 (1.25) | 0.57 (1.25) | 0.57 (1.25) | 0.57 (1.25) | —           | —           | — | — | —           |
|                                 | Rev.     | [kg (lbs)] | —           | 0.87 (1.91) | 0.87 (1.91) | 0.87 (1.91) | 0.87 (1.91) | 1.08 (2.39) | 1.08 (2.39) | —           | —           | 1.27 (2.79) | 1.27 (2.79) | —           | —           | — | — | —           |
| DC (Electronic- EW, EY, ED, EA) | Non-Rev. | [kg (lbs)] | —           | 0.43 (0.95) | 0.43 (0.95) | 0.43 (0.95) | 0.43 (0.95) | 0.52 (1.14) | 0.52 (1.14) | 0.60 (1.32) | 0.60 (1.32) | 0.60 (1.32) | 0.60 (1.32) | —           | —           | — | — | —           |
|                                 | Rev.     | [kg (lbs)] | —           | 0.93 (2.05) | 0.93 (2.05) | 0.93 (2.05) | 0.93 (2.05) | 1.14 (2.51) | 1.14 (2.51) | —           | —           | 1.33 (2.93) | 1.33 (2.93) | —           | —           | — | — | —           |

|                                                                                   |                 |                    | 100/104-C, 100S/104S-C                                                                            |    |    |    |                                                                                                   |    |           |    |                                                                                                    |          |        |    |    |    |  |
|-----------------------------------------------------------------------------------|-----------------|--------------------|---------------------------------------------------------------------------------------------------|----|----|----|---------------------------------------------------------------------------------------------------|----|-----------|----|----------------------------------------------------------------------------------------------------|----------|--------|----|----|----|--|
|                                                                                   |                 |                    | 09                                                                                                | 12 | 16 | 23 | 30                                                                                                | 37 | 40        | 43 | 55                                                                                                 | 60       | 72     | 85 | 90 | 97 |  |
| Coil Type:                                                                        | Conventional    |                    | X                                                                                                 | X  | X  | X  | X                                                                                                 | X  | X         | X  | X                                                                                                  | X        | X      | X  | X  | X  |  |
|                                                                                   | Electronic — EI |                    | X                                                                                                 | X  | X  | X  | X                                                                                                 | X  | X         | X  | X                                                                                                  | —        | —      | —  | —  | —  |  |
| Conductor Cross Sections - Main Contacts Terminal type                            |                 |                    |  <sup>(1)</sup>  |    |    |    |  <sup>(2)</sup> |    |           |    |  <sup>(3)</sup> |          |        |    |    |    |  |
|  | 1 conductor     | [mm <sup>2</sup> ] | 1...4                                                                                             |    |    |    | 2.5...10                                                                                          |    | 2.5...16  |    |                                                                                                    | 2.5...35 |        |    |    |    |  |
|                                                                                   | 2 conductors    | [mm <sup>2</sup> ] | 1...4                                                                                             |    |    |    | 2.5...10                                                                                          |    | 2.5...10  |    |                                                                                                    | 2.5...25 |        |    |    |    |  |
|  | 1 conductor     | [mm <sup>2</sup> ] | 1.5...6                                                                                           |    |    |    | 2.5...16                                                                                          |    | 2.5...25  |    |                                                                                                    | 2.5...50 |        |    |    |    |  |
|                                                                                   | 2 conductors    | [mm <sup>2</sup> ] | 1.5...6                                                                                           |    |    |    | 2.5...16                                                                                          |    | 2.5...16  |    |                                                                                                    | 2.5...35 |        |    |    |    |  |
| Recommended torque                                                                |                 | [N•m]              | 1.5...2.0                                                                                         |    |    |    | 2.5...3.5                                                                                         |    | 2.5...3.5 |    |                                                                                                    | 4.5...6  |        |    |    |    |  |
| Cross section per UL/CSA                                                          |                 | [AWG]              | 16...10                                                                                           |    |    |    | 14...4                                                                                            |    | 14...6    |    | 14...4                                                                                             |          | 14...1 |    |    |    |  |
| Recommended torque                                                                |                 | [lb-in]            | 13.3...17.7                                                                                       |    |    |    | 22...31                                                                                           |    | 22...31   |    |                                                                                                    | 40...53  |        |    |    |    |  |
| Conductor Cross Sections - Coil Terminal type                                     |                 |                    |  <sup>(1)</sup> |    |    |    |                                                                                                   |    |           |    |                                                                                                    |          |        |    |    |    |  |
|  | 1 conductor     | [mm <sup>2</sup> ] | 1...2.5                                                                                           |    |    |    |                                                                                                   |    |           |    |                                                                                                    |          |        |    |    |    |  |
|                                                                                   | 2 conductors    | [mm <sup>2</sup> ] | 1...2.5                                                                                           |    |    |    |                                                                                                   |    |           |    |                                                                                                    |          |        |    |    |    |  |
|  | 1 conductor     | [mm <sup>2</sup> ] | 1...4                                                                                             |    |    |    |                                                                                                   |    |           |    |                                                                                                    |          |        |    |    |    |  |
|                                                                                   | 2 conductors    | [mm <sup>2</sup> ] | 1...4                                                                                             |    |    |    |                                                                                                   |    |           |    |                                                                                                    |          |        |    |    |    |  |
| Recommended torque                                                                |                 | [N•m]              | 1...1.5                                                                                           |    |    |    |                                                                                                   |    |           |    |                                                                                                    |          |        |    |    |    |  |
| Cross section per UL/CSA                                                          |                 | [AWG]              | 16...12                                                                                           |    |    |    |                                                                                                   |    |           |    |                                                                                                    |          |        |    |    |    |  |
| Recommended torque                                                                |                 | [lb-in]            | 9...13                                                                                            |    |    |    |                                                                                                   |    |           |    |                                                                                                    |          |        |    |    |    |  |

(1) Pozidriv No. 2 / Blade No. 3 screw

(2) Pozidriv No. 2 / Blade No. 4 screw

(3) Hexagonal socket screw

## Short-Circuit Coordination Data

See <http://www.rockwellautomation.com/global/support/global-sccr.page?> for complete short-circuit current ratings.

|                                                                                                               |                                                 | 100/104-C, 100S/104S-C |                                |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------|--------------------------------|-------------------|-------------------|-------------------|--------------------|--------------------|--------|-----|--------------------|-----|--------------------|--------------------|--------------------|--------|--------------------|
|                                                                                                               |                                                 | 09                     | 12                             | 16                | 23                | 30                | 37                 | 40*200             | 40*400 | 43  | 55                 | 60  | 72                 | 85                 | 90*200             | 90*400 | 97                 |
| Coil Type:                                                                                                    | Conventional                                    | X                      | X                              | X                 | X                 | X                 | X                  | X                  | X      | X   | X                  | X   | X                  | X                  | X                  | X      | X                  |
|                                                                                                               | Electronic - EI                                 | X                      | X                              | X                 | X                 | X                 | X                  | X                  | X      | X   | X                  | —   | —                  | —                  | —                  | —      | —                  |
| Short Circuit Coordination (Max. Fuse or Circuit Breaker Rating) Per IEC 60947-4-1 (contactor and fuses only) |                                                 |                        |                                |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
| DIN Fuses- gG, gL                                                                                             | Type"1"(690V)                                   | [A]                    | 50 kA Available Fault Current  |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | 50                             | 50                | 50                | 80                | 125                | 125                | 160    | 160 | 160                | 160 | 250                | 250                | 250                | 250    | 250                |
|                                                                                                               | Type"2"(400V)                                   | [A]                    | 25                             | 35                | 35                | 40                | 80                 | 80                 | 63     | 80  | 100                | 100 | 160                | 160                | 160                | 160    | 200                |
|                                                                                                               | Type"2"(690V)                                   | [A]                    | 25                             | 35                | 35                | 40                | 80                 | 80                 | 63     | 80  | 100                | 100 | 160                | 160                | 160                | 160    | 200                |
| BS88Fuses                                                                                                     | Type"1"(415V)                                   | [A]                    | 65kA Available Fault Current   |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | 25                             | 32                | 40                | 50                | 63                 | 80                 | —      | —   | 80                 | TBD | 100                | 160                | 160                | —      | TBD                |
|                                                                                                               | Type"2"(415V)                                   | [A]                    | 20                             | 25                | 32                | 50                | 63                 | 80                 | —      | —   | 80                 | TBD | 100                | 125                | 160                | —      | TBD                |
|                                                                                                               |                                                 |                        |                                |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
| Per UL 508 and CSA 22.2 No. 14 (contactor and fuses or circuit breaker only)                                  |                                                 |                        |                                |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
| UL Class K5 and RK5 Fuses                                                                                     | UL Listed Combination (600V)                    | [A]                    | 5 kA Available Fault Current   |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | 35                             | 40                | 70                | 90                | 110                | 125                | 125    | 125 | 150                | 200 | 200                | —                  | —                  | —      | —                  |
|                                                                                                               |                                                 | [A]                    | 10 kA Available Fault Current  |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | —                              | —                 | —                 | —                 | —                  | —                  | —      | —   | —                  | —   | —                  | 250                | 300                | 300    | 350                |
| UL Class CC and CSA HRCI-MISC Fuses                                                                           | UL verified combination to IEC60947-4-1 "Type2" | [A]                    | 100 kA Available Fault Current |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | 20 <sup>(1)</sup>              | 20                | 30                | 40                | —                  | —                  | —      | —   | —                  | —   | —                  | —                  | —                  | —      | —                  |
| UL Class J and CSA HRCI-J Fuses                                                                               | UL verified combination to IEC60947-4-1 "Type2" | [A]                    | 100 kA Available Fault Current |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | 20 <sup>(1)</sup>              | 20                | 30                | 40                | 50                 | 50                 | —      | —   | 70                 | TBD | 80                 | 100                | 150                | —      | 175                |
| UL Inverse-Time Circuit Breaker                                                                               | UL Listed Combination (480V)                    | [A]                    | 5 kA Available Fault Current   |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | 30                             | 30                | 50                | 50                | 125                | 125                | —      | —   | 125                | 150 | 250                | —                  | —                  | —      | —                  |
|                                                                                                               |                                                 | [A]                    | 10 kA Available Fault Current  |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | —                              | —                 | —                 | —                 | —                  | —                  | —      | —   | —                  | —   | —                  | 250                | 250                | —      | —                  |
|                                                                                                               |                                                 | [A]                    | 18 kA Available Fault Current  |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | —                              | —                 | —                 | —                 | —                  | —                  | —      | —   | —                  | —   | —                  | —                  | —                  | —      | —                  |
|                                                                                                               |                                                 | [A]                    | 25 kA Available Fault Current  |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | 30 <sup>(2)</sup>              | 30 <sup>(2)</sup> | 30 <sup>(2)</sup> | 30 <sup>(2)</sup> | 50 <sup>(3)</sup>  | 50 <sup>(3)</sup>  | —      | —   | 50 <sup>(3)</sup>  | —   | 110                | 110                | 110                | —      | —                  |
|                                                                                                               |                                                 | [A]                    | 50 kA Available Fault Current  |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | —                              | —                 | —                 | —                 | 50 <sup>(3)</sup>  | 50 <sup>(3)</sup>  | —      | —   | 50 <sup>(3)</sup>  | —   | —                  | —                  | —                  | —      | —                  |
|                                                                                                               |                                                 | [A]                    | 65 kA Available Fault Current  |                   |                   |                   |                    |                    |        |     |                    |     |                    |                    |                    |        |                    |
|                                                                                                               |                                                 |                        | 30 <sup>(2)</sup>              | 30 <sup>(2)</sup> | 30 <sup>(2)</sup> | 30 <sup>(2)</sup> | —                  | —                  | —      | —   | —                  | —   | —                  | —                  | —                  | —      | —                  |
|                                                                                                               | UL Listed Combination (480V/277V)               | [A]                    | —                              | —                 | —                 | —                 | 100 <sup>(4)</sup> | 100 <sup>(4)</sup> | —      | —   | 100 <sup>(4)</sup> | 125 | 200 <sup>(4)</sup> | 225 <sup>(4)</sup> | 225 <sup>(4)</sup> | —      | 225 <sup>(4)</sup> |

(1) 15 A max. fuse for Type 2 coordination.

(2) Ratings apply when used with Bulletin 140U-D circuit breakers only.

(3) Minimum enclosure size 12-3/8 x 7-5/8 s 7-1/4 inches

(4) Minimum enclosure size 20 x 12 x 8 inches with two latches.

## Coil Data

|                                   |                    |                     | 100/104-C, 100S/104S-C    |    |    |          |    |    |            |        |    |          |    |    |                |        |        |                |         |         |
|-----------------------------------|--------------------|---------------------|---------------------------|----|----|----------|----|----|------------|--------|----|----------|----|----|----------------|--------|--------|----------------|---------|---------|
|                                   |                    |                     | 09                        | 12 | 16 | 23       | 30 | 37 | 40*200     | 40*400 | 43 | 55       | 60 | 72 | 85             | 90*200 | 90*400 | 97             |         |         |
| Coil Type:                        | Conventional       |                     | X                         | X  | X  | X        | X  | X  | X          | X      | X  | X        | X  | X  | X              | X      | X      | X              |         |         |
|                                   | Electronic - EI    |                     | X                         | X  | X  | X        | X  | X  | X          | X      | X  | X        | —  | —  | —              | —      | —      | —              |         |         |
| Operating Limits                  |                    |                     |                           |    |    |          |    |    |            |        |    |          |    |    |                |        |        |                |         |         |
| 50 Hz, 60 Hz,<br>50/60 Hz         | pick-up            | [x U <sub>s</sub> ] | 0.85...1.1                |    |    |          |    |    | 0.85...1.1 |        |    |          |    |    | 0.85...1.1     |        |        |                |         |         |
|                                   | dropout            | [x U <sub>s</sub> ] | 0.3...0.6                 |    |    |          |    |    | 0.3...0.6  |        |    |          |    |    | 0.3...0.6      |        |        |                |         |         |
| DC (conventional)                 | pick-up            | [x U <sub>s</sub> ] | —                         |    |    |          |    |    | —          |        |    |          |    |    | 0.8...1.1      |        |        |                |         |         |
|                                   | dropout            | [x U <sub>s</sub> ] | —                         |    |    |          |    |    | —          |        |    |          |    |    | 0.1...0.6      |        |        |                |         |         |
| DC (electronic—EQ, EJ,<br>EW, QJ) | pick-up            | [x U <sub>s</sub> ] | 0.7...1.25                |    |    |          |    |    |            |        |    |          |    |    | —              |        |        |                |         |         |
|                                   | dropout            | [x U <sub>s</sub> ] | 0.3...0.4                 |    |    |          |    |    |            |        |    |          |    |    | —              |        |        |                |         |         |
| DC (electronic—EY)                | pick-up            | [x U <sub>s</sub> ] | 0.8...1.25                |    |    |          |    |    |            |        |    |          |    |    | —              |        |        |                |         |         |
|                                   | dropout            | [x U <sub>s</sub> ] | 0.3...0.4                 |    |    |          |    |    |            |        |    |          |    |    | —              |        |        |                |         |         |
| DC (electronic—ED)                | pick-up            | [x U <sub>s</sub> ] | 0.7...1.12 <sup>(1)</sup> |    |    |          |    |    |            |        |    |          |    |    | —              |        |        |                |         |         |
|                                   | dropout            | [x U <sub>s</sub> ] | 0.3...0.4                 |    |    |          |    |    |            |        |    |          |    |    | —              |        |        |                |         |         |
| DC (electronic—EA)                | pick-up            | [x U <sub>s</sub> ] | 0.8...1.1                 |    |    |          |    |    |            |        |    |          |    |    | —              |        |        |                |         |         |
|                                   | dropout            | [x U <sub>s</sub> ] | 0.3...0.4                 |    |    |          |    |    |            |        |    |          |    |    | —              |        |        |                |         |         |
| Coil Consumption                  |                    |                     |                           |    |    |          |    |    |            |        |    |          |    |    |                |        |        |                |         |         |
| 50 Hz, 60 Hz,<br>50/60 Hz         | pick-up            | [VA]                | 75                        |    |    | 105      |    |    | 135        |        |    | 235      |    |    | 400            |        |        |                |         |         |
|                                   | hold-in            | [VA/W]              | 9.5/2.7                   |    |    | 12.3/3.1 |    |    | 13.3/3.3   |        |    | 19.6/5   |    |    | 24/9           |        |        |                |         |         |
| DC (conventional)                 | pick-up            | [W]                 | —                         |    |    | —        |    |    | —          |        |    | 200      |    |    | 325            |        |        |                |         |         |
|                                   | hold-in            | [W]                 | —                         |    |    | —        |    |    | —          |        |    | 4        |    |    | 5              |        |        |                |         |         |
| DC (electronic—EQ, EJ,<br>QJ)     | pick-up (avg/peak) | [W]                 | 10/17                     |    |    |          |    |    | 16/25      |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | hold-in            | [W]                 | 1.7                       |    |    |          |    |    | 2.5        |        |    |          |    |    | —              |        |        | —              |         |         |
| DC (electronic—EY,<br>EW)         | pick-up (avg/peak) | [W]                 | 10/17                     |    |    |          |    |    | 16/25      |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | hold-in            | [W]                 | 1.9                       |    |    |          |    |    | 2.7        |        |    |          |    |    | —              |        |        | —              |         |         |
| DC (electronic—ED)                | pick-up (avg/peak) | [W]                 | 12/19                     |    |    |          |    |    | 16/26      |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | hold-in            | [W]                 | 2.1                       |    |    |          |    |    | 2.8        |        |    |          |    |    | —              |        |        | —              |         |         |
| DC (electronic—EA)                | pick-up (avg/peak) | [W]                 | 14/22                     |    |    |          |    |    | 18/29      |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | hold-in            | [W]                 | 3.0                       |    |    |          |    |    | 4.0        |        |    |          |    |    | —              |        |        | —              |         |         |
| Operating Times                   |                    |                     |                           |    |    |          |    |    |            |        |    |          |    |    |                |        |        |                |         |         |
| AC                                | closing delay      | [ms]                | 15...30                   |    |    | 15...30  |    |    | 15...30    |        |    | 20...40  |    |    | 20...40        |        |        |                |         |         |
|                                   | opening delay      | [ms]                | 10...60                   |    |    | 10...60  |    |    | 10...60    |        |    | 10...60  |    |    | 20...40        |        |        |                |         |         |
| With RC module                    | closing delay      | [ms]                | 10...60                   |    |    | 10...60  |    |    | 10...60    |        |    | 10...60  |    |    | 20...40        |        |        |                |         |         |
| DC (conventional)                 | opening delay      | [ms]                | —                         |    |    | —        |    |    | —          |        |    | 50...80  |    |    | 20...40        |        |        | 15...25        | 20...25 | 20...25 |
|                                   | closing delay      | [ms]                | —                         |    |    | —        |    |    | —          |        |    | 7...15   |    |    | —              |        |        | —              |         |         |
| With integrated diode             | opening delay      | [ms]                | —                         |    |    | —        |    |    | —          |        |    | 17...23  |    |    | ≤ 220V 20...35 |        |        | ≤ 220V 20...35 |         |         |
| With external diode               | opening delay      | [ms]                | —                         |    |    | —        |    |    | —          |        |    | 80...125 |    |    | —              |        |        | —              |         |         |
| DC (electronic—EQ,<br>EJ)         | closing delay      | [ms]                | 20...50                   |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | opening delay      | [ms]                | 20...50                   |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | Max. Ripple        |                     | ±15%                      |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | min. OFF time      | [ms]                | 50                        |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
| DC (electronic—EW,<br>EY, ED, EA) | closing delay      | [ms]                | 20...50                   |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | opening delay      | [ms]                | 23...33                   |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | Max. Ripple        |                     | ±15%                      |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | min. OFF time      | [ms]                | 50                        |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
| DC (electronic—QJ)                | closing delay      | [ms]                | 20...50                   |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | opening delay      | [ms]                | 16...21                   |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | Max. Ripple        |                     | ±15%                      |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |
|                                   | min. OFF time      | [ms]                | 50                        |    |    |          |    |    | —          |        |    |          |    |    | —              |        |        | —              |         |         |

(1) 0.7...1.25 at 110V DC

## Auxiliary Contacts, Auxiliary Contact Blocks, and Pneumatic Timers

|                                                                        |                                                                                     |     | Internal                                   | Front mounted                           | Front mounted<br>(Bifurcated) | Side-mounted |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|--------------------------------------------|-----------------------------------------|-------------------------------|--------------|
| <b>Switching of AC Loads</b>                                           |                                                                                     |     |                                            |                                         |                               |              |
| AC-12 $I_{th}$                                                         | at 40 °C                                                                            | [A] | 20                                         | 10                                      | 10                            | 10           |
|                                                                        | at 60 °C                                                                            | [A] | 20                                         | 6                                       | 6                             | 6            |
| AC-15 at rated voltage of                                              | 24V                                                                                 | [A] | 10                                         | 6                                       | 3                             | 6            |
|                                                                        | 42/48V                                                                              | [A] | 10                                         | 6                                       | 3                             | 6            |
|                                                                        | 120V                                                                                | [A] | 10                                         | 6                                       | 3                             | 6            |
|                                                                        | 230V                                                                                | [A] | 10                                         | 5.5                                     | 3                             | 5.5          |
|                                                                        | 240V                                                                                | [A] | 10                                         | 5                                       | 3                             | 5            |
|                                                                        | 400V                                                                                | [A] | 6                                          | 3                                       | 2                             | 3            |
|                                                                        | 415V                                                                                | [A] | 6                                          | 3                                       | 2                             | 3            |
|                                                                        | 500V                                                                                | [A] | 2.5                                        | 1.6                                     | 1.2                           | 1.6          |
|                                                                        | 690V                                                                                | [A] | 1                                          | 1                                       | 0.7                           | 1            |
| <b>Switching of DC Loads</b>                                           |                                                                                     |     |                                            |                                         |                               |              |
| DC-12 L/R < 1 ms resistive loads at                                    | 24V DC                                                                              | [A] | 12                                         | 12                                      | 6                             | 6            |
|                                                                        | 48V DC                                                                              | [A] | 9                                          | 9                                       | 3.2                           | 3.2          |
|                                                                        | 110V DC                                                                             | [A] | 3.5                                        | 3.5                                     | 1                             | 1            |
|                                                                        | 220V DC                                                                             | [A] | 0.55                                       | 0.55                                    | 0.5                           | 0.5          |
|                                                                        | 440V DC                                                                             | [A] | 0.2                                        | 0.2                                     | 0.2                           | 0.2          |
| DC-14L/R < 15 ms inductive loads with economy resistor in series at    | 24V DC                                                                              | [A] | 9                                          | 9                                       | 2                             | 2            |
|                                                                        | 48V DC                                                                              | [A] | 5                                          | 5                                       | 1.6                           | 1.6          |
|                                                                        | 110V DC                                                                             | [A] | 2                                          | 2                                       | 0.3                           | 0.3          |
|                                                                        | 220V DC                                                                             | [A] | 0.4                                        | 0.4                                     | 0.12                          | 0.12         |
|                                                                        | 440V DC                                                                             | [A] | 0.16                                       | 0.16                                    | 0.05                          | 0.05         |
| DC-13 switching electromagnets at                                      | 24V DC                                                                              | [A] | 5                                          | 5                                       | 2.5                           | 5            |
|                                                                        | 48V DC                                                                              | [A] | 3                                          | 3                                       | 1.5                           | 2.5          |
|                                                                        | 110V DC                                                                             | [A] | 1.2                                        | 1.2                                     | 0.6                           | 0.68         |
|                                                                        | 220V DC                                                                             | [A] | 0.6                                        | 0.6                                     | 0.3                           | 0.32         |
|                                                                        | 440V DC                                                                             | [A] | 0.3                                        | 0.15                                    | 0.15                          | 0.15         |
| <b>Fuse gG</b>                                                         |                                                                                     |     |                                            |                                         |                               |              |
| Short-circuit protection with no welding of contacts per IEC 60947-5-1 |  | [A] | 20                                         | 10                                      | 10                            | 10           |
|                                                                        |  | [A] | 20                                         | 10                                      | 10                            | 10           |
| Protective Separation per IEC 60947-1, Annex N                         |                                                                                     |     | between load and auxiliary circuit<br>320V | between load and auxiliary circuit 440V |                               |              |
| Min. switching capacity according to IEC 60947-5-4                     |                                                                                     |     | 17V/10mA                                   | 17V/5mA                                 | 5V/3mA                        | 17V/10mA     |
| <b>Load Carrying Capacity per UL/CSA</b>                               |                                                                                     |     |                                            |                                         |                               |              |
| Rated voltage                                                          | AC                                                                                  | [V] | max.600                                    |                                         |                               |              |
| Continuous rating                                                      | 40 °C                                                                               | [A] | 10                                         | 10                                      | 10                            | 10           |
| Switching capacity                                                     | AC                                                                                  | [A] | A600                                       |                                         |                               |              |
| Rated voltage                                                          | DC                                                                                  | [V] | max.600                                    |                                         |                               |              |
| Switching capacity                                                     | DC                                                                                  | [A] | P600                                       | Q600                                    | Q600                          |              |

## General

| Attribute                                          |      | Value                                                                                                                                                                                                                         |
|----------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rated Isolation Voltage <math>U_i</math></b>    |      |                                                                                                                                                                                                                               |
| IEC                                                | [V]  | 690                                                                                                                                                                                                                           |
| UL, CSA                                            | [V]  | 600                                                                                                                                                                                                                           |
| Rated Impulse Voltage Withstand $U_{imp}$          | [kV] | 6                                                                                                                                                                                                                             |
| <b>Rated Voltage <math>U_e</math></b>              |      |                                                                                                                                                                                                                               |
| AC 50/60 Hz                                        | [V]  | 115, 200, 230, 240, 400, 415, 460, 500, 575, 690                                                                                                                                                                              |
| DC                                                 | [V]  | 24, 48, 110, 220, 440                                                                                                                                                                                                         |
| Insulation Class of the Coil                       |      | Class F per IEC 60085, UL Class 105                                                                                                                                                                                           |
| Rated coil frequency                               |      | AC 50/60Hz, DC                                                                                                                                                                                                                |
| <b>Ambient Temperature</b>                         |      |                                                                                                                                                                                                                               |
| Storage                                            | [°C] | -55...+80                                                                                                                                                                                                                     |
| Operation at rated voltage                         | [°C] | -25...+60                                                                                                                                                                                                                     |
| at 70 °C                                           |      | 15% current reduction against 60 °C values                                                                                                                                                                                    |
| Climatic Withstand                                 |      | IEC 60068-2-1/-2/-30                                                                                                                                                                                                          |
| Max. Altitude of Installation Site                 | [m]  | 2000 NN, per IEC60947-1                                                                                                                                                                                                       |
| Protection Class                                   |      | 100-C09...C23: IP2X from all directions<br>100-C30...C55: IP2X from front with front (upper) terminal wired<br>100-C60...C97: IP2X from front with front (upper) terminal wired (min. wire size 16 mm <sup>2</sup> or #6 AWG) |
| Single contactor cover                             |      | —                                                                                                                                                                                                                             |
| Contactor with frame terminal block                |      | —                                                                                                                                                                                                                             |
| Auxiliary contact                                  |      | IP2X                                                                                                                                                                                                                          |
| Protection against Accidental Contact              |      | Finger- and back-of-hand proof per VDE0106, part100                                                                                                                                                                           |
| Resistance to Shock                                |      | IEC60068-2-27                                                                                                                                                                                                                 |
| Resistance to Vibration                            |      | IEC60068-2-6                                                                                                                                                                                                                  |
| Mechanically Linked Contacts IEC60947-5-1, Annex L |      | 100-/100S-C09...C55+100-FA/-FB/-FC, (except L11, L22), 100-/100S-C09...C55+ 100-FAB/-FBB/-FCB                                                                                                                                 |
| Mirror Contacts IEC60947-4 Annex F                 |      | 100-/100S-C09...C97+100-FA/-FB/-FC, (except L11, L22), 100-/100S-C09...C97+ 100-SA/SB, 100-/100S-C09...C97+100-FAB/-FBB/-FCB                                                                                                  |

## Standards Compliance and Certifications

### 100-C IEC Contactors

| Standards Compliance                                                       | Certifications                                   |
|----------------------------------------------------------------------------|--------------------------------------------------|
| EN/IEC 60947-4-1, 60947-5-1                                                | CE Marked                                        |
| IEC 60947 Type "2" Coordination                                            | CCC                                              |
| CSA 22.2. No. 14                                                           | cULus Listed (File No. E3125; Guide NLDX, NLDX7) |
| UL 508                                                                     |                                                  |
| Meets the material restrictions for European Directive 2002/95/IEC-EU-RoHS |                                                  |

### 100S-C IEC Safety Contactors

| Standards Compliance                                                       | Certifications                                   |
|----------------------------------------------------------------------------|--------------------------------------------------|
| EN50205                                                                    | CE Marked                                        |
| CSA C22.2 No. 14                                                           | SUVA Third-Party Certified                       |
| UL 508                                                                     | cULus Listed (File No. E3125; Guide NLDX, NLDX7) |
| EN/IEC 60947-4                                                             |                                                  |
| IEC 60947-4-1 Annex F — Mirror Contacts                                    |                                                  |
| IEC 60947-5-1 Annex L — Mechanically Linked Contacts                       |                                                  |
| Meets the material restrictions for European Directive 2002/95/IEC-EU-RoHS |                                                  |

## 100Q-C Capacitor-switching Contactors

| Standards Compliance                                                       | Certifications                                     |
|----------------------------------------------------------------------------|----------------------------------------------------|
| IEC 60947-4                                                                | CE Marked                                          |
| CSA C22.2 No. 14                                                           | cULus Listed (File No. E 41850, Guide NLDX, NLDX7) |
| UL 508                                                                     |                                                    |
| Meets the material restrictions for European Directive 2002/95/IEC-EU-RoHS |                                                    |

## Life-Load Curves

Bulletin 100-C/104-C IEC contactors are designed for superior performance in a wide variety of applications. When selecting IEC products, the user must give consideration to the specific load, utilization category, and required electrical life of the application. The life-load curves shown here are based on Rockwell Automation tests according to the requirements defined in IEC 60947-4-1. Since contact life in application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

To find the contactor's estimated electrical life, follow these guidelines:

1. Identify the appropriate utilization category from [Table 1](#).
2. Choose the graph for the utilization category selected.
3. Locate the intersection of the life-load curve for the appropriate contactor with the application's operational current ( $I_e$ ) found on the horizontal axis.
4. Read the estimated contact life along the vertical axis.

### Contact Life for Mixed Utilization Categories AC-3 and AC-4:

In many applications, the utilization category cannot be defined as either purely AC-3 or AC-4. In those applications, the electrical life of the contactor can be estimated from the following equation:

$$L_{\text{mixed}} = L_{\text{ac3}} / [1 + P_{\text{ac4}} * (L_{\text{ac3}} / L_{\text{ac4}} - 1)], \text{ where:}$$

$L_{\text{mixed}}$  = Approximate contact life in operations for a mixed AC-3/AC-4 utilization category application

$L_{\text{ac3}}$  = Approximate contact life in operations for a pure AC-3 utilization category (from the AC-3 life-load curves)

$L_{\text{ac4}}$  = Approximate contact life in operations for a pure AC-4 utilization category (from the AC-4 life-load curves)

$P_{\text{ac4}}$  = Percentage of AC-4 operations

**Table 1 - Utilization Category Determination**

| Test Conditions |                                                                                     | Making              |         |             | Breaking  |           |             |
|-----------------|-------------------------------------------------------------------------------------|---------------------|---------|-------------|-----------|-----------|-------------|
|                 |                                                                                     | $I/I_e$             | $U/U_e$ | $\cos \phi$ | $I_c/I_e$ | $U_r/U_e$ | $\cos \phi$ |
| AC-1            | Resistance Furnaces:<br>Non inductive or slightly inductive loads                   | 1                   | 1       | 0.95        | 1         | 1         | 0.95        |
| AC-2            | Slip-ring motors:<br>Starting and reversing                                         | 2.5                 | 1       | 0.65        | 2.5       | 1         | 0.65        |
| AC-3            | Squirrel-cage motors:<br>Starting and stopping of running motors                    | $I_e < 17\text{ A}$ | 6       | 0.65        | 1         | 0.17      | 0.65        |
|                 |                                                                                     | $I_e > 17\text{ A}$ | 6       | 0.35        | 1         | 0.17      | 0.35        |
| AC-4            | Squirrel-cage motors:<br>Starting, plugging <sup>(1)</sup> , inching <sup>(2)</sup> | $I_e < 17\text{ A}$ | 6       | 0.65        | 6         | 1         | 0.65        |
|                 |                                                                                     | $I_e > 17\text{ A}$ | 6       | 0.35        | 6         | 1         | 0.35        |
| AC-15           | Solenoids:<br>Contactors, valves and lifting magnets                                | 10                  | 1       | 0.7         | 1         | 1         | 0.4         |

(1) Plugging is understood as stopping or reversing the motor rapidly by reversing motor primary connections while the motor is running.

(2) Inching (jogging) is understood as energizing a motor once or repeatedly for short periods to obtain small movements of the driven mechanism.

$I_e$  Rated operational current

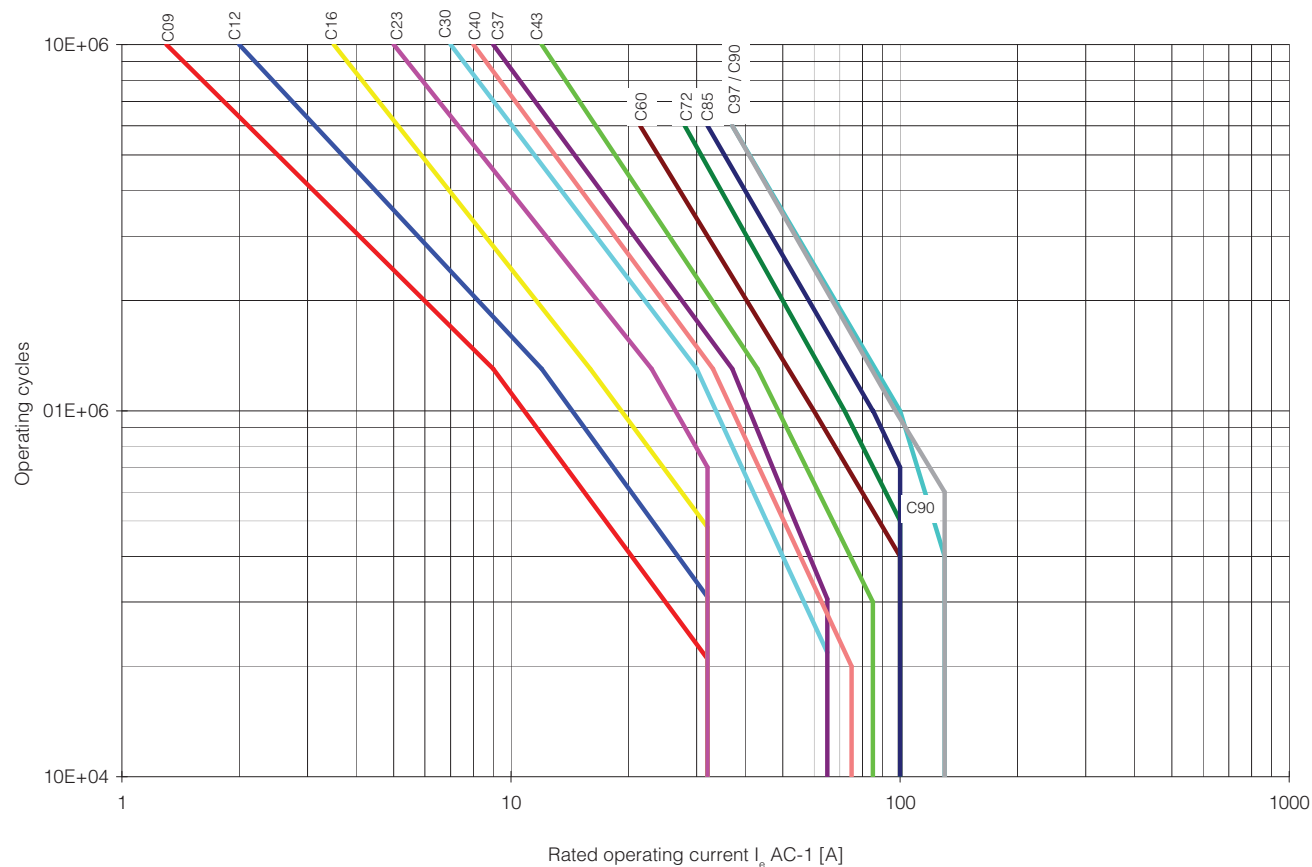
$I$  Making Current

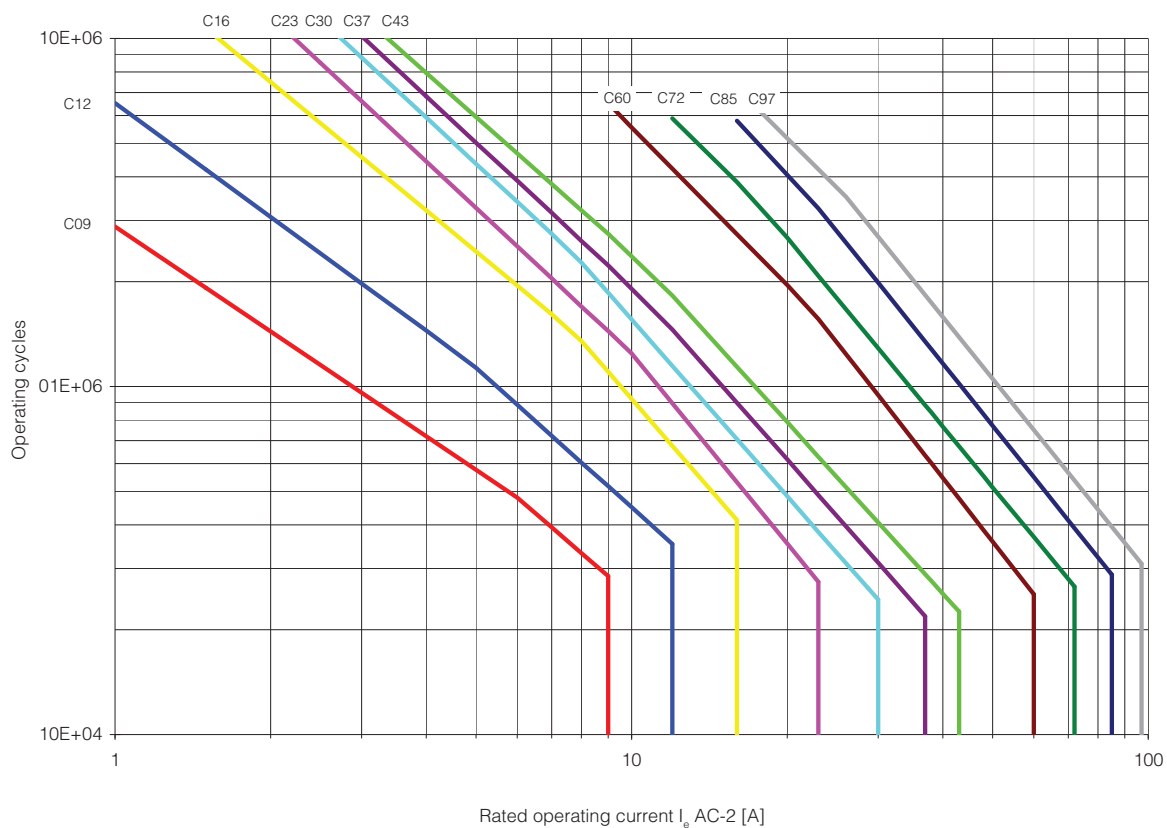
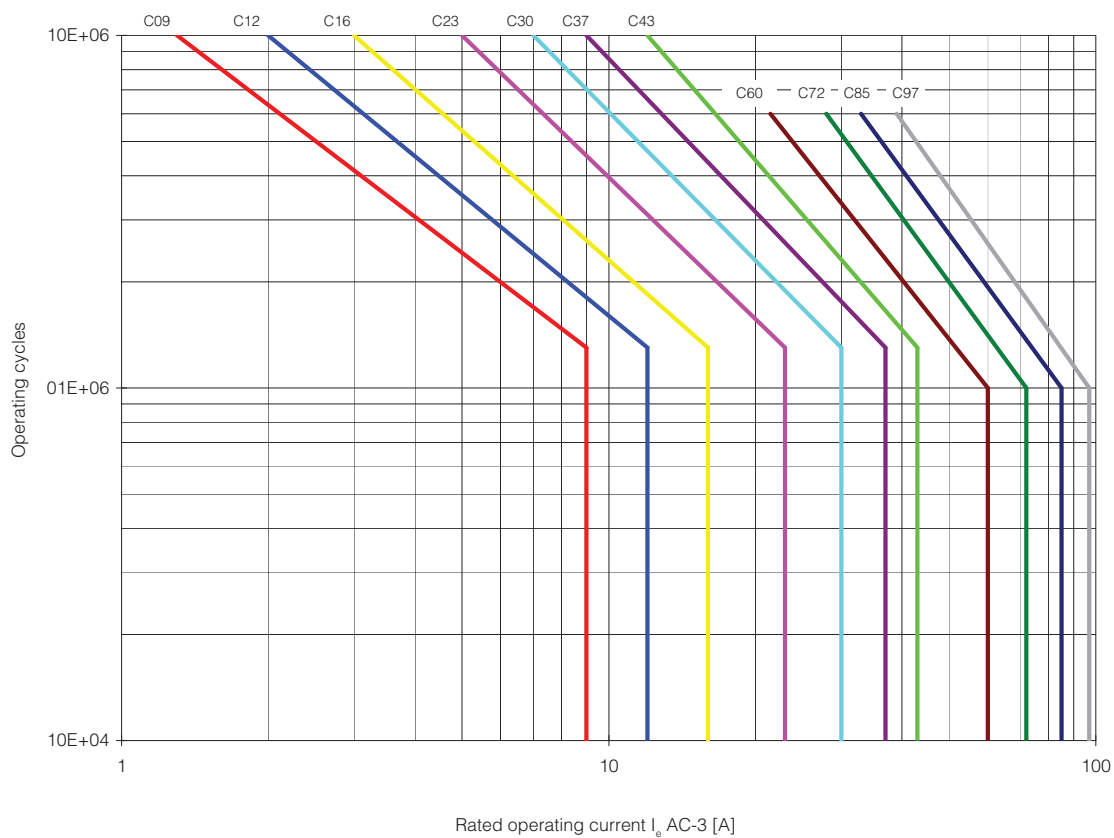
$I_c$  Breaking Current

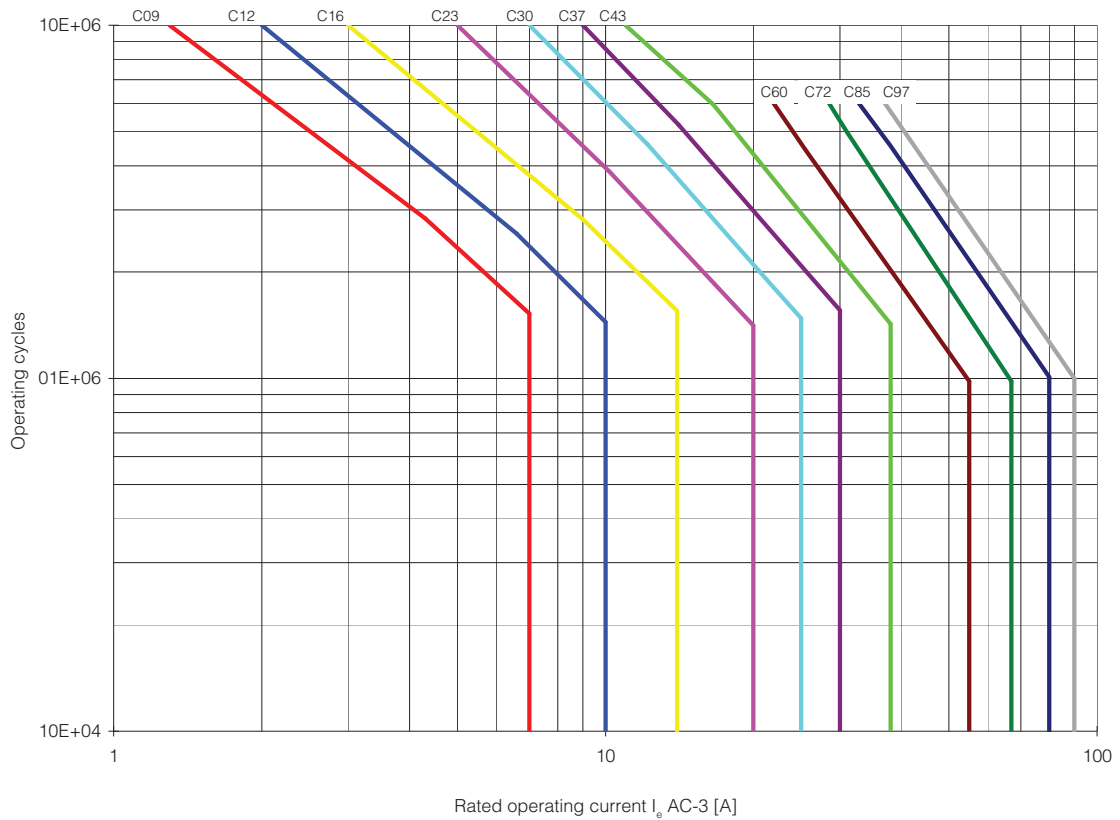
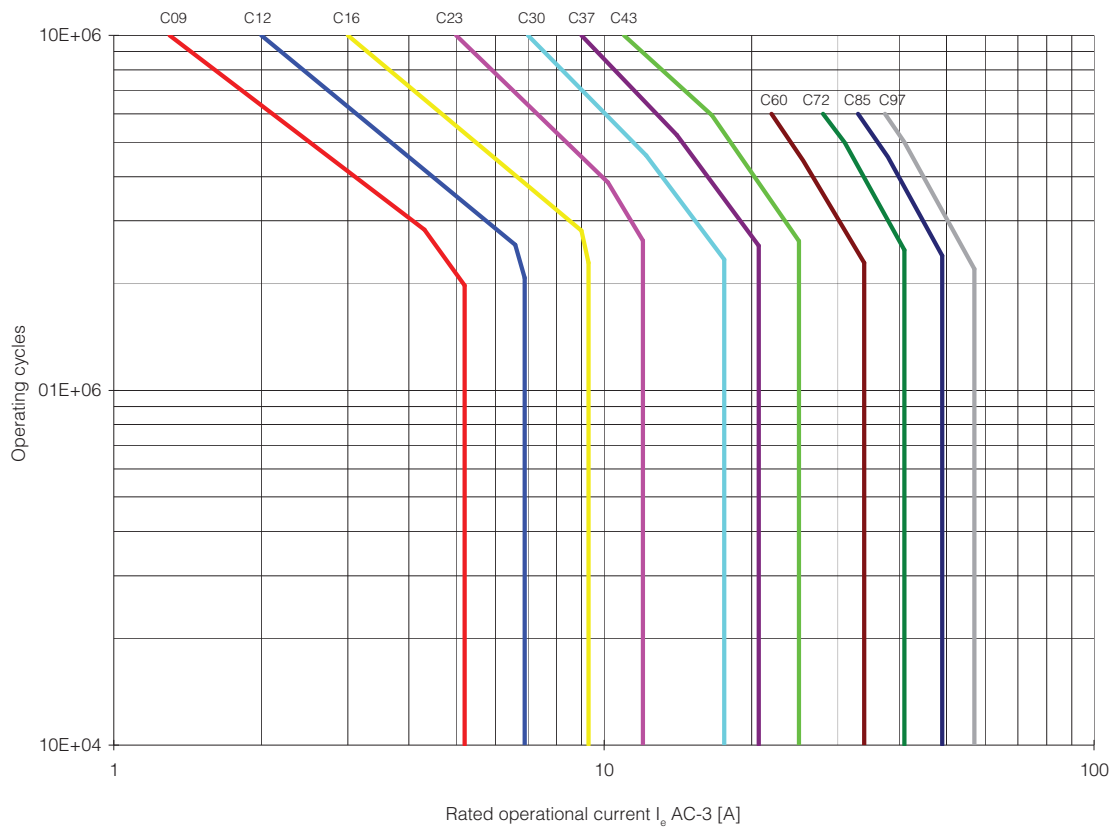
$U$  Off-load voltage

$U_e$  Rated voltage

$U_r$  Recovery voltage

**Figure 5 - AC-1, 40 °C Non- or slightly inductive loads, resistance furnaces;  $U_e = 230\ldots690\text{V}$** 

**Figure 6 - AC-2, Switching of slip-ring motors;  $U_e = 230...400...460V$** **Figure 7 - AC-3, Switching of squirrel-cage motors while starting;  $U_e = 230...400...460V$** 

**Figure 8 - AC-3, Switching of squirrel-cage motors while starting;  $U_e = 500...575V$** **Figure 9 - AC-3, Switching of squirrel-cage motors while starting;  $U_e = 690V$** 

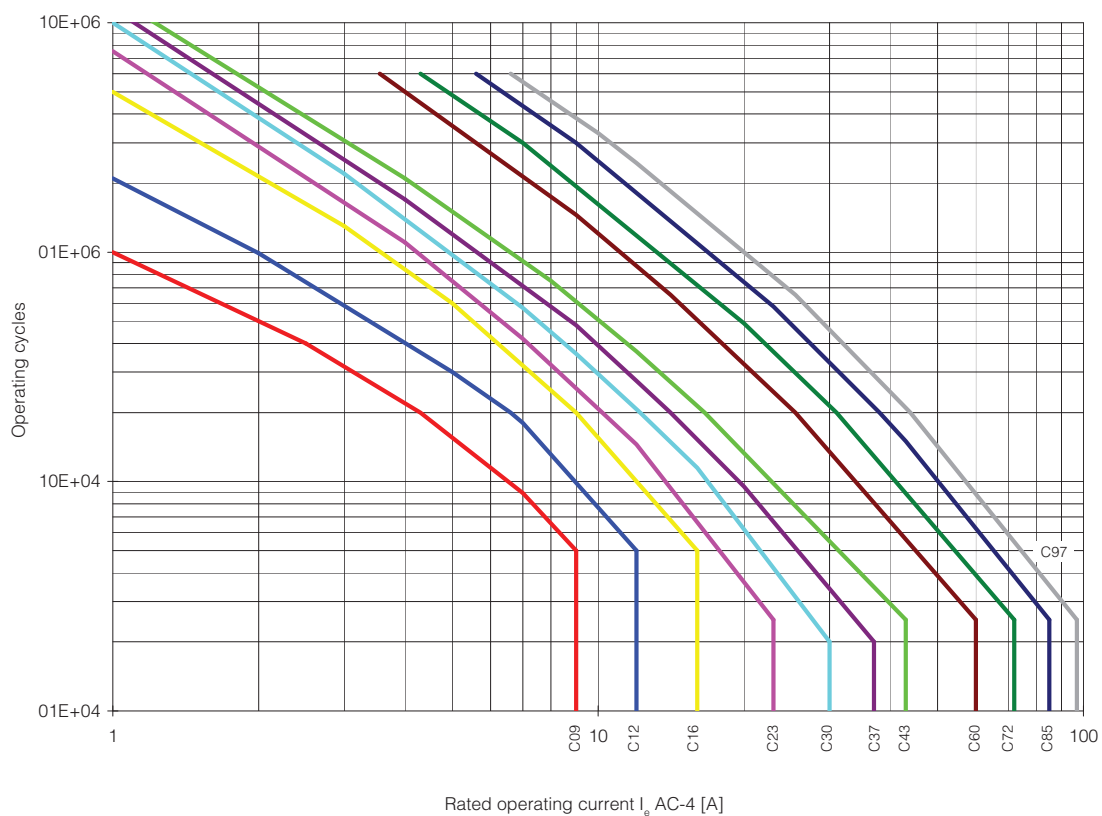
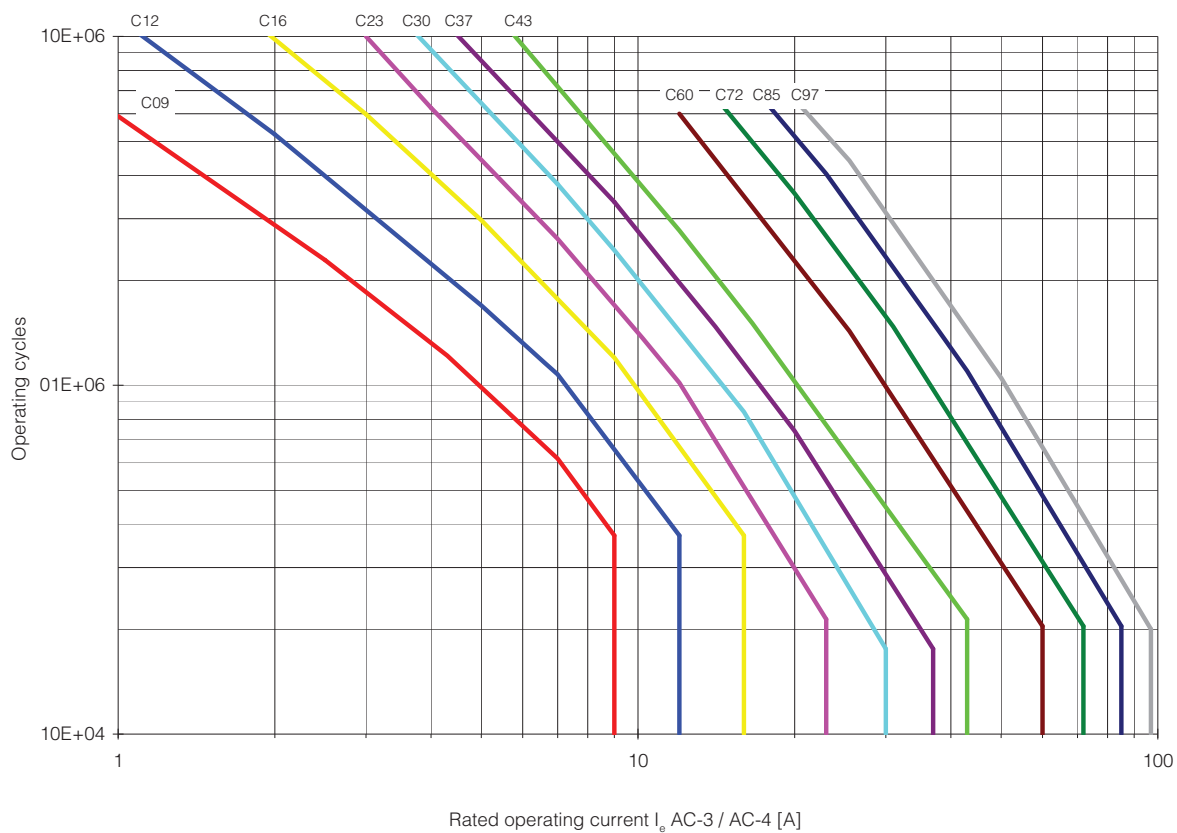
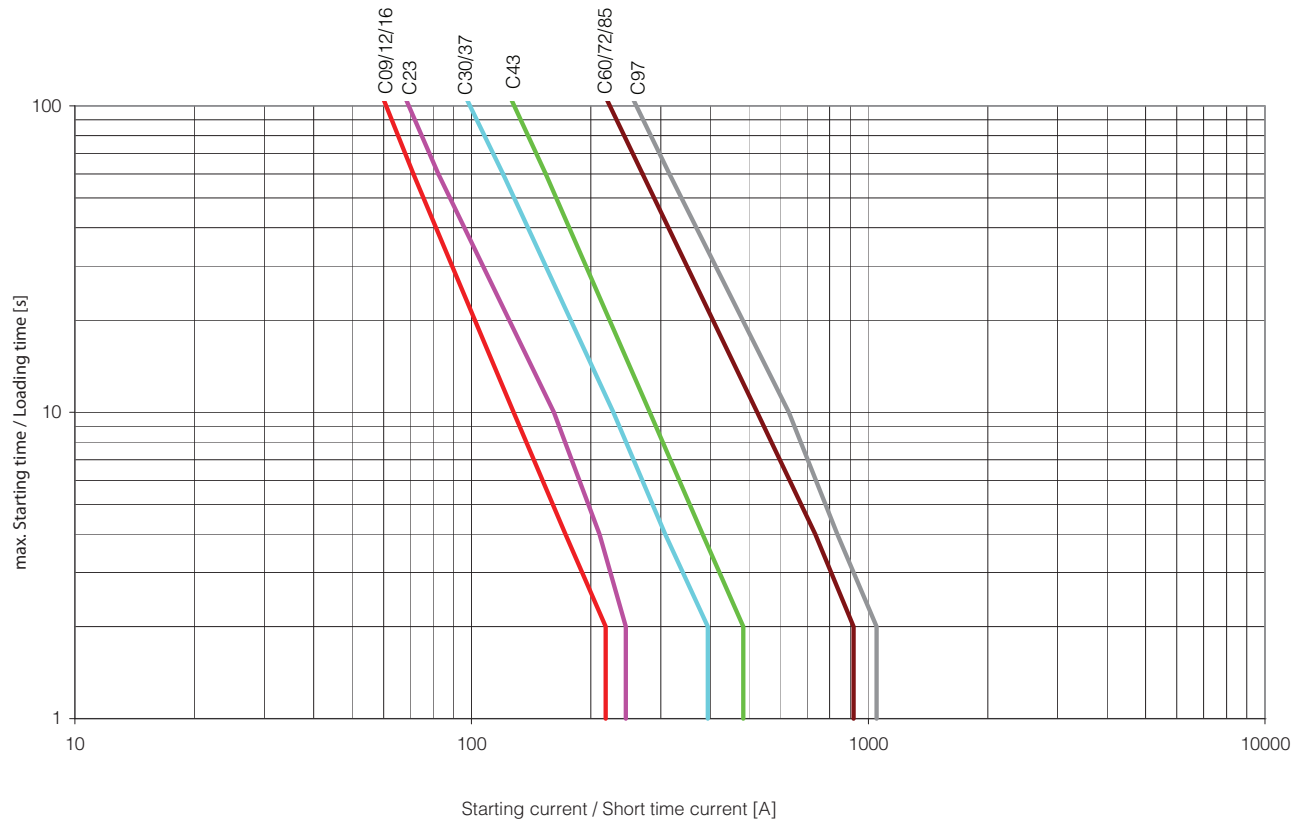
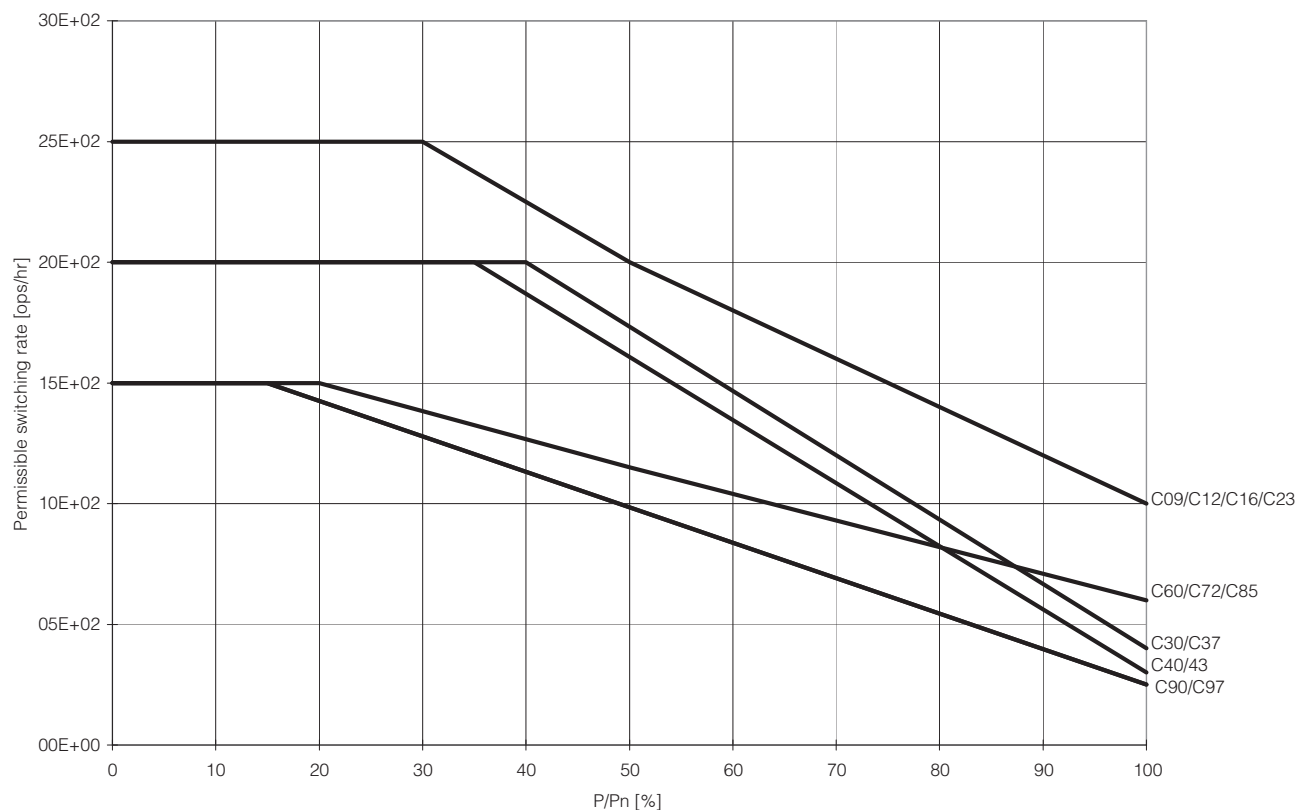
**Figure 10 - AC-4, Switching of squirrel-cage motors;  $U_e = 230...690V$** **Figure 11 - AC-3 & AC-4, 10% AC-4 Mixed operation of squirrel-cage motors;  $U_e = 230...400...460V$** 

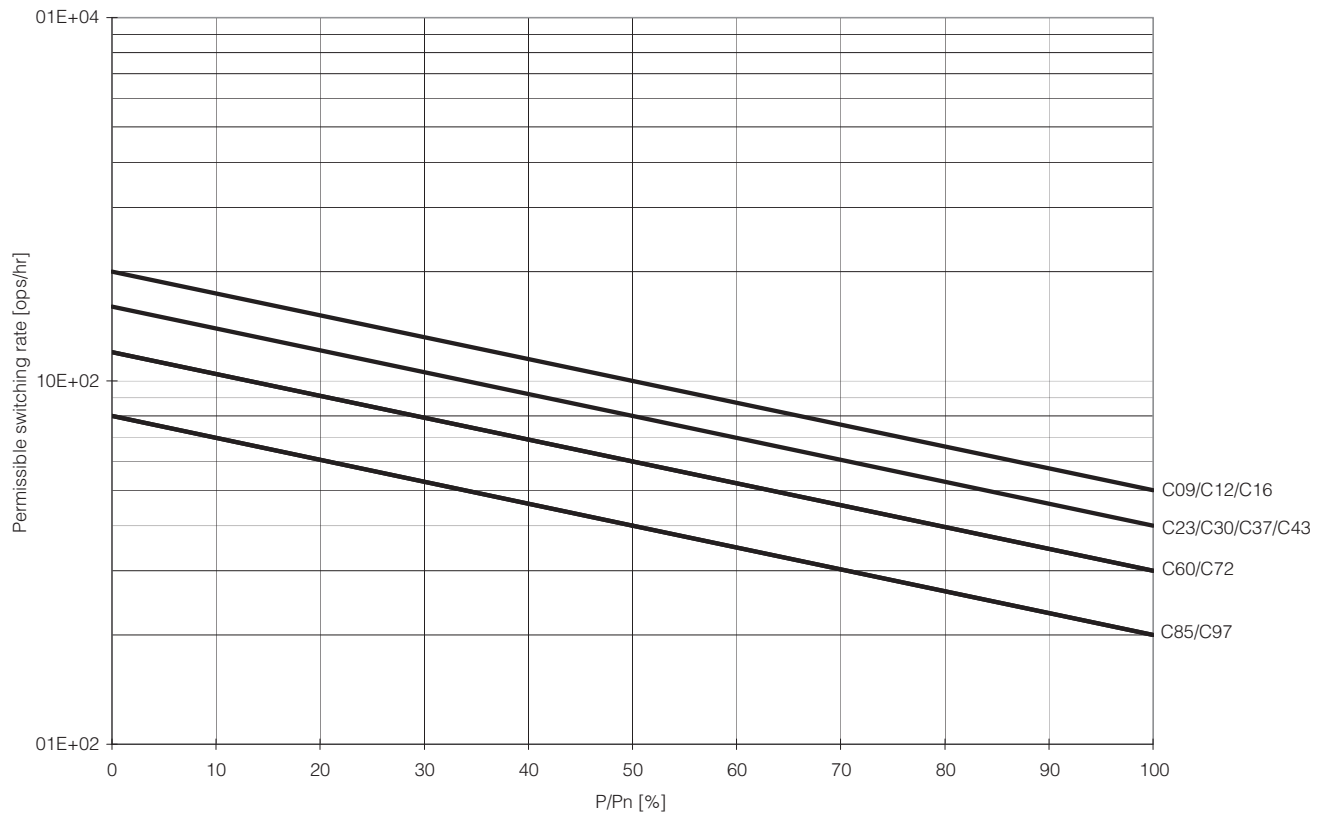
Figure 12 - Heavy Duty Starting and Regular Short-time Operation



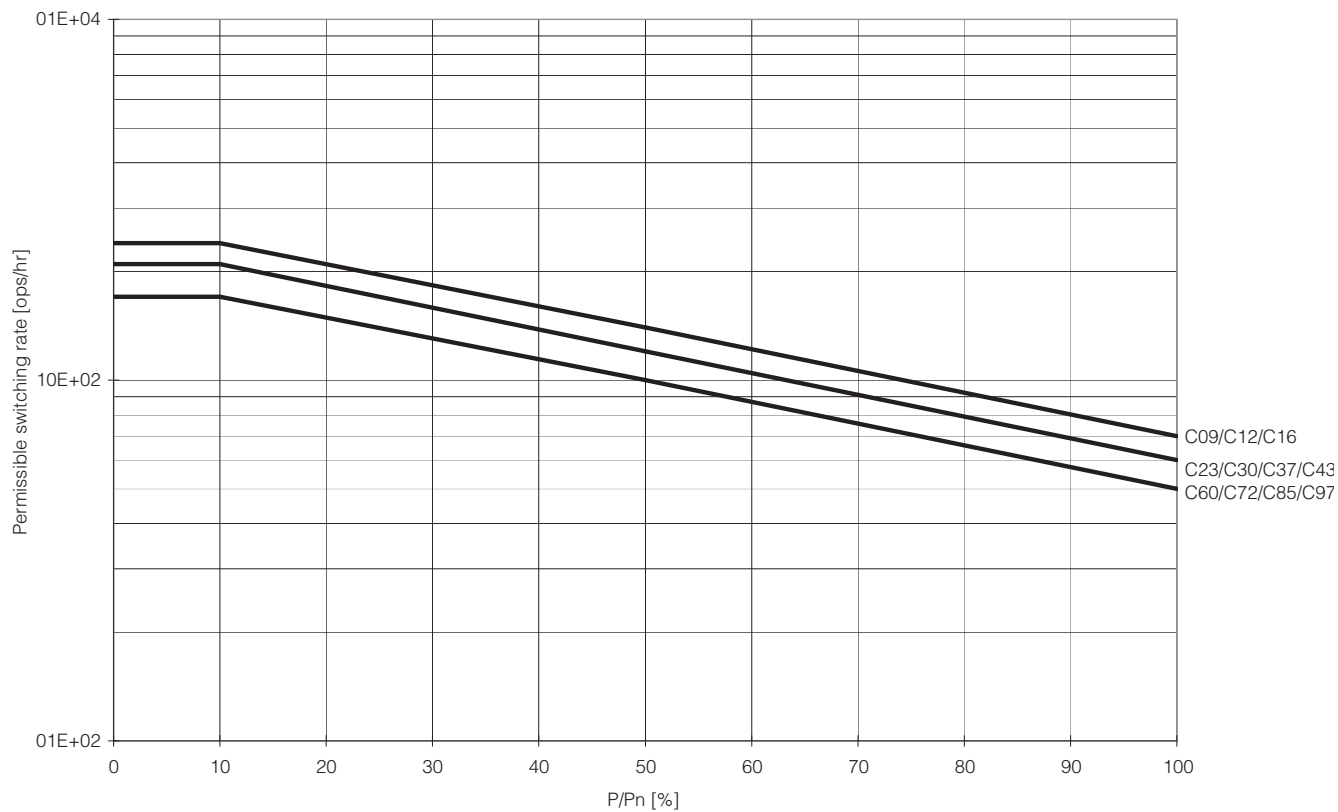
# Maximum Operating Rates

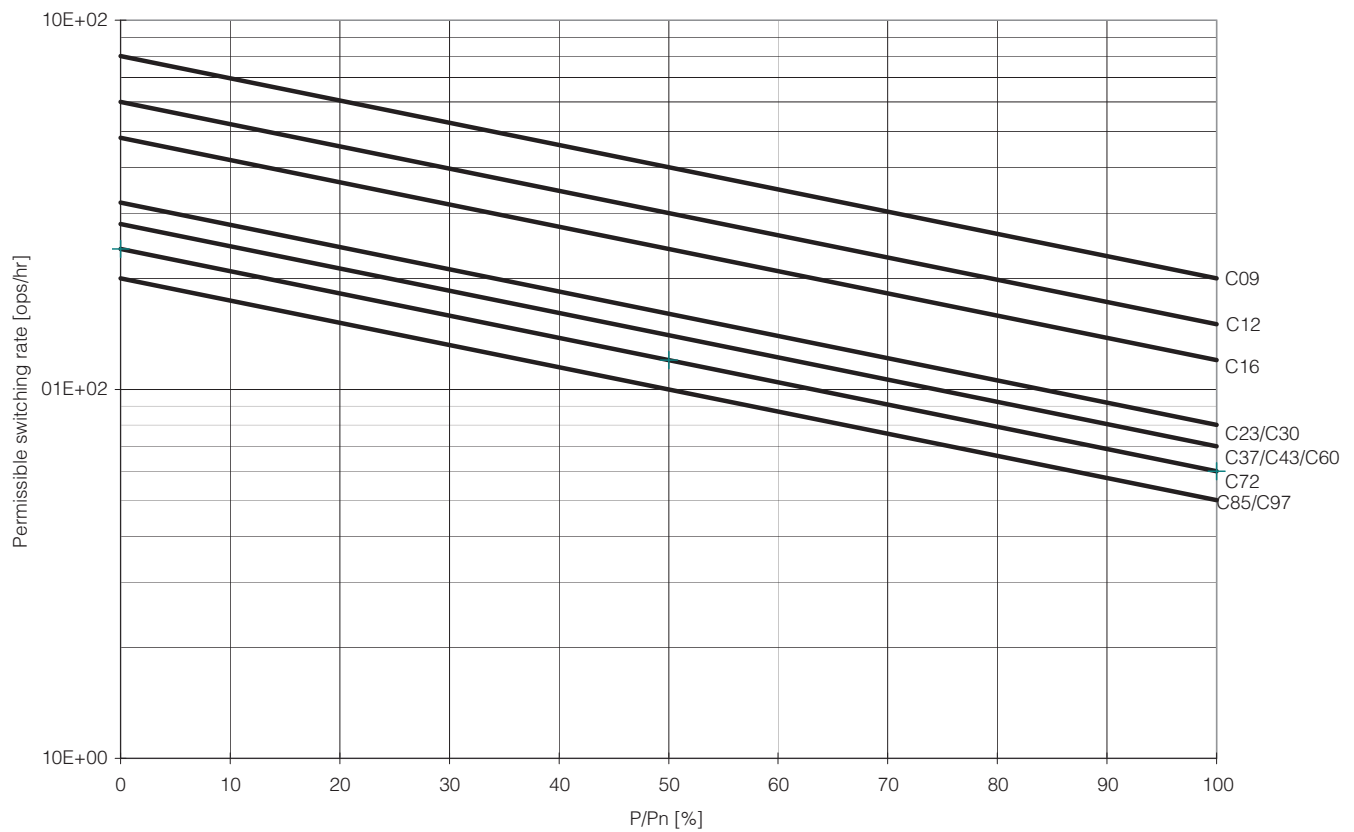
Figure 13 - AC-1, 40 °C Non- or slightly inductive loads, resistance furnaces;  $U_e = 230 \dots 690V$



**Figure 14 - AC-2, Stepping of slip-ring motors;  $U_e = 230...460V$** 

**Figure 15 - AC-3, Switching of squirrel-cage motors while starting;  $U_e = 230 \dots 460V$ ; Relative operating time 40%, Starting time  $t_A = 0.25\text{ s}$**



**Figure 16 - AC-4, Inching of squirrel-cage motors;  $U_e = 230 \dots 460V$ , Starting time  $t_A = 0.25\text{ s}$** 

# Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

## Bulletin 100-C/104-C, 100S-C/104S-C Approximate Dimensions

Figure 17 - Bulletin 100-C/100S-C Contactors and Accessories

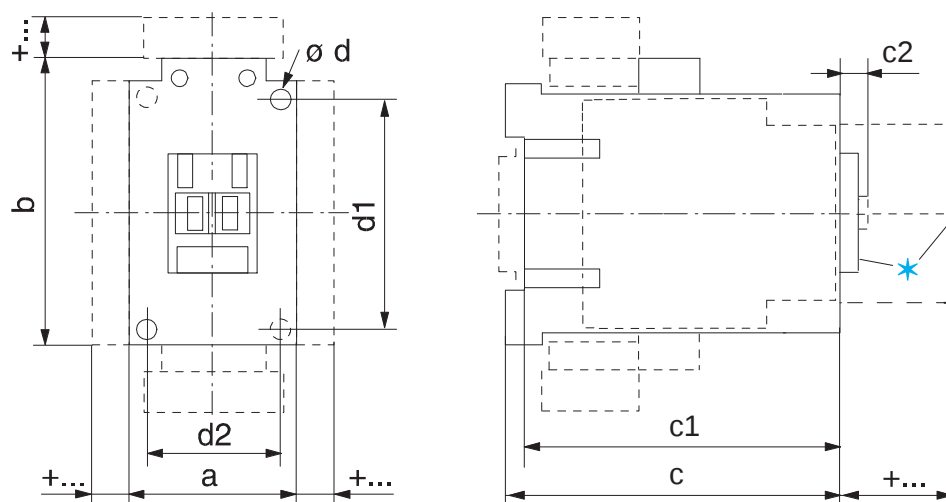


Figure 18 - Mounting Position — 100-C Contactors; 100S-C AC Contactors and DC contactors with electronic coils

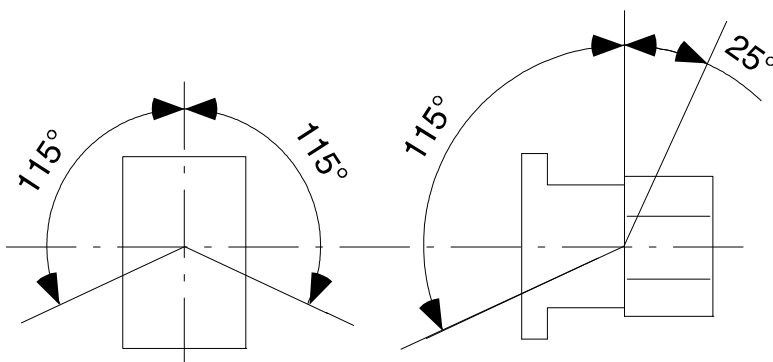
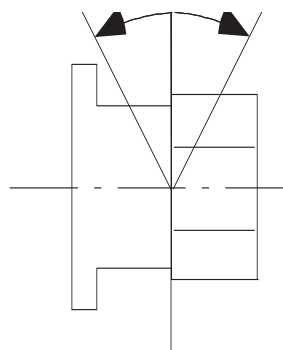


Figure 19 - Mounting Position — 100S-C DC contactors



**Table 2 - AC Contactors and DC Contactors with 12V or 24V Electronic Coils**

| Cat. No.            | a            | b             | c               | c1              | c2          | Ø d                | d1            | d2           |
|---------------------|--------------|---------------|-----------------|-----------------|-------------|--------------------|---------------|--------------|
| 100-C09...100-C23   | 45 (1-25/32) | 81 (3-3/16)   | 80.5 (3-11/64)  | 75.5 (2-31/32)  | 6 (15/64)   | 2 - 4.5 (2 - 3/16) | 60 (2-23/64)  | 35 (1-3/8)   |
| 100-C30, 100-C37    | 45 (1-25/32) | 81 (3-3/16)   | 97.5 (4)        | 92.5 (3-41/64)  | 6.5 (1/4)   | 2 - 4.5 (2 - 3/16) | 60 (2-23/64)  | 35 (1-3/8)   |
| 100-C40             | 59 (2-21/64) | 81 (3-3/16)   | 100.5 (3-61/64) | 95.5 (3-49/64)  | 6.5 (1/4)   | 2 - 4.5 (2 - 3/16) | 60 (2-23/64)  | 45 (1-25/32) |
| 100-C43, 100-C55    | 54 (2-1/8)   | 81 (3-3/16)   | 100.5 (3-61/64) | 95.5 (3-49/64)  | 6.5 (1/4)   | 2 - 4.5 (2 - 3/16) | 60 (2-23/64)  | 45 (1-25/32) |
| 100-C60...100-C97   | 72 (2-53/64) | 122 (4-51/64) | 117 (4-39/64)   | 111.5 (4-25/64) | 8.5 (21/64) | 4 - 5.4 (4 - 7/32) | 100 (3-15/16) | 55 (2-11/64) |
| 100-C90             | 95 (3-47/64) | 122 (4-51/64) | 117 (4-39/64)   | 111.5 (4-25/64) | 8.5 (21/64) | 4 - 5.4 (4 - 7/32) | 100 (3-15/16) | 55 (2-11/64) |
| 100S-C09...100S-C23 | 45 (1-25/32) | 81 (3-3/16)   | 119.5 (4-3/4)   | 114.5 (4-43/64) | 6 (15/64)   | 2 - 4.5 (2 - 3/16) | 60 (2-23/64)  | 35 (1-3/8)   |
| 100S-C30, 100S-C37  | 45 (1-25/32) | 81 (3-3/16)   | 136.5 (5-37/64) | 131.6 (5-11/32) | 6.5 (1/4)   | 2 - 4.5 (2 - 3/16) | 60 (2-23/64)  | 35 (1-3/8)   |
| 100S-C43, 100S-C55  | 54 (2-1/8)   | 81 (3-3/16)   | 139.5 (5-11/16) | 134.6 (5-29/64) | 6.5 (1/4)   | 2 - 4.5 (2 - 3/16) | 60 (2-23/64)  | 45 (1-25/32) |
| 100S-C60...100S-C97 | 72 (2-53/64) | 122 (4-51/64) | 156 (6-11/32)   | 150.5 (6-1/8)   | 8.5 (21/64) | 4 - 5.4 (4 - 7/32) | 100 (3-15/16) | 55 (2-11/64) |

**Table 3 - DC Contactors with Conventional Coils**

| Cat. No.              | a            | b             | c             | c1              | c2          | Ø d                | d1            | d2           |
|-----------------------|--------------|---------------|---------------|-----------------|-------------|--------------------|---------------|--------------|
| 100-C60D...100-C97D   | 72 (2-53/64) | 122 (4-51/64) | 117 (4-39/64) | 111.5 (4-25/64) | 8.5 (21/64) | 4 - 5.4 (4 - 7/32) | 100 (3-15/16) | 55 (2-11/64) |
| 100-C90D              | 95 (3-47/64) | 81 (3-3/16)   | 117 (4-39/64) | 111.5 (4-25/64) | 8.5 (21/64) | 4 - 5.4 (4 - 7/32) | 100 (3-15/16) | 55 (2-11/64) |
| 100S-C60D...100S-C97D | 72 (2-53/64) | 122 (4-51/64) | 156 (6-11/32) | 150.5 (6-1/8)   | 8.5 (21/64) | 4 - 5.4 (4 - 7/32) | 100 (3-15/16) | 55 (2-11/64) |

**Table 4 - DC Contactors with 36...48V, 48...72V, 110...125V, or 200...250V DC Electronic Coils**

| Cat. No.              | a            | b           | c               | c1              | c2        | Ø d                | d1           | d2           |
|-----------------------|--------------|-------------|-----------------|-----------------|-----------|--------------------|--------------|--------------|
| 100-C09E...100-C23E   | 45 (1-25/32) | 105 (4-1/8) | 80.5 (3-11/64)  | 75.5 (2-31/32)  | 6 (15/64) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 35 (1-3/8)   |
| 100-C30E...100-C37E   | 45 (1-25/32) | 105 (4-1/8) | 97.5 (4)        | 92.5 (3-41/64)  | 6.5 (1/4) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 35 (1-3/8)   |
| 100-C40E              | 59 (2-21/64) | 105 (4-1/8) | 100.5 (3-61/64) | 95.5 (3-49/64)  | 6.5 (1/4) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 45 (1-25/32) |
| 100-C43E...100-C55E   | 54 (2-1/8)   | 105 (4-1/8) | 100.5 (3-61/64) | 95.5 (3-49/64)  | 6.5 (1/4) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 45 (1-25/32) |
| 100S-C09E...100S-C23E | 45 (1-25/32) | 105 (4-1/8) | 119.5 (4-3/4)   | 114.5 (4-43/64) | 6 (15/64) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 35 (1-3/8)   |
| 100S-C30E...100S-C37E | 45 (1-25/32) | 105 (4-1/8) | 136.5 (5-37/64) | 131.6 (5-11/32) | 6.5 (1/4) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 35 (1-3/8)   |
| 100S-C43E...100S-C55E | 54 (2-1/8)   | 105 (4-1/8) | 139.5 (5-11/16) | 134.6 (5-29/64) | 6.5 (1/4) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 45 (1-25/32) |

**Table 5 - 100-C/104-C Accessories**

| Contactors with                            |                                           | mm          | (inches)           |
|--------------------------------------------|-------------------------------------------|-------------|--------------------|
| Auxiliary contact block for front mounting | 2- or 4-pole                              | $c/c1 + 39$ | $(c/c1 + 1-37/64)$ |
| Auxiliary contact block for side mounting  | 1- or 2-pole                              | $a + 9$     | $(a + 23/64)$      |
| Pneumatic Timing Module                    |                                           | $c/c1 + 58$ | $(c/c1 + 2-23/64)$ |
| Electronic Timing Module                   | on coil terminal side                     | $b + 24$    | $(b + 15/16)$      |
| Mechanical Interlock                       | on side of contactor                      | $a + 9$     | $(a + 23/64)$      |
| Mechanical Latch                           |                                           | $c/c1 + 61$ | $(c/c1 + 2-31/64)$ |
| Interface Module                           | on coil terminal side                     | $b + 9$     | $(b + 23/64)$      |
| Surge Suppressor                           | on coil terminal side                     | $b + 3$     | $(b + 1/8)$        |
| Labeling with . . .                        | label sheet                               | + 0         | (+ 0)              |
|                                            | marking tag sheet with clear cover        | + 0         | (+ 0)              |
|                                            | marking tag adapter for System V4 / V5    | + 5.5       | (+ 7/32)           |
|                                            | marking tag adapter for System Bul. 1492W | + 5.5       | (+ 7/32)           |
| Terminal Lug Kit                           | 100-C09 . . . C23                         | $b + 53$    | $(b + 2-3/32)$     |
|                                            | 100-C30 . . . C37                         | $b + 44$    | $(b + 1-47/64)$    |
|                                            | 100-C43 . . . C55                         | $b + 52$    | $(b + 2-3/64)$     |
|                                            | 100-C60 . . . C97                         | $b + 99$    | $(b + 3-7/8)$      |
| Paralleling Links                          | 100-C09 . . . C23                         | $b + 78$    | $(b + 3-1/16)$     |
|                                            |                                           | $c + 9/5$   | $(c + 3/8)$        |
|                                            | 100-C30 . . . C37                         | $b + 85$    | $(b + 3-11/32)$    |

**Table 6 - 100S-C/104S-C Accessories**

| Contactors with                           |                                           | mm       | (inches)      |
|-------------------------------------------|-------------------------------------------|----------|---------------|
| Auxiliary contact block for side mounting | 1- or 2-pole                              | $a + 9$  | $(a + 23/64)$ |
| Electronic Timing Module                  | on coil terminal side                     | $b + 24$ | $(b + 15/16)$ |
| Mechanical Interlock                      | on side of contactor                      | $a + 9$  | $(a + 23/64)$ |
| Interface Module                          | on coil terminal side                     | $b + 9$  | $(b + 23/64)$ |
| Surge Suppressor                          | on coil terminal side                     | $b + 3$  | $(b + 1/8)$   |
| Labeling with                             | label sheet                               | + 0      | (+ 0)         |
|                                           | marking tag sheet with clear cover        | + 0      | (+ 0)         |
|                                           | marking tag adapter for System V4 / V5    | + 5.5    | (+ 7/32)      |
|                                           | marking tag adapter for System Bul. 1492W | + 5.5    | (+ 7/32)      |

## Bulletin 100Q-C Approximate Dimensions

Figure 20 - Bulletin 100Q-C Contactors

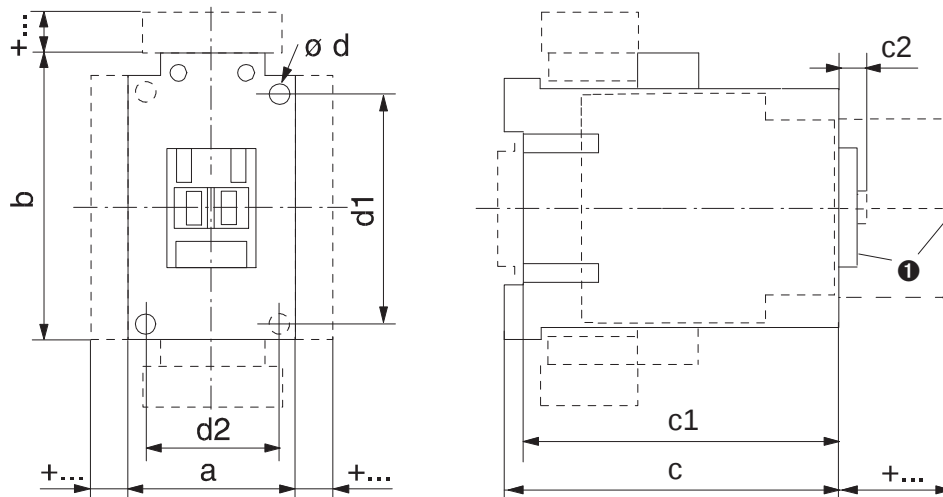


Table 7 - AC Contactors and DC Contactors with 12V or 24V Electronic Coils

| Cat. No. | a            | b           | c               | c1              | c2        | Ø d                | d1           | d2         |
|----------|--------------|-------------|-----------------|-----------------|-----------|--------------------|--------------|------------|
| 100Q-C16 | 45 (1-25/32) | 81 (3-3/16) | 119.5 (4-3/4)   | 114.5 (4-43/64) | 6 (15/64) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 35 (1-3/8) |
| 100Q-C37 | 45 (1-25/32) | 81 (3-3/16) | 136.5 (5-37/64) | 131.6 (5-11/32) | 6.5 (1/4) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 35 (1-3/8) |

Table 8 - DC Contactors with Conventional Coils

| Cat. No. | a            | b           | c               | c1              | c2        | Ø d                | d1           | d2         |
|----------|--------------|-------------|-----------------|-----------------|-----------|--------------------|--------------|------------|
| 100Q-C16 | 45 (1-25/32) | 81 (3-3/16) | 145.5 (5-49/64) | 140.5 (5-37/64) | 6 (15/64) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 35 (1-3/8) |
| 100Q-C37 | 45 (1-25/32) | 81 (3-3/16) | 180.5 (7-5/32)  | 175.5 (6-61/64) | 6.5 (1/4) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 35 (1-3/8) |

Table 9 - DC Contactors with 36...48V, 48...72V, 110...125V, or 200...250V DC Electronic Coils

| Cat. No.                | a            | b           | c               | c1              | c2        | Ø d                | d1           | d2         |
|-------------------------|--------------|-------------|-----------------|-----------------|-----------|--------------------|--------------|------------|
| 100Q-C16EA, -ED, or -EY | 45 (1-25/32) | 105 (4-1/8) | 119.5 (4-3/4)   | 114.5 (4-43/64) | 6 (15/64) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 35 (1-3/8) |
| 100Q-C37EA, -ED, or -EY | 45 (1-25/32) | 105 (4-1/8) | 136.5 (5-37/64) | 131.6 (5-11/32) | 6.5 (1/4) | 2 - 4.5 (2 - 3/16) | 60 (2-23/64) | 35 (1-3/8) |

Notes:

# 100-E/104-E, 100S-E/104S-E Contactors

## Product Selection—100-E/104-E Contactors

- 55...560 kW @ 400V
- 75...900 Hp @ 460V
- AC-1 ratings up to 2650 A
- Compact Dimensions
- Electronic Coils
  - AC/DC
  - Wide voltage range
  - Low power pick-up and hold-in
  - Optional PLC interface
- Complete range of accessories
- Environmentally friendly



100-E116 Contactor



100-E860 Contactor

The Bulletin 100-E/104-E contactor family, along with a wide range of accessories, provides the most compact and flexible contactor system available.

### 3-Pole AC- and DC-operated Contactors

- Electronic Coils
- 3 Main Contacts
- Direct On-Line or Reversing

| Rated<br>Operational<br>Current $I_e$ [A] |                | Ratings for switching AC motors - AC-2, AC-3 |          |      |      |      |      |       |            |      |      |      |      | Auxiliary<br>Contacts                                                                 |                                                                                       | Direct On-Line<br>Contactor | Reversing<br>Contactor |
|-------------------------------------------|----------------|----------------------------------------------|----------|------|------|------|------|-------|------------|------|------|------|------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------|------------------------|
| 60 °C                                     | 40 °C          | kW (50 Hz)                                   |          |      |      |      |      |       | Hp (60 Hz) |      |      |      |      |  |  |                             |                        |
| AC-3<br>(400V)                            | AC-1<br>(690V) | 220-240V                                     | 380-400V | 415V | 440V | 500V | 690V | 1000V | 200V       | 230V | 460V | 575V | N.O. | N.C.                                                                                  | Cat No.                                                                               | Cat No.                     |                        |
| 116                                       | 160            | 37                                           | 55       | 55   | 75   | 75   | 63   | 55    | 30         | 40   | 75   | 100  | 1    | 1                                                                                     | 100-E116⊗11 <sup>(1)</sup>                                                            | 104-E116⊗22 <sup>(1)</sup>  |                        |
| 146                                       | 225            | 45                                           | 75       | 75   | 90   | 90   | 90   | 75    | 40         | 50   | 100  | 125  | 1    | 1                                                                                     | 100-E146⊗11 <sup>(1)</sup>                                                            | 104-E146⊗22 <sup>(1)</sup>  |                        |
| 190                                       | 275            | 55                                           | 90       | 90   | 110  | 110  | 132  | 110   | 50         | 60   | 125  | 150  | 1    | 1                                                                                     | 100-E190⊗11                                                                           | 104-E190⊗22                 |                        |
| 205                                       | 350            | 55                                           | 110      | 110  | 132  | 132  | 160  | 132   | 60         | 75   | 150  | 200  | 1    | 1                                                                                     | 100-E205⊗11                                                                           | 104-E205⊗22                 |                        |
| 265                                       | 400            | 75                                           | 132      | 132  | 160  | 160  | 200  | 160   | 75         | 100  | 200  | 250  | 1    | 1                                                                                     | 100-E265⊗11                                                                           | 104-E265⊗22                 |                        |
| 305                                       | 500            | 90                                           | 160      | 160  | 160  | 200  | 250  | 185   | 100        | 125  | 250  | 300  | 1    | 1                                                                                     | 100-E305⊗11                                                                           | 104-E305⊗22                 |                        |
| 370                                       | 600            | 110                                          | 200      | 200  | 200  | 250  | 315  | 200   | 125        | 150  | 300  | 350  | 1    | 1                                                                                     | 100-E370⊗11                                                                           | 104-E370⊗22                 |                        |
| 400                                       | 600            | 110                                          | 200      | 220  | 220  | 250  | 315  | 220   | 125        | 150  | 350  | 400  | 1    | 1                                                                                     | 100-E400⊗11                                                                           | 104-E400⊗22                 |                        |
| 460                                       | 700            | 132                                          | 250      | 250  | 250  | 315  | 355  | 280   | 150        | 200  | 400  | 500  | 1    | 1                                                                                     | 100-E460⊗11                                                                           | 104-E460⊗22                 |                        |
| 580                                       | 800            | 160                                          | 315      | 355  | 355  | 400  | 500  | 355   | 200        | 250  | 500  | 600  | 1    | 1                                                                                     | 100-E580⊗11                                                                           | 104-E580⊗22                 |                        |
| 750                                       | 1050           | 220                                          | 400      | 425  | 450  | 530  | 600  | 400   | 250        | 300  | 600  | 700  | 1    | 1                                                                                     | 100-E750⊗11                                                                           | 104-E750⊗22                 |                        |
| 860                                       | 1350           | 250                                          | 475      | 500  | 560  | 630  | 800  | 555   | —          | 400  | 800  | 1000 | 1    | 1                                                                                     | 100-E860⊗11                                                                           | —                           |                        |
| 1060                                      | 1650           | 315                                          | 560      | 630  | 710  | 710  | 1000 | 600   | —          | 450  | 900  | 1150 | 1    | 1                                                                                     | 100-E1060⊗11                                                                          | —                           |                        |
| —                                         | 1260           | —                                            | —        | —    | —    | —    | —    | —     | —          | —    | —    | —    | 1    | 1                                                                                     | 100-E1260⊗11                                                                          | —                           |                        |
| —                                         | 2050           | —                                            | —        | —    | —    | —    | —    | —     | —          | —    | —    | —    | 1    | 1                                                                                     | 100-E2050⊗11                                                                          | —                           |                        |
| —                                         | 2650           | —                                            | —        | —    | —    | —    | —    | —     | —          | —    | —    | —    | 1    | 1                                                                                     | 100-E2650⊗11                                                                          | —                           |                        |

(1) To order with built-in terminal lugs, add the letter "L" to the end of the catalog number (e.g. **100-E116⊗11L**)

⊗ Coil voltage code and PLC interface—see [page 74](#)

## Coil Voltage Codes

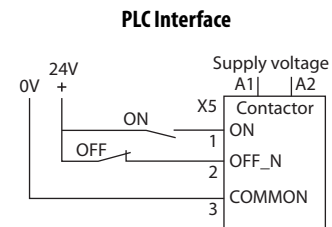
The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No.

Example: 100-E116KJ11)

| Electronic Coils                   | V                       | 24-60V            | 48-130V | 100-250V | 250-500V |
|------------------------------------|-------------------------|-------------------|---------|----------|----------|
| 100-E116...100-E370                | AC/DC                   | KJ                | KY      | KD       | KN       |
| 100-E116...100-E370 <sup>(1)</sup> | AC/DC<br>with PLC Input | —                 | —       | ED       | EN       |
| 100-E400...100-E750                |                         | EJ <sup>(2)</sup> | EY      | ED       | EN       |
| 100-E860...100-1060                |                         | —                 | —       | ED       | —        |
| 100-E1260                          |                         | EJ <sup>(2)</sup> | EY      | ED       | EN       |
| 100-E2050...100-E2650              |                         | —                 | —       | ED       | —        |

(1) When ordering coil with PLC input, the PLC input must be used

(2) 24V...60V DC only



# Product Selection—100S-E Safety Contactors

## 3-Pole AC- and DC-operated Safety Contactors

- Electronic Coils
- 3 Main Contacts
- Direct On-Line
- Low-power auxiliary contact for feedback circuit
- Mirror contact performance



| Rated Operational Current $I_e$ [A] |             | Ratings for switching AC motors - AC-2, AC-3 |          |      |      |      |      |       |            |      |      |      | Auxiliary contacts per contactor                                                      |                                                                                       |                                                                                       | Direct On-Line Contactor     |
|-------------------------------------|-------------|----------------------------------------------|----------|------|------|------|------|-------|------------|------|------|------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| 60 °C                               | 40 °C       | kW (50 Hz)                                   |          |      |      |      |      |       | Hp (60 Hz) |      |      |      |  |  |  |                              |
| AC-3 (400V)                         | AC-1 (690V) | 220-240V                                     | 380-400V | 415V | 440V | 500V | 690V | 1000V | 200V       | 230V | 460V | 575V | N.O.                                                                                  | N.C.                                                                                  | N.C. <sup>(1)</sup>                                                                   | Cat No.                      |
| 116                                 | 160         | 37                                           | 55       | 55   | 75   | 75   | 55   | —     | 30         | 40   | 75   | 100  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E116⊗12C <sup>(2)</sup> |
| 146                                 | 225         | 45                                           | 75       | 75   | 90   | 90   | 90   | 75    | 40         | 50   | 100  | 125  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E146⊗12C <sup>(2)</sup> |
| 190                                 | 275         | 55                                           | 90       | 90   | 110  | 90   | 132  | 110   | 50         | 60   | 125  | 150  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E190⊗12C                |
| 205                                 | 350         | 55                                           | 110      | 110  | 132  | 110  | 160  | 132   | 60         | 75   | 150  | 200  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E205⊗12C                |
| 265                                 | 400         | 75                                           | 132      | 132  | 160  | 160  | 200  | 132   | 75         | 100  | 200  | 250  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E265⊗12C                |
| 305                                 | 500         | 90                                           | 160      | 160  | 160  | 200  | 250  | 132   | 100        | 125  | 250  | 300  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E305⊗12C                |
| 370                                 | 600         | 110                                          | 200      | 200  | 200  | 220  | 315  | 132   | 125        | 150  | 300  | 350  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E370⊗12C                |
| 400                                 | 600         | 110                                          | 200      | 220  | 220  | 250  | 315  | 220   | 125        | 150  | 350  | 400  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E400⊗12C                |
| 460                                 | 700         | 132                                          | 250      | 250  | 250  | 315  | 355  | 280   | 150        | 200  | 400  | 500  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E460⊗12C                |
| 580                                 | 800         | 160                                          | 315      | 355  | 355  | 400  | 500  | 355   | 200        | 250  | 500  | 600  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E580⊗12C                |
| 750                                 | 1050        | 220                                          | 400      | 425  | 450  | 530  | 600  | 400   | 250        | 300  | 600  | 700  | 1                                                                                     | 1                                                                                     | 1                                                                                     | 100S-E750⊗12C                |

(1) The N.C. contact meets IEC 60947-4-1 Annex F requirements for mirror contact performance.

(2) To order with built-in terminal lugs, add the letter "L" to the end of the catalog number (e.g. **100S-E116⊗12CL**)

⊗ Coil voltage code and PLC interface—see [page 75](#)

## Coil Voltage Codes

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No.

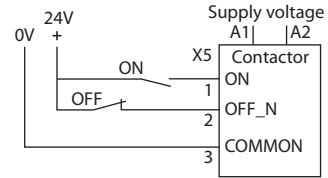
Example: 100S-E116KJ11)

| Electronic Coils                     | V                       | 24-60V            | 48-130V | 100-250V | 250-500V |
|--------------------------------------|-------------------------|-------------------|---------|----------|----------|
| 100S-E116...100S-E370                | AC/DC                   | KJ                | KY      | KD       | KN       |
| 100S-E116...100S-E370 <sup>(1)</sup> | AC/DC<br>with PLC Input | —                 | —       | ED       | EN       |
| 100S-E400...100S-E750                |                         | EJ <sup>(2)</sup> | EY      | ED       | EN       |

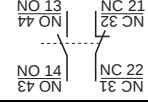
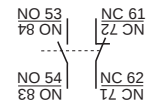
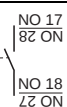
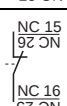
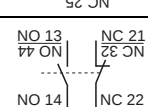
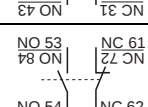
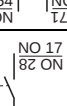
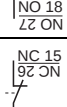
(1) When ordering coil with PLC input, the PLC input must be used

(2) 24V...60V DC only

### PLC Interface



## Accessories

|                                                                                     | Description                                                                                                                                                                                                                                                                                                                                                                                    |  |  | Connection Diagrams                                                                  | For Use With                                               | Standard Auxiliary Contact |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------|
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                | N.O.                                                                              | N.C.                                                                              |                                                                                      |                                                            | Cat. No.                   |
|  | Auxiliary Contact Blocks for Side Mounting with Sequence Terminal Designations <ul style="list-style-type: none"> <li>2-pole</li> <li>Two-way numbering for right or left mounting on the contactor</li> <li>Quick and easy mounting without tools</li> <li>Mirror contact performance to the main contactor poles</li> <li>Low power switching down to 24V 50 mA</li> </ul>                   | 1                                                                                 | 1                                                                                 |   | 100-E116...E370, left or right inside mounting             | 100-ES1-11                 |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                | 1                                                                                 | 1                                                                                 |  | 100-E116...E370, left or right outside mounting            | 100-ES2-11                 |
|                                                                                     | Low-power Auxiliary Contact Blocks for Side Mounting with Sequence Terminal Designations <sup>(1)</sup> <ul style="list-style-type: none"> <li>1-pole</li> <li>Two-way numbering for right or left mounting on the contactor</li> <li>Quick and easy mounting without tools</li> <li>Mirror contact performance to the main contactor poles</li> <li>Electronic compatible, 3V 1 mA</li> </ul> | 1                                                                                 | 0                                                                                 |  | 100-E116...E370, left or right inside or outside mounting  | 100-ES1-B10                |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                | 0                                                                                 | 1                                                                                 |  | 100-E116...E370, left or right inside or outside mounting  | 100-ES1-B01                |
|                                                                                     | Auxiliary Contact Blocks for Side Mounting with Sequence Terminal Designations <ul style="list-style-type: none"> <li>2-pole</li> <li>Two-way numbering for right or left mounting on the contactor</li> <li>Quick and easy mounting without tools</li> <li>Mirror contact performance to the main contactor poles</li> <li>Low power switching down to 24V 50 mA</li> </ul>                   | 1                                                                                 | 1                                                                                 |  | 100-E400...E2650, left or right inside mounting            | 100-ES3-11                 |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                | 1                                                                                 | 1                                                                                 |  | 100-E400...E2650, left or right outside mounting           | 100-ES4-11                 |
|  | Low-power Auxiliary Contact Blocks for Side Mounting with Sequence Terminal Designations <sup>(1)</sup> <ul style="list-style-type: none"> <li>1-pole</li> <li>Two-way numbering for right or left mounting on the contactor</li> <li>Quick and easy mounting without tools</li> <li>Mirror contact performance to the main contactor poles</li> <li>Electronic compatible, 3V 1 mA</li> </ul> | 1                                                                                 | 0                                                                                 |  | 100-E400...E2650, left or right inside or outside mounting | 100-ES3-B10                |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                | 0                                                                                 | 1                                                                                 |  | 100-E400...E2650, left or right inside or outside mounting | 100-ES3-B01                |

(1) No auxiliary contacts blocks can be mounted on the outside of the 100-ES1-B\* or 100-ES3-B\*.

|                                                                                   | Description                                                                                                                                                   |                                             | Connection Diagrams                                                               | For Use With                                                   | Cat. No.   |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------|------------|
|  | Mechanical Interlocks <ul style="list-style-type: none"> <li>For interlocking of two contactors.</li> <li>Interlocking of different sizes possible</li> </ul> | Mechanical only, without auxiliary contacts |  | 100-E116...100-E146                                            | 100-EM1-00 |
|                                                                                   |                                                                                                                                                               |                                             |                                                                                   | 100-E190...100-E205                                            |            |
|                                                                                   |                                                                                                                                                               |                                             |                                                                                   | 100-E265...100-E370                                            |            |
|                                                                                   |                                                                                                                                                               |                                             |                                                                                   | 100-E116...100-E146 to 100-E190...100-E205                     | 100-EM4-00 |
|                                                                                   |                                                                                                                                                               |                                             |                                                                                   | 100-E190...100-E205 to 100-E265...100-E370                     | 100-EM5-00 |
|                                                                                   |                                                                                                                                                               |                                             |                                                                                   | 100-E400...100-E750, 100-E1260 <sup>(1)</sup>                  | 100-EM2-00 |
|                                                                                   |                                                                                                                                                               |                                             |                                                                                   | 100-E860...100-E1060, 100-E2050...100-E2650 <sup>(2)</sup>     | 100-EM3-00 |
|                                                                                   |                                                                                                                                                               |                                             |                                                                                   | Rod for vertical mounting 100-E400...E750 reversing contactors | 100-EVR750 |

(1) Mounting plate ordered separately

(2) Mounting plate included

|                                                                                   | Description                                                                                                                           | Wire Sizes             | For Use With               | Cat. No.     |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------|--------------|
|  | Terminal Lug Kit <ul style="list-style-type: none"> <li>Standard on 100-E116*L...100-E146*L contactors</li> <li>Set of two</li> </ul> | 2 x 6 AWG...3/0 AWG    | 100-E116...100-E146        | 100-ECL146   |
|  | Terminal Lugs <ul style="list-style-type: none"> <li>Set of three</li> </ul>                                                          | 6 AWG...300 MCM        | 100-E190...100-E205        | 100-ETL205   |
|                                                                                   |                                                                                                                                       | 4 AWG...400 MCM        | 100-E265...100-E370        | 100-ETL370   |
|                                                                                   |                                                                                                                                       | (2x) 4 AWG...500 MCM   | 100-E265...100-E370        | 100-ETL370B  |
|                                                                                   |                                                                                                                                       | (2x) 2/0 AWG...500 MCM | 100-E400...100-E460        | 100-ETL580   |
|                                                                                   |                                                                                                                                       | (3x) 2/0 AWG...500 MCM | 100-E580...E750, 100-E1260 | 100-ETL750   |
|                                                                                   |                                                                                                                                       | (4x) 4/0 AWG...500 MCM | 100-E860                   | 100-ETL860   |
|                                                                                   |                                                                                                                                       | (4x) 1/0 AWG...750 MCM | 100-E1060                  | 100-ETL1060  |
|                                                                                   |                                                                                                                                       | (6x) 1/0 AWG...750 MCM | 100-E1060                  | 100-ETL1060B |

|                                                                                     | Description                                                                                                                       | Wires with Compression Lugs | Contactor with Terminal Lugs | For Use With                   | Cat. No.                   |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------|--------------------------------|----------------------------|
|  | Terminal Shrouds <ul style="list-style-type: none"> <li>Not applicable when using 105-PW* or 170-PW* power wiring kits</li> </ul> | X                           |                              | 100-E116...100-E146            | 100-ETS146L                |
|                                                                                     |                                                                                                                                   |                             | X                            | 100-E190...100-E205            | 100-ETS205L                |
|                                                                                     |                                                                                                                                   | X                           |                              | 100-E190...100-E205            | 100-ETS205C                |
|                                                                                     |                                                                                                                                   |                             | X                            | 100-E265...100-E370            | 100-ETS370L <sup>(1)</sup> |
|                                                                                     |                                                                                                                                   | X                           |                              | 100-E265...100-E370            | 100-ETS370C                |
|                                                                                     |                                                                                                                                   |                             | X                            | 100-E400...100-E460            | 100-ETS460L                |
|                                                                                     |                                                                                                                                   | X                           |                              | 100-E400...100-E460            | 100-ETS460C                |
|                                                                                     |                                                                                                                                   |                             | X                            | 100-E580...100-E750            | 100-ETS750L                |
|                                                                                     |                                                                                                                                   | X                           |                              | 100-E580...100-E750, 100-E1260 | 100-ETS750C                |
|                                                                                     | IP20 terminal shield between contactor and 193-E overload relay on an assembled direct on-line starter                            |                             |                              | 100-E116...100-E146            | 100-ETC146                 |
|                                                                                     |                                                                                                                                   |                             |                              | 100-E190...100-E205            | 100-ETC205                 |
|                                                                                     | IP20 terminal shield between contactor and 193-E overload relay on an assembled reversing starter                                 |                             |                              | 100-E116...100-E146            | 100-ETCR146                |
|                                                                                     |                                                                                                                                   |                             |                              | 100-E190...100-E205            | 100-ETCR205                |

(1) Not applicable when using the 100-ETL370B lug kit.

|                                                                                     | Description                 | For Use With        | Cat. No.                 |
|-------------------------------------------------------------------------------------|-----------------------------|---------------------|--------------------------|
|  | Reversing Power Wiring Kits | 100-E116...100-E146 | 105-PW146                |
|                                                                                     |                             | 100-E190...100-E205 | 105-PW205 <sup>(1)</sup> |
|                                                                                     |                             | 100-E265...100-E370 | 105-PW370 <sup>(1)</sup> |
|                                                                                     |                             | 100-E400...100-E460 | 105-PW460 <sup>(2)</sup> |
|                                                                                     |                             | 100-E580...100-E750 | 105-PW750 <sup>(2)</sup> |

(1) Kits includes one set of terminal extensions. If 100-ETL\* terminal lugs are to be used on line and load side of reversing contactor, and second set of 100-ETX terminal extensions is required.

(2) If 100-ETL\* terminal lugs are to be used on line and load side of reversing contactor, two sets of 100-ETX terminal extensions are also required.

|                                                                                   | Description                 |                        | For Use With         | Cat. No.        |
|-----------------------------------------------------------------------------------|-----------------------------|------------------------|----------------------|-----------------|
|  | Wye-Delta Power Wiring Kits | <b>Delta Contactor</b> | <b>Wye Contactor</b> | <b>Cat. No.</b> |
|                                                                                   |                             | 100-E116...100-E146    | 100-E116...100-E146  | 170-PW146       |
|                                                                                   |                             | 100-E190...100-E205    | 100-E116...100-E146  | 170-PW190       |
|                                                                                   |                             | 100-E190...100-E205    | 100-E190...100-E205  | 170-PW205       |
|                                                                                   |                             | 100-E265...100-E370    | 100-E190...100-E205  | 170-PW265       |
|                                                                                   |                             | 100-E265...100-E370    | 100-E265...100-E370  | 170-PW370       |
|                                                                                   |                             | 100-E400...100-E460    | 100-E400...100-E460  | 170-PW460       |
|                                                                                   |                             | 100-E580...100-E750    | 100-E400...100-E460  | 170-PW580       |
|  | Shorting Bars               |                        | 100-E580...100-E750  | 170-PW750       |
|                                                                                   |                             |                        | 100-E116...100-E146  | 170-PWY146      |
|                                                                                   |                             |                        | 100-E190...100-E205  | 170-PWY205      |
|                                                                                   |                             |                        | 100-E265...100-E370  | 170-PWY370      |
|                                                                                   |                             |                        | 100-E400...100-E460  | 170-PWY460      |
|                                                                                   |                             |                        | 100-E580...100-E750  | 170-PWY750      |

|                                                                                   | Description                 | For Use With        | Cat. No.    |
|-----------------------------------------------------------------------------------|-----------------------------|---------------------|-------------|
|  | For Direct On-Line Starters | 100-E116...100-E146 | 100-EMS146  |
|                                                                                   |                             | 100-E190...100-E205 | 100-EMS205  |
|                                                                                   | For Reversing Contactors    | 100-E116...100-E146 | 100-EMR146  |
|                                                                                   |                             | 100-E190...100-E205 | 100-EMR205  |
|                                                                                   |                             | 100-E265...100-E370 | 100-EMR370  |
|                                                                                   |                             | 100-E400...100-E460 | 100-EMR460  |
|                                                                                   |                             | 100-E580...100-E750 | 100-EMR750  |
|                                                                                   | For Reversing Starters      | 100-E116...100-E146 | 100-EMRS146 |
|                                                                                   |                             | 100-E190...100-E205 | 100-EMRS205 |

|                                                                                     | Description                                                                                                                                                                                                      | For Use With Circuit Breaker | For Use With Contactor | Cat. No. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------|----------|
|  | For Connection to 140G or 140MG <ul style="list-style-type: none"> <li>Connection between contactors/starters and molded case circuit breakers.</li> <li>These connection sets are solid copper bars.</li> </ul> | 140G-H, 140MG-H              | 100-E116...100-E146    | 100-PCE1 |
|                                                                                     |                                                                                                                                                                                                                  | 140G-I, 140MG-I              | 100-E116...100-E146    | 100-PCE2 |
|                                                                                     |                                                                                                                                                                                                                  | 140G-J, 140MG-J              | 100-E116...100-E146    | 100-PCE3 |
|                                                                                     |                                                                                                                                                                                                                  | 140G-J, 140MG-J              | 100-E190...100-E205    | 100-PCE4 |
|                                                                                     |                                                                                                                                                                                                                  | 140G-K, 140MG-K              | 100-E265...100-E370    | 100-PCE5 |
|                                                                                     |                                                                                                                                                                                                                  | 140G-M, 140MG-M              | 100-E400...100-E750    | 100-PCE6 |
|                                                                                     |                                                                                                                                                                                                                  | 140G-K, 140MG-K              | 100-E400...100-E750    | 100-PCE7 |

|                                                                                     | Description                                                                                                                                                                                                  | For Use With Contactor | Cat. No.    |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------|
|  | Terminal Enlargements <ul style="list-style-type: none"> <li>Enlargement pieces designed to increase the width of the contactor terminal pads in order to allow larger connections to be mounted.</li> </ul> | 100-E116...100-E146    | 100-ETE146  |
|                                                                                     |                                                                                                                                                                                                              | 100-E190...100-E205    | 100-ETE205  |
|                                                                                     |                                                                                                                                                                                                              | 100-E265...100-E370    | 100-ETE370  |
|                                                                                     |                                                                                                                                                                                                              | 100-E400...100-E460    | 100-ETE460  |
|                                                                                     |                                                                                                                                                                                                              | 100-E580...100-E750    | 100-ETE750  |
|                                                                                     |                                                                                                                                                                                                              | 100-E1260              | 100-ETE1260 |

|                                                                                     | Description                                                                                                                                                                                        | For Use With Contactor | Cat. No.   |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|
|  | Terminal Extensions <ul style="list-style-type: none"> <li>Extension pieces designed to extend the main terminals of contactors for combined mounting of contactors and connection sets</li> </ul> | 100-E116...100-E146    | 100-ETX146 |
|                                                                                     |                                                                                                                                                                                                    | 100-E190...100-E205    | 100-ETX205 |
|                                                                                     |                                                                                                                                                                                                    | 100-E265...100-E370    | 100-ETX370 |
|                                                                                     |                                                                                                                                                                                                    | 100-E400...100-E460    | 100-ETX460 |
|                                                                                     |                                                                                                                                                                                                    | 100-E580...100-E750    | 100-ETX750 |

# Renewal Parts

|                                                                                    | Description  | For Use With                   | Voltage                           | Cat. No.              |
|------------------------------------------------------------------------------------|--------------|--------------------------------|-----------------------------------|-----------------------|
|  | Coil Modules | 100-E116                       | 24...60V AC/DC                    | TG913                 |
|                                                                                    |              |                                | 48...130V AC/DC                   | TG914                 |
|                                                                                    |              |                                | 100...250V AC/DC                  | TG915                 |
|                                                                                    |              |                                | 250...500V AC/DC                  | TG916                 |
|                                                                                    |              |                                | 100...250V AC/DC w/ PLC Interface | TGE913                |
|                                                                                    |              |                                | 250...500V AC/DC w/ PLC Interface | TGE914                |
|                                                                                    |              | 100-E146                       | 24...60V AC/DC                    | TG901                 |
|                                                                                    |              |                                | 48...130V AC/DC                   | TG902                 |
|                                                                                    |              |                                | 100...250V AC/DC                  | TG903                 |
|                                                                                    |              |                                | 250...500V AC/DC                  | TG904                 |
|                                                                                    |              |                                | 100...250V AC/DC w/ PLC Interface | TGE903                |
|                                                                                    |              |                                | 250...500V AC/DC w/ PLC Interface | TGE904                |
|                                                                                    |              | 100-E190, 100-E205             | 24...60V AC/DC                    | TG905                 |
|                                                                                    |              |                                | 48...130V AC/DC                   | TG906                 |
|                                                                                    |              |                                | 100...250V AC/DC                  | TG907                 |
|                                                                                    |              |                                | 250...500V AC/DC                  | TG908                 |
|                                                                                    |              | 100-E190                       | 100...250V AC/DC w/ PLC Interface | TGE915                |
|                                                                                    |              |                                | 250...500V AC/DC w/ PLC Interface | TGE916                |
|                                                                                    |              | 100-E205                       | 100...250V AC/DC w/ PLC Interface | TGE907                |
|                                                                                    |              |                                | 250...500V AC/DC w/ PLC Interface | TGE908                |
|                                                                                    |              | 100-E265, 100-E305, 100-E370   | 24...60V AC/DC                    | TG909                 |
|                                                                                    |              |                                | 48...130V AC/DC                   | TG910                 |
|                                                                                    |              |                                | 100...250V AC/DC                  | TG911                 |
|                                                                                    |              |                                | 250...500V AC/DC                  | TG912                 |
|                                                                                    |              | 100-E265                       | 100...250V AC/DC w/ PLC Interface | TGE917                |
|                                                                                    |              |                                | 250...500V AC/DC w/ PLC Interface | TGE918                |
|                                                                                    |              | 100-E305                       | 100...250V AC/DC w/ PLC Interface | TGE919                |
|                                                                                    |              |                                | 250...500V AC/DC w/ PLC Interface | TGE920                |
|                                                                                    |              | 100-E370                       | 100...250V AC/DC w/ PLC Interface | TGE911                |
|                                                                                    |              |                                | 250...500V AC/DC w/ PLC Interface | TGE912                |
|                                                                                    |              | 100-E400, 100-E460             | 24...60V DC w/ PLC Interface      | THE901                |
|                                                                                    |              |                                | 48...130V AC/DC w/ PLC Interface  | THE902                |
|                                                                                    |              |                                | 100...250V AC/DC w/ PLC Interface | THE903                |
|                                                                                    |              |                                | 250...500V AC/DC w/ PLC Interface | THE904                |
|                                                                                    |              | 100-E580, 100-E750, 100-E1260  | 24...60V DC w/ PLC Interface      | TJE901                |
|                                                                                    |              |                                | 48...130V AC/DC w/ PLC Interface  | TJE902                |
|                                                                                    |              |                                | 100...250V AC/DC w/ PLC Interface | TJE903                |
|                                                                                    |              |                                | 250...500V AC/DC w/ PLC Interface | TJE904                |
|                                                                                    |              | 100-E860, 100-E1060, 100-E2050 | 100...250V AC/DC w/ PLC Interface | TKE903 <sup>(1)</sup> |
|                                                                                    |              |                                |                                   | TKE904 <sup>(2)</sup> |
|                                                                                    |              | 100-E2650                      | 100...250V AC/DC w/ PLC Interface | TLE903 <sup>(1)</sup> |
|                                                                                    |              |                                |                                   | TLE904 <sup>(2)</sup> |

- (1) One set of two coils  
 (2) Printed circuit board

|                                                                                   | Description  | For Use With                  | Cat. No.   |
|-----------------------------------------------------------------------------------|--------------|-------------------------------|------------|
|  | Contact Kits | 100-E116                      | 100-EA116  |
|                                                                                   |              | 100-E146                      | 100-EA146  |
|                                                                                   |              | 100-E190                      | 100-EA190  |
|                                                                                   |              | 100-E205                      | 100-EA205  |
|                                                                                   |              | 100-E2650                     | 100-EA265  |
|                                                                                   |              | 100-E305                      | 100-EA305  |
|                                                                                   |              | 100-E370                      | 100-EA370  |
|                                                                                   |              | 100-E400                      | 100-EA400  |
|                                                                                   |              | 100-E460                      | 100-EA460  |
|                                                                                   |              | 100-E580                      | 100-EA580  |
|                                                                                   |              | 100-E750                      | 100-EA750  |
|                                                                                   |              | 100-E1260                     | 100-EA1260 |
|                                                                                   |              | 100-E860                      | 100-EA860  |
|                                                                                   |              | 100-E1060                     | 100-EA1060 |
|                                                                                   |              | 100-E2050                     | 100-EA2050 |
|                                                                                   |              | 100-E2650 <sup>(1)</sup>      | 100-EA2650 |
|                                                                                   | Arc Chutes   | 100-E400, 100-E460            | 100-EC460  |
|                                                                                   |              | 100-E580, 100-E750, 100-E1260 | 100-EC750  |
|                                                                                   |              | 100-E860, 1060, 100-E2050     | 100-EC1060 |
|                                                                                   |              | 100-E2650                     | 100-EC2650 |

(1) Movable contacts only

|                                                                                     | Description                         | For Use With                   | Cat. No.                  |
|-------------------------------------------------------------------------------------|-------------------------------------|--------------------------------|---------------------------|
|  | Terminal and Mounting Hardware Kits | 100-E116*L, 100-E146*L         | 100-EHS146 <sup>(1)</sup> |
|                                                                                     |                                     | 100-E116, 100-E146             | 100-EHF146                |
|                                                                                     |                                     | 100-E190, 100-E205             | 100-EHF205                |
|                                                                                     |                                     | 100-E265, 100-E305, 100-E370   | 100-EHF370                |
|                                                                                     |                                     | 100-E400, 100-E460             | 100-EHF460                |
|                                                                                     |                                     | 100-E580, 100-E750, 100-E1260  | 100-EHF750                |
|                                                                                     |                                     | 100-E860, 100-E1060, 100-E2050 | 100-EHF2050               |
|                                                                                     |                                     | 100-E2650                      | 100-EHF2650               |

(1) Mounting hardware only.

# Specifications

| 100-E, 100S-E                                                       |      |                                                                                                         |
|---------------------------------------------------------------------|------|---------------------------------------------------------------------------------------------------------|
| <b>Rated Isolation Voltage <math>U_i</math></b>                     |      |                                                                                                         |
| IEC                                                                 | [V]  | 1000                                                                                                    |
| UL, CSA                                                             | [V]  | 600                                                                                                     |
| Rated Impulse Voltage Withstand $U_{imp}$                           | [kV] | 8                                                                                                       |
| <b>Rated Voltage <math>U_e</math></b>                               |      |                                                                                                         |
| AC 50/60 Hz                                                         | [V]  | 115, 200, 230, 240, 400, 415, 460 500, 575, 690, 1000                                                   |
| DC                                                                  | [V]  | 24, 48, 110, 220, 440                                                                                   |
| Electromagnetic compatibility                                       |      | IEC 60947-1 - Environment A                                                                             |
| Insulation Class of the Coil                                        |      | Class F per IEC 60947-4-1                                                                               |
| Rated coil frequency                                                |      | AC 50/60 Hz, DC                                                                                         |
| <b>Ambient Temperature</b>                                          |      |                                                                                                         |
| Storage                                                             | [°C] | -40...+70                                                                                               |
| Operation at rated voltage                                          | [°C] | -40...+70                                                                                               |
| Max. Altitude of Installation Site                                  | [m]  | 3000                                                                                                    |
| <b>Climatic Withstand</b>                                           |      |                                                                                                         |
| 100-E116...100-E370                                                 |      | IEC 60068-2-30 Test Db & IEC 60068-2-2 test Bd & IEC 60068-2-1 test Ab (report 1314369)                 |
| 100-E400...100-E2650                                                |      | IEC 60068-2-2 test Ba & Bb & IEC 60068-2-1 test Aa&Ab, IEC 60068-2-30                                   |
| Resistance to Shock                                                 |      | IEC 60068-2-27                                                                                          |
| Resistance to Vibration                                             |      | IEC 60068-2-6                                                                                           |
| <b>Protection Class</b>                                             |      |                                                                                                         |
| Contactor main contacts                                             |      | IP00                                                                                                    |
| Contactor coil terminals                                            |      | P2X (in connected state)                                                                                |
| Auxiliary contacts                                                  |      | P2X (in connected state)                                                                                |
| <b>Functional Safety Data (100S-E116...100S-E750)<sup>(1)</sup></b> |      |                                                                                                         |
| 100(S)-E116...100(S)-E370                                           |      | B10: 1.0E+06 operations at 50% max. AC-3 load; failure ratio: 75% failure to open, 25% failure to close |
| 100(S)-E116...100(S)-E370                                           |      | B10: 5.0E+06 operations, mechanical only; failure ratio: 50% failure to open, 50% failure to close      |
| 100(S)-E400...100(S)-E750                                           |      | B10: 5.0E+05 operations at 50% max. AC-3 load; failure ratio: 75% failure to open, 25% failure to close |
| 100(S)-E400...100(S)-E460                                           |      | B10: 3.0E+06 operations, mechanical only; failure ratio: 50% failure to open, 50% failure to close      |
| 100(S)-E570...100(S)-E750                                           |      | B10: 9.0E+05 operations, mechanical only; failure ratio: 50% failure to open, 50% failure to close      |

(1) Usable for ISO 13849-1 and IEC 62061. Data is based on the B10 value given and: - Mission time/Proof test interval of 20 years.

## Standards and Approvals

|                |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                     |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Standards      | IEC/EN 60947-1, Low-voltage switchgear and controlgear;<br>IEC/EN 60947-4-1, Low-voltage switchgear and controlgear, Contactors and motor-starters;<br>IEC/EN 60947-5-1, Low-voltage switchgear and controlgear, Control circuit devices and switching elements;<br>UL 60947-4-1, Industrial Control Equipment (USA);<br>CSA C22.2 No. 60947-4-1 Industrial Control Equipment (Canada). |                                                                                     |
|                | Mechanically Linked Contacts: IEC 60947-5-1, Annex L                                                                                                                                                                                                                                                                                                                                    |                                                                                     |
|                | Mirror Contacts: IEC 60947-4-1, Annex F                                                                                                                                                                                                                                                                                                                                                 | 100/100S-E116...100/100S-E750 with all 100-ES* side mounted N.C. auxiliary contacts |
| Approvals      | UL                                                                                                                                                                                                                                                                                                                                                                                      | cULus, File No. E41850 / E196120 (contactors, reversing contactors)                 |
|                | CSA                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                     |
|                | CCC                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                     |
|                | EAC                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                     |
|                | RCM                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                     |
|                | RINA                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                     |
|                | ABS                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                     |
| Certifications | KC                                                                                                                                                                                                                                                                                                                                                                                      | √                                                                                   |
|                | CE                                                                                                                                                                                                                                                                                                                                                                                      | √                                                                                   |
|                | SUVA                                                                                                                                                                                                                                                                                                                                                                                    | √                                                                                   |
|                | SEMI-F47                                                                                                                                                                                                                                                                                                                                                                                | Conditions of use on request                                                        |

## Main Circuits

| 100/104-E, 100S-E                                                      |       |                    | 116 | 146 | 190 | 205                | 265 | 305                | 370                  | 400   | 460   | 580   | 750                | 860                 | 1060                | 1260                | 2050                | 2650                |
|------------------------------------------------------------------------|-------|--------------------|-----|-----|-----|--------------------|-----|--------------------|----------------------|-------|-------|-------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>AC-1 Active Power Load (50/60 Hz);<br/>Ambient temperature 40°C</b> |       |                    |     |     |     |                    |     |                    |                      |       |       |       |                    |                     |                     |                     |                     |                     |
| Rated Operational Current, $I_e$                                       | 690V  | [A]                | 160 | 225 | 275 | 350                | 400 | 500                | 600                  | 600   | 700   | 800   | 1050               | 1350                | 1650                | 1260                | 2050                | 2650                |
|                                                                        | 1000V | [A]                | 160 | 225 | 250 | 275                | 350 | 375                | 400                  | 600   | 700   | 800   | 1050               | 1350                | 1650                | 1260                | 2050                | 2650                |
| Rated Operational Power, $P_e$                                         | 230V  | [kW]               | 64  | 90  | 110 | 139                | 159 | 199                | 239                  | 239   | 279   | 319   | 418                | 538                 | 657                 | 502                 | 817                 | 1056                |
|                                                                        | 240V  | [kW]               | 67  | 94  | 114 | 145                | 166 | 208                | 249                  | 249   | 291   | 333   | 436                | 561                 | 686                 | 524                 | 852                 | 1102                |
|                                                                        | 400V  | [kW]               | 111 | 156 | 191 | 242                | 277 | 346                | 416                  | 416   | 485   | 554   | 727                | 935                 | 1143                | 873                 | 1420                | 1836                |
|                                                                        | 415V  | [kW]               | 115 | 162 | 198 | 252                | 288 | 359                | 431                  | 431   | 503   | 575   | 755                | 970                 | 1186                | 906                 | 1474                | 1905                |
|                                                                        | 500V  | [kW]               | 139 | 195 | 238 | 303                | 346 | 433                | 520                  | 520   | 606   | 693   | 909                | 1169                | 1429                | 1091                | 1775                | 2295                |
|                                                                        | 690V  | [kW]               | 191 | 269 | 329 | 418                | 478 | 598                | 717                  | 717   | 837   | 956   | 1255               | 1613                | 1972                | 1506                | 2450                | 3167                |
|                                                                        | 1000V | [kW]               | 277 | 390 | 433 | 476                | 606 | 650                | 693                  | 1039  | 1212  | 1386  | 1819               | 2338                | 2858                | 2182                | 3551                | 4590                |
| <b>Ambient temperature 60°C</b>                                        |       |                    |     |     |     |                    |     |                    |                      |       |       |       |                    |                     |                     |                     |                     |                     |
| Rated Operational Current, $I_e$                                       | 690V  | [A]                | 145 | 200 | 250 | 300                | 350 | 400                | 500                  | 500   | 600   | 700   | 875                | 1150                | 1450                | 1040                | 1750                | 2350                |
|                                                                        | 1000V | [A]                | 145 | 200 | 225 | 250                | 300 | 325                | 350                  | 500   | 600   | 700   | 875                | 1150                | 1450                | 1040                | 1750                | 2350                |
| Rated Operational Power, $P_e$                                         | 230V  | [kW]               | 58  | 80  | 100 | 120                | 139 | 159                | 199                  | 199   | 239   | 279   | 349                | 458                 | 578                 | 414                 | 697                 | 936                 |
|                                                                        | 240V  | [kW]               | 60  | 83  | 104 | 125                | 145 | 166                | 208                  | 208   | 249   | 291   | 364                | 478                 | 603                 | 432                 | 727                 | 977                 |
|                                                                        | 400V  | [kW]               | 100 | 139 | 173 | 208                | 242 | 277                | 346                  | 346   | 416   | 485   | 606                | 797                 | 1005                | 721                 | 1212                | 1628                |
|                                                                        | 415V  | [kW]               | 104 | 144 | 180 | 216                | 252 | 288                | 359                  | 359   | 431   | 503   | 629                | 827                 | 1042                | 748                 | 1258                | 1689                |
|                                                                        | 500V  | [kW]               | 126 | 173 | 217 | 260                | 303 | 346                | 433                  | 433   | 520   | 606   | 758                | 996                 | 1256                | 901                 | 1516                | 2035                |
|                                                                        | 690V  | [kW]               | 173 | 239 | 299 | 359                | 418 | 478                | 598                  | 598   | 717   | 837   | 1046               | 1374                | 1733                | 1243                | 2091                | 2809                |
|                                                                        | 1000V | [kW]               | 251 | 346 | 390 | 433                | 520 | 563                | 606                  | 866   | 1039  | 1212  | 1516               | 1992                | 2511                | 1801                | 3031                | 4070                |
| <b>Ambient temperature 70°C</b>                                        |       |                    |     |     |     |                    |     |                    |                      |       |       |       |                    |                     |                     |                     |                     |                     |
| Rated Operational Current, $I_e$                                       | 690V  | [A]                | 130 | 175 | 200 | 240                | 290 | 325                | 400                  | 400   | 480   | 580   | 720                | 1000                | 1270                | 875                 | 1500                | 2120                |
|                                                                        | 1000V | [A]                | 130 | 175 | 185 | 200                | 240 | 260                | 290                  | 400   | 480   | 580   | 720                | 1000                | 1270                | 875                 | 1500                | 2120                |
| Rated Operational Power, $P_e$                                         | 230V  | [kW]               | 52  | 70  | 80  | 96                 | 116 | 129                | 159                  | 159   | 191   | 231   | 287                | 398                 | 506                 | 349                 | 598                 | 845                 |
|                                                                        | 240V  | [kW]               | 54  | 73  | 83  | 100                | 121 | 135                | 166                  | 166   | 200   | 241   | 299                | 416                 | 528                 | 364                 | 624                 | 881                 |
|                                                                        | 400V  | [kW]               | 90  | 121 | 139 | 166                | 201 | 225                | 277                  | 277   | 333   | 402   | 499                | 693                 | 880                 | 606                 | 1039                | 1469                |
|                                                                        | 415V  | [kW]               | 93  | 126 | 144 | 173                | 208 | 234                | 288                  | 288   | 345   | 417   | 518                | 719                 | 913                 | 629                 | 1078                | 1524                |
|                                                                        | 500V  | [kW]               | 113 | 152 | 173 | 208                | 251 | 281                | 346                  | 346   | 416   | 502   | 624                | 866                 | 1100                | 758                 | 1299                | 1836                |
|                                                                        | 690V  | [kW]               | 155 | 209 | 239 | 287                | 347 | 388                | 478                  | 478   | 574   | 693   | 860                | 1195                | 1518                | 1046                | 1793                | 2534                |
|                                                                        | 1000V | [kW]               | 225 | 303 | 320 | 346                | 416 | 450                | 502                  | 693   | 831   | 1005  | 1247               | 1732                | 2200                | 1516                | 2598                | 3672                |
| With conductor sizes                                                   |       | [mm <sup>2</sup> ] | 70  | 95  | 150 | 240 <sup>(1)</sup> | 240 | 300 <sup>(2)</sup> | 2x185 <sup>(2)</sup> | 2x185 | 2x240 | 2x240 | 800 <sup>(3)</sup> | 1000 <sup>(4)</sup> | 1500 <sup>(4)</sup> | 1000 <sup>(3)</sup> | 2000 <sup>(4)</sup> | 3000 <sup>(4)</sup> |

(1) For currents above 275A, use terminal extensions.

(2) For currents above 450A, use terminal extensions.

(3) Maximum connection bar width 50 mm.

(4) Maximum connection bar width 100 mm.

| 100/104-E, 100S-E                                                                          |          |      | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 860  | 1060 | 1260 | 2050 | 2650 |
|--------------------------------------------------------------------------------------------|----------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| <b>Switching of 3-phase Motors; (50 Hz)</b><br><b>Ambient temperature 60°C, AC-2, AC-3</b> |          |      |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |      |
| Rated Operational Current,<br>$I_e$                                                        | 220-240V | [A]  | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 860  | 1060 | —    | —    | —    |
|                                                                                            | 380-400V | [A]  | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 860  | 1060 | —    | —    | —    |
|                                                                                            | 415V     | [A]  | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 860  | 1060 | —    | —    | —    |
|                                                                                            | 440V     | [A]  | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 860  | 1060 | —    | —    | —    |
|                                                                                            | 500V     | [A]  | 110 | 130 | 156 | 185 | 250 | 290 | 350 | 400 | 460 | 580 | 750 | 860  | 970  | —    | —    | —    |
|                                                                                            | 690V     | [A]  | 66  | 93  | 135 | 165 | 250 | 290 | 315 | 350 | 400 | 500 | 650 | 800  | 970  | —    | —    | —    |
|                                                                                            | 1000V    | [A]  | 46  | 60  | 85  | 100 | 113 | 131 | 141 | 155 | 200 | 250 | 300 | 375  | 400  | —    | —    | —    |
| Rated Operational Power, $P_e$                                                             | 220-240V | [kW] | 37  | 45  | 55  | 55  | 75  | 90  | 110 | 110 | 132 | 160 | 220 | 250  | 315  | —    | —    | —    |
|                                                                                            | 380-400V | [kW] | 55  | 75  | 90  | 110 | 132 | 160 | 200 | 200 | 250 | 315 | 400 | 475  | 560  | —    | —    | —    |
|                                                                                            | 415V     | [kW] | 55  | 75  | 90  | 110 | 132 | 160 | 200 | 220 | 250 | 355 | 425 | 500  | 630  | —    | —    | —    |
|                                                                                            | 440V     | [kW] | 75  | 90  | 110 | 132 | 160 | 160 | 200 | 220 | 250 | 355 | 450 | 560  | 710  | —    | —    | —    |
|                                                                                            | 500V     | [kW] | 75  | 90  | 110 | 132 | 160 | 200 | 250 | 250 | 315 | 400 | 530 | 630  | 710  | —    | —    | —    |
|                                                                                            | 690V     | [kW] | 63  | 90  | 132 | 160 | 200 | 250 | 315 | 315 | 355 | 500 | 600 | 800  | 1000 | —    | —    | —    |
|                                                                                            | 1000V    | [kW] | 55  | 75  | 110 | 132 | 160 | 185 | 200 | 220 | 280 | 355 | 400 | 555  | 600  | —    | —    | —    |
| <b>Load Carrying Capacity per UL/CSA</b>                                                   |          |      |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |      |
| General Purpose Current (enclosed)                                                         |          | [A]  | 160 | 200 | 250 | 300 | 350 | 400 | 520 | 550 | 650 | 750 | 900 | 1350 | 1650 | 1210 | 2100 | 2700 |
| Rated Power (enclosed),<br>3-phase                                                         | 200V     | [A]  | 92  | 120 | 150 | 177 | 221 | 285 | 359 | 359 | 414 | 552 | 692 | 954  | 1030 | —    | —    | —    |
|                                                                                            | 230V     | [A]  | 104 | 130 | 154 | 192 | 248 | 312 | 360 | 360 | 480 | 604 | 722 | 954  | 1030 | —    | —    | —    |
|                                                                                            | 460V     | [A]  | 96  | 124 | 156 | 180 | 240 | 302 | 361 | 414 | 477 | 590 | 722 | 954  | 1030 | —    | —    | —    |
|                                                                                            | 575V     | [A]  | 99  | 125 | 144 | 192 | 242 | 289 | 336 | 382 | 472 | 578 | 672 | 944  | 1050 | —    | —    | —    |
|                                                                                            | 200V     | [Hp] | 30  | 40  | 50  | 60  | 75  | 100 | 125 | 125 | 150 | 200 | 250 | —    | —    | —    | —    | —    |
|                                                                                            | 230V     | [Hp] | 40  | 50  | 60  | 75  | 100 | 125 | 150 | 150 | 200 | 250 | 300 | 400  | 450  | —    | —    | —    |
|                                                                                            | 460V     | [Hp] | 75  | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 500 | 600 | 800  | 900  | —    | —    | —    |
| Rated Power (enclosed),<br>with 3 poles in series                                          | 575V     | [Hp] | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 500 | 600 | 700 | 1000 | 1150 | —    | —    | —    |
|                                                                                            | 260V DC  | [A]  | 160 | 200 | —   | —   | —   | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —    |
|                                                                                            | 300V DC  | [A]  | —   | —   | 230 | 250 | —   | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —    |
|                                                                                            | 340V DC  | [A]  | —   | —   | —   | —   | 350 | 400 | 520 | —   | —   | —   | —   | —    | —    | —    | —    | —    |
|                                                                                            | 600V DC  | [A]  | —   | —   | —   | —   | —   | —   | —   | 550 | 650 | 750 | 900 | 1050 | 1350 | 1210 | 1900 | —    |

| 100/104-E, 100S-E                                                          |          |       | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580  | 750 | 860 | 1060 | 1260 | 2050 | 2650 |
|----------------------------------------------------------------------------|----------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|------|------|------|------|
| <b>Switching of 3-phase Motors, (50Hz); Ambient temperature 60°C, AC-4</b> |          |       |     |     |     |     |     |     |     |     |     |      |     |     |      |      |      |      |
| Rated Operational Current, $I_e$                                           | 230V     | [A]   | 84  | 103 | 128 | 156 | 195 | 230 | 280 | 307 | 377 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 240V     | [A]   | 84  | 103 | 128 | 156 | 195 | 230 | 280 | 307 | 377 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 400V     | [A]   | 84  | 103 | 128 | 156 | 195 | 230 | 280 | 307 | 377 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 415V     | [A]   | 84  | 103 | 128 | 156 | 195 | 230 | 280 | 307 | 377 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 500V     | [A]   | 84  | 103 | 128 | 156 | 195 | 230 | 280 | 307 | 377 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 690V     | [A]   | 66  | 80  | 93  | 104 | 153 | 162 | 188 | 334 | 350 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 1000V    | [A]   | 40  | 48  | 72  | 85  | 90  | 95  | 100 | 141 | 155 | —    | —   | —   | —    | —    | —    | —    |
| Rated Operational Power, $P_e$                                             | 230V     | [kW]  | 25  | 32  | 40  | 50  | 55  | 75  | 90  | 90  | 110 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 240V     | [kW]  | 25  | 32  | 40  | 50  | 63  | 75  | 90  | 100 | 125 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 400V     | [kW]  | 45  | 55  | 63  | 80  | 110 | 132 | 160 | 160 | 200 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 415V     | [kW]  | 45  | 55  | 63  | 90  | 110 | 132 | 160 | 160 | 220 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 500V     | [kW]  | 55  | 63  | 90  | 110 | 132 | 160 | 200 | 220 | 250 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 690V     | [kW]  | 63  | 75  | 90  | 100 | 150 | 160 | 185 | 315 | 335 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 1000V    | [kW]  | 55  | 63  | 100 | 110 | 125 | 132 | 132 | 200 | 220 | —    | —   | —   | —    | —    | —    | —    |
| <b>AC-4 at approximately 200,000 operations</b>                            |          |       |     |     |     |     |     |     |     |     |     |      |     |     |      |      |      |      |
| Rated Operational Current, $I_e$                                           | 230V     | [A]   | 38  | 38  | 49  | 55  | 73  | 89  | 100 | 118 | 135 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 240V     | [A]   | 38  | 38  | 49  | 55  | 73  | 89  | 100 | 118 | 135 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 400/415V | [A]   | 38  | 38  | 49  | 55  | 73  | 89  | 100 | 118 | 135 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 500V     | [A]   | 33  | 33  | 37  | 44  | 53  | 59  | 68  | 78  | 89  | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 690V     | [A]   | 33  | 33  | 37  | 44  | 53  | 59  | 68  | 78  | 89  | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 1000V    | [A]   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —    | —   | —   | —    | —    | —    | —    |
| Rated Operational Power, $P_e$                                             | 230V     | [kW]  | 11  | 11  | 13  | 15  | 22  | 25  | 30  | 37  | 40  | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 240V     | [kW]  | 11  | 11  | 15  | 15  | 22  | 25  | 32  | 37  | 45  | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 400V     | [kW]  | 20  | 20  | 25  | 30  | 40  | 50  | 55  | 63  | 75  | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 415V     | [kW]  | 20  | 20  | 25  | 30  | 40  | 50  | 55  | 63  | 75  | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 500V     | [kW]  | 22  | 22  | 25  | 30  | 37  | 40  | 45  | 55  | 63  | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 690V     | [kW]  | 30  | 30  | 32  | 40  | 50  | 55  | 63  | 75  | 80  | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 1000V    | [kW]  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —    | —   | —   | —    | —    | —    | —    |
| Max. switching frequency                                                   |          | Ops/h | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 60  | 60  | —    | —   | —   | —    | —    | —    | —    |
| <b>Wye-Delta (60 Hz)</b>                                                   |          |       |     |     |     |     |     |     |     |     |     |      |     |     |      |      |      |      |
|                                                                            | 200V     | [Hp]  | 50  | 60  | 75  | 100 | 125 | 150 | 200 | 200 | 250 | —    | —   | —   | —    | —    | —    | —    |
|                                                                            | 230V     | [Hp]  | 60  | 75  | 100 | 125 | 150 | 200 | 250 | 250 | 350 | 450  | 500 | —   | —    | —    | —    | —    |
|                                                                            | 460V     | [Hp]  | 125 | 150 | 200 | 250 | 350 | 450 | 500 | 500 | 600 | 800  | —   | —   | —    | —    | —    | —    |
|                                                                            | 575V     | [Hp]  | 150 | 200 | 250 | 300 | 450 | 500 | 600 | 600 | 700 | 1000 | —   | —   | —    | —    | —    | —    |

| 100/104-E, 100S-E                  |                      |      | 116 | 146 | 190  | 205  | 265  | 305  | 370  | 400 | 460 | 580  | 750  | 860  | 1060 | 1260 | 2050 | 2650 |
|------------------------------------|----------------------|------|-----|-----|------|------|------|------|------|-----|-----|------|------|------|------|------|------|------|
| UL/CSA Elevator Duty               | 200V                 | [A]  | 54  | 54  | 77   | 99   | 125  | 149  | 156  | —   | —   | —    | —    | —    | —    | —    | —    | —    |
|                                    | 230V                 | [A]  | 54  | 54  | 77   | 99   | 125  | 149  | 156  | —   | —   | —    | —    | —    | —    | —    | —    | —    |
|                                    | 460V                 | [A]  | 54  | 54  | 77   | 99   | 125  | 149  | 156  | —   | —   | —    | —    | —    | —    | —    | —    | —    |
|                                    | 575V                 | [A]  | 54  | 54  | 77   | 99   | 125  | 149  | 156  | —   | —   | —    | —    | —    | —    | —    | —    | —    |
|                                    | 200V                 | [Hp] | 15  | 15  | 20   | 30   | 40   | 40   | 50   | —   | —   | —    | —    | —    | —    | —    | —    | —    |
|                                    | 230V                 | [Hp] | 20  | 20  | 25   | 30   | 40   | 50   | 60   | —   | —   | —    | —    | —    | —    | —    | —    | —    |
|                                    | 460V                 | [Hp] | 40  | 40  | 60   | 75   | 100  | 100  | 125  | —   | —   | —    | —    | —    | —    | —    | —    | —    |
|                                    | 575V                 | [Hp] | 50  | 50  | 75   | 100  | 125  | 150  | 150  | —   | —   | —    | —    | —    | —    | —    | —    | —    |
| <b>UL/CSA HVAC Applications</b>    |                      |      |     |     |      |      |      |      |      |     |     |      |      |      |      |      |      |      |
| Definite purpose rating (3-phase)  |                      |      |     |     |      |      |      |      |      |     |     |      |      |      |      |      |      |      |
| FLA                                |                      | [A]  | 116 | 160 | 200  | 250  | 300  | 350  | 520  | —   | —   | —    | —    | —    | —    | —    | —    | —    |
| LRA                                | 230V                 | [A]  | 700 | 960 | 1200 | 1500 | 1800 | 2100 | 3120 | —   | —   | —    | —    | —    | —    | —    | —    | —    |
|                                    | 460V                 | [A]  | 580 | 800 | 1000 | 1250 | 1500 | 1750 | 2600 | —   | —   | —    | —    | —    | —    | —    | —    | —    |
|                                    | 575V                 | [A]  | 470 | 640 | 800  | 1000 | 1200 | 1400 | 2080 | —   | —   | —    | —    | —    | —    | —    | —    | —    |
| AC resistance heating              | 600V                 | [A]  | 160 | 200 | 250  | 300  | 400  | 450  | 520  | —   | —   | —    | —    | —    | —    | —    | —    | —    |
| <b>Star-Delta Starting (50 Hz)</b> |                      |      |     |     |      |      |      |      |      |     |     |      |      |      |      |      |      |      |
| Rated Operational Current, $I_e$   | ≥ 230V               | [A]  | 200 | 252 | 329  | 355  | 458  | 528  | 640  | 692 | 796 | 1004 | 1299 | 1489 | 1835 | —    | —    | —    |
|                                    | ≥ 240V               | [A]  | 200 | 252 | 329  | 355  | 458  | 528  | 640  | 692 | 796 | 1004 | 1299 | 1489 | 1835 | —    | —    | —    |
|                                    | 400V                 | [A]  | 200 | 252 | 329  | 355  | 458  | 528  | 640  | 692 | 796 | 1004 | 1299 | 1489 | 1835 | —    | —    | —    |
|                                    | 415V                 | [A]  | 200 | 252 | 329  | 355  | 458  | 528  | 640  | 692 | 796 | 1004 | 1299 | 1489 | 1835 | —    | —    | —    |
|                                    | 500V                 | [A]  | 190 | 225 | 233  | 285  | 433  | 502  | 545  | 692 | 796 | 1004 | 1299 | 1385 | 1680 | —    | —    | —    |
|                                    | 690V                 | [A]  | 112 | 161 | 233  | 285  | 433  | 502  | 545  | 606 | 692 | 866  | 1125 | 1385 | 1680 | —    | —    | —    |
|                                    | 1000V                | [A]  | —   | 103 | 147  | 173  | 173  | 173  | 173  | 268 | 346 | 433  | 519  | —    | —    | —    | —    | —    |
| Rated Operational Power, $P_e$     | 230V <sup>(1)</sup>  | [kW] | 55  | 75  | 90   | 110  | 132  | 160  | 200  | 200 | 250 | 315  | 400  | 500  | 560  | —    | —    | —    |
|                                    | 240V <sup>(1)</sup>  | [kW] | 55  | 75  | 110  | 110  | 132  | 160  | 200  | 200 | 250 | 315  | 400  | 500  | 630  | —    | —    | —    |
|                                    | 400V <sup>(1)</sup>  | [kW] | 110 | 132 | 160  | 200  | 250  | 250  | 355  | 400 | 400 | 560  | 710  | 800  | 1000 | —    | —    | —    |
|                                    | 415V <sup>(1)</sup>  | [kW] | 110 | 132 | 160  | 200  | 250  | 315  | 355  | 400 | 400 | 560  | 800  | 900  | 1100 | —    | —    | —    |
|                                    | 500V <sup>(1)</sup>  | [kW] | 132 | 160 | 160  | 200  | 315  | 355  | 355  | 500 | 500 | 710  | 800  | 1000 | 1300 | —    | —    | —    |
|                                    | 690V <sup>(1)</sup>  | [kW] | 90  | 132 | 200  | 250  | 400  | 500  | 500  | 560 | 710 | 800  | 1100 | 1400 | 1700 | —    | —    | —    |
|                                    | 1000V <sup>(1)</sup> | [kW] | —   | 132 | 200  | 250  | 250  | 250  | 250  | 355 | 500 | 630  | 710  | —    | —    | —    | —    | —    |

(1) Power ratings at 50 Hz: Preferred values according to IEC 60947-4-1

| 100/104-E, 100S-E                                       |         |       | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 860 | 1060 | 1260 | 2050 | 2650 |
|---------------------------------------------------------|---------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| <b>Switching of Power Transformers, AC-6a (50 Hz)</b>   |         |       |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Inrush Current                                          |         |       |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Rated transformer current                               |         |       | = n |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| n = 30                                                  | ≥ 230V  | [A]   | 70  | 79  | 111 | 115 | 143 | 143 | 165 | 200 | 252 | 263 | 286 | 430 | 524  | 362  | —    | —    |
|                                                         | ≥ 240V  | [A]   | 70  | 79  | 111 | 115 | 143 | 143 | 165 | 200 | 252 | 263 | 286 | 430 | 524  | 362  | —    | —    |
|                                                         | ≥ 400V  | [A]   | 70  | 79  | 111 | 115 | 143 | 143 | 165 | 200 | 252 | 263 | 286 | 430 | 524  | 362  | —    | —    |
|                                                         | ≥ 415V  | [A]   | 70  | 79  | 111 | 115 | 143 | 143 | 165 | 200 | 252 | 263 | 286 | 430 | 524  | 362  | —    | —    |
|                                                         | ≥ 500V  | [A]   | 70  | 79  | 111 | 115 | 143 | 143 | 165 | 200 | 252 | 263 | 286 | —   | —    | 362  | —    | —    |
|                                                         | ≥ 690V  | [A]   | 70  | 79  | 111 | 115 | 143 | 143 | 165 | 200 | 252 | 263 | 286 | —   | —    | 362  | —    | —    |
|                                                         | ≥ 1000V | [A]   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    |
| Apparent Power                                          | 230V    | [kVA] | 28  | 31  | 44  | 46  | 57  | 57  | 66  | 80  | 100 | 105 | 114 | 171 | 209  | 144  | —    | —    |
|                                                         | 240V    | [kVA] | 29  | 33  | 46  | 48  | 59  | 59  | 69  | 83  | 105 | 109 | 119 | 179 | 218  | 150  | —    | —    |
|                                                         | 400V    | [kVA] | 48  | 55  | 77  | 80  | 99  | 99  | 114 | 139 | 175 | 182 | 198 | 298 | 363  | 251  | —    | —    |
|                                                         | 415V    | [kVA] | 50  | 56  | 79  | 82  | 102 | 102 | 117 | 142 | 179 | 187 | 203 | 305 | 372  | 257  | —    | —    |
|                                                         | 500V    | [kVA] | 61  | 68  | 96  | 100 | 124 | 124 | 143 | 173 | 218 | 228 | 248 | —   | —    | 314  | —    | —    |
|                                                         | 690V    | [kVA] | 84  | 94  | 133 | 137 | 171 | 171 | 197 | 239 | 301 | 314 | 342 | —   | —    | 433  | —    | —    |
|                                                         | 1000V   | [kVA] | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    |
| n = 20                                                  | ≥ 690V  | [A]   | 105 | 119 | 167 | 173 | 215 | 215 | 248 | 300 | 378 | 395 | 429 | —   | —    | 543  | —    | —    |
| n = 15                                                  | ≥ 690V  | [A]   | 140 | 158 | 222 | 230 | 286 | 286 | 330 | 400 | 504 | 526 | 572 | —   | —    | 724  | —    | —    |
| <b>60 Hz Peak Inrush/peak rated transformer current</b> |         |       |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| n = 30                                                  | ≥ 660V  | [A]   | 70  | 79  | 111 | 115 | 143 | 143 | 165 | 200 | 252 | 263 | 286 | 430 | 524  | 362  | —    | —    |
| Apparent Power                                          | 200V    | [kVA] | 24  | 27  | 38  | 40  | 50  | 50  | 57  | 69  | 87  | 91  | 99  | 149 | 182  | 125  | —    | —    |
|                                                         | 208V    | [kVA] | 25  | 28  | 40  | 41  | 52  | 52  | 59  | 72  | 91  | 95  | 103 | 155 | 189  | 130  | —    | —    |
|                                                         | 240V    | [kVA] | 29  | 33  | 46  | 48  | 59  | 59  | 69  | 83  | 105 | 109 | 119 | 179 | 218  | 150  | —    | —    |
|                                                         | 480V    | [kVA] | 58  | 66  | 92  | 96  | 119 | 119 | 137 | 166 | 210 | 219 | 238 | 357 | 436  | 301  | —    | —    |
|                                                         | 600V    | [kVA] | 73  | 82  | 115 | 120 | 149 | 149 | 171 | 208 | 262 | 273 | 297 | 447 | 545  | 376  | —    | —    |
|                                                         | 660V    | [kVA] | 80  | 90  | 127 | 131 | 163 | 163 | 189 | 229 | 288 | 301 | 327 | 492 | 599  | 414  | —    | —    |
| n = 20                                                  | ≥ 660V  | [A]   | 105 | 119 | 167 | 173 | 215 | 215 | 248 | 300 | 378 | 395 | 429 | 645 | 786  | 543  | —    | —    |
| Apparent Power                                          | 200V    | [kVA] | 36  | 41  | 58  | 60  | 74  | 74  | 86  | 104 | 131 | 137 | 149 | 223 | 272  | 188  | —    | —    |
|                                                         | 208V    | [kVA] | 38  | 43  | 60  | 62  | 77  | 77  | 89  | 108 | 136 | 142 | 155 | 232 | 283  | 196  | —    | —    |
|                                                         | 240V    | [kVA] | 44  | 49  | 69  | 72  | 89  | 89  | 103 | 125 | 157 | 164 | 178 | 268 | 327  | 226  | —    | —    |
|                                                         | 480V    | [kVA] | 87  | 99  | 139 | 144 | 179 | 179 | 206 | 249 | 314 | 328 | 357 | 536 | 653  | 451  | —    | —    |
|                                                         | 600V    | [kVA] | 109 | 124 | 174 | 180 | 223 | 223 | 258 | 312 | 393 | 410 | 446 | 670 | 817  | 564  | —    | —    |
|                                                         | 660V    | [kVA] | 120 | 136 | 191 | 198 | 246 | 246 | 284 | 343 | 432 | 452 | 490 | 737 | 899  | 621  | —    | —    |
| n = 15                                                  | ≥ 660V  | [A]   | 140 | 158 | 222 | 230 | 286 | 286 | 330 | 400 | 504 | 526 | 572 | 860 | 1048 | 724  | —    | —    |
| Apparent Power                                          | 200V    | [kVA] | 48  | 55  | 77  | 80  | 99  | 99  | 114 | 139 | 175 | 182 | 198 | 298 | 363  | 251  | —    | —    |
|                                                         | 208V    | [kVA] | 50  | 57  | 80  | 83  | 103 | 103 | 119 | 144 | 182 | 190 | 206 | 310 | 378  | 261  | —    | —    |
|                                                         | 240V    | [kVA] | 58  | 66  | 92  | 96  | 119 | 119 | 137 | 166 | 210 | 219 | 238 | 357 | 436  | 301  | —    | —    |
|                                                         | 480V    | [kVA] | 116 | 131 | 185 | 191 | 238 | 238 | 274 | 333 | 419 | 437 | 476 | 715 | 871  | 602  | —    | —    |
|                                                         | 600V    | [kVA] | 145 | 164 | 231 | 239 | 297 | 297 | 343 | 416 | 524 | 547 | 594 | 894 | 1089 | 752  | —    | —    |
|                                                         | 660V    | [kVA] | 160 | 181 | 254 | 263 | 327 | 327 | 377 | 457 | 576 | 601 | 654 | 983 | 1198 | 828  | —    | —    |

| 100/104-E, 100S-E                                     |          |        | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 860 | 1060 | 1260 | 2050 | 2650 |
|-------------------------------------------------------|----------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| <b>Switching of 3-phase Capacitors, AC-6b (50 Hz)</b> |          |        |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Single capacitor<br>40 °C                             | 230V     | [kVar] | 40  | 50  | 60  | 75  | 85  | 100 | 110 | 120 | 140 | 170 | 220 | 250 | 300  | —    | —    | —    |
|                                                       | 240V     | [kVar] | 40  | 50  | 60  | 75  | 85  | 100 | 110 | 120 | 140 | 170 | 220 | 250 | 300  | —    | —    | —    |
|                                                       | 400V     | [kVar] | 75  | 90  | 110 | 130 | 145 | 165 | 200 | 210 | 240 | 285 | 400 | 450 | 500  | —    | —    | —    |
|                                                       | 415V     | [kVar] | 75  | 90  | 110 | 130 | 145 | 165 | 200 | 210 | 240 | 285 | 400 | 450 | 500  | —    | —    | —    |
|                                                       | 500V     | [kVar] | 83  | 110 | 140 | 160 | 180 | 210 | 240 | 260 | 325 | 350 | 490 | 550 | 600  | —    | —    | —    |
|                                                       | 690V     | [kVar] | 80  | 110 | 135 | 170 | 200 | 240 | 280 | 300 | 325 | 440 | 600 | 650 | 800  | —    | —    | —    |
|                                                       | 1000V    | [kVar] | —   | 100 | 140 | 150 | 155 | 160 | 170 | 250 | 300 | 350 | 450 | —   | —    | —    | —    | —    |
| Single capacitor<br>55 °C                             | 230V     | [kVar] | 40  | 50  | 60  | 75  | 85  | 100 | 110 | 120 | 140 | 170 | 220 | 250 | 300  | —    | —    | —    |
|                                                       | 240V     | [kVar] | 40  | 50  | 60  | 75  | 85  | 100 | 110 | 120 | 140 | 170 | 220 | 250 | 300  | —    | —    | —    |
|                                                       | 400V     | [kVar] | 75  | 90  | 110 | 130 | 145 | 165 | 200 | 210 | 240 | 285 | 400 | 450 | 500  | —    | —    | —    |
|                                                       | 415V     | [kVar] | 75  | 90  | 110 | 130 | 145 | 165 | 200 | 210 | 240 | 285 | 400 | 450 | 500  | —    | —    | —    |
|                                                       | 500V     | [kVar] | 83  | 110 | 140 | 160 | 180 | 210 | 240 | 260 | 325 | 350 | 490 | 550 | 600  | —    | —    | —    |
|                                                       | 690V     | [kVar] | 80  | 110 | 135 | 170 | 200 | 240 | 280 | 300 | 325 | 440 | 600 | 650 | 800  | —    | —    | —    |
|                                                       | 1000V    | [kVar] | —   | 100 | 140 | 150 | 155 | 160 | 170 | 250 | 300 | 350 | 450 | —   | —    | —    | —    | —    |
| Single capacitor<br>70 °C                             | 230V     | [kVar] | 35  | 42  | 45  | 57  | 70  | 85  | 100 | 105 | 120 | 160 | 190 | 230 | 280  | —    | —    | —    |
|                                                       | 240V     | [kVar] | 35  | 42  | 45  | 57  | 70  | 85  | 100 | 105 | 120 | 160 | 190 | 230 | 280  | —    | —    | —    |
|                                                       | 400V     | [kVar] | 65  | 74  | 83  | 105 | 135 | 155 | 180 | 195 | 225 | 275 | 370 | 430 | 480  | —    | —    | —    |
|                                                       | 415V     | [kVar] | 65  | 74  | 83  | 105 | 135 | 155 | 180 | 195 | 225 | 275 | 370 | 430 | 480  | —    | —    | —    |
|                                                       | 500V     | [kVar] | 78  | 96  | 102 | 130 | 165 | 196 | 220 | 241 | 300 | 340 | 435 | 530 | 570  | —    | —    | —    |
|                                                       | 690V     | [kVar] | 75  | 110 | 135 | 160 | 200 | 240 | 260 | 300 | 325 | 440 | 600 | 630 | 750  | —    | —    | —    |
|                                                       | 1000V    | [kVar] | —   | 95  | 120 | 130 | 140 | 150 | 160 | 220 | 270 | 300 | 400 | —   | —    | —    | —    | —    |
| <b>60 Hz Single Capacitor (cULus)</b>                 |          |        |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Single capacitor<br>40 °C                             | 208V     | [kVar] | 33  | 41  | 50  | 67  | 83  | 100 | 125 | 119 | 142 | 178 | 214 | —   | 346  | —    | —    | —    |
|                                                       | 240V     | [kVar] | 38  | 48  | 57  | 77  | 95  | 115 | 144 | 137 | 164 | 205 | 247 | —   | 398  | —    | —    | —    |
|                                                       | 480V     | [kVar] | 75  | 100 | 125 | 150 | 200 | 250 | 300 | 274 | 329 | 411 | 494 | —   | 832  | —    | —    | —    |
|                                                       | 600V     | [kVar] | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 343 | 410 | 514 | 618 | —   | 1040 | —    | —    | —    |
| <b>Switching of Lamps</b>                             |          |        |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Gas discharge lamps<br>AC-5a                          | open     | [A]    | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 877 | 1072 | 812  | 1332 | 1722 |
| UL Ballast Ratings                                    |          | [A]    | 160 | 200 | 250 | 300 | 400 | 450 | 520 | —   | —   | —   | —   | —   | —    | —    | —    | —    |
| Filament AC-5b                                        | 230/240V | [A]    | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 877 | 1072 | 812  | 1332 | 1722 |

| 100/104-E, 100S-E                                                                       |         |     | 116   | 146   | 190   | 205   | 265   | 305   | 370   | 400   | 460   | 580   | 750   | 860   | 1060  | 1260  | 2050  | 2650  |
|-----------------------------------------------------------------------------------------|---------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Switching of DC Loads</b>                                                            |         |     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Non-inductive or slightly inductive loads or resistance furnaces DC-1 at 60 °C          |         |     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1 pole                                                                                  | ≤72V    | [A] | 160   | 200   | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 90V     | [A] | 160   | 200   | 250   | 350   | 400   | 500   | 520   | —     | —     | —     | —     | —     | —     | —     | —     | —     |
|                                                                                         | 100V    | [A] | —     | —     | 250   | 350   | 400   | 500   | 520   | —     | —     | —     | —     | —     | —     | —     | —     | —     |
|                                                                                         | 110V    | [A] | —     | —     | —     | —     | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
| 2 poles in series                                                                       | ≤72V    | [A] | 160   | 200   | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 110V    | [A] | 160   | 200   | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 175V    | [A] | 160   | 200   | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
|                                                                                         | 200V    | [A] | —     | —     | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
|                                                                                         | 220V    | [A] | —     | —     | —     | —     | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
| 3 poles in series                                                                       | ≤72V    | [A] | 160   | 200   | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 110V    | [A] | 160   | 200   | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 175V    | [A] | 160   | 200   | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 220V    | [A] | 160   | 200   | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 260V    | [A] | 160   | 200   | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 300V    | [A] | —     | —     | 250   | 350   | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 340V    | [A] | —     | —     | —     | —     | 400   | 500   | 520   | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 600V    | [A] | —     | —     | —     | —     | —     | —     | —     | 600   | 700   | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
|                                                                                         | 850V    | [A] | —     | —     | —     | —     | —     | —     | —     | —     | —     | 800   | 1050  | 1350  | 1650  | 1250  | 2050  | —     |
| Shunt-wound Motors—Starting, reverse current breaking, reversing, stepping DC-3, 60 °C  |         |     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 3 poles in series                                                                       | 24V     | [A] | 145   | 160   | 250   | 275   | 350   | 400   | 450   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
|                                                                                         | 48/60V  | [A] | 145   | 160   | 250   | 275   | 350   | 400   | 450   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
|                                                                                         | 110V    | [A] | 145   | 160   | 250   | 275   | 350   | 400   | 450   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
|                                                                                         | 220V    | [A] | 145   | 160   | 250   | 275   | 350   | 400   | 450   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
|                                                                                         | 440V    | [A] | —     | —     | —     | —     | —     | —     | —     | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
| Series-wound Motors—Starting, reverse current breaking, reversing, stepping DC-5, 60 °C |         |     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 3 poles in series                                                                       | 24V     | [A] | 145   | 160   | 250   | 275   | 350   | 400   | 450   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
|                                                                                         | 48/60V  | [A] | 145   | 160   | 250   | 275   | 350   | 400   | 450   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
|                                                                                         | 110V    | [A] | 145   | 160   | 250   | 275   | 350   | 400   | 450   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
|                                                                                         | 220V    | [A] | 145   | 160   | 250   | 275   | 350   | 400   | 450   | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
|                                                                                         | 440V    | [A] | —     | —     | —     | —     | —     | —     | —     | 600   | 700   | 800   | 1050  | —     | —     | —     | —     | —     |
| <b>Short Time Withstand <math>I_{CW}</math> 40 °C</b>                                   |         |     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|                                                                                         | 1 s     | [A] | 1300  | 1460  | 1900  | 2050  | 2650  | 3050  | 3700  | 4600  | 4600  | 7000  | 7000  | 10000 | 12000 | 8000  | 12000 | 12000 |
|                                                                                         | 10 s    | [A] | 928   | 1168  | 1520  | 1640  | 2120  | 2440  | 2960  | 4400  | 4400  | 6400  | 6400  | 8000  | 10000 | 7200  | 10000 | 10000 |
|                                                                                         | 30 s    | [A] | 536   | 674   | 878   | 947   | 1224  | 1409  | 1709  | 3100  | 3100  | 4500  | 4500  | 6000  | 7500  | 5200  | 7500  | 7500  |
|                                                                                         | 1 min   | [A] | 379   | 477   | 621   | 670   | 865   | 996   | 1208  | 2500  | 2500  | 3500  | 3500  | 4500  | 5500  | 4000  | 5500  | 5500  |
|                                                                                         | 15 min  | [A] | 160   | 225   | 275   | 350   | 400   | 500   | 600   | 840   | 840   | 1300  | 1300  | 1600  | 2200  | 1500  | 2200  | 2800  |
| <b>Resistance and Power Dissipation</b>                                                 |         |     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Main current circuit resistance                                                         | [mΩ]    |     | 0.469 | 0.454 | 0.198 | 0.204 | 0.200 | 0.200 | 0.200 | 0.083 | 0.086 | 0.050 | 0.045 | 0.044 | 0.029 | 0.050 | 0.030 | 0.028 |
| Power dissipation per pole at $I_e$ AC-1, 400V                                          | [W]     |     | 12    | 23    | 15    | 25    | 32    | 50    | 72    | 30    | 42    | 32    | 50    | 80    | 80    | 80    | 125   | 200   |
| Power dissipation per pole at $I_e$ AC-3/400V                                           | [W]     |     | 6     | 10    | 7     | 8     | 14    | 19    | 27    | 16    | 21    | 17    | 28    | 50    | 50    | —     | —     | —     |
| Total power dissipation at:                                                             |         |     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| $I_e$ AC-3, 400V; AC/DC control (120-250V)                                              | [W]     |     | 21    | 33    | 23.5  | 26.5  | 46.5  | 61.5  | 85.5  | 53    | 68    | 56    | 89    | 171   | 171   | —     | —     | —     |
| <b>Maximum Switching Frequency</b>                                                      |         |     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| AC-1                                                                                    | ops /hr |     | 300   |       |       |       |       |       |       | 300   |       |       |       | 60    | 300   | 60    | 15    |       |
| AC-3                                                                                    | ops /hr |     | 300   |       |       |       |       |       |       | 300   |       |       |       | 60    | —     | —     | —     |       |
| AC-2, AC-4                                                                              | ops /hr |     | 150   |       |       |       |       |       |       | 60    |       |       |       | 60    | —     | —     | —     |       |

| 100/104-E, 100S-E                          |              | 116            | 146            | 190        | 205        | 265            | 305            | 370            | 400          | 460          | 580        | 750        | 860          | 1060       | 1260         | 2050       | 2650       |
|--------------------------------------------|--------------|----------------|----------------|------------|------------|----------------|----------------|----------------|--------------|--------------|------------|------------|--------------|------------|--------------|------------|------------|
| <b>Weight</b>                              |              |                |                |            |            |                |                |                |              |              |            |            |              |            |              |            |            |
| AC/DC (Electronic)<br>with bar connections | kg<br>(lbs.) | 1.50<br>(3.3)  | 1.50<br>(3.3)  | 3<br>(6.6) | 3<br>(6.6) | 4.64<br>(10.2) | 4.64<br>(10.2) | 4.64<br>(10.2) | 12<br>(26.4) | 12<br>(26.4) | 15<br>(33) | 15<br>(33) | 34<br>(74.8) | 35<br>(77) | 16<br>(35.2) | 35<br>(77) | 45<br>(99) |
| with built-in cable clamps                 | kg<br>(lbs.) | 1.75<br>(3.85) | 1.75<br>(3.85) | —          | —          | —              | —              | —              | —            | —            | —          | —          | —            | —          | —            | —          | —          |

| 100/104-E, 100S-E |  | 116 | 146 | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 860 | 1060 | 1260 | 2050 | 2650 |
|-------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
|-------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|

**Short Circuit Coordination (Max. Fuse or Circuit Breaker Rating) Per IEC 60947-4-1**

|                       |                 |     |                                |     |     |     |     |     |     |     |     |     |      |      |      |   |   |
|-----------------------|-----------------|-----|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|---|---|
| <b>DIN Fuses - gG</b> | Type "2" (400V) | [A] | 100 kA Available Fault Current |     |     |     |     |     |     |     |     |     |      |      |      |   |   |
|                       |                 |     | 250                            | 250 | 315 | 315 | 400 | 500 | 630 | 630 | 630 | 800 | 800  | 1000 | 1250 | — | — |
|                       | Type "2" (690V) | [A] | 80 kA Available Fault Current  |     |     |     |     |     |     |     |     |     |      |      |      |   |   |
| <b>MCCB</b>           |                 |     | 160                            | 200 | 315 | 315 | 400 | 425 | 500 | 500 | 630 | 800 | 800  | 1000 | 1600 | — | — |
|                       | Type "2" (400V) | [A] | 70 kA Available Fault Current  |     |     |     |     |     |     |     |     |     |      |      |      |   |   |
|                       |                 |     | 160                            | 160 | 320 | 320 | 400 | 630 | 630 | 630 | 630 | 800 | 1000 | 1600 | 1600 | — | — |

**Short Circuit Current Rating (Max. Fuse or Circuit Breaker Rating) Per UL 60947 and CSA 22.2 No. 14 (contactor and fuses or circuit breaker only)**

|                                        |                           |     |                                |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|----------------------------------------|---------------------------|-----|--------------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|---|---|
| <b>UL Class RK5 Fuses</b>              | Type 1 Combination (600V) | [A] | 10 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | 250                            | 250 | 400 | 400 | —   | —   | —   | —    | —    | —    | —    | —    | —    | — | — |
| <b>UL Class L Fuses</b>                | Type 1 Combination (600V) | [A] | 18 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | —                              | —   | —   | —   | 800 | 800 | 800 | 1000 | —    | —    | —    | —    | —    | — | — |
|                                        | Type 1 Combination (600V) | [A] | 30 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | —                              | —   | —   | —   | —   | —   | —   | 1000 | —    | —    | —    | —    | —    | — | — |
| <b>UL Class J and CSA HRCI-J Fuses</b> | Type 1 Combination (600V) | [A] | 85 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | —                              | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —    | —    | — | — |
|                                        | Type 1 Combination (600V) | [A] | 100 kA Available Fault Current |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | 250                            | 250 | 400 | 400 | 600 | 600 | 600 | 600  | 600  | —    | —    | —    | —    | — | — |
| <b>UL Class L Fuses</b>                | Type 2 Combination (600V) | [A] | 200                            | 200 | 400 | 400 | 600 | 600 | 600 | 600  | 600  | —    | —    | —    | —    | — | — |
|                                        | Type 1 Combination (600V) | [A] | 100 kA Available Fault Current |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | —                              | —   | —   | —   | —   | —   | 800 | 800  | 1200 | 1200 | —    | —    | 1600 | — | — |
|                                        | Type 2 Combination (600V) | [A] | —                              | —   | —   | —   | —   | —   | —   | —    | 1200 | 1200 | —    | —    | —    | — | — |
| <b>UL Inverse-Time Circuit</b>         | Type 1 Combination (480V) | [A] | 42 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | —                              | —   | —   | —   | —   | —   | —   | —    | 1200 | 1200 | 2000 | 2000 | —    | — | — |
|                                        | Type 2 Combination (480V) | [A] | 65 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | 250                            | 250 | 400 | 400 | 800 | 800 | 800 | 800  | 800  | 800  | —    | —    | —    | — | — |
|                                        | Type 1 Combination (480V) | [A] | 84 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | —                              | —   | —   | —   | —   | —   | 800 | 800  | —    | —    | —    | —    | —    | — | — |
|                                        | Type 1 Combination (480V) | [A] | 89 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | —                              | —   | —   | —   | —   | —   | —   | —    | 800  | 800  | —    | —    | —    | — | — |
|                                        | Type 1 Combination (480V) | [A] | 100 kA Available Fault Current |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | 250                            | 250 | 400 | 400 | 800 | 800 | 800 | —    | —    | —    | —    | —    | —    | — | — |
|                                        | Type 2 Combination (600V) | [A] | 25 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | 250                            | 250 | —   | —   | —   | —   | —   | —    | —    | —    | —    | —    | —    | — | — |
|                                        | Type 2 Combination (600V) | [A] | 35 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | —                              | —   | 400 | 400 | 800 | 800 | 800 | 800  | 800  | 800  | 800  | —    | —    | — | — |
|                                        | Type 1 Combination (600V) | [A] | 42 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | —                              | —   | —   | —   | 800 | 800 | 800 | 800  | 800  | 800  | 800  | —    | —    | — | — |
|                                        | Type 1 Combination (600V) | [A] | 50 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | 250                            | 250 | —   | —   | —   | —   | —   | —    | —    | —    | —    | —    | —    | — | — |
|                                        | Type 1 Combination (600V) | [A] | 65 kA Available Fault Current  |     |     |     |     |     |     |      |      |      |      |      |      |   |   |
|                                        |                           |     | —                              | —   | 400 | 400 | 400 | 400 | 400 | —    | —    | —    | —    | —    | —    | — | — |

**Coil Data**

| 100/104-E, 100S-E       |               |            | 116        | 146 | 190     | 205 | 265     | 305 | 370      | 400 | 460      | 580 | 750     | 860 | 1060     | 1260 | 2050    | 2650 |
|-------------------------|---------------|------------|------------|-----|---------|-----|---------|-----|----------|-----|----------|-----|---------|-----|----------|------|---------|------|
| <b>Operating Limits</b> |               |            |            |     |         |     |         |     |          |     |          |     |         |     |          |      |         |      |
| 50/60 Hz                | pick-up       | [x $U_s$ ] | 0.85...1.1 |     |         |     |         |     |          |     |          |     |         |     |          |      |         |      |
|                         | dropout       | [x $U_s$ ] | 0.55       |     |         |     |         |     |          |     |          |     |         |     |          |      |         |      |
| DC control              | pick-up       | [x $U_s$ ] | 0.80...1.1 |     |         |     |         |     |          |     |          |     |         |     |          |      |         |      |
|                         | dropout       | [x $U_s$ ] | 0.55       |     |         |     |         |     |          |     |          |     |         |     |          |      |         |      |
| 24...60V AC             | pick-up       | [VA]       | 225        |     | 165     |     | 475     |     | —        |     | —        |     | —       |     | —        |      | —       |      |
|                         | hold-in       | [VA]       | 5.5        |     | 6       |     | 8.5     |     | —        |     | —        |     | —       |     | —        |      | —       |      |
| 48...130V AC            | pick-up       | [VA]       | 170        |     | 175     |     | 340     |     | 1215     |     | 1100     |     | —       |     | 1100     |      | —       |      |
|                         | hold-in       | [VA]       | 4          |     | 4       |     | 17      |     | 12       |     | 12       |     | —       |     | 12       |      | —       |      |
| 100...250V AC           | pick-up       | [VA]       | 130        |     | 220     |     | 385     |     | 955      |     | 880      |     | 2450    |     | 880      |      | 2450    |      |
|                         | hold-in       | [VA]       | 6          |     | 7       |     | 17.5    |     | 12       |     | 12       |     | 48      |     | 12       |      | 48      |      |
| 250...500V AC           | pick-up       | [VA]       | 205        |     | 185     |     | 420     |     | 950      |     | 985      |     | —       |     | 985      |      | —       |      |
|                         | hold-in       | [VA]       | 16         |     | 16      |     | 21      |     | 12       |     | 12       |     | —       |     | 12       |      | —       |      |
| 24...60V DC             | pick-up       | [W]        | 210        |     | 205     |     | 400     |     | 900      |     | 785      |     | —       |     | 785      |      | —       |      |
|                         | hold-in       | [W]        | 2.5        |     | 2.5     |     | 3.5     |     | 5        |     | 5.5      |     | —       |     | 5.5      |      | —       |      |
| 48...130V DC            | pick-up       | [W]        | 130        |     | 130     |     | 360     |     | 1150     |     | 1020     |     | —       |     | 1020     |      | —       |      |
|                         | hold-in       | [W]        | 2.5        |     | 2.5     |     | 2.5     |     | 5        |     | 5        |     | —       |     | 5        |      | —       |      |
| 100...250V DC           | pick-up       | [W]        | 135        |     | 190     |     | 410     |     | 895      |     | 880      |     | 2290    |     | 880      |      | 2290    |      |
|                         | hold-in       | [W]        | 3          |     | 2.5     |     | 4.5     |     | 5        |     | 5        |     | 20.5    |     | 5        |      | 20.5    |      |
| 250...500V DC           | pick-up       | [W]        | 205        |     | 190     |     | 600     |     | 885      |     | 910      |     | —       |     | 910      |      | —       |      |
|                         | hold-in       | [W]        | 4          |     | 4       |     | 4.7     |     | 7.5      |     | 7.5      |     | —       |     | 7.5      |      | —       |      |
| <b>Operating Times</b>  |               |            |            |     |         |     |         |     |          |     |          |     |         |     |          |      |         |      |
| AC or DC                | closing delay | [ms]       | 20...55    |     | 25...60 |     | 30...60 |     | 50...120 |     | 50...120 |     | 50...80 |     | 50...120 |      | 50...80 |      |
|                         | opening delay | [ms]       | 40...70    |     | 45...80 |     | 45...80 |     | 33...70  |     | 33...70  |     | 35...55 |     | 33...70  |      | 35...55 |      |
| With PLC Interface      | closing delay | [ms]       | 20...31    |     | 25...45 |     | 25...45 |     | 40...60  |     | 40...90  |     | 40...65 |     | 40...90  |      | 40...65 |      |
|                         | opening delay | [ms]       | 24...34    |     | 25...45 |     | 25...45 |     | 10...30  |     | 10...30  |     | 10...30 |     | 10...30  |      | 10...30 |      |

## Cross Sections, Screw Type Terminals

| 100/104-E, 100S-E                                                         |                | 116                | 146        | 190                    | 205                    | 265                      | 305                      | 370                      | 400                      | 460                      | 580 | 750 | 860 | 1060 | 1260 | 2050 | 2650 |
|---------------------------------------------------------------------------|----------------|--------------------|------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----|-----|-----|------|------|------|------|
| <b>Main Terminals</b>                                                     |                |                    |            |                        |                        |                          |                          |                          |                          |                          |     |     |     |      |      |      |      |
| <b>Conductor Cross Sections</b><br><b>— Main Contacts (Terminal type)</b> |                |                    |            |                        |                        |                          |                          |                          |                          |                          |     |     |     |      |      |      |      |
|                                                                           |                |                    |            |                        |                        |                          |                          |                          |                          |                          |     |     |     |      |      |      |      |
|                                                                           | (1) conductor  | [mm <sup>2</sup> ] | 10...95    | 16...300               | 16...400               | —                        | —                        | —                        | —                        | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Clamp type     |                    | 100-ECL146 | 100-ETL205             | 100-ETL370             | —                        | —                        | —                        | —                        | —                        | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [N•m]              | 8          | 34                     | 42                     | —                        | —                        | —                        | —                        | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | (2) conductors | [mm <sup>2</sup> ] | 10...95    | —                      | 16...500               | 70...500                 | 70...500                 | 120...500                | 70...750                 | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Clamp type     |                    | 100-ECL146 | —                      | 100-ETL370B            | 100-ETL580               | 100-ETL750               | 100-ETL860               | 100-ETL1060              | —                        | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [N•m]              | 8          | —                      | 42                     | 31                       | 43                       | 43                       | 57                       | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | (3) conductors | [mm <sup>2</sup> ] | —          | —                      | —                      | —                        | 70...500                 | 120...500                | 70...750                 | 70...500                 | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Clamp type     |                    | —          | —                      | —                      | —                        | 100-ETL750               | 100-ETL860               | 100-ETL1060              | 100-ETL750               | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [N•m]              | —          | —                      | —                      | —                        | 43                       | 43                       | 57                       | 43                       | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | (4) conductors | [mm <sup>2</sup> ] | —          | —                      | —                      | —                        | —                        | 120...500                | 70...750                 | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Clamp type     |                    | —          | —                      | —                      | —                        | —                        | 100-ETL860               | 100-ETL1060              | —                        | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [N•m]              | —          | —                      | —                      | —                        | —                        | 43                       | 57                       | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | (6) conductors | [mm <sup>2</sup> ] | —          | —                      | —                      | —                        | —                        | —                        | 70...750                 | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Clamp type     |                    | —          | —                      | —                      | —                        | —                        | —                        | 100-ETL1060B             | —                        | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [N•m]              | —          | —                      | —                      | —                        | —                        | —                        | 57                       | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | L max.         | [mm]               | 22         | 24                     | 32                     | 47                       | 50                       | 100                      | 50                       | 100                      | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Ø min.         | [mm]               | 6          | 8                      | 10                     | 10                       | 12                       | 12                       | 12                       | 12                       | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [N•m]              | 9          | 18                     | 28                     | 35                       | 45                       | 45                       | 45                       | 45                       | —   | —   | —   | —    | —    | —    | —    |
| <b>Cross section per UL/CSA</b>                                           |                |                    |            |                        |                        |                          |                          |                          |                          |                          |     |     |     |      |      |      |      |
|                                                                           | (1) conductor  | [AWG]              | 3...3/0    | 6...300 <sup>(1)</sup> | 4...400 <sup>(1)</sup> | —                        | —                        | —                        | —                        | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Clamp type     |                    | 100-ECL146 | 100-ETL205             | 100-ETL370             | —                        | —                        | —                        | —                        | —                        | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [lb-in]            | 80         | 300                    | 375                    | —                        | —                        | —                        | —                        | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | (2) conductors | [AWG]              | 6...3/0    | —                      | 4...500 <sup>(1)</sup> | 2/0...500 <sup>(1)</sup> | 2/0...500 <sup>(1)</sup> | 4/0...500 <sup>(1)</sup> | 1/0...750 <sup>(1)</sup> | 2/0...500 <sup>(1)</sup> | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Clamp type     |                    | 100-ECL146 | —                      | 100-ETL370B            | 100-ETL580               | 100-ETL750               | 100-ETL860               | 100-ETL1060              | 100-ETL750               | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [lb-in]            | 80         | —                      | 375                    | 275                      | 375                      | 375                      | 500                      | 375                      | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | (3) conductors | [AWG]              | —          | —                      | —                      | —                        | 2/0...500 <sup>(1)</sup> | 4/0...500 <sup>(1)</sup> | 1/0...750 <sup>(1)</sup> | 2/0...500 <sup>(1)</sup> | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Clamp type     |                    | —          | —                      | —                      | —                        | 100-ETL750               | 100-ETL860               | 100-ETL1060              | 100-ETL750               | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [lb-in]            | —          | —                      | —                      | —                        | 375                      | 375                      | 500                      | 375                      | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | (4) conductors | [AWG]              | —          | —                      | —                      | —                        | —                        | 4/0...500 <sup>(1)</sup> | 1/0...750 <sup>(1)</sup> | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Clamp type     |                    | —          | —                      | —                      | —                        | —                        | 100-ETL860               | 100-ETL1060              | —                        | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [lb-in]            | —          | —                      | —                      | —                        | —                        | 375                      | 500                      | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | (6) conductors | [AWG]              | —          | —                      | —                      | —                        | —                        | —                        | 1/0...750 <sup>(1)</sup> | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Clamp type     |                    | —          | —                      | —                      | —                        | —                        | —                        | 100-ETL1060B             | —                        | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [lb-in]            | —          | —                      | —                      | —                        | —                        | —                        | 500                      | —                        | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | L max.         | [in]               | 0.866      | 0.945                  | 1.26                   | 1.85                     | 1.97                     | 3.94                     | 1.97                     | 3.94                     | —   | —   | —   | —    | —    | —    | —    |
|                                                                           | Ø min.         | [in]               | 0.236      | 0.315                  | 0.394                  | 0.394                    | 0.472                    | 0.472                    | 0.472                    | 0.472                    | —   | —   | —   | —    | —    | —    | —    |
| Recommended torque                                                        |                | [lb-in]            | 80         | 160                    | 248                    | 310                      | 398                      | 398                      | 398                      | 398                      | —   | —   | —   | —    | —    | —    | —    |

| 100/104-E, 100S-E                                                                 |                | 116                                                                               | 146        | 190 | 205 | 265 | 305 | 370 | 400 | 460 | 580 | 750 | 860 | 1060 | 1260 | 2050 | 2650 |
|-----------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| <b>Conductor Cross Sections<br/>— Coil Terminals (Terminal type)</b>              |                |  |            |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
|  | (1) conductor  | [mm <sup>2</sup> ]                                                                | 0.75...2.5 |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
|                                                                                   | (2) conductors | [mm <sup>2</sup> ]                                                                | 0.75...2.5 |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
|  | (1) conductor  | [mm <sup>2</sup> ]                                                                | 1...4      |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
|                                                                                   | (2) conductors | [mm <sup>2</sup> ]                                                                | 1...4      |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Recommended torque                                                                |                | [N·m]                                                                             | 1...1.2    |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Cross section per UL/CSA                                                          |                | [AWG]                                                                             | 18...14    |     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Recommended torque                                                                |                | [lb-in]                                                                           | 8.9...10.6 |     |     |     |     |     |     |     |     |     |     |      |      |      |      |

(1) MCM

|                                                                        |                                                                                     |     | Auxiliary contact for 100/104-E, 100S-E |                     |                      |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|-----------------------------------------|---------------------|----------------------|
|                                                                        |                                                                                     |     | Standard 100-ES1/2*                     | Standard 100-ES3/4* | Low Power 100-ES*-B* |
| <b>Switching of AC Loads</b>                                           |                                                                                     |     |                                         |                     |                      |
| Rated Insulation voltage $U_i$                                         |                                                                                     |     | 690V                                    | 690V                | 250V                 |
| Rated operational voltage $U_e$                                        |                                                                                     |     | 690V                                    | 690V                | 125V                 |
| Rated impulse withstand voltage $U_{imp}$                              |                                                                                     |     | 6kV                                     | 6kV                 | 1.5kV                |
| AC-12 $I_{th}$                                                         | at 40 °C                                                                            | [A] | 16                                      | 16                  | 0.1                  |
|                                                                        | at 60 °C                                                                            | [A] | —                                       | —                   | —                    |
| AC-14 at rated voltage of                                              | 24V                                                                                 | [A] | —                                       | —                   | 0.1                  |
|                                                                        | 42/48V                                                                              | [A] | —                                       | —                   | 0.1                  |
|                                                                        | 120V                                                                                | [A] | —                                       | —                   | 0.1                  |
| AC-15 at rated voltage of                                              | 24V                                                                                 | [A] | 6                                       | 6                   | —                    |
|                                                                        | 42/48V                                                                              | [A] | 6                                       | 6                   | —                    |
|                                                                        | 120V                                                                                | [A] | 6                                       | 6                   | —                    |
|                                                                        | 230V                                                                                | [A] | 4                                       | 4                   | —                    |
|                                                                        | 240V                                                                                | [A] | 4                                       | 4                   | —                    |
|                                                                        | 400V                                                                                | [A] | 3                                       | 3                   | —                    |
|                                                                        | 415V                                                                                | [A] | 3                                       | 3                   | —                    |
|                                                                        | 500V                                                                                | [A] | 2                                       | 2                   | —                    |
|                                                                        | 690V                                                                                | [A] | 2                                       | 2                   | —                    |
| <b>Switching of DC Loads</b>                                           |                                                                                     |     |                                         |                     |                      |
| DC-12 L/R < 1 ms resistive loads at                                    | 24V DC                                                                              | [A] | —                                       | —                   | 0.1                  |
|                                                                        | 48V DC                                                                              | [A] | —                                       | —                   | 0.1                  |
|                                                                        | 110V DC                                                                             | [A] | —                                       | —                   | 0.1                  |
|                                                                        | 220V DC                                                                             | [A] | —                                       | —                   | —                    |
|                                                                        | 440V DC                                                                             | [A] | —                                       | —                   | —                    |
| DC-14 L/R < 15 ms inductive loads with economy resistor in series at   | 24V DC                                                                              | [A] | —                                       | —                   | —                    |
|                                                                        | 48V DC                                                                              | [A] | —                                       | —                   | —                    |
|                                                                        | 110V DC                                                                             | [A] | —                                       | —                   | —                    |
|                                                                        | 220V DC                                                                             | [A] | —                                       | —                   | —                    |
|                                                                        | 440V DC                                                                             | [A] | —                                       | —                   | —                    |
| DC-13 switching electromagnets at                                      | 24V DC                                                                              | [A] | 3                                       | 6                   | —                    |
|                                                                        | 48V DC                                                                              | [A] | 1.5                                     | 2.8                 | —                    |
|                                                                        | 110V DC                                                                             | [A] | 0.55                                    | 0.55                | —                    |
|                                                                        | 220V DC                                                                             | [A] | 0.3                                     | 0.3                 | —                    |
|                                                                        | 440V DC                                                                             | [A] | —                                       | —                   | —                    |
| <b>Fuse gG</b>                                                         |                                                                                     |     |                                         |                     |                      |
| Short-circuit protection with no welding of contacts per IEC 60947-5-2 |  | [A] | 10                                      | 10                  | 0.1                  |
|                                                                        |  | [A] | 10                                      | 10                  | 0.1                  |
| Protective Separation per IEC 60947-1, Annex N                         |                                                                                     |     |                                         |                     |                      |

|                                              |       |     | Auxiliary contact for 100/104-E, 100S-E |                     |                      |
|----------------------------------------------|-------|-----|-----------------------------------------|---------------------|----------------------|
|                                              |       |     | Standard 100-ES1/2*                     | Standard 100-ES3/4* | Low Power 100-ES*-B* |
| Min. switching capacity at 24V IEC 60947-5-4 | [mA]  |     | 50                                      | 50                  | —                    |
| Min. switching capacity at 3V IEC 60947-5-4  | [mA]  |     | —                                       | —                   | 1                    |
| <b>Load Carrying Capacity per UL/CSA</b>     |       |     |                                         |                     |                      |
| Rated voltage                                | AC    | [V] | 600                                     | 600                 | 125                  |
| Continuous rating                            | 40 °C | [A] | 10                                      | 10                  | 0.1                  |
| Switching capacity                           | AC    |     | A 600                                   | A 600               | —                    |
| Rated voltage                                | DC    | [V] | 250                                     | 250                 | 125                  |
| Continuous rating                            | 40 °C | [A] | 2.5                                     | 2.5                 | 0.1                  |
| Switching capacity                           | DC    |     | P 600                                   | Q 300               | —                    |

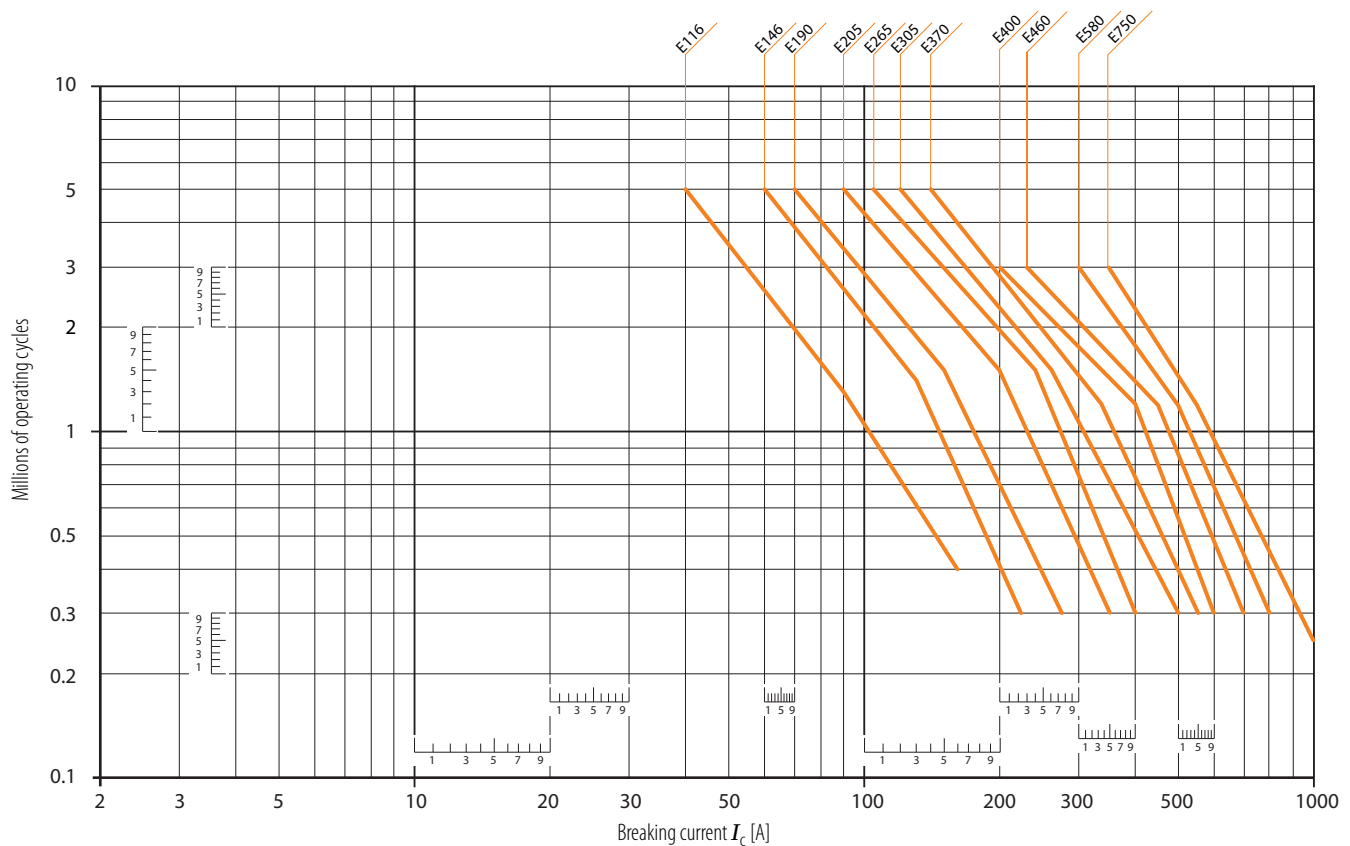
## Life-Load Curves

### 3-pole contactors — Electrical durability

**Figure 21 - Electrical durability for AC-1 utilization category -  $U_e \leq 690V$**

Switching non-inductive or slightly inductive loads. The breaking current  $I_c$  for AC-1 is equal to the rated operational current of the load.

Ambient temperature (see [page 81](#)) and maximum electrical switching frequency (see [page 87](#)).

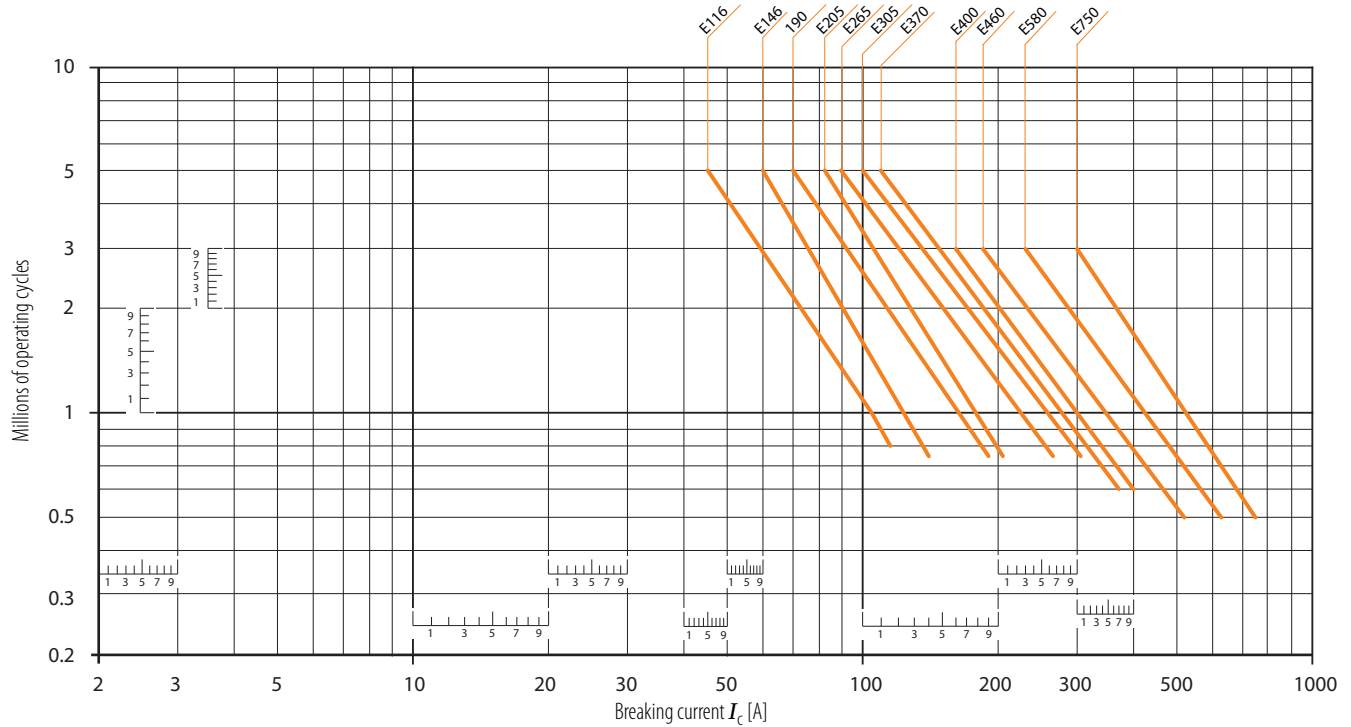


**Cat. Nos. 100-E860, -E1060:** The electrical durability at the rated current is 50,000 operating cycles.

**Figure 22 - Electrical durability for AC-3 utilization category -  $U_e \leq 440V$** 

Switching cage motors: starting and switching off running motors. The breaking current  $I_c$  for AC-3 is equal to the rated operational current  $I_e$  ( $I_e$  = motor full load current).

For ambient temperature (see [page 81](#)) and maximum electrical switching frequency (see [page 87](#)).

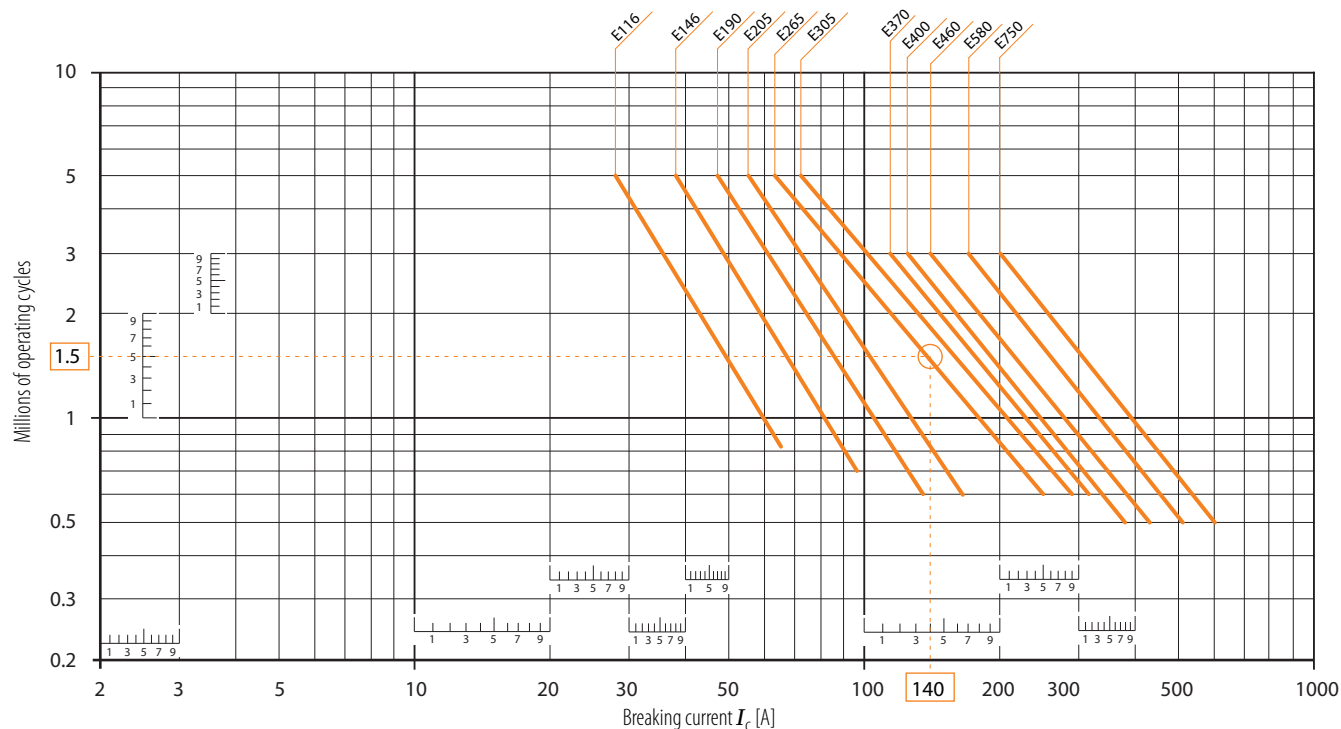


**Cat. Nos. 100-E860, -E1060:** The electrical durability at the rated current is 50,000 operating cycles.

**Figure 23 - Electrical durability for AC-3 utilization category -  $440V < U_e \leq 690V$** 

Switching cage motors: starting and switching off running motors. The breaking current  $I_c$  for AC-3 is equal to the rated operational current  $I_e$  ( $I_e$  = motor full load current).

For ambient temperature (see [page 81](#)) and maximum electrical switching frequency (see [page 87](#)).

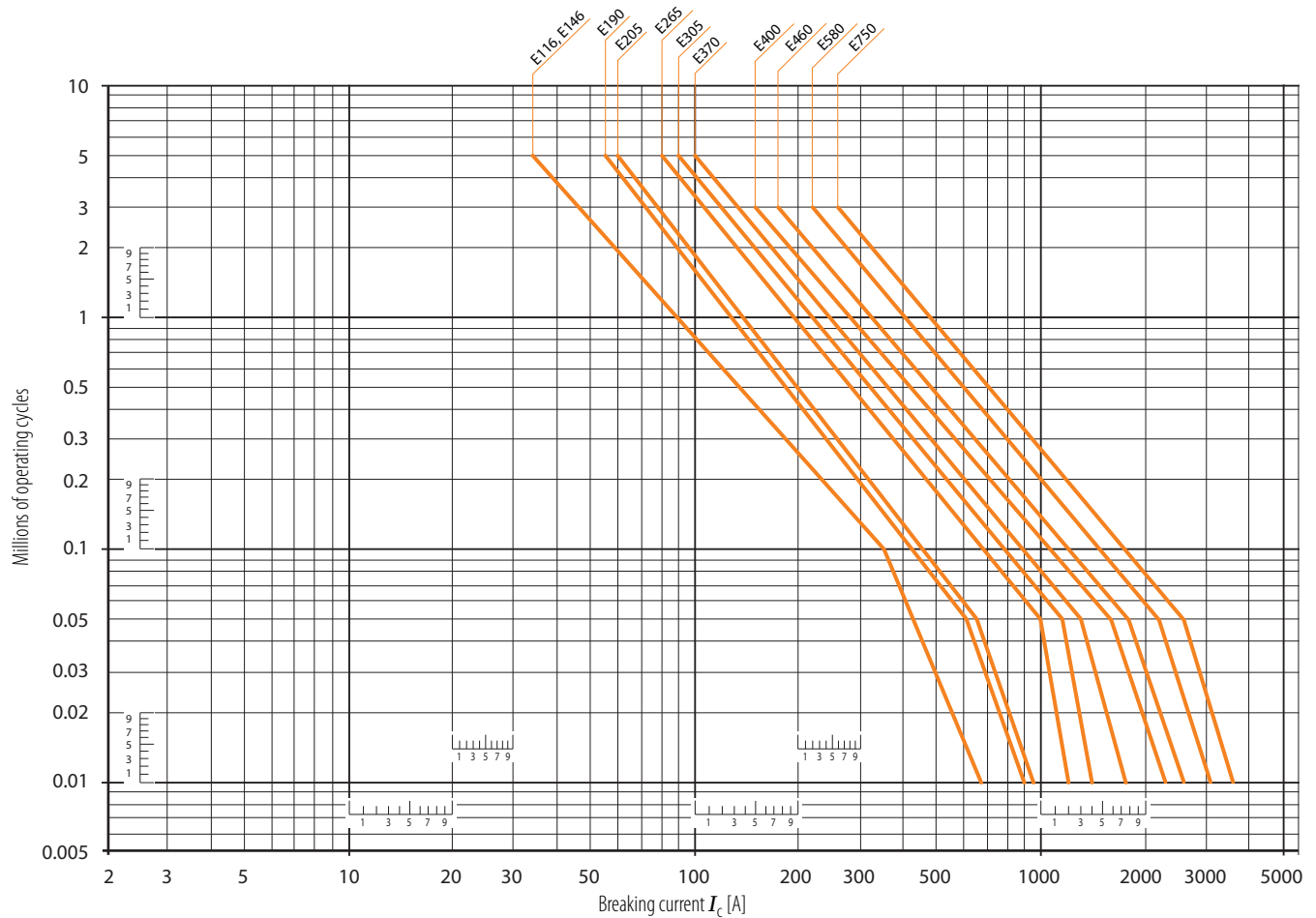


**Cat. Nos. 100-E860, -E1060:** The electrical durability at the rated current is 50,000 operating cycles.

**Figure 24 - Electrical durability for AC-2 or AC-4 utilization category -  $U_e \leq 440V$** 

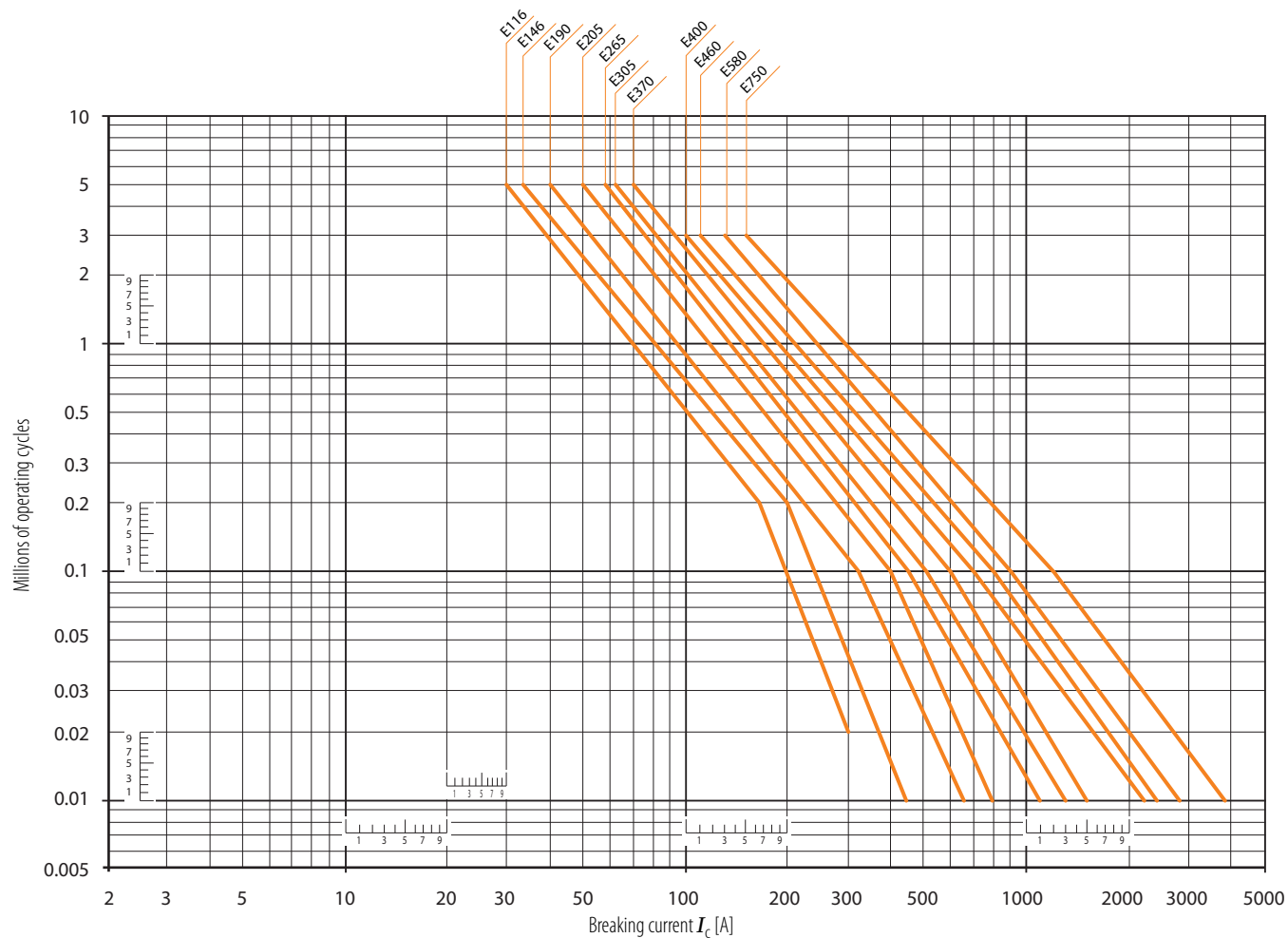
Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current  $I_c$  is equal to  $2.5 \times I_e$  for AC-2 and  $6 \times I_e$  for AC-4,

keeping in mind that  $I_e$  is the motor rated operational current ( $I_e$  = motor full-load current). For maximum electrical switching frequency (see [page 87](#)).



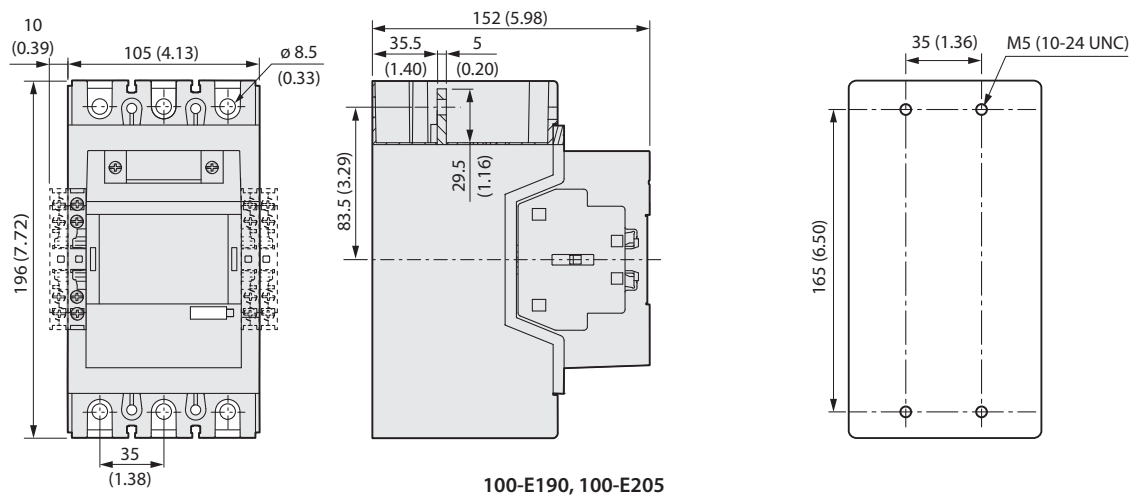
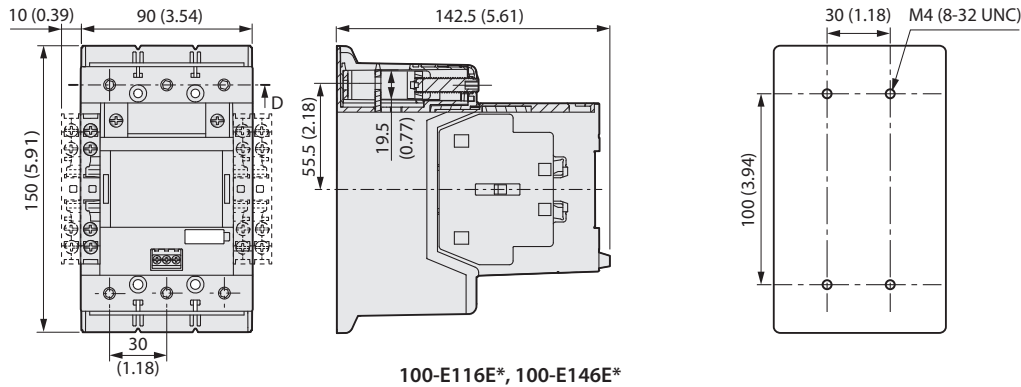
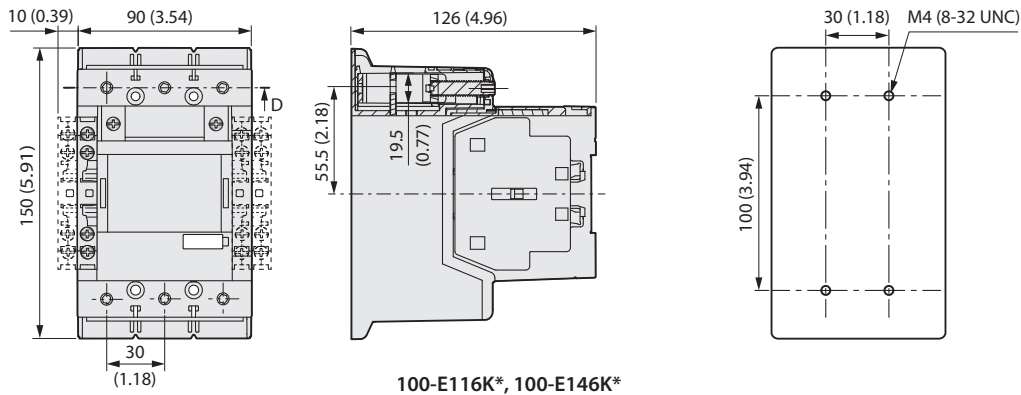
**Figure 25 - Electrical durability for AC-2 or AC-4 utilization category -  $440V < U_e \leq 690V$** 

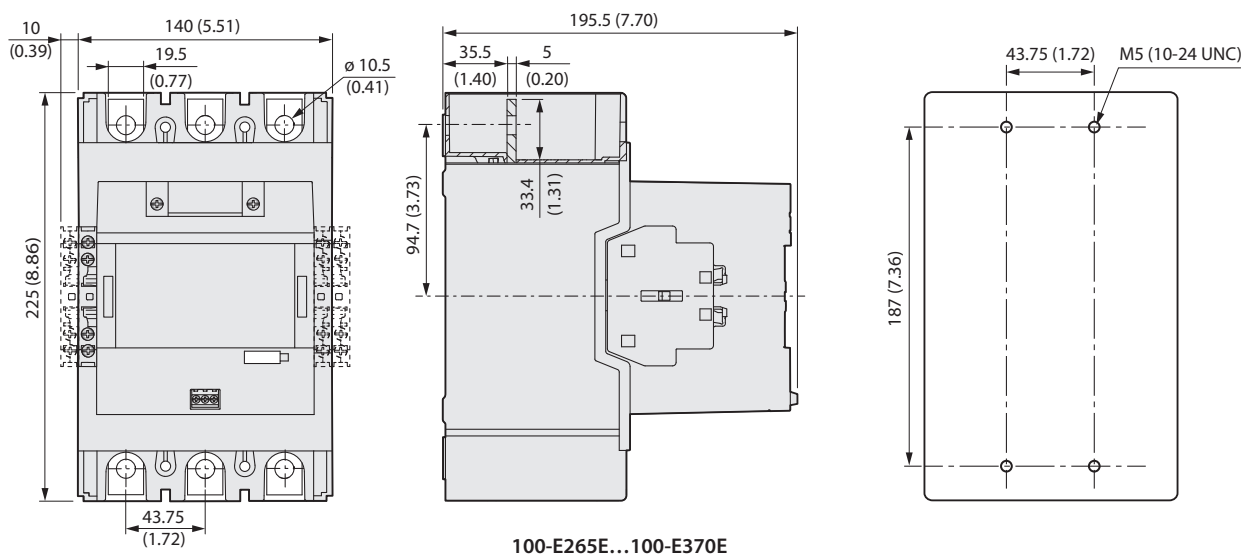
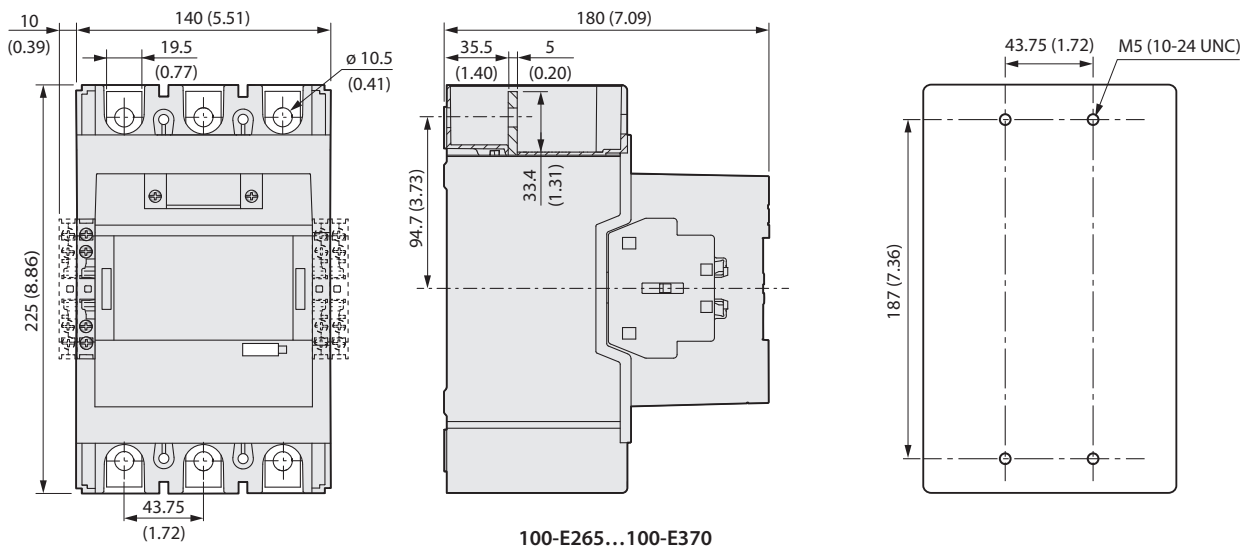
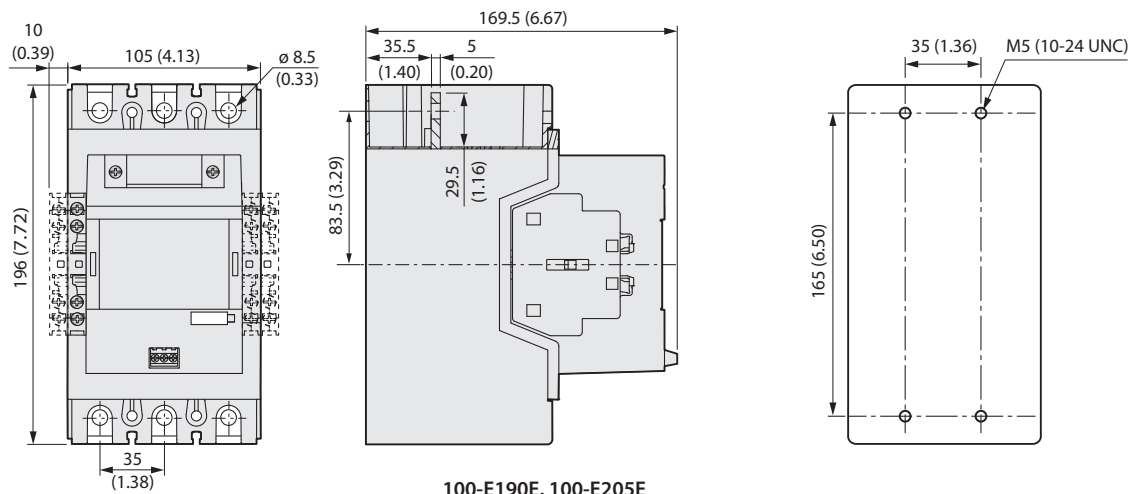
Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current  $I_c$  is equal to  $2.5 \times I_e$  for AC-2 and  $6 \times I_e$  for AC-4, keeping in mind that  $I_e$  is the motor rated operational current ( $I_e$  = motor full load current). For maximum electrical switching frequency (see [page 87](#)).

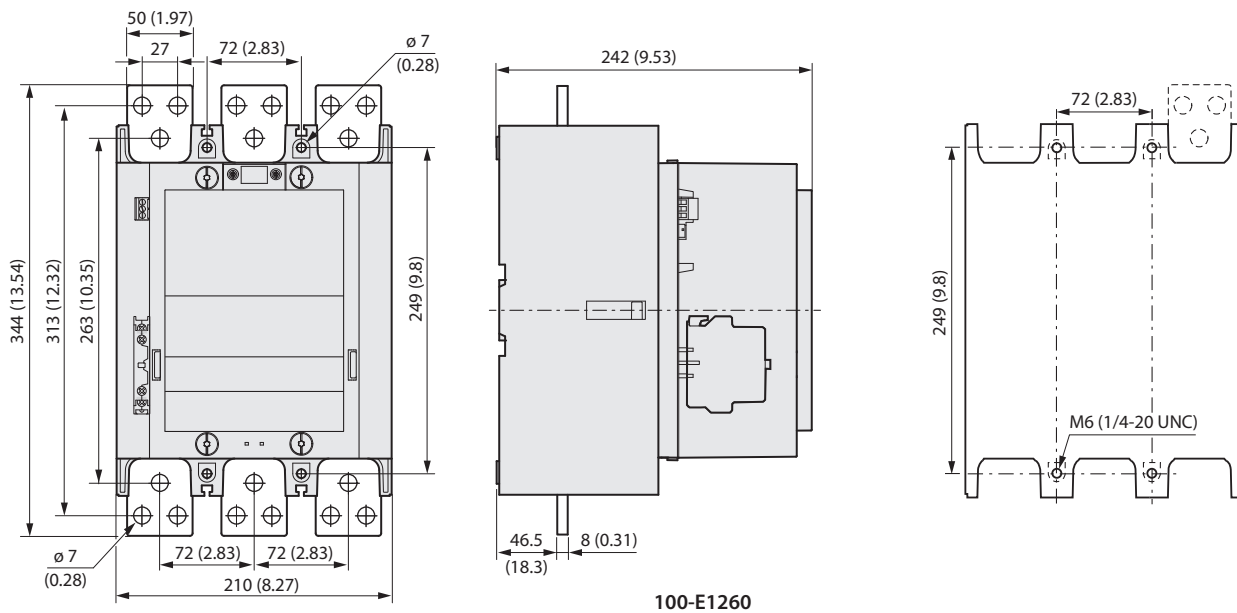
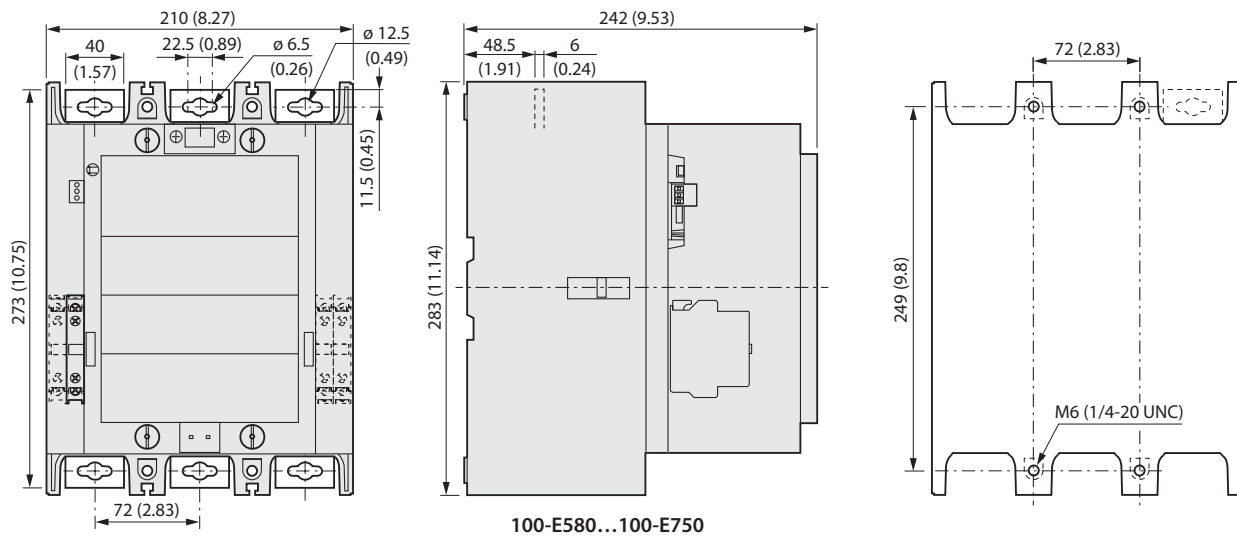
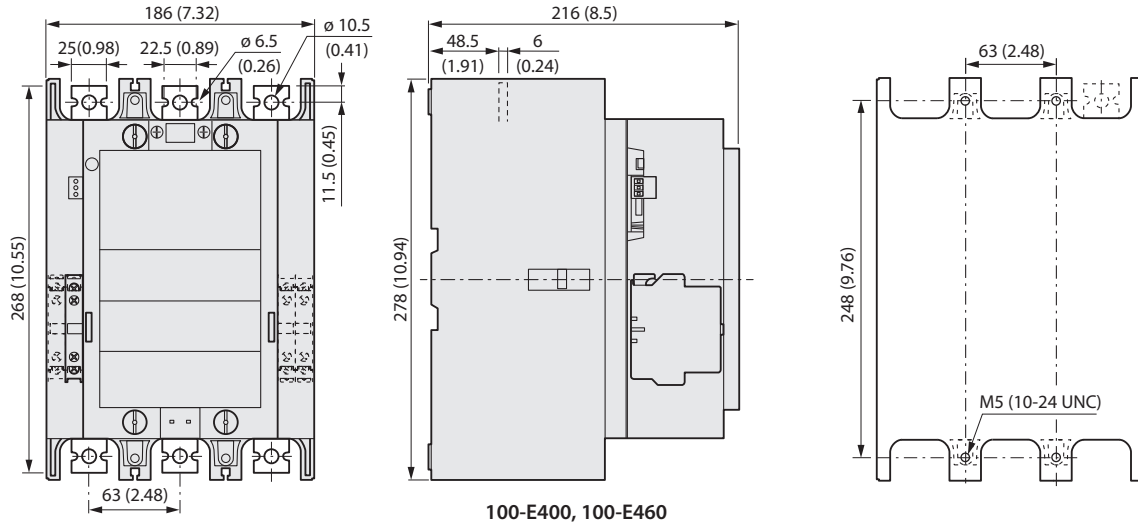


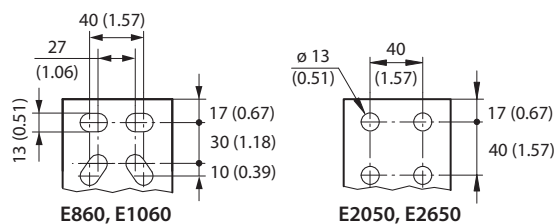
# Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

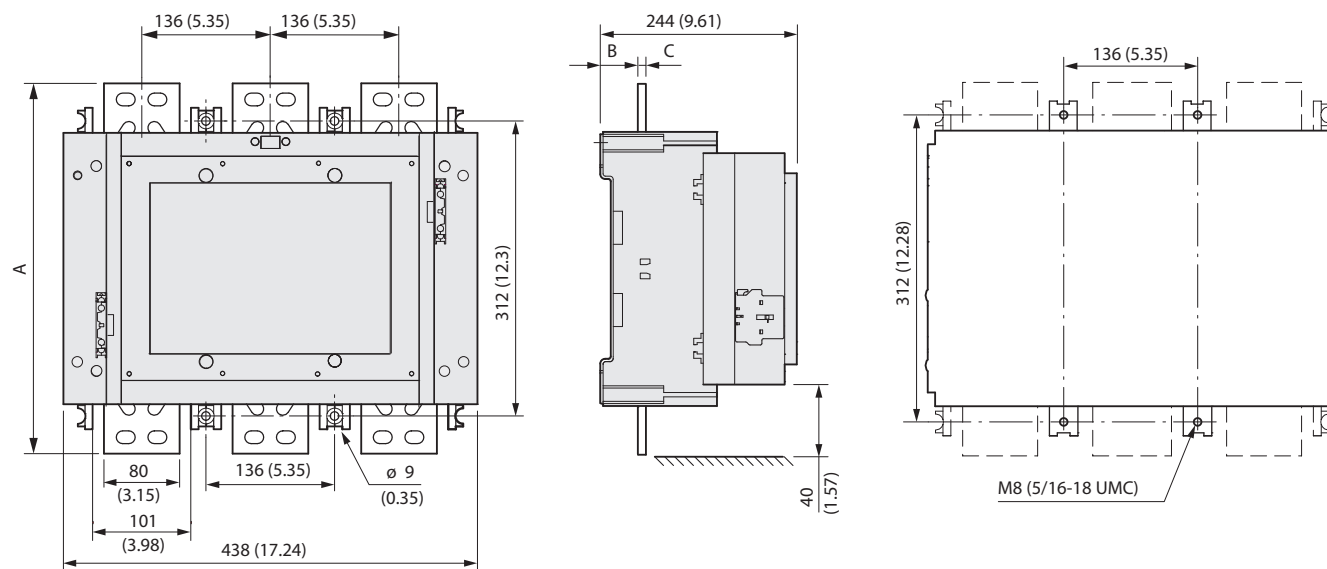








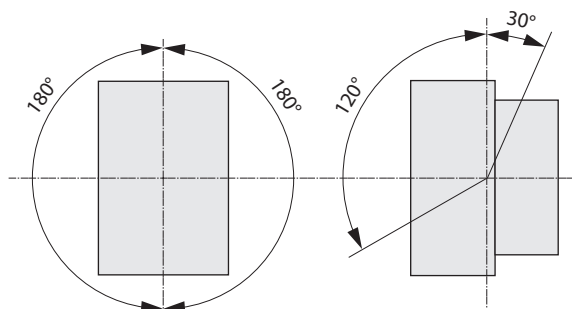
|   | E860, E1060, E2050 | E2650       |
|---|--------------------|-------------|
| A | 392 (15.43)        | 422 (16.61) |
| B | 47 (1.85)          | 53 (2.09)   |
| C | 10 (0.39)          | 25 (0.98)   |



100-E860, 100-E1060, 100-E2050, 100-E2650

## Mounting Position

Figure 26 - 100-E116...100-E2650 — AC/DC and AC/DC with PLC input



# 100-D/104-D, 100S-D Contactors

---

## Product Selection—100-D/104-D Contactors

- 63...500 kW @ 400V
- 75...600 Hp @ 460V
- 100...700 Hp @ 575V
- Electronic and conventional coils AC & DC
  - Integrated PLC interface
  - Low power pick-up & hold-in
  - Wide voltage ranges
- Complete range of accessories
- Environmentally friendly
- Compact dimensions



100-D Contactor

The Bulletin 100-D/104-D contactor family, along with a wide range of common accessories and Bulletin 193 electronic overload relays, provides the most compact and flexible starter component system available.

Bulletin 100S-D safety contactors were designed to address the needs of modern safety applications requiring feedback and monitoring of the energy isolating switchgear used in hazardous motion loads.

The 100S-D meets these needs through its "mirror contact" design. If a power contact welds, the N.C. auxiliary contacts will not change state. This feature provides reliable indication about the open/closed status of the main power poles. In addition, the gold-plated bifurcated auxiliary contacts are ideally suited for low-energy applications or feedback control circuits with multiple series-connected N.C. auxiliary contacts.

## 100-D/104-D 3-Pole AC- Operated Contactors

- Conventional and Electronic AC Coils
- 3 Main Contacts
- Non-Reversing or Reversing

| Rated Operational Current $I_e$ [A] |             | Ratings for switching AC motors - AC-2, AC-3 |      |      |      |      |       |      |            |      |      | Auxiliary Contacts                                                                  |                                                                                     | Non-Reversing Contactor | Reversing Contactor |
|-------------------------------------|-------------|----------------------------------------------|------|------|------|------|-------|------|------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|---------------------|
| 60 °C                               | 40 °C       | kW (50 Hz)                                   |      |      |      |      |       |      | Hp (60 Hz) |      |      |  |  |                         |                     |
| AC-3 (400V)                         | AC-1 (690V) | 230V                                         | 400V | 415V | 500V | 690V | 1000V | 200V | 230V       | 460V | 575V | N.O.                                                                                | N.C.                                                                                | Cat No.                 | Cat No.             |
| 115                                 | 250         | 37                                           | 63   | 66   | 80   | 110  | 63    | 40   | 40         | 75   | 100  | 0                                                                                   | 0                                                                                   | 100-D115⊗00             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      | 1                                                                                   | 1                                                                                   | 100-D115⊗11             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 4                                                                                   | —                       | 104-D115⊗24         |
| 140                                 | 250         | 45                                           | 78   | 82   | 80   | 111  | 75    | 40   | 50         | 100  | 125  | 1                                                                                   | 1                                                                                   | 100-D140⊗00             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | 100-D140⊗00             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | —                       | 104-D140⊗24         |
| 180                                 | 250         | 55                                           | 90   | 90   | 110  | 90   | 132   | 110  | 50         | 60   | 125  | 0                                                                                   | 0                                                                                   | 100-D180⊗00             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | 100-D180⊗11             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | —                       | 104-D180⊗24         |
| 210                                 | 350         | 63                                           | 118  | 125  | 205  | 200  | 110   | 60   | 75         | 150  | 200  | 0                                                                                   | 0                                                                                   | 100-D210⊗00             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | 100-D210⊗11             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | —                       | 104-D210⊗24         |
| 250                                 | 350         | 80                                           | 140  | 150  | 250  | 250  | 132   | 75   | 100        | 200  | 250  | 0                                                                                   | 0                                                                                   | 100-D250⊗00             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | 100-D250⊗11             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | —                       | 104-D250⊗24         |
| 300                                 | 450         | 90                                           | 170  | 160  | 290  | 300  | 160   | 100  | 125        | 250  | 300  | 0                                                                                   | 0                                                                                   | 100-D300⊗00             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | 100-D300⊗11             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | —                       | 104-D300⊗24         |
| 420                                 | 540         | 132                                          | 238  | 250  | 420  | 425  | 220   | 150  | 175        | 350  | 400  | 0                                                                                   | 0                                                                                   | 100-D420⊗00             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | 100-D420⊗11             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | —                       | 104-D420⊗24         |
| 630                                 | 800         | 200                                          | 355  | 355  | 500  | 500  | —     | 200  | 250        | 500  | 600  | 0                                                                                   | 0                                                                                   | 100-D630⊗00             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | 100-D630⊗11             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | —                       | 104-D630⊗24         |
| 860                                 | 1000        | 250                                          | 500  | 500  | 500  | 600  | —     | 250  | 300        | 600  | 700  | 0                                                                                   | 0                                                                                   | 100-D860⊗00             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | 100-D860⊗11             | —                   |
|                                     |             |                                              |      |      |      |      |       |      |            |      |      |                                                                                     |                                                                                     | —                       | 104-D860⊗24         |

### 3-Pole DC-operated Contactors

- Conventional and Electronic DC Coils
- 3 Main Contacts
- Non-Reversing or Reversing

| Rated<br>Operational<br>Current $I_e$ [A] |                | Ratings for switching AC motors - AC-2, AC-3 |      |      |      |      |       |      |            |      |      | Auxiliary<br>Contacts                                                               |                                                                                     | Non-Reversing<br>Contactor | Reversing<br>Contactor |
|-------------------------------------------|----------------|----------------------------------------------|------|------|------|------|-------|------|------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------|------------------------|
| 60 °C                                     | 40 °C          | kW (50 Hz)                                   |      |      |      |      |       |      | Hp (60 Hz) |      |      |  |  |                            |                        |
| AC-3<br>(400V)                            | AC-1<br>(690V) | 230V                                         | 400V | 415V | 500V | 690V | 1000V | 200V | 230V       | 460V | 575V | N.O.                                                                                | N.C.                                                                                | Cat No.                    | Cat No.                |
| 115                                       | 250            | 37                                           | 63   | 66   | 80   | 110  | 63    | 40   | 40         | 75   | 100  | 0                                                                                   | 0                                                                                   | 100-D115⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 1                                                                                   | 1                                                                                   | 100-D115⊗11                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 1/1L                                                                                | 100-D115⊗22L               | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 4                                                                                   | —                          | 104-D115⊗24            |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 2/2L                                                                                | —                          | 104-D115⊗22L           |
| 140                                       | 250            | 45                                           | 78   | 82   | 80   | 111  | 75    | 40   | 50         | 100  | 125  | 0                                                                                   | 0                                                                                   | 100-D140⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 1                                                                                   | 1                                                                                   | 100-D140⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 1/1L                                                                                | 100-D140⊗22L               | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 4                                                                                   | —                          | 104-D140⊗24            |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 2/2L                                                                                | —                          | 104-D140⊗22L           |
| 180                                       | 250            | 55                                           | 90   | 90   | 110  | 90   | 132   | 110  | 50         | 60   | 125  | 0                                                                                   | 0                                                                                   | 100-D180⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 1                                                                                   | 1                                                                                   | 100-D180⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 1/1L                                                                                | 100-D180⊗22L               | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 4                                                                                   | —                          | 104-D180⊗24            |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 2/2L                                                                                | —                          | 104-D180⊗22L           |
| 210                                       | 350            | 63                                           | 118  | 125  | 205  | 200  | 110   | 60   | 75         | 150  | 200  | 0                                                                                   | 0                                                                                   | 100-D210⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 1                                                                                   | 1                                                                                   | 100-D210⊗11                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 4                                                                                   | —                          | 104-D210⊗24            |
| 250                                       | 350            | 80                                           | 140  | 150  | 250  | 250  | 132   | 75   | 100        | 200  | 250  | 0                                                                                   | 0                                                                                   | 100-D250⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 1                                                                                   | 1                                                                                   | 100-D250⊗11                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 4                                                                                   | —                          | 104-D250⊗24            |
| 300                                       | 450            | 90                                           | 170  | 160  | 290  | 300  | 160   | 100  | 125        | 250  | 300  | 0                                                                                   | 0                                                                                   | 100-D300⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 1                                                                                   | 1                                                                                   | 100-D300⊗11                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 4                                                                                   | —                          | 104-D300⊗24            |
| 420                                       | 540            | 132                                          | 238  | 250  | 420  | 425  | 220   | 150  | 175        | 350  | 400  | 0                                                                                   | 0                                                                                   | 100-D420⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 1                                                                                   | 1                                                                                   | 100-D420⊗11                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 4                                                                                   | —                          | 104-D420⊗24            |
| 630                                       | 800            | 200                                          | 355  | 355  | 500  | 500  | —     | 200  | 250        | 500  | 600  | 0                                                                                   | 0                                                                                   | 100-D630⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 1                                                                                   | 1                                                                                   | 100-D630⊗11                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 4                                                                                   | —                          | 104-D630⊗24            |
| 860                                       | 1000           | 250                                          | 500  | 500  | 500  | 600  | —     | 250  | 300        | 600  | 700  | 0                                                                                   | 0                                                                                   | 100-D860⊗00                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 1                                                                                   | 1                                                                                   | 100-D860⊗11                | —                      |
|                                           |                |                                              |      |      |      |      |       |      |            |      |      | 2                                                                                   | 4                                                                                   | —                          | 104-D860⊗24            |

## Coil Voltage Codes—100-D/104-D Contactors

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60 Hz: Cat. No. 100-D115Ø11 becomes Cat. No.100-D115D11.

| AC Voltages [V], Conventional Coil |          | 24 | 48 | 100 | 110 | 120 | 200 | 208 | 220...230 | 230 | 240 | 277 | 380...400 |
|------------------------------------|----------|----|----|-----|-----|-----|-----|-----|-----------|-----|-----|-----|-----------|
| 100-D115...100-D180                | 50 Hz    | K  | Y  | —   | D   | —   | —   | —   | A         | —   | T   | —   | N         |
|                                    | 60 Hz    | J  | X  | —   | —   | D   | —   | H   | —         | —   | A   | T   | —         |
| 100-D115                           | 50/60 Hz | —  | —  | KP  | KN  | —   | KG  | —   | KL        | KF  | KA  | KT  | —         |

| AC Voltages [V], Conventional Coil |          | 415 | 440 | 480 | 500 | 550 | 600 |
|------------------------------------|----------|-----|-----|-----|-----|-----|-----|
| 100-D115...100-D180                | 50 Hz    | B   | G   | —   | M   | C   | —   |
|                                    | 60 Hz    | —   | N   | B   | —   | —   | C   |
| 100-D115                           | 50/60 Hz | —   | —   | —   | —   | —   | —   |

| AC Voltages [V], Electronic Coil w/ El. Interface <sup>(1)</sup> |          | 24                | 42...64 | 100 | 110...130 | 200 | 208...277 | 200...220 |
|------------------------------------------------------------------|----------|-------------------|---------|-----|-----------|-----|-----------|-----------|
| 100-D115...100-D300                                              | 50/60 Hz | EJ <sup>(2)</sup> | EY      | —   | ED        | —   | EA        | —         |
| 100-D420                                                         | 50/60 Hz | —                 | —       | —   | ED        | —   | EA        | —         |
| 100-D630...100-D860                                              | 50/60 Hz | —                 | —       | EP  | ED        | EG  | —         | EG        |

| AC Voltages [V], Electronic Coil w/ El. Interface <sup>(1)</sup> |          | 230...250 | 277 | 380...415 | 380...500 | 440...480 | 500 |
|------------------------------------------------------------------|----------|-----------|-----|-----------|-----------|-----------|-----|
| 100-D115...100-D300                                              | 50/60 Hz | —         | —   | —         | EN        | —         | —   |
| 100-D420                                                         | 50/60 Hz | —         | —   | —         | EN        | —         | —   |
| 100-D630...100-D860                                              | 50/60 Hz | EA        | ET  | EN        | —         | EB        | EM  |

(1) Signal voltage of the Cat. No. 100-D... electronic interface: nominal  $U_g$ : 24V DC/ $I_g$ : 15 mA

Pickup voltage: 13.0V DC...30.2V DC

Dropout Voltage: -3.0V DC...+5.0V DC

(2) Not available with 100/104-D300.

| DC Voltages [V], Conventional Coil |  | 24 | 48 | 110 | 125 | 220 |
|------------------------------------|--|----|----|-----|-----|-----|
| 100-D115...100-D180 <sup>(1)</sup> |  | ZJ | ZY | ZD  | ZS  | ZA  |

(1) For conventional DC coils, the pickup winding must be interconnected with the N.C. late-breaking auxiliary contact(s).

| DC Voltages [V], Electronic Coil w/ El Interface <sup>(1)</sup> |  | 24  | 48...72 | 110...130 | 200...255 |
|-----------------------------------------------------------------|--|-----|---------|-----------|-----------|
| 100-D115...100-D300                                             |  | EZJ | EZY     | EZD       | EZA       |
| 100-D420                                                        |  | —   | —       | EZD       | EZA       |
| 100-D630...100-D860                                             |  | —   | —       | ED        | EA        |

(1) Signal voltage of the Cat. No. 100-D... electronic interface: nominal  $U_g$ : 24V DC/ $I_g$ : 15 mA

Pickup voltage: 13.0V DC...30.2V DC, Dropout Voltage: -3.0V DC...+5.0V DC.

# Product Selection—100S-D Safety Contactors

- 63...500 kW @ 400V
- 75...600 Hp @ 460V
- 100...700 Hp @ 575V
- Electronic and conventional coils
  - AC & DC
  - Integrated PLC interface
  - Low power pick-up & hold-in
  - Wide voltage ranges
- Complete range of accessories
- Environmentally friendly
- Compact dimensions



Bulletin 100S-D safety contactors were designed to address the needs of modern safety applications requiring feedback and monitoring of the energy isolating switchgear used in hazardous motion loads. The 100S-D meets these needs through its "mirror contact" design. If a power contact welds, the N.C. auxiliary contacts will not change state. This feature provides reliable indication about the open/closed status of the main power poles. In addition, the gold-plated bifurcated auxiliary contacts are ideally suited for low-energy applications or feedback control circuits with multiple series-connected N.C. auxiliary contacts.

## 3-Pole AC-Operated Contactors

| Rated Operational Current $I_e$ [A] |             | Ratings for switching AC motors - AC-2, AC-3 |      |       |                     |         |       |      |            |      |      | Auxiliary Contacts                                                                    |                                                                                       | Cat No. <sup>(4)</sup>   |
|-------------------------------------|-------------|----------------------------------------------|------|-------|---------------------|---------|-------|------|------------|------|------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------|
| 60 °C                               | 40 °C       | kW (50 Hz) <sup>(1)</sup>                    |      |       |                     |         |       |      | Hp (60 Hz) |      |      |  |  |                          |
| AC-3 (400V)                         | AC-1 (690V) | 230V                                         | 400V | 415V  | 500V <sup>(2)</sup> | 690V    | 1000V | 200V | 230V       | 460V | 575V | N.O.                                                                                  | N.C. <sup>(3)</sup>                                                                   |                          |
| 115                                 | 250         | 37                                           | 63   | 66/75 | 80                  | 111     | 63    | 40   | 40         | 75   | 100  | 2                                                                                     | 2                                                                                     | 100S-D115 $\otimes$ 22BC |
| 140                                 | 250         | 45                                           | 78   | 82/90 | 80/100              | 110/132 | 75    | 40   | 50         | 100  | 125  | 2                                                                                     | 2                                                                                     | 100S-D140 $\otimes$ 22BC |
| 180                                 | 250         | 55                                           | 101  | 100   | 90/125              | 132/160 | 90    | 50   | 60         | 150  | 150  | 2                                                                                     | 2                                                                                     | 100S-D180 $\otimes$ 22BC |
| 210                                 | 350         | 63                                           | 118  | 110   | 205                 | 200     | 110   | 60   | 75         | 150  | 200  | 2                                                                                     | 2                                                                                     | 100S-D210 $\otimes$ 22BC |
| 250                                 | 350         | 80                                           | 140  | 150   | 250                 | 250     | 133   | 75   | 100        | 200  | 250  | 2                                                                                     | 2                                                                                     | 100S-D250 $\otimes$ 22BC |
| 300                                 | 450         | 90                                           | 170  | 160   | 290                 | 300     | 160   | 100  | 125        | 250  | 300  | 2                                                                                     | 2                                                                                     | 100S-D300 $\otimes$ 22BC |
| 420                                 | 540         | 132                                          | 238  | 250   | 420                 | 425     | 220   | 150  | 175        | 350  | 400  | 2                                                                                     | 2                                                                                     | 100S-D420 $\otimes$ 22BC |
| 630                                 | 800         | 200                                          | 355  | 355   | 500                 | 500     | —     | 200  | 250        | 500  | 600  | 2                                                                                     | 2                                                                                     | 100S-D630 $\otimes$ 22BC |
| 860                                 | 1000        | 250                                          | 500  | 500   | 500                 | 600     | —     | 250  | 300        | 600  | 700  | 2                                                                                     | 2                                                                                     | 100S-D860 $\otimes$ 22BC |

(1) Preferred values according to IEC 60072-1.

(2) Higher kW rating only applies to contactors with electronic coil.

(3) The N.C. contacts meet IEC 60947-4 Annex F requirements for mirror contact performance. The N.C. mirror contacts are wired in series or parallel and must be used as monitoring contacts with feedback to the safety circuit.

(4) If standard cross-stamped auxiliary contacts are required, remove the letter "B" before the letter "C" in the cat. no. Example: Cat. No. 100S-D115 $\otimes$ 22BC becomes Cat. No. 100S-D115 $\otimes$ 22C.

### 3-Pole DC-Operated Contactors

| Rated Operational Current $I_e$ [A] |             | Ratings for switching AC motors - AC-2, AC-3 |      |       |                       |         |       |      |            |      |      | Auxiliary Contacts                                                                  |                                                                                     | Conventional Coil Cat. No.    | Electronic Coil Cat No. <sup>(5)</sup> |
|-------------------------------------|-------------|----------------------------------------------|------|-------|-----------------------|---------|-------|------|------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|----------------------------------------|
| 60 °C                               | 40 °C       | kW (50 Hz) <sup>(1)</sup>                    |      |       |                       |         |       |      | Hp (60 Hz) |      |      |  |  |                               |                                        |
| AC-3 (400V)                         | AC-1 (690V) | 230V                                         | 400V | 415V  | 500V                  | 690V    | 1000V | 200V | 230V       | 460V | 575V | N.O.                                                                                | N.C. <sup>(3)</sup>                                                                 |                               |                                        |
| 115                                 | 250         | 37                                           | 63   | 66/75 | 80                    | 111     | 63    | 40   | 40         | 75   | 100  | 2                                                                                   | 2                                                                                   | 100S-D115⊗33LC <sup>(4)</sup> | 100S-D115⊗22BC                         |
| 140                                 | 250         | 45                                           | 78   | 75    | 80/100 <sup>(2)</sup> | 110/132 | 75    | 40   | 50         | 100  | 125  | 3                                                                                   | 2/1L                                                                                | 100S-D140⊗33LC                | 100S-D140⊗22BC                         |
| 180                                 | 250         | 55                                           | 101  | 100   | 90/125                | 132/160 | 90    | 50   | 60         | 150  | 150  | 3                                                                                   | 2/1L                                                                                | 100S-D180⊗33LC                | 100S-D180⊗22BC                         |
| 210                                 | 350         | 63                                           | 118  | 110   | 205                   | 200     | 110   | 60   | 75         | 150  | 200  | 2                                                                                   | 2                                                                                   | —                             | 100S-D210⊗22BC                         |
| 250                                 | 350         | 80                                           | 140  | 150   | 250                   | 250     | 133   | 75   | 100        | 200  | 250  | 2                                                                                   | 2                                                                                   | —                             | 100S-D250⊗22BC                         |
| 300                                 | 450         | 90                                           | 170  | 160   | 290                   | 300     | 160   | 100  | 125        | 250  | 300  | 2                                                                                   | 2                                                                                   | —                             | 100S-D300⊗22BC                         |
| 420                                 | 540         | 132                                          | 238  | 250   | 420                   | 425     | 220   | 150  | 175        | 350  | 400  | 2                                                                                   | 2                                                                                   | —                             | 100S-D420⊗22BC                         |
| 630                                 | 800         | 200                                          | 355  | 355   | 500                   | 500     | —     | 200  | 250        | 500  | 600  | 2                                                                                   | 2                                                                                   | —                             | 100S-D630⊗22BC                         |
| 860                                 | 1000        | 250                                          | 500  | 500   | 500                   | 600     | —     | 250  | 300        | 600  | 700  | 2                                                                                   | 2                                                                                   | —                             | 100S-D860⊗22BC                         |

(1) Preferred values according to IEC 60072-1.

(2) Higher kW rating only applies to contactors with electronic coil.

(3) The N.C. contacts meet IEC 60947-4 Annex F requirements for mirror contact performance. The N.C. mirror contacts are wired in series or parallel and must be used as monitoring contacts with feedback to the safety circuit.

(4) For conventional DC coil only. The pickup winding must be interconnected with the N.C. late-breaking auxiliary contacts.

(5) If standard cross-stamped auxiliary contacts are required, remove the letter "B" before the letter "C" in the cat. no. Example: Cat. No. 100S-D115⊗22BC becomes Cat. No. 100S-D115⊗22C.

## Coil Voltage Codes—100S-D Safety Contactors

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60 Hz: Cat. No. 100S-D115Ø22BC becomes Cat. No.100S-D115D22BC.

| AC Voltages [V], Conventional Coil |          | 24 | 48 | 100 | 110 | 120 | 200 | 208 | 220...230 | 230 | 240 | 277 |
|------------------------------------|----------|----|----|-----|-----|-----|-----|-----|-----------|-----|-----|-----|
| 100S-D115...100S-D180              | 50 Hz    | K  | Y  | —   | D   | —   | —   | —   | A         | —   | T   | —   |
|                                    | 60 Hz    | J  | X  | —   | —   | D   | —   | H   | —         | —   | A   | T   |
| 100S-D115                          | 50/60 Hz | —  | —  | KP  | KN  | —   | KG  | —   | KL        | KF  | KA  | KT  |

| AC Voltages [V], Conventional Coil |          | 380...400 | 415 | 440 | 480 | 500 | 550 | 600 |
|------------------------------------|----------|-----------|-----|-----|-----|-----|-----|-----|
| 100S-D115...100S-D180              | 50 Hz    | N         | B   | G   | —   | M   | C   | —   |
|                                    | 60 Hz    | —         | —   | N   | B   | —   | —   | C   |
| 100S-D115                          | 50/60 Hz | —         | —   | —   | —   | —   | —   | —   |

| AC Voltages [V], Electronic Coil w/ EI Interface <sup>(1)</sup> |          | 24                | 42...64 | 100 | 110...130 | 200 | 208...277 | 200...220 |
|-----------------------------------------------------------------|----------|-------------------|---------|-----|-----------|-----|-----------|-----------|
| 100S-D115...100S-D300                                           | 50/60 Hz | EJ <sup>(2)</sup> | EY      | —   | ED        | —   | EA        | —         |
| 100S-D420                                                       | 50/60 Hz | —                 | —       | —   | ED        | —   | EA        | —         |
| 100S-D630...100S-D860                                           | 50/60 Hz | —                 | —       | EP  | ED        | EG  | —         | EG        |

| AC Voltages [V], Electronic Coil w/ EI Interface <sup>(1)</sup> |          | 230...250 | 277 | 380...415 | 380...500 | 440...480 | 500 |
|-----------------------------------------------------------------|----------|-----------|-----|-----------|-----------|-----------|-----|
| 100S-D115...100S-D300                                           | 50/60 Hz | —         | —   | —         | EN        | —         | —   |
| 100S-D420                                                       | 50/60 Hz | —         | —   | —         | EN        | —         | —   |
| 100S-D630...100S-D860                                           | 50/60 Hz | EA        | ET  | EN        | —         | EB        | EM  |

(1) Signal voltage of the Cat. No. 100S-D... electronic interface: nominal  $U_e$ : 24V DC/ $I_e$ : 15 mA

Pickup voltage: 13.0V DC...30.2V DC

Dropout Voltage: -3.0V DC...+5.0V DC

(2) Not available with 100S-D300

| DC Voltages [V], Conventional Coil |  | 24 | 48 | 110 | 125 | 220 | 250 |
|------------------------------------|--|----|----|-----|-----|-----|-----|
| 100S-D115...100S-D180              |  | ZJ | ZY | ZD  | ZS  | ZA  | ZT  |

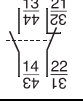
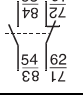
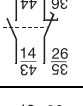
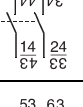
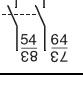
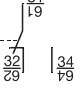
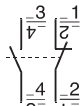
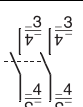
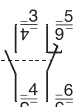
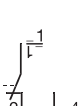
| DC Voltages [V], Electronic Coil w/ EI Interface <sup>(1)</sup> |  | 24  | 48...72 | 110...130 | 200...255 |
|-----------------------------------------------------------------|--|-----|---------|-----------|-----------|
| 100S-D115...100S-D300                                           |  | EZJ | EZY     | EZD       | EZA       |
| 100S-D420                                                       |  | —   | —       | EZD       | EZA       |
| 100S-D630...100S-D860                                           |  | —   | —       | ED        | EA        |

(1) Signal voltage of the Cat. No. 100S-D... electronic interface: nominal  $U_e$ : 24V DC/ $I_e$ : 15 mA

Pickup voltage: 13.0V DC...30.2V DC, Dropout Voltage: -3.0V DC...+5.0V DC.

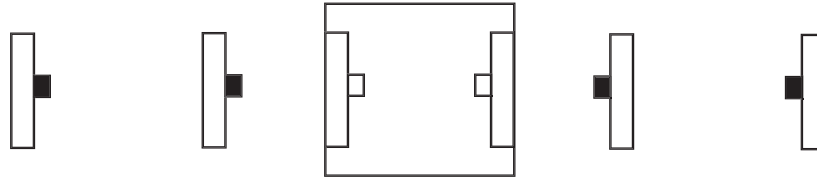
# Accessories

## Auxiliary Contacts

|                                                                                    | Description                                                                                                                                                                                                                                                                                                                  |  |  | Connection Diagram                                                                  | For Use With                         | Standard Auxiliary Contact Cat. No. | Bifurcated Cat. No. |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------|---------------------|
|                                                                                    |                                                                                                                                                                                                                                                                                                                              | N.O.                                                                              | N.C.                                                                              |                                                                                     |                                      |                                     |                     |
|  | Auxiliary Contacts <ul style="list-style-type: none"> <li>Side-mounted</li> <li>Without IEC sequence terminal designations</li> <li>Standard contacts 17V/10 mA Bifurcated contacts for signals down to 5V/2 mA</li> </ul>                                                                                                   | 1                                                                                 | 1                                                                                 |    | 100-D left or right inside mounting  | 100-DS1-11                          | 100-DS1-B11H        |
|                                                                                    |                                                                                                                                                                                                                                                                                                                              | 1                                                                                 | 1                                                                                 |    | 100-D left or right outside mounting | 100-DS2-11                          | 100-DS2-B11H        |
|                                                                                    |                                                                                                                                                                                                                                                                                                                              | 1                                                                                 | 1L                                                                                |    | 100-D left or right inside mounting  | 100-DS1-L11                         | —                   |
|                                                                                    |                                                                                                                                                                                                                                                                                                                              | 2                                                                                 | 0                                                                                 |    | 100-D left or right inside mounting  | 100-DS1-20                          | 100-DS1-B20H        |
|                                                                                    |                                                                                                                                                                                                                                                                                                                              | 2                                                                                 | 0                                                                                 |   | 100-D left or right outside mounting | 100-DS2-20                          | 100-DS2-B20H        |
|                                                                                    | Auxiliary Contacts <ul style="list-style-type: none"> <li>Electronic-compatible auxiliary contacts</li> <li>Ideal for use when switching low- power control circuits</li> <li>With IEC sequence terminal designations</li> <li>Contact ratings: AC-12, 250V, 0.1 A</li> <li>AC-15, DC-13, 3...125V, 1...100 mA</li> </ul>    | 1                                                                                 | 1                                                                                 |  | 100-D left or right inside mounting  | 100-DS1-B11                         | —                   |
|                                                                                    | Auxiliary Contacts <ul style="list-style-type: none"> <li>Side-mounted</li> <li>Without IEC sequence terminal designations</li> <li>Standard contacts 17V/10 mA Bifurcated contacts for signals down to 5V/2 mA</li> </ul>                                                                                                   | 1                                                                                 | 1                                                                                 |  | 100-D left or right inside mounting  | 100-DS0-11                          | 100-DS0-B11H        |
|                                                                                    |                                                                                                                                                                                                                                                                                                                              | 2                                                                                 | 0                                                                                 |  | 100-D left or right inside mounting  | 100-DS0-20                          | 100-DS0-B20H        |
|                                                                                    |                                                                                                                                                                                                                                                                                                                              | 1                                                                                 | 1L                                                                                |  | 100-D left or right inside mounting  | 100-DS0-L11                         | —                   |
|                                                                                    | Auxiliary Contacts <ul style="list-style-type: none"> <li>Electronic-compatible auxiliary contacts</li> <li>Ideal for use when switching low- power control circuits</li> <li>Without IEC sequence terminal designations</li> <li>Contact ratings: AC-12, 250V, 0.1 A</li> <li>AC-15, DC-13, 3...125V, 1...100 mA</li> </ul> | 1                                                                                 | 1                                                                                 |  | 100-D left or right inside mounting  | 100-DS0-B11                         | —                   |

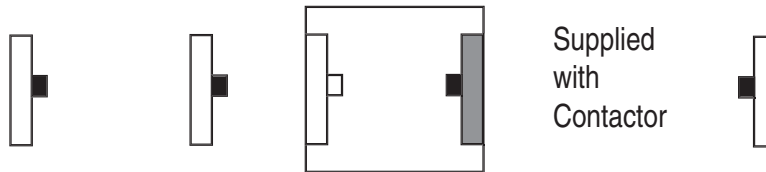
## Auxiliary contacts with sequence numbering.

**Figure 27 - Cat. Nos. 100-D115... D420 — Electronic and Conventional AC Coils, Electronic DC Coils**

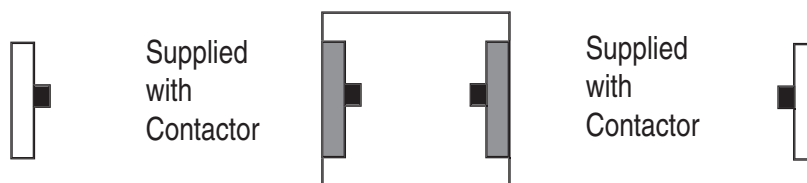


| Contact Configuration |      | Auxiliary Contact Configurations |                    |                 |                     |                  |
|-----------------------|------|----------------------------------|--------------------|-----------------|---------------------|------------------|
|                       |      | For Use With                     | Left Side Mounting |                 | Right Side Mounting |                  |
| N.O.                  | N.C. |                                  | Outside Cat. No.   | Inside Cat. No. | Inside Cat. No.     | Outside Cat. No. |
| 8                     | 0    | 100-D . . . 00                   | 100-DS2-20         | 100-DS1-20      | 100-DS1-20          | 100-DS2-20       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                 | 5/6              |
| 7                     | 1    |                                  | 100-DS2-20         | 100-DS1-20      | 100-DS1-11          | 100-DS2-20       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                 | 5/6              |
| 6                     | 2    |                                  | 100-DS2-20         | 100-DS1-11      | 100-DS1-11          | 100-DS2-20       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                 | 5/6              |
| 5                     | 3    |                                  | 100-DS2-20         | 100-DS1-11      | 100-DS1-11          | 100-DS2-11       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                 | 5/6              |
| 4                     | 4    |                                  | 100-DS2-11         | 100-DS1-11      | 100-DS1-11          | 100-DS2-11       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                 | 5/6              |

**Figure 28 - Cat. Nos. 100-D115... D420 — Electronic and Conventional AC Coils, Electronic DC Coils**



| Contact Configuration |      | Auxiliary Contact Configurations |                    |                 |                     |                  |
|-----------------------|------|----------------------------------|--------------------|-----------------|---------------------|------------------|
|                       |      | For Use With                     | Left Side Mounting |                 | Right Side Mounting |                  |
| N.O.                  | N.C. |                                  | Outside Cat. No.   | Inside Cat. No. | Inside Cat. No.     | Outside Cat. No. |
| 8                     | 0    | 100-D...11                       | —                  | —               | —                   | —                |
| Sequence Starts with: |      |                                  | —                  | —               | —                   | —                |
| 7                     | 1    |                                  | 100-DS2-20         | 100-DS1-20      | 100-DS1-11          | 100-DS2-20       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                 | 5/6              |
| 6                     | 2    |                                  | 100-DS2-20         | 100-DS1-11      | 100-DS1-11          | 100-DS2-20       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                 | 5/6              |
| 5                     | 3    |                                  | 100-DS2-20         | 100-DS1-11      | 100-DS1-11          | 100-DS2-11       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                 | 5/6              |
| 4                     | 4    |                                  | 100-DS2-11         | 100-DS1-11      | 100-DS1-11          | 100-DS2-11       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                 | 5/6              |

**Figure 29 - Cat. Nos. 100-D115... D180 — Conventional DC Coils**

| Contact Configuration |      | Auxiliary Contact Configurations |                    |                 |                           |                  |
|-----------------------|------|----------------------------------|--------------------|-----------------|---------------------------|------------------|
|                       |      | For Use With                     | Left Side Mounting |                 | Right Side Mounting       |                  |
| N.O.                  | N.C. |                                  | Outside Cat. No.   | Inside Cat. No. | Inside Cat. No.           | Outside Cat. No. |
| 8                     | 0    | 100-D . . . 22L                  | —                  | —               | —                         | —                |
| Sequence Starts with: |      |                                  | —                  | —               | —                         | —                |
| 7                     | 1    |                                  | —                  | —               | —                         | —                |
| Sequence Starts with: |      |                                  | —                  | —               | —                         | —                |
| 6                     | 2    |                                  | 100-DS2-20         | 100-DS1-11      | 100-DS1-11 <sup>(1)</sup> | 100-DS2-20       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                       | 5/6              |
| 5                     | 3    |                                  | 100-DS2-20         | 100-DS1-11      | 100-DS1-11 <sup>(1)</sup> | 100-DS2-11       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                       | 5/6              |
| 4                     | 4    |                                  | 100-DS2-11         | 100-DS1-11      | 100-DS1-11 <sup>(1)</sup> | 100-DS2-11       |
| Sequence Starts with: |      |                                  | 7/8                | 3/4             | 1/2                       | 5/6              |

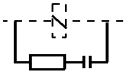
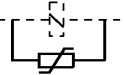
(1) With conventional DC control, the pickup winding must be interconnected with the N.C. late-breaking auxiliary contacts.

### Marking Systems (For 100-D115...D860 contactors)

|                                                                                     | Description                                                                                             | Pkg. Qty. <sup>(1)</sup> | Cat. No. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------|----------|
|  | Label Sheet<br>• 105 self-adhesive paper labels each, 6 x 17 mm                                         | 10                       | 100-FMS  |
|  | Marking Tag Sheet<br>• 160 perforated paper labels each, 6 x 17 mm, to be used with a transparent cover | 10                       | 100-FMP  |
|                                                                                     | Transparent Cover<br>• To be used with marking tag sheets                                               | 100                      | 100-FMC  |
|  | Marking Tag Adapters<br>• To be used with marking tag: System V4/V5                                     | 100                      | 100-FMA1 |
|                                                                                     | Marking Tag Adapters<br>• To be used with marking tag: System 1492 W                                    | 100                      | 100-FMA2 |

(1) Must be ordered in multiples of package quantities.

## Suppressor Modules

|                                                                                   | Description                                                                                                                                                                                                                                                                                                                                     | Connection Diagram                                                                | Suppressor Rating                                                                                      | For Use With        | Cat. No. <sup>(3)</sup> |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------|-------------------------|
|  | Suppressor Module for Bul. 100-D Contactors <ul style="list-style-type: none"> <li>For limiting surge voltage when coil circuits are interrupted</li> <li>Supplied as standard on all conventional DC coil contactors and all electronic coil contactors (as part of the supply module or delivered with separate suppressor module)</li> </ul> |  | RC Module (AC control)<br>For contactors with conventional coil<br>21...48V, 50 Hz;<br>24...55V, 60 Hz | 100-D115...100-D180 | 100-DFSC48              |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                 |                                                                                   | 95...110V, 50 Hz;<br>110...127V, 60 Hz                                                                 |                     | 100-DFSC110             |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                 |                                                                                   | 180...277V, 50 Hz;<br>208...277V, 60 Hz                                                                |                     | 100-DFSC240             |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                 |                                                                                   | 380...550V, 50 Hz;<br>440...600V, 60 Hz                                                                |                     | 100-DFSC550             |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                 |  | Varistor Module<br>for contactors with conventional coil<br>55V AC                                     | 100-D115...100-D420 | 100-DFSV55              |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                 |                                                                                   | 56...136V AC                                                                                           |                     | 100-DFSV136             |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                 |                                                                                   | 137...277V AC                                                                                          |                     | 100-DFSV277             |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                 |                                                                                   | 278...600V AC                                                                                          |                     | 100-DFSV575             |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                 |                                                                                   | Varistor Module<br>for contactors with electronic coil<br>200...277V AC <sup>(1)</sup>                 | 100-D115...100-D420 | 100-DFSV550             |
|                                                                                   |                                                                                                                                                                                                                                                                                                                                                 |                                                                                   | 380...500V AC <sup>(2)</sup>                                                                           | 100-D115...100-D300 | 100-DFSV500             |

(1) For overvoltage category IV (IEC 947 for 100-D...-EI) e.g., lightning protection requirements.

(2) For surge pulse &gt; 1kV

(3) Package Quantity = 1

## Connecting Components

|                                                                                     | Description                                                       | Cross- section           | For Use With       |                          |                    | Terminal Connection                               | Cat. No. <sup>(1)</sup> |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------|--------------------|--------------------------|--------------------|---------------------------------------------------|-------------------------|
|                                                                                     |                                                                   |                          | 100-D115...<br>180 | 100-D210...<br>420       | 100-D630...<br>860 |                                                   |                         |
|  | Reversing: Input Connection<br>Wye-Delta: Main-Delta connection   | 50 mm <sup>2</sup>       | X                  | —                        | —                  | Terminal Blocks,<br>100-DTB...<br>Lugs, 100-DL... | 100-D180-VLTB           |
|                                                                                     |                                                                   | 120 mm <sup>2</sup>      | —                  | X                        | —                  | Lugs, 100-DL...                                   | 100-D420-VLTB           |
|                                                                                     |                                                                   | 350 mm <sup>2</sup>      | —                  | —                        | X                  | Lugs, 100-DL...                                   | 100-D860-VL             |
|  | Reversing: Output Connection Wye-Delta: Delta-Wye connection      | 50 mm <sup>2</sup>       | X                  | —                        | —                  | Lugs, 100-DL...                                   | 100-D180-VT             |
|                                                                                     |                                                                   | 120 mm <sup>2</sup>      | —                  | X                        | —                  |                                                   | 100-D420-VT             |
|                                                                                     |                                                                   | 350 mm <sup>2</sup>      | —                  | —                        | X                  |                                                   | 100-D860-VT             |
|                                                                                     |                                                                   | 50 mm <sup>2</sup>       | X                  | —                        | —                  | Terminal Blocks,<br>100-DTB...                    | 100-D180-VTTB           |
|  | Delta-Wye connection if 100-D115...180 is used as a Wye contactor | 80 mm <sup>2</sup>       | —                  | X                        | —                  | Terminal Blocks,<br>100-DTB...                    | 100-D420-VYTB           |
|  | Wye-Delta: Neutral bridge                                         | —                        | X                  | —                        | —                  | —                                                 | 100-D180-VYU            |
|                                                                                     |                                                                   | —                        | —                  | X                        | —                  | —                                                 | 100-D420-VYU            |
|                                                                                     |                                                                   | —                        | —                  | —                        | X                  | —                                                 | 100-D860-VYU            |
|  | Power Wiring Kits (for contactors using 100-DL lug kits)          | For 100-D115...D100-D180 |                    |                          |                    | Reversing                                         | 100-DPW180              |
|                                                                                     |                                                                   |                          |                    |                          |                    | Two-speed, or changeover                          | 100-D180-VLTB           |
|                                                                                     |                                                                   |                          |                    |                          |                    | Wye-Delta/Star-Delta                              | 100-DPY180              |
|                                                                                     |                                                                   | For 100-D210...100-D420  |                    |                          |                    | Reversing                                         | 100-DPW420              |
|                                                                                     |                                                                   |                          |                    |                          |                    | Two-speed, or changeover                          | 100-D420-VLTB           |
|                                                                                     |                                                                   |                          |                    |                          |                    | Wye-Delta/Star-Delta                              | 100-DPY420              |
| For 100-D630...100-D860                                                             |                                                                   |                          |                    | Reversing                | 100-DPW860         |                                                   |                         |
|                                                                                     |                                                                   |                          |                    | Two-speed, or changeover | 100-D860-VL        |                                                   |                         |

(1) Package Quantity = 1

## Connecting Components, Continued

|                                                                                     | Description                                                                                                                                                                 | For Use With                                                          |                                    | Cat. No. <sup>(1)</sup> |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------|-------------------------|
|    | Terminal Lugs<br>• Set of two<br>• Protection class IP2X per IEC 60529 and DIN 40 050                                                                                       | 100-D115, 100-D140, 100-D180, 100-D115E...D180E, 193-EC_F, 193-EE_F   |                                    | 100-DTB180              |
|                                                                                     |                                                                                                                                                                             | 100-D210...100-D420, 193-EC_G, 193-EF2C, 193-EE_G                     |                                    | 100-DTB420              |
|    | Terminal Lugs (UL/CSA), Copper Frame<br>Set of three                                                                                                                        | 100-D115, 100-D140, 100-D180, 193-EC_F, 193-EE_F                      |                                    | 100-DL180               |
|                                                                                     |                                                                                                                                                                             | 100-D210...100-D420, 193-EC_G, 193-EE_G                               |                                    | 100-DL420               |
|                                                                                     |                                                                                                                                                                             | 100-D630, 100-D860, 193-EC_H, 193-EE_H                                |                                    | 100-DL630               |
|                                                                                     |                                                                                                                                                                             | 100-D630, 100-D860, 193-EC_H, 193-EE_H                                |                                    | 100-DL860               |
|    | Control Circuit Terminal<br>2 x 25 mm <sup>2</sup>                                                                                                                          | Connects to Cat. Nos. 100-D115...D180                                 |                                    | 100-DAT1                |
|                                                                                     |                                                                                                                                                                             | Connects to Cat. Nos. 100-D210...D420                                 |                                    | 100-DAT2                |
|    | Terminal Shields<br>• Set of two<br>• Protection class IP10 per IEC 60529 and DIN 40 050<br>• For direct-on-line, reversing, two-speed, and wye-delta/star-delta assemblies | 100-D115, 100-D140, 100-D180, 100-D115E...100-D180-E                  |                                    | 100-DTS180              |
|                                                                                     |                                                                                                                                                                             | 100-D210...100-D420                                                   |                                    | 100-DTS420              |
|   | Terminal Covers<br>• Protection class IP10 per IEC 60529 and DIN 40 050<br>• For direct-on-line, reversing, two-speed, and wye-delta/star-delta assemblies                  | 100-D115...100-D180, 193-EC_F, 193-EE_F                               |                                    | 100-DTC180              |
|                                                                                     |                                                                                                                                                                             | 100-D120...100-D420, 193-EC_G, 193-EE_G                               |                                    | 100-DTC420              |
|                                                                                     |                                                                                                                                                                             | 100-D630...100-D860, 193-EC_H, 193-EE_H                               |                                    | 100-DTC860              |
|                                                                                     | Terminal Covers<br>• Line-side panel relay and reversing cover                                                                                                              | 100-D630...100-D860, 193-EC_H, 193-EE_H                               |                                    | 100-DTCE860             |
|                                                                                     | Terminal Covers<br>• Reversing starter/ relay cover                                                                                                                         |                                                                       |                                    | 100-DTCR860             |
|                                                                                     | Terminal Covers<br>• DOL Starter/relay cover                                                                                                                                |                                                                       |                                    | 100-SDTCS860            |
|  | Mounting Plate<br>• Galvanized steel plate for starter combinations<br>• For direct-on-line, reversing, two-speed, and wye-delta/star-delta, and Dahlander assemblies       | 100-D115...100-D180                                                   | Direct-on-line                     | 100-DMS180              |
|                                                                                     |                                                                                                                                                                             |                                                                       | Reversing, two-speed or changeover | 100-DMU180              |
|                                                                                     |                                                                                                                                                                             |                                                                       | Y- or Dahlander                    | 100-DMY180              |
|                                                                                     |                                                                                                                                                                             | 100-D120...100-D420, 193-EC_G, 193-EE_G                               | Direct-on-line                     | 100-DMS420              |
|                                                                                     |                                                                                                                                                                             |                                                                       | Reversing, two-speed or changeover | 100-DMU420              |
|                                                                                     |                                                                                                                                                                             |                                                                       | Y- or Dahlander                    | 100-DMY420              |
|                                                                                     | Mounting Plate<br>• For two-speed or changeover switched                                                                                                                    | 100-D630...100-D860, 193-EC_H, 193-EE_H                               | Direct-on-line                     | 100-DMS860              |
|                                                                                     |                                                                                                                                                                             |                                                                       | Reversing, two-speed or changeover | 100-DMU860              |
|                                                                                     |                                                                                                                                                                             |                                                                       | Y- or Dahlander                    | 100-DMY860              |
|                                                                                     |                                                                                                                                                                             | For interlocking between 100-C60...C97 and 100-D115...D180 contactors |                                    | 100-DMU85               |

(1) Package Quantity = 2

## Interlocks

|                                                                                   | Description                                                                                                                                                                                      | Circuit Diagram                                              | For Use With                                  | Cat. No. <sup>(1)</sup> |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------|-------------------------|
|  | Interlock — Dual Electrical/Mechanical <ul style="list-style-type: none"> <li>No additional space requires</li> <li>Two N.C. auxiliary contacts</li> </ul>                                       | <pre> 22  NC  21   ──▶──   ──┘── 21  NC  22           </pre> | 100-D115...100-D860                           | 100-DMD02               |
|                                                                                   | Interlock — Mechanical Only <ul style="list-style-type: none"> <li>No additional space required</li> </ul>                                                                                       | <pre>   ──┘──           </pre>                               | 100-D115...100-D860                           | 100-DMD00               |
|                                                                                   | Interlock — Mechanical Only <ul style="list-style-type: none"> <li>Provides interlocking between Bul. 100-C and Bul. 100-D contactors</li> </ul>                                                 |                                                              | 100-C60...100-C97 between 100-D115...100-D180 | 100-DMC00               |
|                                                                                   | Interlock — Dual Electrical/Mechanical <ul style="list-style-type: none"> <li>Provides interlocking between Bul. 100-C and Bul. 100-D contactors</li> <li>Two N.C. auxiliary contacts</li> </ul> | <pre> 22  NC  21   ──▶──   ──┘── 21  NC  22           </pre> | 100-C60...100-C97 between 100-D115...100-D180 | 100-DMC02               |

(1) Package Quantity = 1

## Renewal Parts

|                                                                                     | Description                                                                                                                | Coil Type    | For Use With     | Cat. No.    |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------|------------------|-------------|
|  | Arc Chambers for Contactors <ul style="list-style-type: none"> <li>For 3-pole 100-D Contactors</li> </ul>                  | Conventional | 100-D115         | 100-DA-115  |
|                                                                                     |                                                                                                                            |              | 100-D180         | 100-DA-180  |
|                                                                                     |                                                                                                                            | Electronic   | 100-D115         | 100-DAE-115 |
|                                                                                     |                                                                                                                            |              | 100-D140         | 100-DAE-140 |
|                                                                                     |                                                                                                                            |              | 100-D180         | 100-DAE-180 |
|                                                                                     |                                                                                                                            |              | 100-D210         | 100-DAE-210 |
|                                                                                     |                                                                                                                            |              | 100-D250         | 100-DAE-250 |
|                                                                                     |                                                                                                                            |              | 100-D300         | 100-DAE-300 |
|  | Main Contacts for Contactors <ul style="list-style-type: none"> <li>3 complete sets for 3-pole 100-D Contactors</li> </ul> | Conventional | 100-D115         | 100-DC-115  |
|                                                                                     |                                                                                                                            |              | 100-D140         | 100-DC-140  |
|                                                                                     |                                                                                                                            |              | 100-D180         | 100-DC-180  |
|                                                                                     |                                                                                                                            | Electronic   | 100-D115         | 100-DCE-115 |
|                                                                                     |                                                                                                                            |              | 100-D140         | 100-DCE-140 |
|                                                                                     |                                                                                                                            |              | 100-D180         | 100-DCE-180 |
|                                                                                     |                                                                                                                            |              | 100-D210         | 100-DCE-210 |
|                                                                                     |                                                                                                                            |              | 100-D250         | 100-DCE-250 |
|                                                                                     |                                                                                                                            |              | 100-D300         | 100-DCE-300 |
|                                                                                     |                                                                                                                            |              | 100-D420         | 100-DCE-420 |
|                                                                                     |                                                                                                                            |              | 100-D630         | 100-DCE-630 |
|                                                                                     |                                                                                                                            |              | 100-D860         | 100-DCE-860 |
|                                                                                     | Terminal Hardware <ul style="list-style-type: none"> <li>Set of 6</li> </ul>                                               | Conventional | 100-D115...D180  | 100-DHF180  |
|                                                                                     |                                                                                                                            | Electronic   | 100-D115E...D180 | 100-DHF180  |
|                                                                                     |                                                                                                                            |              | 100-D210...D420  | 100-DHF420  |
|                                                                                     |                                                                                                                            |              | 100-D630...D860  | 100-DHF860  |

## Replacement Coils



| Conventional AC Coils            |       |                     |                   |                |                 |                 | Conventional DC Coils            |              |                |                 |                 |
|----------------------------------|-------|---------------------|-------------------|----------------|-----------------|-----------------|----------------------------------|--------------|----------------|-----------------|-----------------|
| AC Standard Control Voltages [V] |       |                     | AC Coil Code      | 100-D95...D180 | 100-D210...D420 | 100-D630...D860 | DC Standard Control Voltages [V] | DC Coil Code | 100-D95...D180 | 100-D210...D420 | 100-D630...D860 |
| 50 Hz                            | 60 Hz | 50/60 Hz            |                   | Cat. No.       | Cat. No.        | Cat. No.        |                                  |              | Cat. No.       | Cat. No.        | Cat. No.        |
| 24V                              | —     | —                   | K                 | TG407          | —               | —               | 24V                              | ZJ           | TG714          | —               | —               |
| —                                | 24V   | —                   | J                 | TG013          | —               | —               | 48V                              | ZY           | TG724          | —               | —               |
| 48V                              | —     | —                   | Y                 | TG414          | —               | —               | 110V                             | ZD           | TG733          | —               | —               |
| 42V                              | 48V   | —                   | X                 | TG482          | —               | —               | 125V                             | ZS           | TG737          | —               | —               |
| —                                | —     | 100V <sup>(1)</sup> | KP                | TG861          | —               | —               | 220V                             | ZA           | TG761          | —               | —               |
| 110V                             | 120V  | —                   | D                 | TG473          | —               | —               |                                  |              |                |                 |                 |
| —                                | —     | 110V <sup>(1)</sup> | KN                | TG856          | —               | —               |                                  |              |                |                 |                 |
| —                                | 208V  | —                   | H                 | TG049          | —               | —               |                                  |              |                |                 |                 |
| —                                | —     | 200V <sup>(1)</sup> | KG                | TG862          | —               | —               |                                  |              |                |                 |                 |
| —                                | —     | 220V <sup>(1)</sup> | KL                | TG857          | —               | —               |                                  |              |                |                 |                 |
| 220...230V                       | 240V  | —                   | A                 | TG441          | —               | —               |                                  |              |                |                 |                 |
| 240V                             | 277V  | —                   | T                 | TG480          | —               | —               |                                  |              |                |                 |                 |
| —                                | —     | 277V <sup>(1)</sup> | KT                | TG060          | —               | —               |                                  |              |                |                 |                 |
| —                                | —     | 230V <sup>(1)</sup> | KF                | TG851          | —               | —               |                                  |              |                |                 |                 |
| —                                | —     | 240V <sup>(1)</sup> | KA                | TG858          | —               | —               |                                  |              |                |                 |                 |
| 380...400V                       | 440V  | —                   | N                 | TG071          | —               | —               |                                  |              |                |                 |                 |
| 415V                             | 480V  | —                   | B                 | TG475          | —               | —               |                                  |              |                |                 |                 |
| 440V                             | —     | —                   | G                 | TG478          | —               | —               |                                  |              |                |                 |                 |
| 500V                             | —     | —                   | M                 | TG479          | —               | —               |                                  |              |                |                 |                 |
| 550V                             | 600V  | —                   | C                 | TG476          | —               | —               |                                  |              |                |                 |                 |
| Electronic AC Coils              |       |                     |                   |                |                 |                 | Electronic DC Coils              |              |                |                 |                 |
| AC Standard Control Voltages [V] |       |                     | AC Coil Code      | 100-D95...D180 | 100-D210...D420 | 100-D630...D860 | DC Standard Control Voltages [V] | DC Coil Code | 100-D95...D180 | 100-D210...D420 | 100-D630...D860 |
| 50 Hz                            | 60 Hz | 50/60 Hz            |                   | Cat. No.       | Cat. No.        | Cat. No.        |                                  |              | Cat. No.       | Cat. No.        | Cat. No.        |
| —                                | —     | 24V                 | EJ <sup>(2)</sup> | TGE855         | —               | —               | 24V                              | EZJ          | TGE708         | —               | —               |
| —                                | —     | 42...64V            | EY                | TGE864         | —               | —               | 48...72V                         | EZY          | TGE779         | —               | —               |
| —                                | —     | 100V                | EP                | TGE861         | THE861          | TJE861          | 110...130V                       | EZD          | TGE780         | THE780          | —               |
| —                                | —     | 110...130V          | ED                | TGE865         | THE865          | TJE865          |                                  | ED           | —              | —               | TJE865          |
| —                                | —     | 200V                | EG                | TGE862         | THE862          | —               | 200...255V                       | EZA          | TGE781         | THE781          | —               |
| —                                | —     | 208...277V          | EA                | TGE866         | THE866          | —               |                                  | EA           | —              | —               | TJE879          |
| —                                | —     | 200...220V          | EG                | —              | —               | TJE878          |                                  |              |                |                 |                 |
| —                                | —     | 230...250V          | EA                | —              | —               | TJE879          |                                  |              |                |                 |                 |
| —                                | —     | 380...500V          | EN                | TGE867         | THE867          | —               |                                  |              |                |                 |                 |
| —                                | —     | 380...415V          | EN                | —              | —               | TJE867          |                                  |              |                |                 |                 |
| —                                | —     | 440...480V          | EB                | —              | —               | TJE868          |                                  |              |                |                 |                 |
| —                                | —     | 500V                | EM                | —              | —               | TJE869          |                                  |              |                |                 |                 |

(1) Applies to 100-D95...D115 contactors only. Not available with 100-D140...D180 contactors.

(2) Not available on 100/104?JD300

# Specifications

|                                                                            |                 |      | 100/104-D,100S-D        |                         |                         |                         |                         |                         |                         |                         |     |     |      |
|----------------------------------------------------------------------------|-----------------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-----|-----|------|
|                                                                            |                 |      | 115                     | 140                     | 140                     | 180                     | 180                     | 210                     | 250                     | 300                     | 420 | 630 | 860  |
| Coil Type:                                                                 | Conventional    |      | X                       | X                       | —                       | X                       | —                       | —                       | —                       | —                       | —   | —   | —    |
|                                                                            | Electronic — EI |      | X                       | —                       | X                       | —                       | X                       | X                       | X                       | X                       | X   | X   | X    |
| AC-1 Active Power Load (50 Hz); Ambient temperature 40 °C                  |                 |      |                         |                         |                         |                         |                         |                         |                         |                         |     |     |      |
| Rated Operational Current,<br><i>I</i> <sub>e</sub>                        | ≤500V           | [A]  | 250                     | 250                     | 250                     | 250                     | 250                     | 350                     | 350                     | 450                     | 540 | 800 | 1000 |
|                                                                            | 690V            | [A]  | 250                     | 250                     | 250                     | 250                     | 250                     | 350                     | 350                     | 450                     | 540 | 800 | 1000 |
|                                                                            | 1000V           | [A]  | 250                     | 250                     | 250                     | 250                     | 250                     | 350                     | 350                     | 450                     | 540 | —   | —    |
|                                                                            | 230V            | [kW] | 100                     | 100                     | 100                     | 100                     | 100                     | 139                     | 139                     | 179                     | 199 | 319 | 398  |
|                                                                            | 240V            | [kW] | 104                     | 104                     | 104                     | 104                     | 104                     | 145                     | 145                     | 187                     | 208 | 333 | 416  |
|                                                                            | 400V            | [kW] | 173                     | 173                     | 173                     | 173                     | 173                     | 242                     | 242                     | 312                     | 346 | 554 | 693  |
|                                                                            | 415V            | [kW] | 180                     | 180                     | 180                     | 180                     | 180                     | 252                     | 252                     | 323                     | 359 | 575 | 719  |
|                                                                            | 500V            | [kW] | 217                     | 217                     | 217                     | 217                     | 217                     | 303                     | 303                     | 390                     | 433 | 693 | 866  |
|                                                                            | 690V            | [kW] | 299                     | 299                     | 299                     | 299                     | 299                     | 418                     | 418                     | 538                     | 598 | 956 | 1195 |
|                                                                            | 1000V           | [kW] | 433                     | 433                     | 433                     | 433                     | 433                     | 606                     | 606                     | 779                     | 866 | —   | —    |
| AC-1 Active Power Load (50 Hz); Ambient temperature 60 °C                  |                 |      |                         |                         |                         |                         |                         |                         |                         |                         |     |     |      |
| Rated Operational Current,<br><i>I</i> <sub>e</sub>                        | ≤500V           | [A]  | 210                     | 210                     | 210                     | 210                     | 210                     | 300                     | 300                     | 380                     | 425 | —   | —    |
|                                                                            | 690V            | [A]  | 210                     | 210                     | 210                     | 210                     | 210                     | 300                     | 300                     | 380                     | 425 | —   | —    |
|                                                                            | 1000V           | [A]  | 210                     | 210                     | 210                     | 210                     | 210                     | 300                     | 300                     | 380                     | 425 | —   | —    |
|                                                                            | 230V            | [kW] | 84                      | 84                      | 84                      | 84                      | 84                      | 120                     | 120                     | 151                     | 169 | —   | —    |
|                                                                            | 240V            | [kW] | 87                      | 87                      | 87                      | 87                      | 87                      | 125                     | 125                     | 158                     | 177 | —   | —    |
|                                                                            | 400V            | [kW] | 145                     | 145                     | 145                     | 145                     | 145                     | 208                     | 208                     | 263                     | 294 | —   | —    |
|                                                                            | 415V            | [kW] | 151                     | 151                     | 151                     | 151                     | 151                     | 216                     | 216                     | 273                     | 305 | —   | —    |
|                                                                            | 500V            | [kW] | 182                     | 182                     | 182                     | 182                     | 182                     | 260                     | 260                     | 329                     | 368 | —   | —    |
|                                                                            | 690V            | [kW] | 251                     | 251                     | 251                     | 251                     | 251                     | 359                     | 359                     | 454                     | 508 | —   | —    |
|                                                                            | 1000V           | [kW] | 364                     | 364                     | 364                     | 364                     | 364                     | 520                     | 520                     | 658                     | 736 | —   | —    |
| Switching of 3-phase Motors; (50 Hz) Ambient temperature 60 °C, AC-2, AC-3 |                 |      |                         |                         |                         |                         |                         |                         |                         |                         |     |     |      |
| Rated Operational Current,<br><i>I</i> <sub>e</sub>                        | 230V            | [A]  | 115                     | 140                     | 140                     | 180                     | 180                     | 210                     | 250                     | 300                     | 420 | 630 | 860  |
|                                                                            | 240V            | [A]  | 115                     | 140                     | 140                     | 180                     | 180                     | 210                     | 250                     | 300                     | 420 | 630 | 860  |
|                                                                            | 400V            | [A]  | 115                     | 140                     | 140                     | 180                     | 180                     | 210                     | 250                     | 300                     | 420 | 630 | 860  |
|                                                                            | 415V            | [A]  | 115(130) <sup>(1)</sup> | 140(155) <sup>(1)</sup> | 140(155) <sup>(1)</sup> | 180(189) <sup>(1)</sup> | 180(189) <sup>(1)</sup> | 210(227) <sup>(1)</sup> | 250(258) <sup>(1)</sup> | 300(315) <sup>(1)</sup> | 420 | 630 | 860  |
|                                                                            | 500V            | [A]  | 115                     | 115                     | 140                     | 140                     | 180                     | 210                     | 250                     | 300                     | 420 | 630 | 753  |
|                                                                            | 690V            | [A]  | 115                     | 115                     | 140                     | 140                     | 180                     | 210                     | 250                     | 300                     | 420 | 492 | —    |
|                                                                            | 1000V           | [A]  | 46                      | 55                      | 55                      | 65                      | 65                      | 80                      | 95                      | 115                     | 160 | —   | —    |
|                                                                            | 230V            | [kW] | 37                      | 45                      | 45                      | 57                      | 57                      | 67                      | 80                      | 97                      | 135 | 200 | 250  |
|                                                                            | 240V            | [kW] | 38                      | 47                      | 47                      | 60                      | 60                      | 70                      | 83                      | 101                     | 141 | 200 | 250  |
|                                                                            | 400V            | [kW] | 64                      | 78                      | 78                      | 101                     | 101                     | 118                     | 140                     | 170                     | 238 | 355 | 500  |
|                                                                            | 415V            | [kW] | 66(75) <sup>(1)</sup>   | 82(90) <sup>(1)</sup>   | 82(90) <sup>(1)</sup>   | 105(110) <sup>(1)</sup> | 105(110) <sup>(1)</sup> | 122(132) <sup>(1)</sup> | 145(150) <sup>(1)</sup> | 176(185) <sup>(1)</sup> | 250 | 355 | 500  |
|                                                                            | 500V            | [kW] | 80                      | 80                      | 98                      | 98                      | 126                     | 147                     | 177                     | 213                     | 298 | 450 | 560  |
|                                                                            | 690V            | [kW] | 111                     | 111                     | 135                     | 135                     | 176                     | 205                     | 250                     | 293                     | 424 | 500 | —    |
|                                                                            | 1000V           | [kW] | 63                      | 75                      | 75                      | 90                      | 90                      | 110                     | 132                     | 160                     | 225 | —   | —    |

(1) 415 V: values in ( ) AC-2 and AC-3 lifespan -25 %

|                                                                       |                      |          | 100/104-D, 100S-D       |                         |                         |                         |                         |                         |                         |                         |     |     |     |
|-----------------------------------------------------------------------|----------------------|----------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-----|-----|-----|
|                                                                       |                      |          | 115                     | 140                     | 140                     | 180                     | 180                     | 210                     | 250                     | 300                     | 420 | 630 | 860 |
| Coil Type:                                                            | Conventional         | X        | X                       | —                       | X                       | —                       | —                       | —                       | —                       | —                       | —   | —   | —   |
|                                                                       | Electronic — EI      | X        | —                       | X                       | —                       | X                       | X                       | X                       | X                       | X                       | X   | X   | X   |
| Load Carrying Capacity per UL/CSA                                     |                      |          |                         |                         |                         |                         |                         |                         |                         |                         |     |     |     |
| General Purpose Current (enclosed)                                    |                      | [A]      | 220                     | 220                     | 220                     | 220                     | 220                     | 300                     | 300                     | 340                     | 420 | 630 | 860 |
| Rated power (enclosed)<br>1-phase                                     | 115V                 | [A]      | 100                     | 135                     | 135                     | —                       | —                       | —                       | —                       | —                       | —   | —   | —   |
|                                                                       | 230V                 | [A]      | 110                     | 136                     | 136                     | 176                     | 176                     | 216                     | —                       | —                       | —   | —   | —   |
|                                                                       | 115V                 | [Hp]     | 10                      | 15                      | 15                      | —                       | —                       | —                       | —                       | —                       | —   | —   | —   |
|                                                                       | 230V                 | [Hp]     | 25                      | 30                      | 30                      | 40                      | 40                      | 50                      | —                       | —                       | —   | —   | —   |
| Rated power (enclosed)<br>3-phase                                     | 200V                 | [A]      | 120                     | 120                     | 120                     | 150                     | 150                     | 177                     | 221                     | 285                     | 414 | 552 | 692 |
|                                                                       | 230V                 | [A]      | 104                     | 130                     | 130                     | 154                     | 154                     | 192                     | 248                     | 312                     | 420 | 602 | 720 |
|                                                                       | 460V                 | [A]      | 96                      | 124                     | 124                     | 180                     | 180                     | 180                     | 240                     | 302                     | 414 | 590 | 702 |
|                                                                       | 575V                 | [A]      | 99                      | 125                     | 125                     | 144                     | 144                     | 192                     | 242                     | 289                     | 382 | 562 | 651 |
|                                                                       | 200V                 | [Hp]     | 40                      | 40                      | 40                      | 50                      | 50                      | 60                      | 75                      | 100                     | 150 | 200 | 250 |
|                                                                       | 230V                 | [Hp]     | 40                      | 50                      | 50                      | 60                      | 60                      | 75                      | 100                     | 125                     | 175 | 250 | 300 |
|                                                                       | 460V                 | [Hp]     | 75                      | 100                     | 100                     | 150                     | 150                     | 150                     | 200                     | 250                     | 350 | 500 | 600 |
|                                                                       | 575V                 | [Hp]     | 100                     | 125                     | 125                     | 150                     | 150                     | 200                     | 250                     | 300                     | 400 | 600 | 700 |
| Switching of 3-phase Motors, (50 Hz); Ambient temperature 60 °C, AC-4 |                      |          |                         |                         |                         |                         |                         |                         |                         |                         |     |     |     |
|                                                                       | 230V                 | [A]      | 115                     | 140                     | 140                     | 180                     | 180                     | 210                     | 250                     | 300                     | 420 | —   | —   |
|                                                                       | 240V                 | [A]      | 115                     | 140                     | 140                     | 180                     | 180                     | 210                     | 250                     | 300                     | 420 | —   | —   |
|                                                                       | 400V                 | [A]      | 115                     | 140                     | 140                     | 180                     | 180                     | 210                     | 250                     | 300                     | 420 | —   | —   |
|                                                                       | 415V                 | [A]      | 115(130) <sup>(2)</sup> | 140(155) <sup>(2)</sup> | 140(155) <sup>(2)</sup> | 180(189) <sup>(3)</sup> | 180(189) <sup>(3)</sup> | 210(227)‡               | 250(258)‡               | 300(315)‡               | 420 | —   | —   |
|                                                                       | 500V                 | [A]      | 115                     | 115                     | 140                     | 140                     | 170                     | 210                     | 250                     | 300                     | 360 | —   | —   |
|                                                                       | 690V                 | [A]      | 115                     | 115                     | 140                     | 140                     | 170                     | 210                     | 250                     | 300                     | 360 | —   | —   |
|                                                                       | 1000V                | [A]      | 46                      | 55                      | 55                      | 65                      | 65                      | 80                      | 95                      | 115                     | 160 | —   | —   |
|                                                                       | 230V                 | [kW]     | 37                      | 45                      | 45                      | 57                      | 57                      | 67                      | 80                      | 97                      | 135 | —   | —   |
|                                                                       | 240V                 | [kW]     | 39                      | 47                      | 47                      | 60                      | 60                      | 70                      | 83                      | 101                     | 141 | —   | —   |
|                                                                       | 400V                 | [kW]     | 63                      | 78                      | 78                      | 100                     | 100                     | 118                     | 140                     | 170                     | 238 | —   | —   |
|                                                                       | 415V                 | [kW]     | 66(75) <sup>(2)</sup>   | 82(90) <sup>(2)</sup>   | 82(90) <sup>(2)</sup>   | 105(110) <sup>(2)</sup> | 105(110) <sup>(2)</sup> | 125(132) <sup>(2)</sup> | 145(150) <sup>(2)</sup> | 176(185) <sup>(2)</sup> | 250 | —   | —   |
|                                                                       | 500V                 | [kW]     | 80                      | 80                      | 98                      | 98                      | 119                     | 147                     | 177                     | 213                     | 255 | —   | —   |
|                                                                       | 690V                 | [kW]     | 110                     | 110                     | 135                     | 135                     | 167                     | 205                     | 250                     | 293                     | 356 | —   | —   |
|                                                                       | 1000V                | [kW]     | 63                      | 75                      | 75                      | 90                      | 90                      | 110                     | 132                     | 160                     | 225 | —   | —   |
| AC-4 at approximately 200,000 operations                              |                      |          |                         |                         |                         |                         |                         |                         |                         |                         |     |     |     |
|                                                                       | 230V                 | [A]      | 53                      | 60                      | 60                      | 67                      | 67                      | 85                      | 105                     | 140                     | 170 | —   | —   |
|                                                                       | 240V                 | [A]      | 53                      | 60                      | 60                      | 67                      | 67                      | 85                      | 105                     | 140                     | 170 | —   | —   |
|                                                                       | 400/415V             | [A]      | 53                      | 60                      | 60                      | 67                      | 67                      | 85                      | 105                     | 140                     | 170 | —   | —   |
|                                                                       | 500V                 | [A]      | 53                      | 60                      | 60                      | 67                      | 67                      | 85                      | 105                     | 140                     | 170 | —   | —   |
|                                                                       | 690V                 | [A]      | 53                      | 60                      | 60                      | 67                      | 67                      | 85                      | 105                     | 140                     | 170 | —   | —   |
|                                                                       | 1000V                | [A]      | 25                      | 37                      | 37                      | 43                      | 43                      | 60                      | 72                      | 85                      | 105 | —   | —   |
|                                                                       | 230V <sup>(1)</sup>  | [kW]     | 15                      | 17                      | 17                      | 20                      | 20                      | 25                      | 32                      | 45                      | 55  | —   | —   |
|                                                                       | 240V <sup>(1)</sup>  | [kW]     | 15                      | 18.5                    | 18.5                    | 22                      | 22                      | 25                      | 32                      | 45                      | 55  | —   | —   |
|                                                                       | 400V <sup>(1)</sup>  | [kW]     | 25                      | 32                      | 32                      | 37                      | 37                      | 45                      | 55                      | 75                      | 90  | —   | —   |
|                                                                       | 415V <sup>(1)</sup>  | [kW]     | 25                      | 32                      | 32                      | 37                      | 37                      | 50                      | 55                      | 80                      | 100 | —   | —   |
|                                                                       | 500V <sup>(1)</sup>  | [kW]     | 32                      | 40                      | 40                      | 45                      | 45                      | 55                      | 75                      | 100                     | 110 | —   | —   |
|                                                                       | 690V <sup>(1)</sup>  | [kW]     | 45                      | 55                      | 55                      | 63                      | 63                      | 80                      | 100                     | 132                     | 160 | —   | —   |
|                                                                       | 1000V <sup>(1)</sup> | [kW]     | 30                      | 50                      | 50                      | 55                      | 55                      | 80                      | 100                     | 110                     | 150 | —   | —   |
| Max. switching frequency                                              |                      | Ops/hour | 120                     | 120                     | 120                     | 100                     | 100                     | 120                     | 100                     | 70                      | 70  | —   | —   |

(1) Power ratings at 50 Hz; Preferred values according to IEC 60072-1

(2) 415V: Values in ( ) AC-3 and AC-4 lifespan ~25%

(3) Approval pending on Cat. No. 100-D210...D860.

|                             |                      |      | 100/104-D,100S-D         |                          |                          |                          |                          |                          |                          |                          |     |     |     |
|-----------------------------|----------------------|------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----|-----|-----|
|                             |                      |      | 115                      | 140                      | 140                      | 180                      | 180                      | 210                      | 250                      | 300                      | 420 | 630 | 860 |
| Coil Type:                  | Conventional         |      | X                        | X                        | —                        | X                        | —                        | —                        | —                        | —                        | —   | —   | —   |
|                             | Electronic — EI      |      | X                        | —                        | X                        | —                        | X                        | X                        | X                        | X                        | X   | X   | X   |
| Wye-Delta (60 Hz)           |                      |      |                          |                          |                          |                          |                          |                          |                          |                          |     |     |     |
|                             | 200V                 | [Hp] | 60                       | 60                       | 60                       | 75                       | 75                       | 100                      | 125                      | 175                      | 250 | —   | —   |
|                             | 230V                 | [Hp] | 60                       | 75                       | 75                       | 100                      | 100                      | 125                      | 175                      | 200                      | 250 | —   | —   |
|                             | 460V                 | [Hp] | 125                      | 175                      | 175                      | 200                      | 200                      | 250                      | 350                      | 450                      | 600 | —   | —   |
|                             | 575V                 | [Hp] | 150                      | 200                      | 200                      | 250                      | 250                      | 300                      | 450                      | 500                      | 650 | —   | —   |
| UL/CSA Elevator Duty        |                      |      |                          |                          |                          |                          |                          |                          |                          |                          |     |     |     |
|                             | 200V                 | [A]  | 78                       | 92                       | 92                       | 120                      | 120                      | 150                      | 150                      | 177                      | 221 | —   | —   |
|                             | 230V                 | [A]  | 80                       | 104                      | 104                      | 130                      | 130                      | 130                      | 154                      | 192                      | 248 | —   | —   |
|                             | 460V                 | [A]  | 77                       | 96                       | 96                       | 124                      | 124                      | 156                      | 180                      | 180                      | 240 | —   | —   |
|                             | 575V                 | [A]  | 77                       | 77                       | 77                       | 99                       | 99                       | 125                      | 144                      | 192                      | 242 | —   | —   |
|                             | 200V                 | [Hp] | 25                       | 30                       | 30                       | 40                       | 40                       | 50                       | 50                       | 60                       | 75  | —   | —   |
|                             | 230V                 | [Hp] | 30                       | 40                       | 40                       | 50                       | 50                       | 50                       | 60                       | 75                       | 100 | —   | —   |
|                             | 460V                 | [Hp] | 60                       | 75                       | 75                       | 100                      | 100                      | 125                      | 150                      | 150                      | 200 | —   | —   |
|                             | 575V                 | [Hp] | 75                       | 75                       | 75                       | 100                      | 100                      | 125                      | 150                      | 200                      | 250 | —   | —   |
| Star-Delta Starting (50 Hz) |                      |      |                          |                          |                          |                          |                          |                          |                          |                          |     |     |     |
|                             | ≤ 230V               | [A]  | 199                      | 242                      | 242                      | 312                      | 312                      | 364                      | 433                      | 520                      | 727 | —   | —   |
|                             | ≤ 240V               | [A]  | 199                      | 242                      | 242                      | 312                      | 312                      | 364                      | 433                      | 520                      | 727 | —   | —   |
|                             | 400V                 | [A]  | 199                      | 242                      | 242                      | 312                      | 312                      | 364                      | 433                      | 520                      | 727 | —   | —   |
|                             | 415V                 | [A]  | 199 (225) <sup>(2)</sup> | 242(268) <sup>(2)</sup>  | 242 (268) <sup>(2)</sup> | 312 (332) <sup>(2)</sup> | 312 (332) <sup>(2)</sup> | 364 (393) <sup>(2)</sup> | 433 (447) <sup>(2)</sup> | 520 (546) <sup>(2)</sup> | 727 | —   | —   |
|                             | 500V                 | [A]  | 199                      | 199                      | 242                      | 312                      | 312                      | 364                      | 433                      | 520                      | 727 | —   | —   |
|                             | 690V                 | [A]  | 199                      | 199                      | 242                      | 312                      | 312                      | 364                      | 433                      | 520                      | 727 | —   | —   |
|                             | 1000V                | [A]  | 80                       | 95                       | 95                       | 113                      | 113                      | 139                      | 165                      | 200                      | 277 | —   | —   |
|                             | 230V <sup>(1)</sup>  | [kW] | 63                       | 75                       | 75                       | 90                       | 90                       | 110                      | 132                      | 160                      | 220 | —   | —   |
|                             | 240V <sup>(1)</sup>  | [kW] | 66                       | 80                       | 80                       | 100                      | 100                      | 125                      | 150                      | 160                      | 250 | —   | —   |
|                             | 400V <sup>(1)</sup>  | [kW] | 110                      | 132                      | 132                      | 160                      | 160                      | 200                      | 250                      | 300                      | 425 | —   | —   |
|                             | 415V <sup>(1)</sup>  | [kW] | 114 (132) <sup>(2)</sup> | 132 (160) <sup>(2)</sup> | 132 (160) <sup>(2)</sup> | 160                      | 160                      | 220                      | 250                      | 315 (335) <sup>(2)</sup> | 425 | —   | —   |
|                             | 500V <sup>(1)</sup>  | [kW] | 132                      | 132                      | 160                      | 200                      | 200                      | 250                      | 315                      | 375                      | 530 | —   | —   |
|                             | 690V <sup>(1)</sup>  | [kW] | 192                      | 200                      | 220                      | 300                      | 300                      | 355                      | 425                      | 530                      | 750 | —   | —   |
|                             | 1000V <sup>(1)</sup> | [kW] | 110                      | 132                      | 132                      | 160                      | 160                      | 200                      | 220                      | 280                      | 400 | —   | —   |

(1) Power ratings at 50 Hz: Preferred values according to IEC 60072-1

(2) 415V: Values in () AC-3 and AC-4 lifespan -25%

|            |                 | 100/104-D, 100S-D |     |     |     |     |     |     |     |     |     |     |
|------------|-----------------|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|            |                 | 115               | 140 | 140 | 180 | 180 | 210 | 250 | 300 | 420 | 630 | 860 |
| Coil Type: | Conventional    | X                 | X   | —   | X   | —   | —   | —   | —   | —   | —   | —   |
|            | Electronic — EI | X                 | —   | X   | —   | X   | X   | X   | X   | X   | X   | X   |

## Switching of Power Transformers, AC-6a (50 Hz)

| Inrush Current            |         | =n    |     |     |     |     |     |     |     |     |     |   |   |
|---------------------------|---------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|---|
| Rated transformer current |         |       |     |     |     |     |     |     |     |     |     |   |   |
| n= 30                     | ≤ 230V  | [A]   | 60  | 70  | 70  | 85  | 85  | 105 | 125 | 150 | 210 | — | — |
|                           | ≤ 240V  | [A]   | 60  | 70  | 70  | 85  | 85  | 105 | 125 | 150 | 210 | — | — |
|                           | ≤ 400V  | [A]   | 60  | 70  | 70  | 85  | 85  | 105 | 125 | 150 | 210 | — | — |
|                           | ≤ 415V  | [A]   | 60  | 70  | 70  | 85  | 85  | 105 | 125 | 150 | 210 | — | — |
|                           | ≤ 500V  | [A]   | 60  | 70  | 70  | 85  | 85  | 105 | 125 | 150 | 210 | — | — |
|                           | ≤ 690V  | [A]   | 60  | 70  | 70  | 85  | 85  | 105 | 125 | 150 | 210 | — | — |
|                           | ≤ 1000V | [A]   | 46  | 70  | 70  | 85  | 85  | 105 | 125 | 150 | 210 | — | — |
|                           | 230V    | [kVA] | 24  | 28  | 28  | 34  | 34  | 42  | 50  | 60  | 84  | — | — |
|                           | 240V    | [kVA] | 26  | 29  | 29  | 35  | 35  | 44  | 52  | 62  | 87  | — | — |
|                           | 400V    | [kVA] | 42  | 48  | 48  | 59  | 59  | 73  | 87  | 104 | 145 | — | — |
|                           | 415V    | [kVA] | 43  | 50  | 50  | 61  | 61  | 75  | 90  | 108 | 151 | — | — |
|                           | 500V    | [kVA] | 52  | 61  | 61  | 74  | 74  | 91  | 108 | 130 | 182 | — | — |
|                           | 690V    | [kVA] | 72  | 84  | 84  | 102 | 102 | 125 | 149 | 179 | 251 | — | — |
|                           | 1000V   | [kVA] | 80  | 121 | 121 | 147 | 147 | 182 | 217 | 260 | 364 | — | — |
| n=20                      | ≤ 690V  | [A]   | 90  | 105 | 105 | 128 | 128 | 158 | 188 | 225 | 315 | — | — |
| n=15                      | ≤ 690V  | [A]   | 120 | 140 | 140 | 170 | 170 | 210 | 250 | 300 | 420 | — | — |

## 60 Hz Peak Inrush/peak rated transformer current

|  |      |       |      |      |      |      |      |      |      |      |      |   |   |
|--|------|-------|------|------|------|------|------|------|------|------|------|---|---|
|  | n=30 | [A]   | 60   | 70   | 70   | 85   | 85   | 105  | 125  | 150  | 210  | — | — |
|  | 200V | [kVA] | 20.8 | 24.2 | 24.2 | 29.4 | 29.4 | 36.4 | 43.3 | 52.0 | 72.7 | — | — |
|  | 208V | [kVA] | 21.6 | 25.2 | 25.2 | 30.6 | 30.6 | 37.8 | 45.0 | 54.0 | 75.7 | — | — |
|  | 240V | [kVA] | 24.9 | 29.1 | 29.1 | 35.3 | 35.3 | 43.6 | 52.0 | 62.4 | 87.3 | — | — |
|  | 480V | [kVA] | 49.9 | 58.2 | 58.2 | 70.7 | 70.7 | 87.3 | 104  | 125  | 175  | — | — |
|  | 600V | [kVA] | 62.4 | 72.7 | 72.7 | 88.3 | 88.3 | 109  | 130  | 156  | 218  | — | — |
|  | 660V | [kVA] | 68.6 | 80.0 | 80.0 | 97.2 | 97.2 | 120  | 143  | 171  | 240  | — | — |

## 60 Hz Peak Inrush/peak rated transformer current

|  |      |       |      |      |      |      |      |      |      |      |     |   |   |
|--|------|-------|------|------|------|------|------|------|------|------|-----|---|---|
|  | n=20 | [A]   | 90   | 105  | 105  | 128  | 128  | 158  | 188  | 225  | 315 | — | — |
|  | 200V | [kVA] | 31.2 | 36.4 | 36.4 | 44.3 | 44.3 | 54.7 | 65.1 | 77.9 | 109 | — | — |
|  | 208V | [kVA] | 32.4 | 37.8 | 37.8 | 46.1 | 46.1 | 56.9 | 67.7 | 81.1 | 113 | — | — |
|  | 240V | [kVA] | 37.4 | 43.6 | 43.6 | 53.2 | 53.2 | 65.7 | 78.2 | 93.5 | 131 | — | — |
|  | 480V | [kVA] | 74.8 | 87.3 | 87.3 | 106  | 106  | 131  | 156  | 187  | 262 | — | — |
|  | 600V | [kVA] | 93.5 | 109  | 109  | 133  | 133  | 164  | 195  | 234  | 327 | — | — |
|  | 660V | [kVA] | 103  | 120  | 120  | 146  | 146  | 181  | 215  | 257  | 360 | — | — |

## 60 Hz Peak Inrush/peak rated transformer current

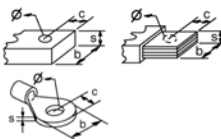
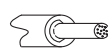
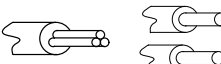
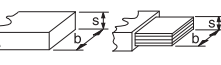
|  |      |       |      |      |      |      |      |      |      |     |     |   |   |
|--|------|-------|------|------|------|------|------|------|------|-----|-----|---|---|
|  | n=15 | [A]   | 120  | 140  | 140  | 170  | 170  | 210  | 250  | 300 | 420 | — | — |
|  | 200V | [kVA] | 41.6 | 48.5 | 48.5 | 58.9 | 58.9 | 72.7 | 86.6 | 104 | 145 | — | — |
|  | 208V | [kVA] | 43.2 | 50.4 | 50.4 | 61.2 | 61.2 | 75.7 | 90.1 | 108 | 151 | — | — |
|  | 240V | [kVA] | 49.9 | 58.2 | 58.2 | 70.7 | 70.7 | 87.3 | 104  | 125 | 175 | — | — |
|  | 480V | [kVA] | 99.8 | 116  | 116  | 141  | 141  | 175  | 208  | 249 | 349 | — | — |
|  | 600V | [kVA] | 125  | 145  | 145  | 177  | 177  | 218  | 260  | 312 | 436 | — | — |
|  | 660V | [kVA] | 137  | 160  | 160  | 194  | 194  | 240  | 286  | 343 | 480 | — | — |

|                                                |                 |        | 100/104-D,100S-D |     |     |     |     |     |     |     |     |     |     |
|------------------------------------------------|-----------------|--------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                                |                 |        | 115              | 140 | 140 | 180 | 180 | 210 | 250 | 300 | 420 | 630 | 860 |
| Coil Type:                                     | Conventional    |        | X                | X   | —   | X   | —   | —   | —   | —   | —   | —   | —   |
|                                                | Electronic — EI |        | X                | —   | X   | —   | X   | X   | X   | X   | X   | X   | X   |
| Switching of 3-phase Capacitors, AC-6b (50 Hz) |                 |        |                  |     |     |     |     |     |     |     |     |     |     |
| Single capacitor 40°C                          | 230V            | [kVar] | 45               | 70  | 70  | 70  | 70  | 98  | 98  | 125 | 139 | —   | —   |
|                                                | 240V            | [kVar] | 47               | 73  | 73  | 73  | 73  | 102 | 102 | 131 | 145 | —   | —   |
|                                                | 400V            | [kVar] | 78               | 121 | 121 | 121 | 121 | 170 | 170 | 218 | 242 | —   | —   |
|                                                | 415V            | [kVar] | 81               | 126 | 126 | 126 | 126 | 176 | 176 | 226 | 252 | —   | —   |
|                                                | 500V            | [kVar] | 97               | 152 | 152 | 152 | 152 | 212 | 212 | 273 | 303 | —   | —   |
|                                                | 690V            | [kVar] | 134              | 209 | 209 | 209 | 209 | 293 | 293 | 376 | 418 | —   | —   |
|                                                | 1000V           | [kVar] | 194              | 303 | 303 | 303 | 303 | 424 | 424 | 546 | 606 | —   | —   |
| Single capacitor 60 °C                         | 230V            | [kVar] | 38               | 59  | 59  | 59  | 59  | 84  | 84  | 106 | 119 | —   | —   |
|                                                | 240V            | [kVar] | 39               | 61  | 61  | 61  | 61  | 87  | 87  | 111 | 124 | —   | —   |
|                                                | 400V            | [kVar] | 65               | 102 | 102 | 102 | 102 | 145 | 145 | 184 | 206 | —   | —   |
|                                                | 415V            | [kVar] | 68               | 106 | 106 | 106 | 106 | 151 | 151 | 191 | 214 | —   | —   |
|                                                | 500V            | [kVar] | 82               | 127 | 127 | 127 | 127 | 182 | 182 | 230 | 258 | —   | —   |
|                                                | 690V            | [kVar] | 113              | 176 | 176 | 176 | 176 | 251 | 251 | 318 | 356 | —   | —   |
|                                                | 1000V           | [kVar] | 164              | 255 | 255 | 255 | 255 | 364 | 364 | 461 | 515 | —   | —   |
| Group capacitors 40°C                          | 230V            | [kVar] | 45               | 70  | 70  | 70  | 70  | 98  | 98  | 125 | 139 | —   | —   |
|                                                | 240V            | [kVar] | 47               | 73  | 73  | 73  | 73  | 102 | 102 | 131 | 145 | —   | —   |
|                                                | 400V            | [kVar] | 56               | 76  | 76  | 111 | 111 | 170 | 170 | 218 | 242 | —   | —   |
|                                                | 415V            | [kVar] | 56               | 76  | 76  | 112 | 112 | 170 | 176 | 226 | 252 | —   | —   |
|                                                | 500V            | [kVar] | 56               | 76  | 76  | 113 | 113 | 172 | 212 | 273 | 303 | —   | —   |
|                                                | 690V            | [kVar] | 57               | 78  | 78  | 114 | 114 | 174 | 247 | 356 | 418 | —   | —   |
|                                                | 1000V           | [kVar] | 58               | 79  | 79  | 116 | 116 | 177 | 251 | 361 | 606 | —   | —   |
| Group capacitors 60 °C                         | 230V            | [kVar] | 38               | 59  | 59  | 59  | 59  | 84  | 84  | 106 | 119 | —   | —   |
|                                                | 240V            | [kVar] | 39               | 61  | 61  | 61  | 61  | 87  | 87  | 111 | 124 | —   | —   |
|                                                | 400V            | [kVar] | 56               | 76  | 76  | 102 | 102 | 145 | 145 | 184 | 206 | —   | —   |
|                                                | 415V            | [kVar] | 56               | 76  | 76  | 106 | 106 | 151 | 151 | 191 | 214 | —   | —   |
|                                                | 500V            | [kVar] | 56               | 76  | 76  | 113 | 113 | 172 | 182 | 230 | 258 | —   | —   |
|                                                | 690V            | [kVar] | 57               | 78  | 78  | 114 | 114 | 174 | 247 | 318 | 356 | —   | —   |
|                                                | 1000V           | [kVar] | 58               | 79  | 79  | 116 | 116 | 177 | 251 | 361 | 515 | —   | —   |
| 60 Hz Single Capacitor — 40 °C                 | 200V            | [kVar] | 39               | 61  | 61  | 61  | 61  | 85  | 85  | 109 | 121 | —   | —   |
|                                                | 230V            | [kVar] | 45               | 70  | 70  | 70  | 70  | 98  | 98  | 125 | 139 | —   | —   |
|                                                | 460V            | [kVar] | 89               | 139 | 139 | 139 | 139 | 195 | 195 | 251 | 279 | —   | —   |
|                                                | 600V            | [kVar] | 116              | 182 | 182 | 182 | 182 | 255 | 255 | 327 | 364 | —   | —   |
| 60 Hz Group Capacitors — 40 °C                 | 200V            | [kVar] | 39               | 61  | 61  | 61  | 61  | 85  | 85  | 109 | 121 | —   | —   |
|                                                | 230V            | [kVar] | 45               | 70  | 70  | 70  | 70  | 98  | 98  | 125 | 139 | —   | —   |
|                                                | 460V            | [kVar] | 56               | 76  | 76  | 112 | 112 | 171 | 195 | 251 | 279 | —   | —   |
|                                                | 600V            | [kVar] | 57               | 77  | 77  | 114 | 114 | 173 | 246 | 327 | 364 | —   | —   |
| Switching of Lamps                             |                 |        |                  |     |     |     |     |     |     |     |     |     |     |
| Gas discharge lamps AC-5a, 40 °C               |                 |        |                  |     |     |     |     |     |     |     |     |     |     |
| open                                           |                 | [A]    | 144              | 225 | 225 | 225 | 225 | 315 | 315 | 405 | 450 | —   | —   |
| enclosed                                       |                 | [A]    | 122              | 189 | 189 | 189 | 189 | 270 | 270 | 342 | 383 | —   | —   |
| Individually compensated:                      |                 |        |                  |     |     |     |     |     |     |     |     |     |     |
| Max. capacitance at expected                   |                 |        |                  |     |     |     |     |     |     |     |     |     |     |
| Filament AC-5b                                 | 230/240V        | [A]    | 120              | 140 | 140 | 170 | 170 | 210 | 250 | 300 | 420 | —   | —   |

|                                                                                                       |                 |                | 100/104-D,100S-D |      |      |      |      |      |      |      |      |       |       |      |
|-------------------------------------------------------------------------------------------------------|-----------------|----------------|------------------|------|------|------|------|------|------|------|------|-------|-------|------|
|                                                                                                       |                 |                | 115              | 140  | 140  | 180  | 180  | 210  | 250  | 300  | 420  | 630   | 860   |      |
| Coil Type:                                                                                            | Conventional    |                | X                | X    | —    | X    | —    | —    | —    | —    | —    | —     | —     |      |
|                                                                                                       | Electronic — EI |                | X                | —    | X    | —    | X    | X    | X    | X    | X    | X     | X     |      |
| Switching of Hermetically Sealed Cooling Compressor Motors - manual reset of overload release (50 Hz) |                 |                |                  |      |      |      |      |      |      |      |      |       |       |      |
| AC-8a                                                                                                 | 400V            | [A]            | 192              | 210  | 210  | —    | —    | —    | —    | —    | —    | —     | —     |      |
|                                                                                                       | 500V            | [A]            | 192              | 192  | 210  | —    | —    | —    | —    | —    | —    | —     | —     |      |
|                                                                                                       | 690V            | [A]            | 192              | 192  | 210  | —    | —    | —    | —    | —    | —    | —     | —     |      |
| Switching of DC Loads                                                                                 |                 |                |                  |      |      |      |      |      |      |      |      |       |       |      |
| Non-inductive or slightly inductive loads or resistance furnaces DC-1, 60 °C                          |                 |                |                  |      |      |      |      |      |      |      |      |       |       |      |
| 1 pole                                                                                                | 24V             | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 48/60V          | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 110V            | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 220V            | [A]            | 3                | 3.3  | 3.3  | 3.3  | 3.3  | 4.9  | 4.9  | 4.9  | 5.2  | —     | —     |      |
|                                                                                                       | 440V            | [A]            | 0.6              | 0.75 | 0.75 | 0.75 | 0.75 | 1    | 1    | 1    | 1.2  | —     | —     |      |
| 2 poles in series                                                                                     | 24V             | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 48/60V          | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 110V            | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 220V            | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 440V            | [A]            | 3                | 3.3  | 3.3  | 3.3  | 3.3  | 4.9  | 4.9  | 4.9  | 5.2  | —     | —     |      |
| 3 poles in series                                                                                     | 24V             | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 48/60V          | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 110V            | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 220V            | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 440V            | [A]            | 11               | 11   | 11   | 11   | 11   | 14   | 14   | 14   | 15   | —     | —     |      |
| Shunt-wound Motors, Starting, reverse current braking, reversing, stepping DC-3, 60°C                 |                 |                |                  |      |      |      |      |      |      |      |      |       |       |      |
| 3polesinseries                                                                                        | 24V             | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 48/60V          | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 110V            | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 220V            | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 440V            | [A]            | 3                | 3.5  | 3.5  | 3.5  | 3.5  | 4.1  | 4.1  | 4.1  | 5.8  | —     | —     |      |
| Series-wound Motors, Starting, reverse current braking, reversing, stepping DC-5, 60 °C               |                 |                |                  |      |      |      |      |      |      |      |      |       |       |      |
| 3 poles in series                                                                                     | 24V             | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 48/60V          | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 110V            | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 220V            | [A]            | 135              | 210  | 210  | 210  | 210  | 300  | 300  | 380  | 425  | —     | —     |      |
|                                                                                                       | 440V            | [A]            | 1.2              | 2.1  | 2.1  | 2.1  | 2.1  | 2.4  | 2.4  | 2.4  | 3    | —     | —     |      |
| Short Time Withstand $I_{CW}$ , 60 °C                                                                 |                 | 10 s           | [A]              | 1040 | 1240 | 1360 | 1480 | 1480 | 2360 | 2520 | 2840 | 4700  | 6300  | 7000 |
| Resistance and Power Dissipation                                                                      |                 |                |                  |      |      |      |      |      |      |      |      |       |       |      |
| Main current circuit resistance                                                                       |                 | [mΩ]           | 0.4              | 0.42 | 0.42 | 0.42 | 0.42 | 0.22 | 0.22 | 0.18 | 0.15 | 0.19  | 0.14  |      |
| Power dissipation by all circuits at $I_e$ AC-3/400V                                                  |                 | [W]            | 14.5             | 24.6 | 24.6 | 40.8 | 40.8 | 29.4 | 41.7 | 48.6 | 79.5 | 226.2 | 310.6 |      |
| Total power dissipation At $I_e$ AC-3/400V                                                            | AC control      | [W]            | 24.5(20.5)       | 34.6 | 30.6 | 50.8 | 46.8 | 35.4 | 47.7 | 54.6 | 86.5 | 256.2 | 340.6 |      |
|                                                                                                       | DC control      | [W]            | 22.5(20.5)       | 32.6 | 30.6 | 48.8 | 46.8 | 35.4 | 47.7 | 54.6 | 86.5 | 256.2 | 340.6 |      |
| Lifespan                                                                                              |                 |                |                  |      |      |      |      |      |      |      |      |       |       |      |
| Mechanical AC control                                                                                 |                 | [Million ops.] | 10               | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 2     | 2     |      |
| Mechanical DC control                                                                                 |                 | [Million ops.] | 10               | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 2     | 2     |      |
| Electrical AC-3 (400 V)                                                                               |                 | [Million ops.] | 1                | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | —     | —     |      |

|            |                 |            | 100/104-D,100S-D                         |            |            |            |            |             |             |             |             |           |           |
|------------|-----------------|------------|------------------------------------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-----------|-----------|
|            |                 |            | 115                                      | 140        | 140        | 180        | 180        | 210         | 250         | 300         | 420         | 630       | 860       |
| Coil Type: | Conventional    |            | X                                        | X          | —          | X          | —          | —           | —           | —           | —           | —         | —         |
|            | Electronic — EI |            | X                                        | —          | X          | —          | X          | X           | X           | X           | X           | X         | X         |
| Weight     |                 |            |                                          |            |            |            |            |             |             |             |             |           |           |
| AC         | Non-Rev.        | [kg (lbs)] | 3.3(7.28)<br>[3.8 (8.38)] <sup>(1)</sup> | 3.3 (7.28) | 3.8 (8.38) | 3.3 (7.28) | 3.8 (8.38) | 7.5 (16.53) | 7.5 (16.53) | 7.5 (16.53) | 7.5 (16.53) | 28.6 (63) | 28.6 (63) |
|            | Rev.            | [kg (lbs)] | 3.14 (6.92)                              | —          | —          | —          | —          | —           | —           | —           | —           | —         | —         |
| DC         | Non-Rev.        | [kg (lbs)] | 3.3(7.28)<br>[3.8 (8.38)] <sup>(1)</sup> | 3.3 (7.28) | 3.8 (8.38) | 3.3 (7.28) | 3.8 (8.38) | 7.5 (16.53) | 7.5 (16.53) | 7.5 (16.53) | 7.5 (16.53) | 28.6 (63) | 28.6 (63) |
|            | Rev.            | [kg (lbs)] | 3.22(7.1)                                | —          | —          | —          | —          | —           | —           | —           | —           | —         | —         |

(1) Values in brackets refer to electronic coil (EI) version.

|                                                                                     |                 |                    | 100/104-D,100S-D                                                                  |     |                           |     |                                                                                   |     |                    |     |                                                                                     |
|-------------------------------------------------------------------------------------|-----------------|--------------------|-----------------------------------------------------------------------------------|-----|---------------------------|-----|-----------------------------------------------------------------------------------|-----|--------------------|-----|-------------------------------------------------------------------------------------|
|                                                                                     |                 |                    | 115                                                                               | 140 | 180                       | 210 | 250                                                                               | 300 | 420                | 630 | 860                                                                                 |
| Coil Type:                                                                          | Conventional    |                    | X                                                                                 | X   | X                         | —   | —                                                                                 | —   | —                  | —   | —                                                                                   |
|                                                                                     | Electronic — EI |                    | X                                                                                 | X   | X                         | X   | X                                                                                 | X   | X                  | X   | X                                                                                   |
| Conductor Cross Sections - Main Contacts Terminal type                              |                 |                    |  |     | (1)                       |     |  |     | (1)                |     |  |
|    | b max.          | [mm]               | 25                                                                                |     | 30                        |     | 52                                                                                |     |                    |     |                                                                                     |
|                                                                                     | c max.          | [mm]               | 12.5                                                                              |     | 15                        |     | 22                                                                                |     |                    |     |                                                                                     |
|                                                                                     | s max.          | [mm]               | 5                                                                                 |     | 6                         |     | 2 x 8                                                                             |     |                    |     |                                                                                     |
|                                                                                     | Ø min.          | [mm]               | 8.3                                                                               |     | 10.5                      |     | 13                                                                                |     |                    |     |                                                                                     |
| Recommended torque                                                                  |                 | [N•m]              | 22                                                                                |     | 43                        |     | 68                                                                                |     |                    |     |                                                                                     |
| Recommended torque                                                                  |                 | [lb-in]            | 195                                                                               |     | 380                       |     | 600                                                                               |     |                    |     |                                                                                     |
| With terminal lug kit                                                               |                 |                    | 100-DL180 <sup>(1)</sup>                                                          |     | 100-DL420 <sup>(1)</sup>  |     | 100-DL630                                                                         |     | 100-DL860          |     |                                                                                     |
| Cross section per UL/CSA                                                            |                 | [AWG]              | 6...300 MCM                                                                       |     | (2x) 4...350 MCM          |     | (2X) 2/0...500 MCM                                                                |     | (4X) 2/0...500 MCM |     |                                                                                     |
| Recommended torque                                                                  |                 | [lb-in]            | 88...106                                                                          |     | 375                       |     | 400                                                                               |     | 400                |     |                                                                                     |
| With Frame Terminal Block                                                           |                 |                    | 100-DTB180 <sup>(1)</sup>                                                         |     | 100-DTB420 <sup>(2)</sup> |     | —                                                                                 |     | —                  |     |                                                                                     |
|  | top opening     | [mm <sup>2</sup> ] | 16...35                                                                           |     | 25...185                  |     | —                                                                                 |     | —                  |     |                                                                                     |
|                                                                                     | bottom opening  | [mm <sup>2</sup> ] | 16...95                                                                           |     | 25...185                  |     | —                                                                                 |     | —                  |     |                                                                                     |
|  | top opening     | [mm <sup>2</sup> ] | 16...50                                                                           |     | 25...240                  |     | —                                                                                 |     | —                  |     |                                                                                     |
|                                                                                     | bottom opening  | [mm <sup>2</sup> ] | 16...120                                                                          |     | 25...240                  |     | —                                                                                 |     | —                  |     |                                                                                     |
|  | b max.          | [mm]               | 20                                                                                |     | 25                        |     | —                                                                                 |     | —                  |     |                                                                                     |
|                                                                                     | s top           | [mm]               | 3...9                                                                             |     | 6...20                    |     | —                                                                                 |     | —                  |     |                                                                                     |
|                                                                                     | s bottom        | [mm]               | 3...14                                                                            |     | 6...20                    |     | —                                                                                 |     | —                  |     |                                                                                     |
| Recommended torque                                                                  |                 | [N•m]              | 14                                                                                |     | 25                        |     | —                                                                                 |     | —                  |     |                                                                                     |
| Cross section per UL/CSA                                                            | top             | [AWG]              | 6...1/0 AWG                                                                       |     | 4 AWG...600 MCM           |     | —                                                                                 |     | —                  |     |                                                                                     |
|                                                                                     | bottom          | [AWG]              | 6 AWG...250 MCM                                                                   |     | 4 AWG...600 MCM           |     | —                                                                                 |     | —                  |     |                                                                                     |
| Recommended torque                                                                  |                 | [lb-in]            | 124                                                                               |     | 220                       |     | —                                                                                 |     | —                  |     |                                                                                     |

(1) Hexagonal socket screw

(2) Pozidriv No. 2 / Blade No. 3 screw

## Short-Circuit Coordination Data

See [www.rockwellautomation.com/global/support/global-sccr.page](http://www.rockwellautomation.com/global/support/global-sccr.page) for complete short-circuit current ratings.

|                                                                                                                      |                 | 100/104-D, 100S-D              |         |     |     |     |     |     |      |      |      |
|----------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------|---------|-----|-----|-----|-----|-----|------|------|------|
|                                                                                                                      |                 | 115                            | 140/180 | 140 | 180 | 210 | 250 | 300 | 420  | 630  | 860  |
| Coil Type:                                                                                                           | Conventional    | X                              | X       | —   | —   | —   | —   | —   | —    | —    | —    |
|                                                                                                                      | Electronic - EI | X                              | —       | X   | X   | X   | X   | X   | X    | X    | X    |
| <b>Short Circuit Coordination (Max. Fuse or Circuit Breaker Rating) Per IEC 60947-4-1 (contactor and fuses only)</b> |                 |                                |         |     |     |     |     |     |      |      |      |
| DIN Fuses- gG, gL                                                                                                    |                 | 50 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| Type "1" (690V)                                                                                                      | [A]             | 250                            | 315     | 315 | 355 | 500 | 500 | 630 | 630  | TBD  | TBD  |
| Type "2" (400V)                                                                                                      | [A]             | 200                            | 250     | 250 | 315 | 400 | 400 | 500 | 500  | TBD  | TBD  |
| Type "2" (690V)                                                                                                      | [A]             | 200                            | 250     | 250 | 315 | 400 | 400 | 500 | 500  | TBD  | TBD  |
| BS88 Fuses                                                                                                           |                 |                                |         |     |     |     |     |     |      |      |      |
| Type "1" (415V)                                                                                                      | [A]             | 200                            | 250     | 250 | 250 | 355 | 355 | 450 | 630  | TBD  | TBD  |
| Type "2" (415V)                                                                                                      | [A]             | 200                            | 250     | 250 | 250 | 355 | 355 | 450 | 560  | TBD  | TBD  |
| <b>UL Class K5 and RK5 Fuses</b>                                                                                     |                 | 10 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (600V)                                                                                         | [A]             | 250                            | 350/450 | 350 | 450 | 500 | —   | —   | —    | —    | —    |
| <b>UL Class L Fuses</b>                                                                                              |                 | 18 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (600V)                                                                                         | [A]             | —                              | —       | —   | —   | —   | 700 | 700 | 1000 | —    | —    |
| <b>UL Class L Fuses</b>                                                                                              |                 | 30 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (600V)                                                                                         | [A]             | —                              | —       | —   | —   | —   | —   | —   | —    | 2000 | —    |
| <b>UL Class L Fuses</b>                                                                                              |                 | 42 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (600V)                                                                                         | [A]             | —                              | —       | —   | —   | —   | —   | —   | —    | —    | 2500 |
| <b>UL Class J and CSA HRCI-J Fuses</b>                                                                               |                 | 100 kA Available Fault Current |         |     |     |     |     |     |      |      |      |
| UL verified combination to IEC60947-4-1 "Type2"                                                                      | [A]             | 200                            | 250/300 | 250 | 300 | 400 | 400 | 500 | 600  | —    | —    |
| <b>UL Inverse-Time Circuit Breaker</b>                                                                               |                 | 10 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (600V)                                                                                         | [A]             | 150                            | 200/250 | 200 | 250 | 300 | —   | —   | —    | —    | —    |
| <b>UL Inverse-Time Circuit Breaker</b>                                                                               |                 | 18 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (600V)                                                                                         | [A]             | —                              | —       | —   | —   | —   | 350 | 400 | 500  | —    | —    |
| <b>UL Inverse-Time Circuit Breaker</b>                                                                               |                 | 25 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (600V/347V)                                                                                    | [A]             | 125                            | 200     | 200 | 200 | 250 | —   | —   | —    | —    | —    |
| <b>UL Inverse-Time Circuit Breaker</b>                                                                               |                 | 30 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (600V)                                                                                         | [A]             | —                              | —       | —   | —   | —   | 400 | 400 | 600  | 1200 | —    |
| <b>UL Inverse-Time Circuit Breaker</b>                                                                               |                 | 42 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (600V)                                                                                         | [A]             | —                              | —       | —   | —   | —   | —   | —   | —    | —    | 1200 |
| <b>UL Inverse-Time Circuit Breaker</b>                                                                               |                 | 65 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (480V)                                                                                         | [A]             | 125                            | 200     | 200 | 200 | 250 | 400 | 400 | 600  | —    | —    |
| <b>UL Inverse-Time Circuit Breaker</b>                                                                               |                 | 65 kA Available Fault Current  |         |     |     |     |     |     |      |      |      |
| UL Listed Combination (480V)                                                                                         | [A]             | 125                            | 200     | 200 | 200 | 250 | 400 | 400 | 600  | —    | —    |

## Coil Data

|                        |                 |                     | 100/104-D,100S-D |                        |     |     |     |     |     |                        |     |                     |     |
|------------------------|-----------------|---------------------|------------------|------------------------|-----|-----|-----|-----|-----|------------------------|-----|---------------------|-----|
|                        |                 |                     | 115              | 140/180                | 115 | 140 | 180 | 210 | 250 | 300                    | 420 | 630                 | 860 |
| Coil Type:             | Conventional    | X                   | X                | —                      | —   | —   | —   | —   | —   | —                      | —   | —                   |     |
|                        | Electronic - EI | X                   | —                | X                      | X   | X   | X   | X   | X   | X                      | X   | X                   |     |
| Operating Limits       |                 |                     |                  |                        |     |     |     |     |     |                        |     |                     |     |
| 50 Hz, 60 Hz, 50/60 Hz | pick-up         | [x U <sub>S</sub> ] | 0.85...1.1       | 0.85...1.1             |     |     |     |     |     | 0.8...1.1              |     |                     |     |
|                        | dropout         | [x U <sub>S</sub> ] | 0.3...0.6        | 0.3...0.5              |     |     |     |     |     | 0.1...0.8              |     |                     |     |
| DC control             | pick-up         | [x U <sub>S</sub> ] | 0.85...1.1       | 0.85...1.1             |     |     |     |     |     | 0.85...1.1             |     |                     |     |
|                        | dropout         | [x U <sub>S</sub> ] | 0.3...0.6        | 0.3...0.5              |     |     |     |     |     | 0.1...0.8              |     |                     |     |
| Coil Consumption       |                 |                     |                  |                        |     |     |     |     |     |                        |     |                     |     |
| 50 Hz, 60 Hz, 50/60 Hz | pick-up         | [VA/W]              | 650/310          | 380/240 <sup>(1)</sup> |     |     |     |     |     | 490/270 <sup>(1)</sup> |     | 1915/1720           |     |
|                        | hold-in         | [VA/W]              | 50/10            | 13/6                   |     |     |     |     |     | 18/7                   |     | 33/30               |     |
| DC control             | pick-up         | [W]                 | 540              | 265 <sup>(1)</sup>     |     |     |     |     |     | 340 <sup>(1)</sup>     |     | 1980 <sup>(1)</sup> |     |
|                        | hold-in         | [W]                 | 8                | 6                      |     |     |     |     |     | 7                      |     | 30                  |     |
| Operating Times        |                 |                     |                  |                        |     |     |     |     |     |                        |     |                     |     |
| AC                     | closing delay   | [ms]                | 20...47          | 20...45                |     |     |     |     |     | 60...100               |     |                     |     |
|                        | opening delay   | [ms]                | 6...12           | 25...110               |     |     |     |     |     | 70...145               |     |                     |     |
| With RC module         | closing delay   | [ms]                | 9...18           | —                      |     |     |     |     |     | —                      |     |                     |     |
| DC                     | opening delay   | [ms]                | 27...47          | 25...50                |     |     |     |     |     | 60...100               |     |                     |     |
|                        | closing delay   | [ms]                | 12...20          | 35...110               |     |     |     |     |     | 70...145               |     |                     |     |
| With integrated diode  | opening delay   | [ms]                | 12...20          | —                      |     |     |     |     |     | —                      |     |                     |     |
| With external diode    | opening delay   | [ms]                | —                | —                      |     |     |     |     |     | —                      |     | —                   |     |

(1) Electronic coil drives are designed to minimize power requirements, but this control may exhibit a higher inrush (540 W, < 10 ms) when energizing. This must be taken into account for the proper sizing of supply devices, all-or-nothing relays and cross-sections of coil supply lines. Please contact your local Rockwell Automation sales office or Allen-Bradley distributor for detailed information.

## Auxiliary Contacts, Auxiliary Contact Blocks, and Pneumatic Timers

|                                     |          |     | Side-mounted |            |                             |
|-------------------------------------|----------|-----|--------------|------------|-----------------------------|
|                                     |          |     | Conventional | Bifurcated | Electronically Compatible   |
| Switching of AC Loads               |          |     |              |            |                             |
| AC-12 $I_{th}$                      | at 40 °C | [A] | 16           | 10         | 0.1                         |
|                                     | at 60 °C | [A] | 12           | 6          | at 250V                     |
| AC-15 at rated voltage of           | 24V      | [A] | 5.5          | 3          | (1...100 mA) at<br>3...125V |
|                                     | 42/48V   | [A] | 5.5          | 3          |                             |
|                                     | 120V     | [A] | 5.5          | 3          |                             |
|                                     | 230V     | [A] | 5.5          | 3          |                             |
|                                     | 240V     | [A] | 5            | 3          |                             |
|                                     | 400V     | [A] | 3            | 2          |                             |
|                                     | 415V     | [A] | 2.5          | 2          |                             |
|                                     | 500V     | [A] | 1.6          | 1.2        |                             |
|                                     | 690V     | [A] | 1            | 0.7        |                             |
| Switching of DC Loads               |          |     |              |            |                             |
| DC-12 L/R < 1 ms resistive loads at | 24V DC   | [A] | 16           | 16         | —                           |
|                                     | 48V DC   | [A] | 9            | 9          | —                           |
|                                     | 110V DC  | [A] | 3.5          | 3.5        | —                           |
|                                     | 220V DC  | [A] | 0.55         | 0.55       | —                           |
|                                     | 440V DC  | [A] | 0.2          | 0.2        | —                           |

|                                                                    |                                                                                   |     | Side-mounted                            |                            |                             |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|-----------------------------------------|----------------------------|-----------------------------|
|                                                                    |                                                                                   |     | Conventional                            | Bifurcated                 | Electronically Compatible   |
| DC-14L/R <15 ms inductive loads with economy resistor in series at | 24V DC                                                                            | [A] | 9                                       | 9                          | —                           |
|                                                                    | 48V DC                                                                            | [A] | 5                                       | 5                          | —                           |
|                                                                    | 110V DC                                                                           | [A] | 2                                       | 2                          | —                           |
|                                                                    | 220V DC                                                                           | [A] | 0.4                                     | 0.4                        | —                           |
|                                                                    | 440V DC                                                                           | [A] | 0.16                                    | 0.1                        | —                           |
| DC-13 switching electromagnets at                                  | 24V DC                                                                            | [A] | 5                                       | 5                          | (1...100 mA) at<br>3...125V |
|                                                                    | 48V DC                                                                            | [A] | 2                                       | 2                          |                             |
|                                                                    | 110V DC                                                                           | [A] | 0.7                                     | 0.7                        |                             |
|                                                                    | 220V DC                                                                           | [A] | 0.25                                    | 0.25                       |                             |
|                                                                    | 440V DC                                                                           | [A] | 0.12                                    | 0.12                       |                             |
| Fuse gG                                                            |                                                                                   |     |                                         |                            |                             |
|                                                                    |  | [A] | 16                                      | 16                         | —                           |
|                                                                    |  | [A] | 16                                      | 16                         | —                           |
| Protective Separation per IEC 60947-1, Annex N                     |                                                                                   |     | between load and auxiliary circuit 440V |                            |                             |
| Min. switching capacity according to IEC 60947-5-4                 |                                                                                   |     | 17V/10 mA                               | 5V/2 mA (1million ops.)    | 3V/1 mA                     |
| Load Carrying Capacity per UL/CSA                                  |                                                                                   |     |                                         |                            |                             |
| Rated voltage                                                      | AC                                                                                | [V] | max.600                                 |                            | max.250                     |
| Continuous rating                                                  | 40 °C                                                                             | [A] | 10 General purpose                      |                            | 0.1                         |
| Switching capacity                                                 | AC                                                                                | [A] | Heavy pilot duty (A600)                 |                            | 0.1                         |
| Rated voltage                                                      | DC                                                                                | [V] | max.600                                 |                            | max.250                     |
| Switching capacity                                                 | DC                                                                                | [A] | Standard pilot duty (P600)              | Standard pilot duty (Q600) | 0.1                         |

## General

| Attribute                                 |      | Value                                                |
|-------------------------------------------|------|------------------------------------------------------|
| Rated Isolation Voltage $U_i$             |      |                                                      |
| IEC                                       | [V]  | 1000                                                 |
| UL, CSA                                   | [V]  | 600                                                  |
| Rated Impulse Voltage Withstand $U_{imp}$ | [kV] | 12                                                   |
| Rated Voltage $U_e$                       |      |                                                      |
| AC 50/60 Hz                               | [V]  | 230, 240, 400, 415, 500, 690, 1000                   |
| DC                                        | [V]  | 24, 48, 110, 220, 440                                |
| Insulation Class of the Coil              |      | Class B per VDE 0660, Table 22                       |
| Rated coil frequency                      |      | AC 50 Hz; 50/60Hz DC                                 |
| Ambient Temperature                       |      |                                                      |
| Storage                                   | [°C] | -40...+80                                            |
| Operation at rated voltage                | [°C] | -25...+60                                            |
| at 70 °C                                  |      | 15% current reduction against 60 °C values           |
| Climatic Withstand                        |      | IEC 60068-2-30                                       |
| Max. Altitude of Installation Site        | [m]  | 2000NN, per IEC60947-4                               |
| Protection Class                          |      | IP00 IEC 60529/DIN 40050                             |
| Single contactor cover                    |      | IP10 IEC 60529/DIN 40050                             |
| Contactor with frame terminal block       |      | IP20 IEC 60529/DIN 40050                             |
| Auxiliary contact                         |      | IP20 IEC60529/DIN 40050                              |
| Protection against Accidental Contact     |      | Finger-and back-of-hand proof per VDE 0106, part 100 |
| Resistance to Shock                       |      | IEC 60068-2-27                                       |
| Resistance to Vibration                   |      | IEC 60068-2-6                                        |
| Mirror Contacts IEC60947-4 Annex F        |      | 100-D...+2 x 100-DS1-11; 100S-D...+2 x 100S-DS1-11   |

## Standards Compliance and Certifications

### 100-D IEC Contactors

| Standards Compliance            | Certifications                                                       |
|---------------------------------|----------------------------------------------------------------------|
| IEC 60947-4-1                   | CE Marked                                                            |
| IEC 60947 Type "2" Coordination | CCC (115...180 A - conventional coil; 115...860 A - electronic coil) |
| CSA 22.2 No. 14                 | cULus Listed (File No. E 41850, Guide NLDX, NLDX7)                   |
| UL 508                          |                                                                      |

### 100S-D Safety Contactors

| Standards Compliance            | Certifications                                                       |
|---------------------------------|----------------------------------------------------------------------|
| IEC 60947-4-1                   | CE Marked                                                            |
| IEC 60947-4 Annex F             | cULus Listed (File No. E 41850, Guide NLDX, NLDX7)                   |
| IEC 60947 Type "2" Coordination | SUVA Certified                                                       |
| CSA C22.2 No. 14                | CCC (115...180 A - conventional coil; 115...860 A - electronic coil) |
| UL 508                          |                                                                      |

## Life-Load Curves

Figure 30 - AC-3, AC-1

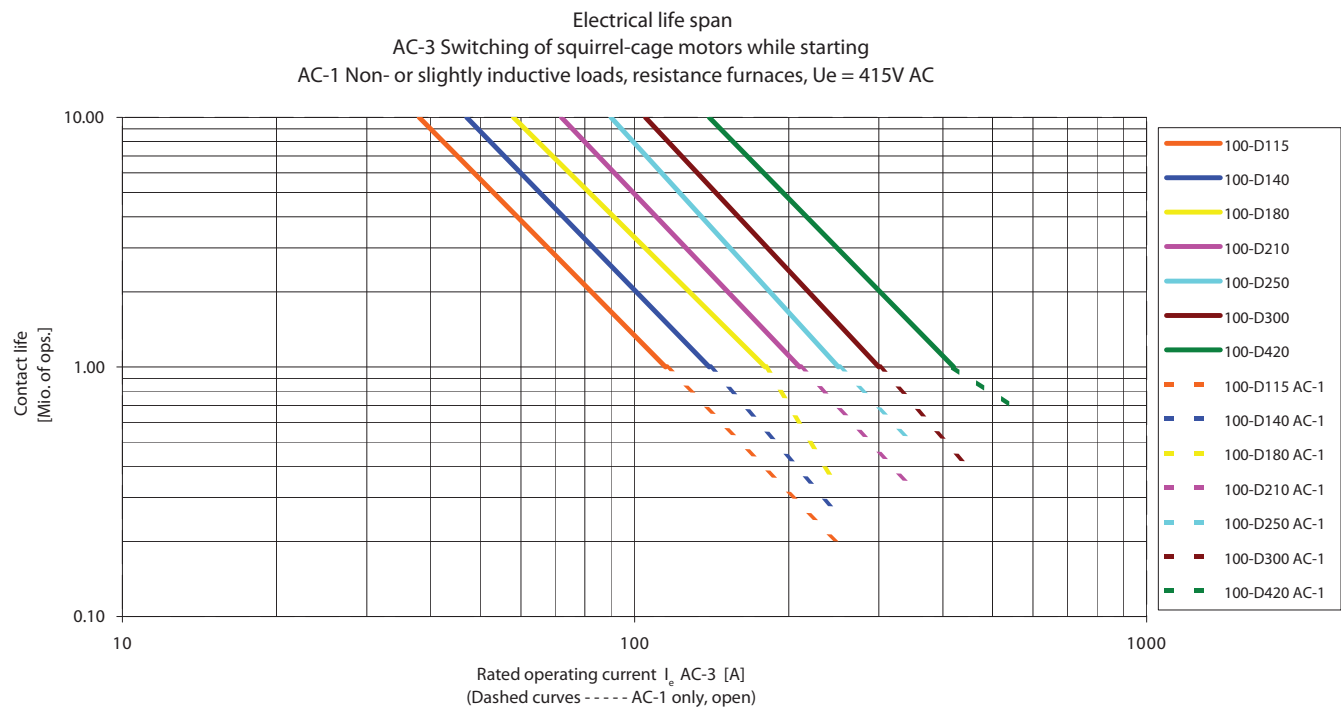


Figure 31 - AC-4

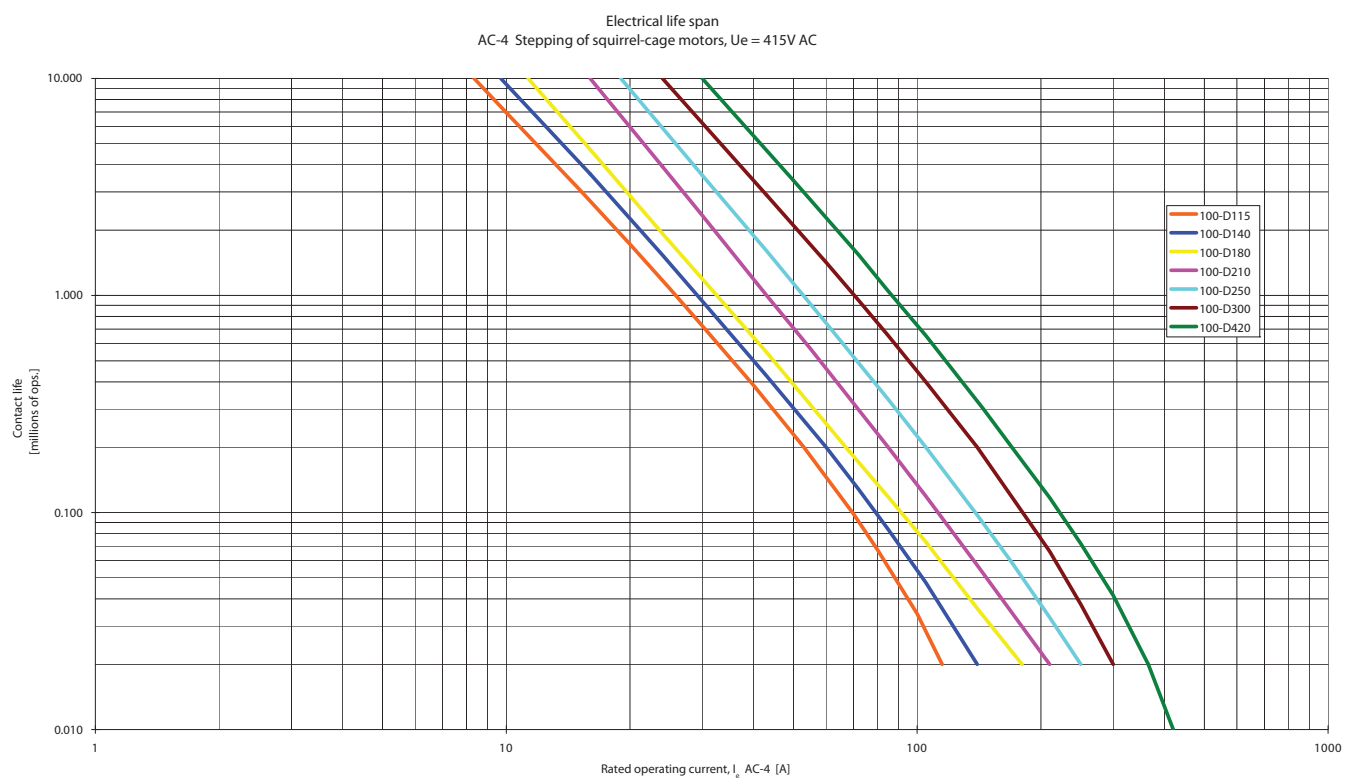
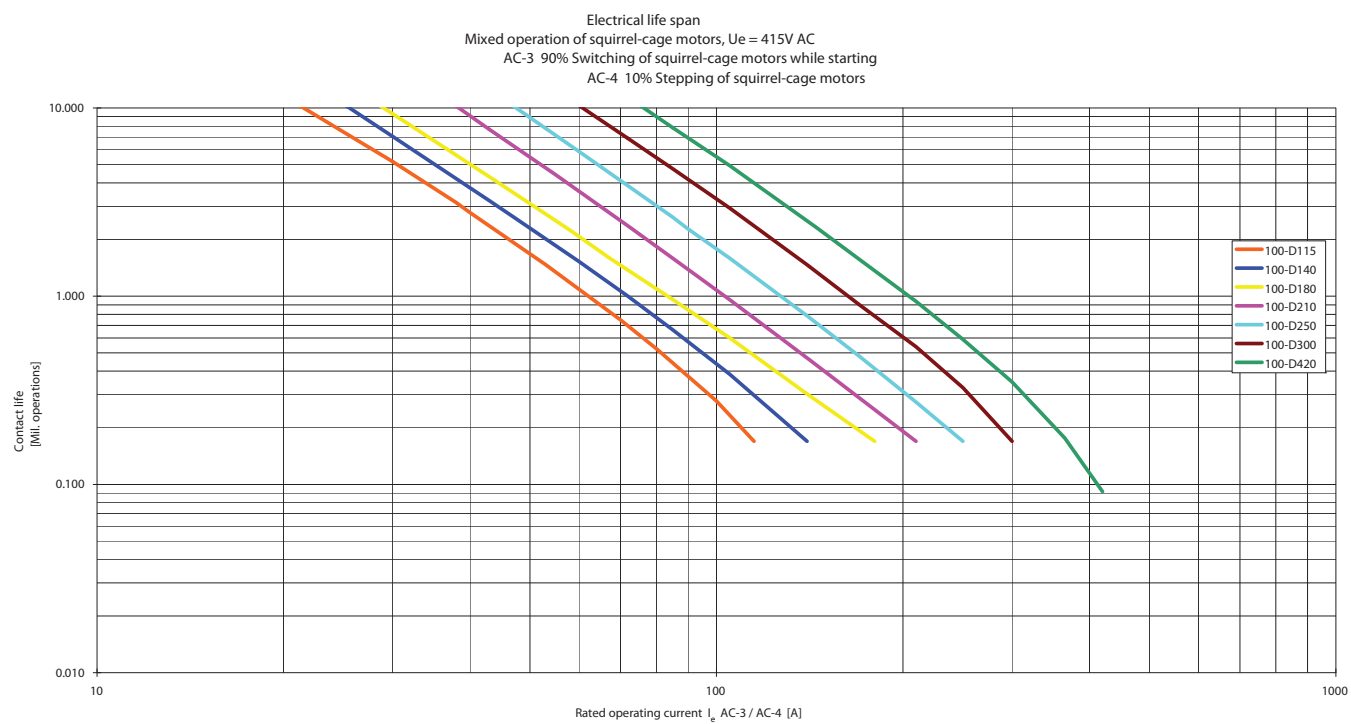


Figure 32 - AC-3 90% and AC-4 10%

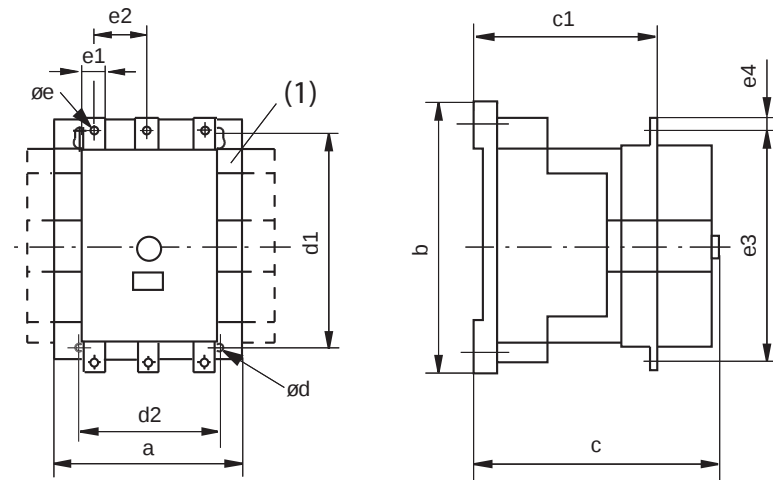


# Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

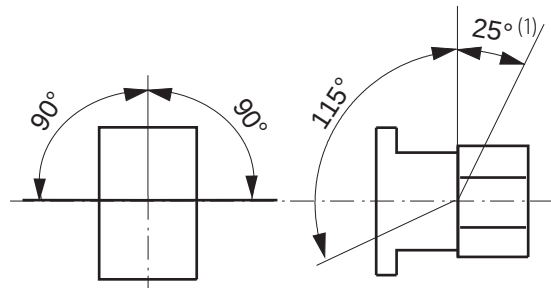
## Bulletin 100-D/104-D, 100S-D Approximate Dimensions

**Figure 33 - Bulletin 100-D/100S-D Contactors and Accessories**



(1) Conventional DC coil contactors will have an additional auxiliary contact block that will add 13.5 mm to the "a" dimension on the right-hand side.

**Figure 34 - Mounting Position, 100-D, 100S-D, 104-D Contactors**



(1) Applies only to conventional single frequency, conventional DC and electronic coils.

### Contactors with Accessories

| Contactor with          |            | mm            |
|-------------------------|------------|---------------|
| Auxiliary contact block | 100-DS1... | a             |
|                         | 100-DS2... | a + 13.5 each |
| Mechanical Interlock    | 100-DM...  | a + a         |
| Frame terminal block    | 100-DTB110 | b + 7 each    |
|                         | 100-DTB180 | b + 7 each    |
|                         | 100-DTB420 | b + 8.5 each  |
| Label holder            |            | c... + 5      |

### AC and DC Contactors

| Cat. No.                                                 | a   | b   | c   | c1    | Ø d | d1  | d2  | Ø e  | e1 | e2 | e3  | e4   |
|----------------------------------------------------------|-----|-----|-----|-------|-----|-----|-----|------|----|----|-----|------|
| 100-D115E...100-D180E, 100-D115, 100-D140, 100-D180      | 120 | 170 | 156 | 110.5 | 5.2 | 145 | 100 | 8.5  | 20 | 39 | 160 | 10   |
| 100-D210E...100-D420E                                    | 155 | 205 | 180 | 110.5 | 6.5 | 180 | 130 | 10.4 | 25 | 48 | 193 | 12.5 |
| 100-D630E...100-D860E                                    | 255 | 310 | 265 | 110.5 | 10  | 230 | 225 | M12  | 40 | 70 | 291 | 22   |
| 100S-D115E...100S-D180E, 100S-D115, 100S-D140, 100S-D180 | 120 | 170 | 156 | 110.5 | 5.2 | 145 | 100 | 8.5  | 20 | 39 | 160 | 10   |
| 100S-D210E...100S-D420E                                  | 155 | 205 | 180 | 110.5 | 6.5 | 180 | 130 | 10.5 | 25 | 48 | 193 | 12.5 |
| 100S-D630E...100S-D860E                                  | 255 | 310 | 265 | 110.5 | 10  | 230 | 225 | M12  | 40 | 70 | 291 | 22   |

Notes:

## Product Selection—100-G Contactors

- 315...710 kW, 400V
- 350...900 Hp, 460/575V
- 3-Pole contactors
- 4th add-on neutral switching pole AC and DC control
- Horizontal and vertical interlocking Mechanical latching
- Meets IEC, CE, and cULus Standards and Certifications



The Bulletin 100-G contactor product family provides reliable switching of motor loads up to 1200 A. A complete range of accessories including auxiliary contacts, mechanical latches, horizontal and vertical interlocks, and 4th add-on neutral switching poles provides maximum flexibility to meet a wide variety of application requirements.

### AC and DC Control

| Rated Operational Current $I_e$ [A] | Ratings for switching AC motors - AC-2, AC-3 |      |      |      |            |      |      |      |            | Auxiliary Contacts                                                                  |                                                                                     | Cat No.                     |
|-------------------------------------|----------------------------------------------|------|------|------|------------|------|------|------|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------|
| 40 °C                               | kW (50 Hz) <sup>(1)</sup>                    |      |      |      | Hp (60 Hz) |      |      |      | kW (50 Hz) |  |  |                             |
| AC-1 (690V)                         | 230V                                         | 400V | 500V | 690V | 200V       | 230V | 460V | 575V | 400        | N.O.                                                                                | N.C.                                                                                |                             |
| 760                                 | 160                                          | 315  | 400  | 500  | 150        | 150  | 350  | 350  | 315        | 2                                                                                   | 2                                                                                   | 100-G550Ø22                 |
| 1000                                | 220                                          | 400  | 500  | 630  | 200        | 250  | 500  | 500  | 400        | 2                                                                                   | 2                                                                                   | 100-G700Ø22                 |
| 1100                                | 280                                          | 500  | 630  | 710  | 250        | 300  | 600  | 600  | 500        | 2                                                                                   | 2                                                                                   | 100-G860Ø22                 |
| 1200                                | 315                                          | 560  | 750  | 850  | —          | —    | —    | —    | 560        | 2 <sup>(2)</sup>                                                                    | 2                                                                                   | <sup>(3)</sup> 100-G1000Ø12 |
| 1350                                | 375                                          | 710  | 900  | 1000 | 450        | 450  | 900  | 900  | 710        | 2                                                                                   | 2                                                                                   | 100-G1200Ø12                |

(1) Preferred values according to IEC 60072-1.

(2) 1 N.O. contact used in control circuit

(3) No UL/cUL

### Coil Voltage Codes

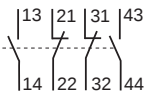
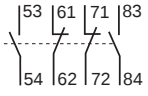
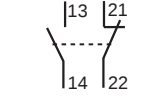
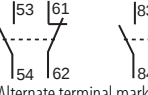
The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60 Hz: Cat. No. 100-G550Ø22 becomes Cat. No.100-G550KD22.

| AC Voltages [V], Conventional Coil |          | 100...110 | 110...120 | 200...220 | 220...240 | 345...380 | 380...415 | 400...440 | 440...480 |
|------------------------------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 100-G550...100-G860                | 50/60 Hz | —         | KD        | —         | KF        | —         | KN        | —         | KB        |
|                                    | DC       | KD        | —         | KF        | —         | KN        | —         | KB        | —         |

| AC Voltages [V], Conventional Coil |          | 110...115 | 110               | 220...230 | 220               | 240 | 380...400 | 440 | 480 |
|------------------------------------|----------|-----------|-------------------|-----------|-------------------|-----|-----------|-----|-----|
| 100-G1000...100-G1200              | 50/60 Hz | KD        | —                 | KF        | —                 | KA  | KN        | KB  | KU  |
|                                    | DC       | —         | ZD <sup>(1)</sup> | —         | ZA <sup>(1)</sup> | —   | —         | —   | —   |

(1) Consult your local Rockwell Automation sales office or Allen-Bradley distributor.

# Accessories

|                                                                                     | Description                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                             | For Use With                                     | Cat. No. <sup>(1)</sup> |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------|
|    | Auxiliary Contact Block <ul style="list-style-type: none"> <li>For mounting between T1 &amp; T2 or between T2 &amp; T3</li> <li>Adjustable; provides normal, delayed, or overlapping contacts</li> <li>Max. two blocks/contactor</li> <li>Alternate terminal marking tags included</li> <li>2 N.O and 2 N.C. contacts</li> </ul> | <br>Standard terminal marking for mounting between T1 & T2<br><br>Alternate terminal marking for mounting between T2 & T3 | 100-G550...100-G860                              | 100-EF22                |
|    | Auxiliary Contact Block <ul style="list-style-type: none"> <li>For side mounting on either side of the contactor</li> <li>Max. four blocks/contactor</li> <li>Alternate terminal marking tags included</li> <li>1 N.O and 1 N.C. contact</li> </ul>                                                                              | <br>Standard terminal marking<br><br>Alternate terminal markings                                                          | 100-G1000...100-G1200                            | 100-EB11                |
|   | Fourth Add-On Neutral Switching Pole <ul style="list-style-type: none"> <li>Left- or right-side mountable</li> <li>Note: no UL/cUL</li> </ul>                                                                                                                                                                                    | $I_{th}$ AC-1 500 A                                                                                                                                                                                                                                                                         | 100-G500, 100-G700, 100-G860                     | 100-NP800-5             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  | $I_{th}$ AC-1 1000 A                                                                                                                                                                                                                                                                        | 100-G700, 100-G860                               | 100-NP1000-6            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             | 100-G1000, 100-G1200                             | 100-NP1000-7            |
|  | Mechanical Latch <ul style="list-style-type: none"> <li>Mechanical life: 0.5 million operations</li> <li>Direct and impulse Control</li> </ul>                                                                                                                                                                                   | Direct and Impulse Contact control                                                                                                                                                                                                                                                          | 100-G550                                         | 100-FLAM5⊗              |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  | Direct and Impulse Contact control                                                                                                                                                                                                                                                          | 100-G700, 100-G860                               | 100-FLAM6⊗              |
|  | Mechanical Interlock — Horizontal                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                             | 100-G550 to 100-G550                             | 100-MC00-5H             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             | 100-G550 to 100-G700 or 100-G860                 | 100-MC00-56H            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             | 100-G700 or 100-G860 to 100-G700 or 100-G860     | 100-MC00-6H             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             | 100-G700 or 100-G860 to 100-G1000 or 100-G1200   | 100-MC0067H             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             | 100-G1000 or 100-G1200 to 100-G1000 or 100-G1200 | 100-MC00-7H             |
|  | Mechanical Interlock — Vertical                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             | 100-G550 to 100-G550                             | 100-MC00-5V             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             | 100-G550 to 100-G700 or 100-G860                 | 100-MC00-56V            |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             | 100-G700 or 100-G860 to 100-G700 or 100-G860     | 100-MC00-6V             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             | 100-G700 or 100-G860 to 100-G1000 or 100-G1200   | 100-MC0067V             |
|                                                                                     |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                             | 100-G1000 or 100-G1200 to 100-G1000 or 100-G1200 | 100-MC00-7V             |

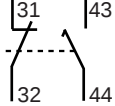
(1) Package Quantity = 1

## Coil Voltage Codes

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No.  
 Example: Cat. No. 100-FLAM5⊗ becomes Cat. No. 100-FLAM5KD.

| For Use With     | [V]      | 110...120 | 220...240 | 380...415 | 440...480 |
|------------------|----------|-----------|-----------|-----------|-----------|
| 100-G550...-G860 | 50/60 Hz | KD        | KF        | KN        | KB        |

# Renewal Parts

|                                                                                                                                                                                                                                                                                                                                                                                    | Description                                                                       | For Use With         | Cat. No.   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------|------------|
|  <p>Arcing Chamber</p> <ul style="list-style-type: none"> <li>For 3 poles</li> </ul>                                                                                                                                                                                                              |                                                                                   | 100-G550             | 100-AC550  |
|                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                   | 100-G700, 100-G860   | 100-AC860  |
|  <p>Main Contact Set</p> <ul style="list-style-type: none"> <li>Set for 1 pole</li> </ul>                                                                                                                                                                                                         |                                                                                   | 100-G550             | 100-CP550  |
|                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                   | 100-G700             | 100-CP700  |
|                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                   | 100-G860             | 100-CP860  |
|                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                   | 100-G1000            | 100-CP1000 |
|                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                   | 100-G1200            | 100-CP1200 |
|  <p>Auxiliary Contact Block</p> <ul style="list-style-type: none"> <li>Special 2-pole design: 1 N.O. delayed make, 1 N.C. contact</li> <li>N.O. delayed make contact used for operation of the feeder/group coil mechanism</li> <li>One contact block supplied standard with contactor</li> </ul> |  | 100-G1000, 100-G1200 | 100-EB11DC |

## Coils and Supply Modules



| AC Standard Control Voltages | DC Standard Control Voltage | Coil Code | 100-G550 |          | 100-G700...100-G860 |          |
|------------------------------|-----------------------------|-----------|----------|----------|---------------------|----------|
|                              |                             |           | Cat. No. | Cat. No. | Cat. No.            | Cat. No. |
| 50/60 Hz                     |                             |           |          |          |                     |          |
| 110...120V                   | 100...110V                  | KD        | TX734    | TXS734   | TY734               | TYS734   |
| 220...240V                   | 200...220V                  | KF        | TX747    | TXS747   | TY747               | TYS747   |
| 380...415V                   | 345...380V                  | KN        | TX779    | TXS779   | TY779               | TYS779   |
| 440...480V                   | 400...440V                  | KB        | TX780    | TXS780   | TY780               | TYS780   |

| AC Standard Control Voltages | Coil Code | 100-G1000...100-G1200        |                        |
|------------------------------|-----------|------------------------------|------------------------|
|                              |           | Coil Cat. No. <sup>(1)</sup> | Supply Module Cat. No. |
| 50/60 Hz                     |           |                              |                        |
| 110...115V                   | KD        | TZ734                        | TZS734                 |
| 220...230V                   | KF        | TZ747                        | TZS747                 |
| 380...400V                   | KN        | TZ779                        | TZS779                 |
| 440V                         | KB        | TZ780                        | TZS780                 |
| 480V                         | KU        | TZ781                        | TZS781                 |

(1) Coils sold in pairs.

# Specifications

## Electrical Data

|                                                                                             |                         |      | 100-G550 | 100-G700 | 100-G860 | 100-G1000 | 100-G1200 |
|---------------------------------------------------------------------------------------------|-------------------------|------|----------|----------|----------|-----------|-----------|
| <b>AC-1, Three-phase Switching-IEC</b>                                                      |                         |      |          |          |          |           |           |
| <b>Ambient temperature: 40 °C</b>                                                           |                         |      |          |          |          |           |           |
| $I_e$                                                                                       | ≤690V                   | [A]  | 760      | 1000     | 1100     | 1200      | 1350      |
|                                                                                             | ≤230V                   | [kW] | 303      | 398      | 438      | 478       | 538       |
|                                                                                             | ≤240V                   | [kW] | 316      | 416      | 457      | 499       | 561       |
|                                                                                             | ≤400V                   | [kW] | 527      | 693      | 762      | 831       | 935       |
|                                                                                             | ≤415V                   | [kW] | 546      | 719      | 791      | 863       | 970       |
|                                                                                             | ≤500V                   | [kW] | 658      | 866      | 953      | 1039      | 1169      |
|                                                                                             | ≤690V                   | [kW] | 908      | 1195     | 1315     | 1434      | 1613      |
| <b>Ambient temperature: 60 °C</b>                                                           |                         |      |          |          |          |           |           |
| $I_e$                                                                                       | ≤690V                   | [A]  | 605      | 800      | 870      | 960       | 1,085     |
|                                                                                             | ≤230V                   | [kW] | 241      | 319      | 347      | 382       | 432       |
|                                                                                             | ≤240V                   | [kW] | 251      | 333      | 362      | 399       | 451       |
|                                                                                             | ≤400V                   | [kW] | 419      | 554      | 603      | 665       | 752       |
|                                                                                             | ≤415V                   | [kW] | 435      | 575      | 625      | 690       | 780       |
|                                                                                             | ≤500V                   | [kW] | 524      | 693      | 753      | 831       | 940       |
|                                                                                             | ≤690V                   | [kW] | 723      | 956      | 1040     | 1147      | 1297      |
| Continuous Current- UL/CSA General Purpose Rating 40 °C                                     |                         | [A]  | 520      | 700      | 810      | —         | 1215      |
| <b>Switching of 3-phase Motors-IEC</b>                                                      |                         |      |          |          |          |           |           |
| AC-2, AC-3                                                                                  | 230/240V                | [A]  | 550      | 700      | 860      | 1000      | 1200      |
| 50Hz/60°C                                                                                   | 400/415V                | [A]  | 550      | 700      | 860      | 1000      | 1200      |
|                                                                                             | 500V                    | [A]  | 550      | 700      | 860      | 1000      | 1200      |
|                                                                                             | 690V                    | [A]  | 500      | 630      | 700      | 860       | 1000      |
|                                                                                             | 230V                    | [kW] | 179      | 228      | 280      | 326       | 391       |
|                                                                                             | 240V                    | [kW] | 187      | 238      | 293      | 340       | 408       |
|                                                                                             | 400V                    | [kW] | 312      | 414      | 509      | 592       | 710       |
|                                                                                             | 415V                    | [kW] | 324      | 430      | 528      | 628       | 737       |
|                                                                                             | 500V                    | [kW] | 407      | 518      | 636      | 756       | 888       |
|                                                                                             | 690V                    | [kW] | 510      | 657      | 730      | 897       | 1043      |
| <b>AC-4 at 200 000 operations</b>                                                           |                         |      |          |          |          |           |           |
| 50Hz                                                                                        | 230/240V                | [A]  | 140      | 180      | 210      | 260       | 300       |
|                                                                                             | 400/415V                | [A]  | 140      | 180      | 210      | 260       | 300       |
|                                                                                             | 230V                    | [kW] | 45       | 57       | 67       | 83        | 97        |
|                                                                                             | 240V                    | [kW] | 47       | 60       | 70       | 87        | 101       |
|                                                                                             | 400V                    | [kW] | 78       | 101      | 118      | 146       | 170       |
|                                                                                             | 415V                    | [kW] | 81       | 105      | 122      | 151       | 176       |
| <b>AC-4, Squirrel-cage motors with reversing and jogging at 20,000 (25,000), operations</b> |                         |      |          |          |          |           |           |
|                                                                                             | 230/240V                | [A]  | 360      | 430      | 520      | (630)     | (700)     |
|                                                                                             | 400/415V <sup>(1)</sup> | [A]  | 350      | 420      | 520      | (630)     | (700)     |
|                                                                                             | 230V                    | [kW] | 116      | 139      | 170      | (205)     | (228)     |
|                                                                                             | 240V                    | [kW] | 120      | 151      | 177      | (214)     | (245)     |
|                                                                                             | 400V                    | [kW] | 198      | 238      | 295      | (357)     | (414)     |
|                                                                                             | 415V                    | [kW] | 206      | 247      | 300      | (359)     | (424)     |

(1) At rated Voltage 415V and rated current: Lifespan -25%.

|                                                                                                                     |       |        | 100-G550 | 100-G700 | 100-G860 | 100-G1000 | 100-G1200 |
|---------------------------------------------------------------------------------------------------------------------|-------|--------|----------|----------|----------|-----------|-----------|
| <b>Switching of 3-phase Motors-UL/CSA</b>                                                                           |       |        |          |          |          |           |           |
| 60Hz/60°C                                                                                                           | 200V  | [A]    | 414      | 552      | 692      | —         | 1185      |
|                                                                                                                     | 230V  | [A]    | 360      | 602      | 722      | —         | 1130      |
|                                                                                                                     | 460V  | [A]    | 414      | 590      | 708      | —         | 1062      |
|                                                                                                                     | 575V  | [A]    | 336      | 472      | 576      | —         | 864       |
|                                                                                                                     | 200V  | [Hp]   | 150      | 200      | 250      | —         | 450       |
|                                                                                                                     | 230V  | [Hp]   | 150      | 250      | 300      | —         | 450       |
|                                                                                                                     | 460V  | [Hp]   | 350      | 500      | 600      | —         | 900       |
|                                                                                                                     | 575V  | [Hp]   | 350      | 500      | 600      | —         | 900       |
| <b>Rated making capacity</b>                                                                                        |       |        |          |          |          |           |           |
| AC-3 $I_e$                                                                                                          | ≤415V | [A]    | 5500     | 7000     | 8600     | 10000     | 12000     |
|                                                                                                                     | ≤500V | [A]    | 5500     | 7000     | 8600     | 10000     | 12000     |
|                                                                                                                     | ≤690V | [A]    | 5500     | 7000     | 8600     | 10000     | 12000     |
| <b>Rated making capacity</b>                                                                                        |       |        |          |          |          |           |           |
| AC-3 $I_e$                                                                                                          | ≤240V | [A]    | 4400     | 5600     | 6900     | 8000      | 9600      |
|                                                                                                                     | ≤400V | [A]    | 4400     | 5600     | 6900     | 8000      | 9600      |
|                                                                                                                     | ≤415V | [A]    | 4400     | 5600     | 6900     | 8000      | 9600      |
|                                                                                                                     | ≤500V | [A]    | 4400     | 5600     | 6900     | 8000      | 9600      |
|                                                                                                                     | ≤690V | [A]    | 4000     | 5100     | 5600     | 6900      | 8000      |
| <b>Star-Delta Starting</b>                                                                                          |       |        |          |          |          |           |           |
| 50 Hz                                                                                                               | 230V  | [A]    | 953      | 1212     | 1490     | 1732      | 2078      |
|                                                                                                                     | 240V  | [A]    | 953      | 1212     | 1490     | 1732      | 2078      |
|                                                                                                                     | 400V  | [A]    | 953      | 1212     | 1490     | 1732      | 2078      |
|                                                                                                                     | 415V  | [A]    | 953      | 1212     | 1490     | 1732      | 2078      |
|                                                                                                                     | 500V  | [A]    | 953      | 1212     | 1490     | 1732      | 2078      |
|                                                                                                                     | 690V  | [A]    | 831      | 1091     | 1195     | 1490      | 1732      |
|                                                                                                                     | 230V  | [kW]   | 310      | 395      | 485      | 565       | 677       |
|                                                                                                                     | 240V  | [kW]   | 324      | 412      | 507      | 589       | 707       |
|                                                                                                                     | 400V  | [kW]   | 540      | 717      | 882      | 1025      | 1250      |
|                                                                                                                     | 415V  | [kW]   | 561      | 745      | 915      | 1088      | 1278      |
|                                                                                                                     | 500V  | [kW]   | 705      | 897      | 1102     | 1309      | 1538      |
|                                                                                                                     | 690V  | [kW]   | 883      | 1138     | 1247     | 1554      | 2078      |
| <b>Wye-Delta Starting</b>                                                                                           |       |        |          |          |          |           |           |
| 60 Hz                                                                                                               | 230V  | [Hp]   | 250      | 400      | 500      | 650       | 750       |
|                                                                                                                     | 460V  | [Hp]   | 600      | 800      | 1000     | 1300      | 1500      |
|                                                                                                                     | 575V  | [Hp]   | 600      | 800      | 1000     | 1500      | 1500      |
| <b>Short-circuit Protection of Contactors without Overload Relay</b>                                                |       |        |          |          |          |           |           |
| Fuse gG (aM) Type 1 coordination (per IEC 60947-4-1)                                                                | 500V  | [A]    | (630)    | 800      | 1000     | 1000      | 1250      |
|                                                                                                                     | 690V  | [A]    | (630)    | 800      | 1000     | 1000      | 1000      |
| <b>Switching of Three-phase Capacitor Inductivity of dispatching between parallel switched capacitor: min. 6 pH</b> |       |        |          |          |          |           |           |
| Single capacitors — 40 °C                                                                                           | 230V  | [kVar] | 180      | 220      | 250      | 290       | 330       |
|                                                                                                                     | 240V  | [kVar] | 200      | 250      | 300      | 325       | 360       |
|                                                                                                                     | 400V  | [kVar] | 320      | 400      | 450      | 500       | 575       |
|                                                                                                                     | 415V  | [kVar] | 350      | 430      | 500      | 550       | 630       |
|                                                                                                                     | 500V  | [kVar] | 450      | 520      | 600      | 660       | 750       |
|                                                                                                                     | 690V  | [kVar] | 580      | 700      | 800      | 875       | 1000      |

|                           |      |        | 100-G550 | 100-G700 | 100-G860 | 100-G1000 | 100-G1200 |
|---------------------------|------|--------|----------|----------|----------|-----------|-----------|
| Single capacitors — 55 °C | 230V | [kVar] | 150      | 180      | 220      | 275       | 325       |
|                           | 240V | [kVar] | 170      | 200      | 260      | 300       | 350       |
|                           | 400V | [kVar] | 280      | 330      | 400      | 460       | 550       |
|                           | 415V | [kVar] | 300      | 360      | 450      | 500       | 600       |
|                           | 500V | [kVar] | 360      | 420      | 540      | 600       | 720       |
|                           | 690V | [kVar] | 500      | 580      | 720      | 800       | 950       |

| Cat. No.                                     |      |        | 100-G550 | 100-G700 | 100-G860 | 100-G1000 | 100-G1200 |
|----------------------------------------------|------|--------|----------|----------|----------|-----------|-----------|
| <b>Ratings for Switching Capacitor Banks</b> |      |        |          |          |          |           |           |
| 40 °C                                        | 230V | [kVar] | 180      | 220      | 250      | 290       | 330       |
|                                              | 240V | [kVar] | 200      | 250      | 300      | 325       | 360       |
|                                              | 400V | [kVar] | 320      | 400      | 450      | 500       | 575       |
|                                              | 415V | [kVar] | 350      | 430      | 500      | 550       | 430       |
|                                              | 500V | [kVar] | 450      | 520      | 600      | 660       | 750       |
|                                              | 690V | [kVar] | 580      | 700      | 800      | 875       | 1000      |
| 55 °C                                        | 230V | [kVar] | 150      | 180      | 220      | 275       | 325       |
|                                              | 240V | [kVar] | 170      | 200      | 260      | 300       | 350       |
|                                              | 400V | [kVar] | 280      | 330      | 400      | 460       | 550       |
|                                              | 415V | [kVar] | 300      | 360      | 450      | 500       | 600       |
|                                              | 500V | [kVar] | 360      | 420      | 540      | 600       | 720       |
|                                              | 690V | [kVar] | 500      | 580      | 720      | 800       | 950       |

**DC Switching****Switching of non-or slightly inductive loads, resistance furnaces; DC-1 at 60°C**

|                   |        |     |     |     |     |      |      |
|-------------------|--------|-----|-----|-----|-----|------|------|
| 1 Pole            | 24/48V | [A] | 645 | 760 | 930 | 1020 | 1150 |
| 2 Poles in series | 24/48V | [A] | 645 | 760 | 930 | 1020 | 1150 |
| 3 Poles in series | 24/48V | [A] | 645 | 760 | 930 | 1020 | 1150 |
|                   | 110V   | [A] | 480 | 560 | 630 | 800  | 900  |
|                   | 220V   | [A] | 315 | 400 | 450 | 500  | 600  |

**Shunt-Wound Motors****Starting, plugging, reversing, plugging; DC-3 at 60 °C**

|                   |        |     |     |     |     |     |      |
|-------------------|--------|-----|-----|-----|-----|-----|------|
| 3 Poles in series | 24/48V | [A] | 605 | 800 | 870 | 960 | 1085 |
|-------------------|--------|-----|-----|-----|-----|-----|------|

**Series-Wound Motors**

|                                                       |        |     |     |     |     |     |      |
|-------------------------------------------------------|--------|-----|-----|-----|-----|-----|------|
| Starting, plugging, reversing, plugging; DC-5 at 60°C |        |     |     |     |     |     |      |
| 3 Poles in series                                     | 24/48V | [A] | 605 | 800 | 870 | 960 | 1085 |

**Lighting Loads; Elec.Discharge.Lamps-AC-5a,**

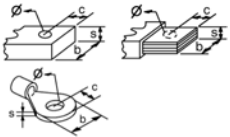
|                                                            |     |     |     |     |     |      |
|------------------------------------------------------------|-----|-----|-----|-----|-----|------|
| Non-Compensated                                            | [A] | 450 | 570 | 700 | 850 | 1000 |
| Compensated                                                | [A] | 360 | 460 | 550 | 660 | 800  |
| Incandescent Lamps-AC-5b, Electrical Endurance @100000 ops | [A] | 315 | 440 | 500 | 560 | 630  |

**Switching Power Transformers AC-6a**

|                                          |        |       |      |      |       |       |       |
|------------------------------------------|--------|-------|------|------|-------|-------|-------|
| Inrush = n·I <sub>e</sub>                |        | [A]   | 7440 | 9450 | 11700 | 13500 | 16200 |
| I <sub>e</sub> Rated transformer current |        | [A]   | 248  | 315  | 390   | 450   | 540   |
| n=30                                     | 400VAC | [kVA] | 172  | 218  | 270   | 312   | 374   |
|                                          | 500VAC | [kVA] | 215  | 273  | 338   | 390   | 468   |
|                                          | 690VAC | [kVA] | 269  | 339  | 376   | 538   | 645   |
| n=20                                     |        | [A]   | 371  | 472  | 580   | 675   | 810   |
| n=15                                     |        | [A]   | 435  | 630  | 774   | 900   | 1080  |

| Cat. No.                                   |            |        | 100-G550 | 100-G700 | 100-G860 | 100-G1000 | 100-G1200 |
|--------------------------------------------|------------|--------|----------|----------|----------|-----------|-----------|
| Rated Short-Time Withstand, $I_{CW}$ 60 °C | 1s         | [A]    | 5500     | 7000     | 8000     | 10000     | 12000     |
|                                            | 4s         | [A]    | 5500     | 7000     | 8000     | 10000     | 12000     |
|                                            | 10s        | [A]    | 4400     | 5600     | 6900     | 8000      | 9600      |
|                                            | 15s        | [A]    | 3800     | 5000     | 6000     | 7400      | 8500      |
|                                            | 60s        | [A]    | 2300     | 2800     | 3400     | 4000      | 4800      |
|                                            | 240s       | [A]    | 1300     | 1800     | 2000     | 2300      | 2700      |
|                                            | 900s       | [A]    | 850      | 1150     | 1350     | 1600      | 1900      |
| Minimum cooling time at zero current       |            | [Min.] | 60       | 60       | 60       | 60        | 60        |
| <b>Resistance and Energy Dissipation</b>   |            |        |          |          |          |           |           |
| Main circuit resistance                    |            | [mΩ]   | 0.11     | 0.1      | 0.08     | 0.06      | 0.05      |
| Total energy dissipation at $I_e$ AC-3     |            | [W]    | 99       | 147      | 177      | 180       | 216       |
| Excess energy dissipation at $I_e$ AC-3    | AC Control | [W]    | 110      | 172      | 202      | 250       | 286       |
|                                            | DC Control | [W]    | 109      | 169      | 199      | 240       | 276       |

## Mechanical Data

| Cat. No.                                                                            |            |                      | 100-G550       | 100-G700  | 100-G860  | 100-G1000 | 100-G1200 |
|-------------------------------------------------------------------------------------|------------|----------------------|----------------|-----------|-----------|-----------|-----------|
| Mechanical Life                                                                     | AC Control | [Million operations] | 5              | 5         | 5         | 1         | 1         |
|                                                                                     | DC Control | [Million operations] | 5              | 5         | 5         | 1         | 1         |
| Shipping Weights                                                                    | AC Control | [kg]                 | 13.8           | 26.4      | 28.4      | 50.3      | 53.4      |
|                                                                                     |            | [lb]                 | 30.4           | 58.1      | 62.5      | 110.8     | 117.6     |
|                                                                                     | DC Control | [kg]                 | 13.8           | 26.4      | 28.4      | 50.3      | 53.4      |
|                                                                                     |            | [lb]                 | 30.4           | 58.1      | 62.5      | 110.8     | 117.6     |
| Terminals                                                                           |            |                      |                |           |           |           |           |
| Terminal Dimensions                                                                 |            | [mm]                 | 6 x 40         | 8 x 50    | 8 x 50    | 10 x 50   | 10 x 60   |
| Terminal screw hole size                                                            |            | [mm]                 | (1) x Ø13      | (1) x Ø13 | (1) x Ø15 | (2) x Ø13 | (2) x Ø13 |
| Terminations-Power Type                                                             |            |                      | Hexagonal Bolt |           |           |           |           |
| Direct Connection                                                                   |            |                      |                |           |           |           |           |
|  | b max.     | [mm]                 | 50             | 60        | 60        | 60        | 60        |
|                                                                                     | c max.     | [mm]                 | 20             | 20        | 25        | 25        | 25        |
|                                                                                     | s max.     | [mm]                 | 2x5            | 2x5       | 2x6       | 2x6       | 2x8       |
|                                                                                     | Ø min.     | [mm]                 | 12.5           | 13        | 15        | 2x13      | 2x13      |
| Recommended Torque                                                                  |            | [N•m]                | 50             | 60        | 75        | 60        | 60        |
|                                                                                     |            | [ft.-lb]             | 37             | 44        | 55        | 44        | 44        |
| Conductor/Wire Terminations                                                         |            |                      |                |           |           |           |           |
| Busbar (Width)                                                                      |            | [mm]                 | 40             | 50        | 50        | 50        | 60        |
| Hex screw                                                                           |            | [in]                 | 1/2            | 3/8       | 3/8       | 3/8       | 3/8       |
| Recommended Torque                                                                  |            | [N•m]                | 42             | 62        | 62        | 56        | 56        |
|                                                                                     |            | [lb•in]              | 375            | 550       | 550       | 500       | 500       |
| Auxiliary Contact                                                                   |            | [mm <sup>2</sup> ]   | (2) x 2.5      | (2) x 2.5 | (2) x 2.5 | (2) x 2.5 | (2) x 2.5 |
| Coils                                                                               |            | [mm <sup>2</sup> ]   | (2) x 2.5      | (2) x 2.5 | (2) x 2.5 | (2) x 2.5 | (2) x 2.5 |

## Coil Data

| Cat. No.                         |                |                     | 100-G550                                                    | 100-G700    | 100-G860 | 100-G1000 | 100-G1200 |
|----------------------------------|----------------|---------------------|-------------------------------------------------------------|-------------|----------|-----------|-----------|
| Operating Limits                 |                |                     |                                                             |             |          |           |           |
| AC-50 Hz                         | Pick-up        | [x U <sub>s</sub> ] | 0.85...1.1                                                  |             |          |           |           |
|                                  | Drop-out       | [x U <sub>s</sub> ] | 0.2...0.5                                                   | 0.2...0.75  |          | 0.1...0.6 |           |
| AC-60 Hz                         | Pick-up        | [x U <sub>s</sub> ] | 0.85...1.1                                                  |             |          |           |           |
|                                  | Drop-out       | [x U <sub>s</sub> ] | 0.2...0.5                                                   | 0.2...0.75  |          | 0.1...0.6 |           |
| DC Control                       | Pick-up        | [x U <sub>s</sub> ] | 0.85...1.1                                                  |             |          |           |           |
|                                  | Drop-out       | [x U <sub>s</sub> ] | 0.2...0.5                                                   | 0.2...0.75  |          | 0.1...0.6 |           |
| Pickup and Holding Power         |                |                     |                                                             |             |          |           |           |
| AC-50 Hz                         | Pick-up        | [VA]                | 800...950                                                   | 1350...1600 |          | 2400      |           |
|                                  | Hold-in        | [VA]                | 9...11                                                      | 21...25     |          | 70        |           |
| AC-60 Hz                         | Pick-up        | [VA]                | 800...950                                                   | 1350...1600 |          | 2400      |           |
|                                  | Hold-in        | [VA]                | 9...11                                                      | 21...25     |          | 70        |           |
| DC Control                       | Pick-up        | [W]                 | 700...850                                                   | 1300...1550 |          | 2100      |           |
|                                  | Hold-in        | [W]                 | 8...10                                                      | 18...22     |          | 60        |           |
| Operating Times: Switching Delay |                |                     |                                                             |             |          |           |           |
| AC                               | Making delay   | [ms]                | 50...100                                                    |             |          |           | 50...100  |
|                                  | Breaking delay | [ms]                | 20...50 <sup>(1)</sup> /150...200/500...1000 <sup>(2)</sup> |             |          |           | 25...50   |
| DC                               | Making delay   | [ms]                | 50...100                                                    |             |          |           | 50...100  |
|                                  | Breaking delay | [ms]                | 20...50 <sup>(1)</sup> /150...200/500...1000 <sup>(2)</sup> |             |          |           | 25...50   |

(1) Accelerates

(2) Delays

## Auxiliary Contacts

| Cat. No.                                                                     |          |     | 100-G550 | 100-G700 | 100-G860 | 100-G1000 | 100-G1200 |
|------------------------------------------------------------------------------|----------|-----|----------|----------|----------|-----------|-----------|
| Switching of AC Loads                                                        |          |     |          |          |          |           |           |
| AC-1 $I_{th}$                                                                | at 40 °C | [A] | 16       |          |          | 16        |           |
|                                                                              | at 60 °C | [A] | 12       |          |          | 12        |           |
| AC-15 at rated voltage                                                       | 120V     | [A] | 6        |          |          | 6         |           |
|                                                                              | 230V     | [A] | 3        |          |          | 3         |           |
|                                                                              | 240V     | [A] | 3        |          |          | 3         |           |
|                                                                              | 400V     | [A] | 2        |          |          | 2         |           |
|                                                                              | 415V     | [A] | 2        |          |          | 2         |           |
|                                                                              | 500V     | [A] | 1.5      |          |          | 1.5       |           |
|                                                                              | 690V     | [A] | 1        |          |          | 1         |           |
| Switching of DC Loads                                                        |          |     |          |          |          |           |           |
| DC-13 control of electromagnets                                              | 2V DC    | [A] | 6        |          |          | 6         |           |
|                                                                              | 48V DC   | [A] | 3        |          |          | 3         |           |
|                                                                              | 110V DC  | [A] | 1        |          |          | 1         |           |
|                                                                              | 220V DC  | [A] | 0.5      |          |          | 0.5       |           |
| Back-up Fuse Short-circuit protection without contact welding per IEC60947-5 |          |     |          |          |          |           |           |
| Fuse gG                                                                      |          | [A] | 10       |          |          | 16        |           |

## General

| Cat. No.                                         |      | 100-G550                                                                          | 100-G700 | 100-G860 | 100-G1000                               | 100-G1200 |
|--------------------------------------------------|------|-----------------------------------------------------------------------------------|----------|----------|-----------------------------------------|-----------|
| Rated Isolation Voltage U <sub>i</sub>           |      |                                                                                   |          |          |                                         |           |
| IEC, AS, BS, SEV, VDE, 0660                      | [V]  | 1,000                                                                             |          |          | 690                                     |           |
| UL,CSA                                           | [V]  | 600                                                                               |          |          | 600                                     |           |
| Rated Impulse Voltage Withstand U <sub>imp</sub> |      |                                                                                   |          |          |                                         |           |
| 1minuteperIEC947-4                               | [KV] | 8                                                                                 |          |          | 2,5                                     |           |
| Rated Voltage-Main Control U <sub>e</sub>        |      |                                                                                   |          |          |                                         |           |
| AC, 50/60Hz                                      | [V]  | 230, 240, 400, 415, 460, 500, 575, 690V                                           |          |          | 230, 240, 400, 415, 460, 500, 575, 690V |           |
| DC                                               |      | 24, 48, 110, 220, 440V                                                            |          |          |                                         |           |
| Operating Frequency for AC Loads, 50/60 Hz       | [Hz] | 180/hr. for 0.25 s start time-42/hr. for 1s start time                            |          |          |                                         |           |
| Insulation Class of the Magnetic Coil            |      | Class B per VDE 0660, table 22                                                    |          |          |                                         |           |
| Rated frequency of the Coil                      |      | AC 50/60 Hz, DC                                                                   |          |          |                                         |           |
| Ambient Temperature                              |      |                                                                                   |          |          |                                         |           |
| Storage                                          |      | -40 °C... + 80 °C                                                                 |          |          |                                         |           |
| Operation at rated current                       |      | -25 °C... 70 °C                                                                   |          |          |                                         |           |
| Climatic Withstand                               |      | Damp alternating conditions cyclical, per DIN 50016 and 40046, part 38, IEC 60068 |          |          |                                         |           |
| Altitude                                         |      | 2000 m above sea level, per IEC60947-1                                            |          |          |                                         |           |
| Type of Protection                               |      | IP00 IEC 60529/DIN 40050                                                          |          |          |                                         |           |

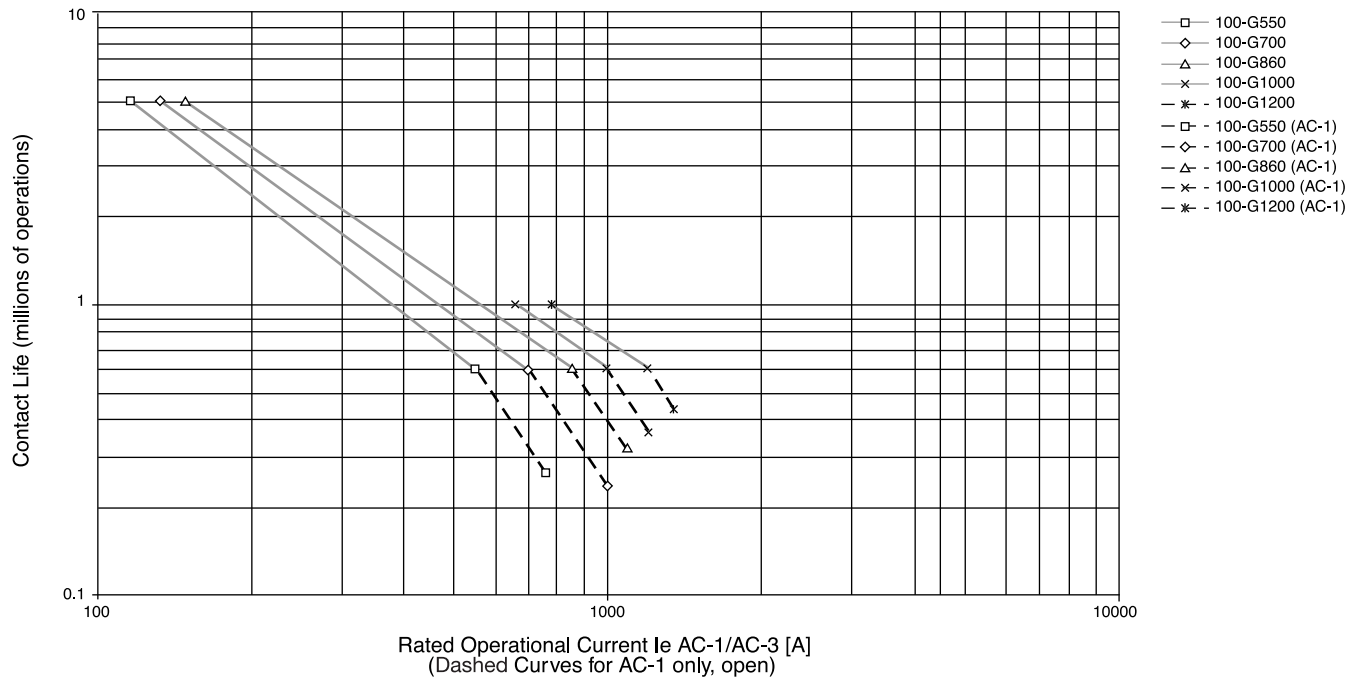
## Standards Compliance and Certifications

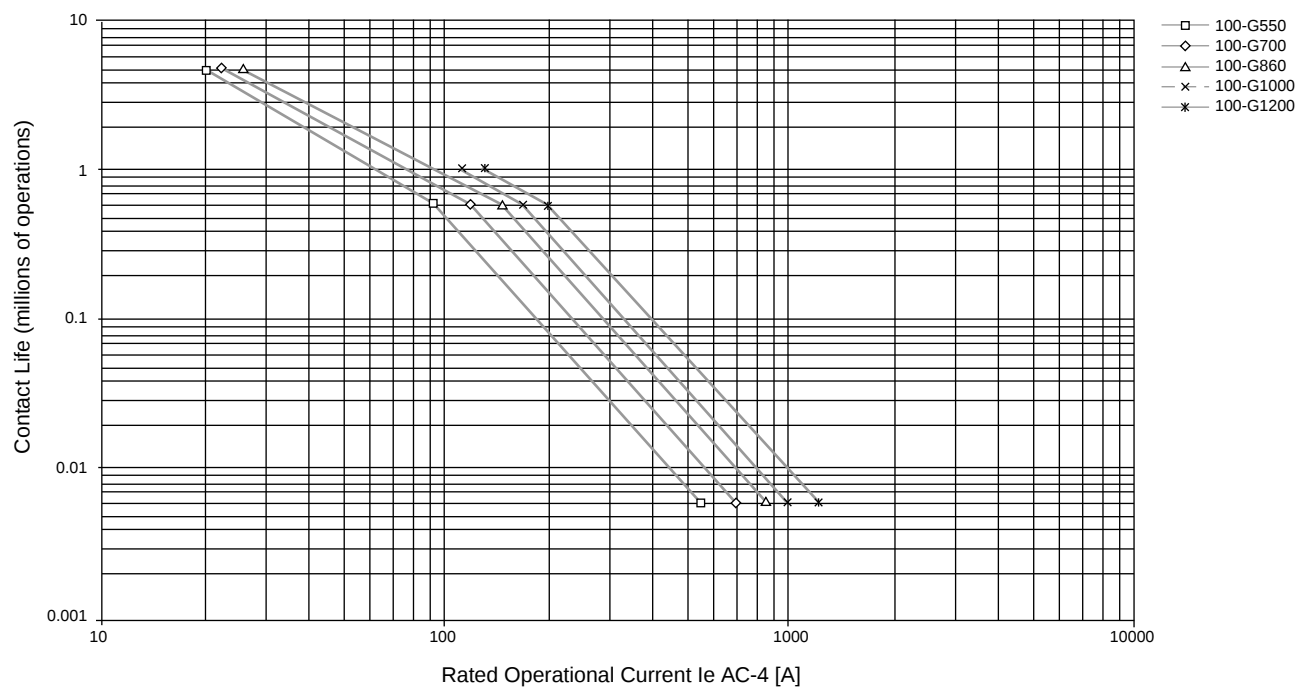
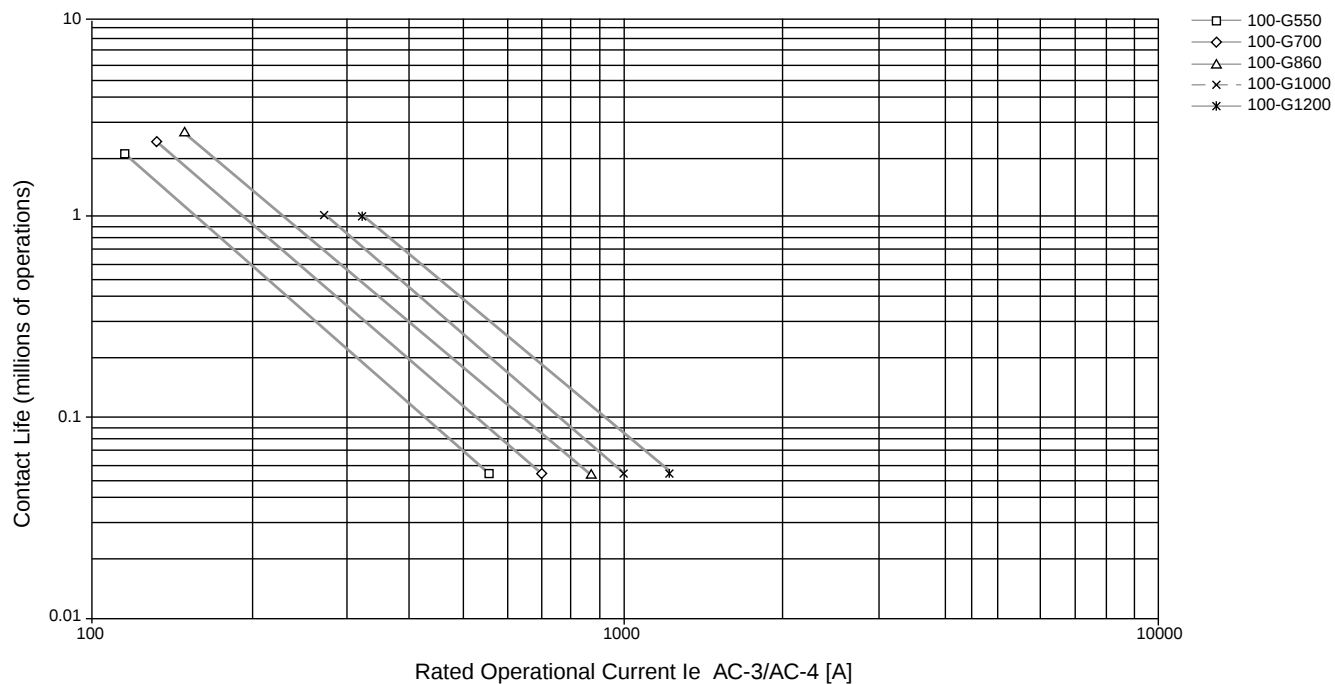
| Standards Compliance            | Certifications                                    |
|---------------------------------|---------------------------------------------------|
| EN/IEC 60947-4-1                | CE Marked                                         |
| IEC 60947 Type "1" Coordination | cULus Listed (File No. E 3125, Guide NLDX, NLDX7) |
| CSA C22.2 No. 14                |                                                   |
| UL 508                          |                                                   |

# Life-Load Curves

## 100-G550...100-G1200

Figure 35 - AC-3 Switching of Running Three-phase Motors,  $U_e = 380...460V$  AC; AC-1 Non or Slightly Inductive Loads, Resistance Furnaces

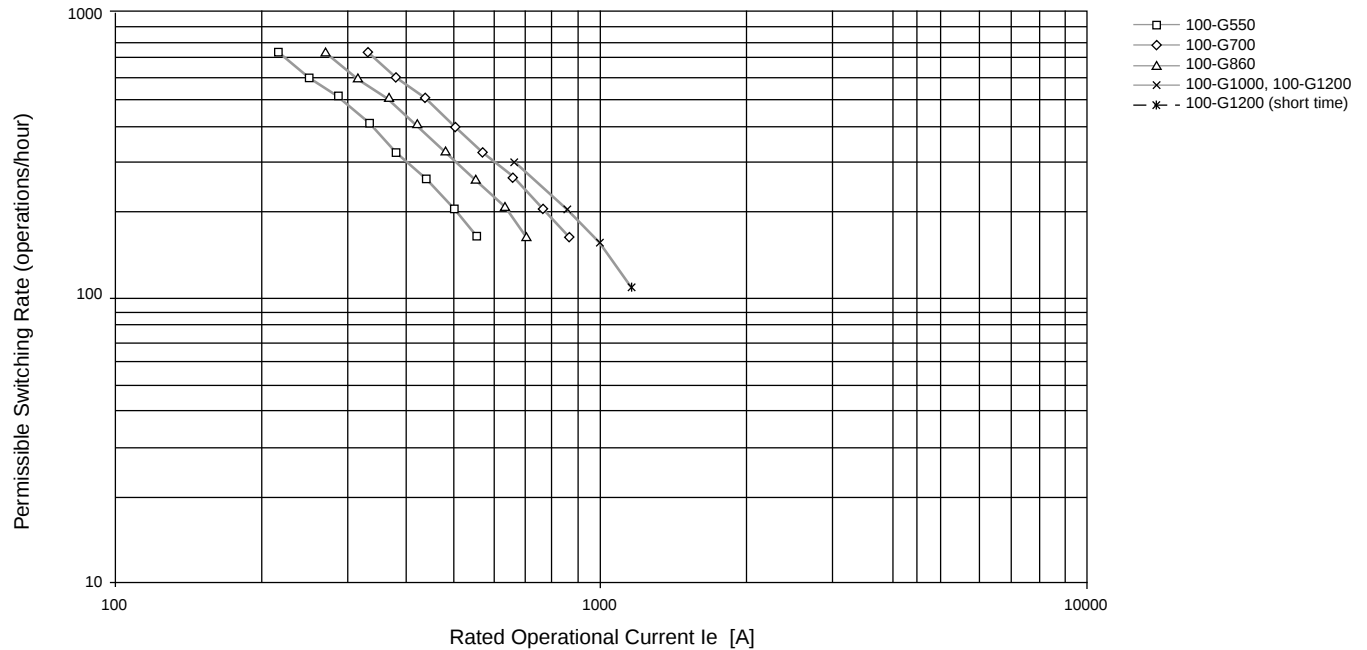


**Figure 36 - AC-4 Jogging of Squirrel-cage Motors,  $U_e = 380...460V$  AC****Figure 37 - AC-3 90% Switching of Running Motors,  $U_e = 380...460V$  AC; AC-4 10% Jogging**

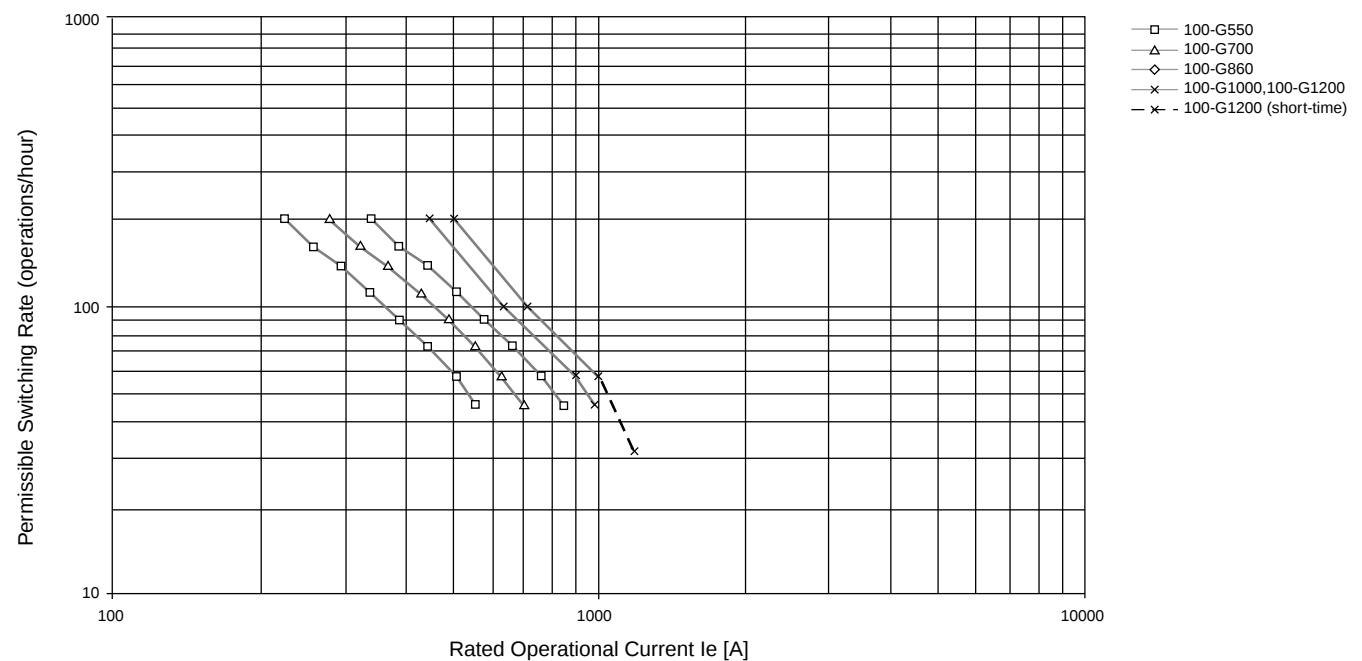
# Permissible Switching Rate

## 100-G550...100-G1200

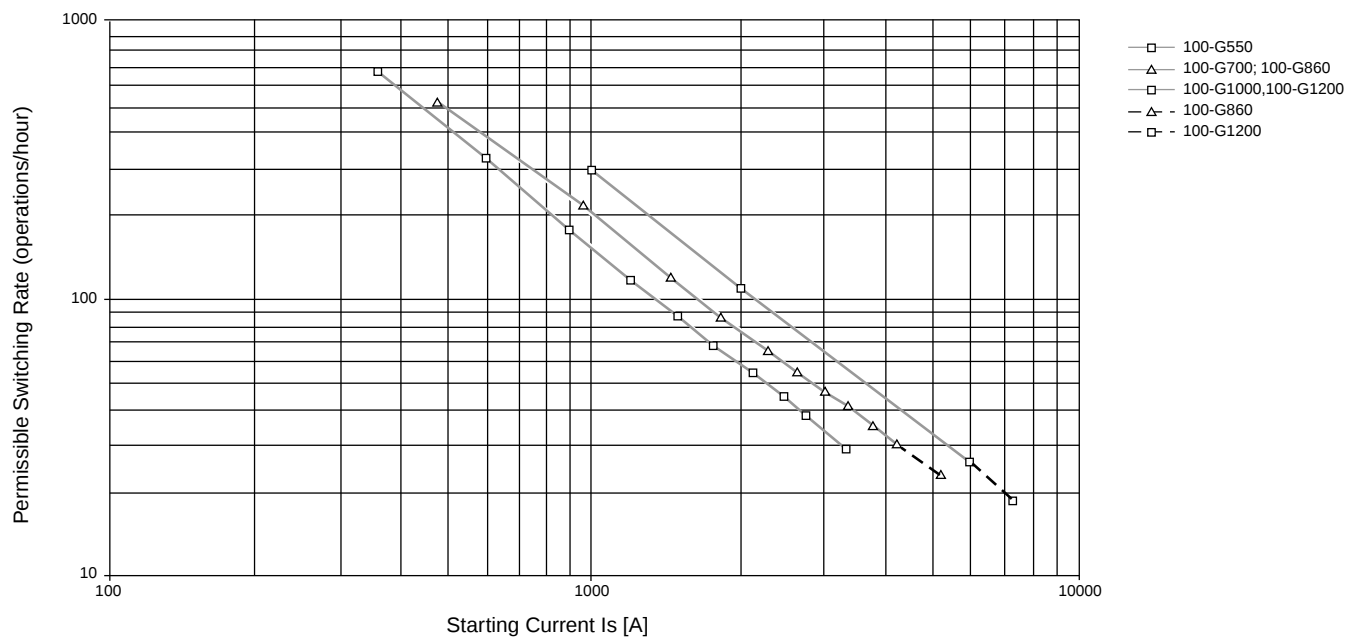
**Figure 38 - Switching of Running Squirrel-cage Motors AC-3,  $U_e = 380...460V$  AC; Starting Time  $t_s = 0.25$  s, Relative Running Time 40%**



**Figure 39 - Switching of Running Squirrel-cage Motors AC-3,  $U_e = 380...460V$  AC; Starting Time  $t_s = 1$  s, Relative Running Time 40%**



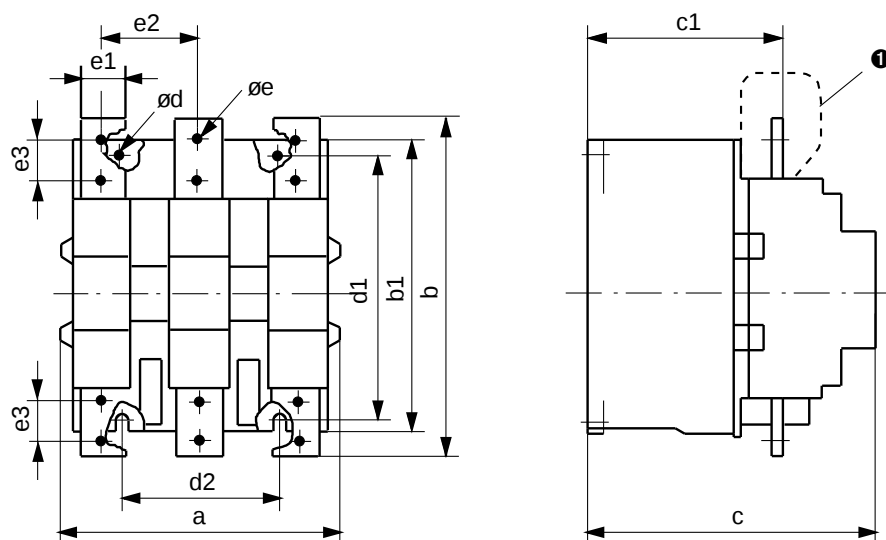
**Figure 40 - Switching of Starting Motors (AC-2, and AC4)  $U_z = 380 \dots 460V$  AC; Starting Time  $t_{ed} = 1$  s, ( $< t_s$ )**



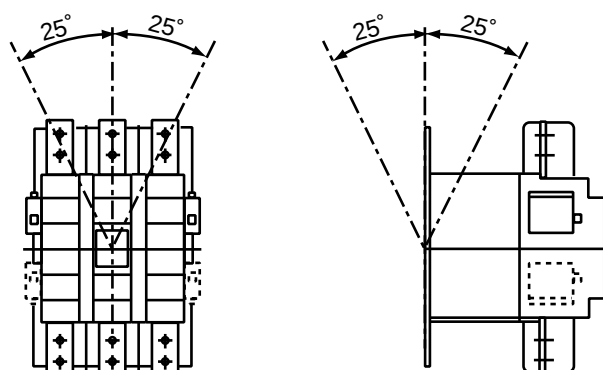
# Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.

**Figure 41 - Bulletin 100-G Contactors and Accessories**



**Figure 42 - Mounting Position**



## AC and DC Contactors

| Cat. No.  | a   | b   | b1  | c   | c1  | Ø d  | d1  | d2  | Ø e  | e1 | e2  | e3 |
|-----------|-----|-----|-----|-----|-----|------|-----|-----|------|----|-----|----|
| 100-G550  | 220 | 258 | 228 | 225 | 164 | 9    | 220 | 110 | 12.5 | 40 | 79  | —  |
| 100-G700  | 280 | 307 | 277 | 291 | 203 | 11   | 280 | 175 | 13   | 50 | 101 | —  |
| 100-G860  | 280 | 361 | 325 | 291 | 203 | 11   | 280 | 175 | 15   | 50 | 101 | —  |
| 100-G1000 | 334 | 490 | 434 | 345 | 231 | 13.5 | 380 | 120 | 2x13 | 50 | 100 | 40 |
| 100-G1200 | 334 | 490 | 434 | 345 | 231 | 13.5 | 380 | 120 | 2x13 | 60 | 100 | 40 |

## Contactors with Accessories

| Contactor with                    |                    |                                   | mm                |
|-----------------------------------|--------------------|-----------------------------------|-------------------|
| Auxiliary contact block           |                    |                                   | a                 |
| Mechanical Interlock              | side by side       | 100-G550/100-G550                 | a+42+a            |
|                                   |                    | 100-G700, -860/100-G700, -860     | a+32+a            |
|                                   |                    | 100-G1000, -1200/100-G1000, -1200 | a+46+a            |
|                                   |                    | 100-G550/100-G700, -860           | a+37+a            |
|                                   |                    | 100-G700, -860/100-G1000, -1200   | a+73+a            |
|                                   | stacked vertically | 100-G550/100-G550                 | b+56 + b          |
|                                   |                    | 100-G700, -860/100-G700, -860     | b/2+380...480+b/2 |
|                                   |                    | 100-G1000, -1200/100-G1000, -1200 | b+120...170+b     |
|                                   |                    | 100-G550/100-G700, -860           | b/2+400+b/2       |
|                                   |                    | 100-G700, -860/100-G1000, -1200   | b/2+570+b/2       |
| 4th add-on neutral switching pole |                    | 100-G550                          | a+74              |
|                                   |                    | 100-G700, -860                    | a+68              |
|                                   |                    | 100-G1000, -1200                  | a+76              |
| Mechanical latch                  |                    | 100-G550                          | b+59              |
|                                   |                    | 100-G700                          | b+64              |
|                                   |                    | 100-G860                          | b+37              |



## Rockwell Automation Support

Use the following resources to access support information.

|                                                         |                                                                                                                       |                                                                                                                                                    |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technical Support Center</b>                         | Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.                     | <a href="http://www.rockwellautomation.com/knowledgebase">www.rockwellautomation.com/knowledgebase</a>                                             |
| <b>Local Technical Support Phone Numbers</b>            | Locate the phone number for your country.                                                                             | <a href="http://www.rockwellautomation.com/global/support/get-support-now.page">www.rockwellautomation.com/global/support/get-support-now.page</a> |
| <b>Direct Dial Codes</b>                                | Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer. | <a href="http://www.rockwellautomation.com/global/support/direct-dial.page">www.rockwellautomation.com/global/support/direct-dial.page</a>         |
| <b>Literature Library</b>                               | Installation Instructions, Manuals, Brochures, and Technical Data.                                                    | <a href="http://www.rockwellautomation.com/literature">www.rockwellautomation.com/literature</a>                                                   |
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