

Clamped EBMXC explosionproof combination motor starters

Cl. I, Div. 1 & 2, Groups B[ⓐ], C, D
Cl. I, Zones 1 & 2
Cl. II, Groups E, F, G
Cl. III
NEMA 3R, 4X[ⓑ], 7BCD, 9EFG

Explosionproof
Dust-ignitionproof

1C

Applications:

- Operating where flammable liquids or gases are handled, processed or used
- Damp, wet, dirty, dusty, hazardous areas where ultimate corrosion and ingress protection is required
- Harsh and hazardous motor control environments, including refineries, chemical and petrochemical plants, corrosive process facilities, food and beverage, marine and mining
- Across-the-line starting, stopping, speed changing and reversing of polyphased AC induction motors

Features:

- Clamped enclosure significantly reduces time to enter enclosure and reduces opportunity for missing, stripped or broken bolts
- 65 kAIC at 480V enclosure rating for high interrupting capacity applications
- -50°C to +60°C temperature range for extreme environments
- Magnetic, thermal magnetic and electronic break trip options for short circuit and overcurrent protection
- Bi-metallic and electronic/solid state overload protection options
- Normally open (NO) holding circuit contact supplied standard
- Up to six cover operators for a variety of applications
- Side operated breaker handle provides visual confirmation of proper operator alignment while cover is open and can be padlocked in either “ON” or “OFF” positions for OSHA compliance
- Neoprene cover gasket provides NEMA 4X protection for hose down applications
- Maximum wiring room compliance with National Electrical Code requirements allows for easy and safe installation[Ⓐ]
- Rugged, corrosion-resistant, cast copper-free aluminum construction provides NEMA 4X protection
- Semi-clamshell enclosure design, with an external flanged ground joint between body and cover, provides increased access to interior components
- Minimum enclosure-to-enclosure spacing with little interference between the opened cover and adjacent enclosure
- Pre-drilled mounting plate for simple starter and breaker installation
- Detachable tap-on mounting feet
- Steel brackets supplied standard for lifting during installation
- Bodies have top and bottom drilled and tapped entries for power and control conduits; removable reducers are supplied standard to accommodate smaller size conduits; all conduit entries are plugged

Electrical ratings:

- Motor starters:
 - Single-, three-phase
 - 3-pole, non-reversing, full voltage
 - 600 VAC maximum
 - NEMA sizes 0-4
- Breakers and HMCPs:
 - 3-pole, 600 VAC, 125 VDC
 - Eaton frames: EG/PDG, JG (up to 250A)[ⓓ]



Certifications and compliances:

NEC/CEC:

- Class I, Divisions 1 & 2, Groups B[ⓐ], C, D
- Class I, Zones 1 & 2
- Class II, Groups E, F, G
- Class III

UL standards:

- UL1203 – Explosionproof and Dust-ignitionproof Electrical Equipment for use in Hazardous (Classified) Locations
- UL2062 – High AIC Ratings for Groups C, D

Voltage (VAC)	RMS symmetrical amps
240, 480	65,000
600	35,000

CSA standard:

- cUL to CSA C22.2 No. 30

Additional certifications:

- UL/cUL certified for -50°C to +60°C
- SASO Certificate of Conformity

Environmental ratings:

- NEMA 3R, 4X[ⓑ], 7BCD, 9EFG

Standard materials:

- Body and cover – copper-free aluminum
- Clamp – anodized copper-free aluminum
- External hardware – stainless steel
- Internal parts – galvanized steel

[Ⓐ] Standard factory wiring included between the starter and breaker – consult factory for any additional wiring requirements.

[Ⓑ] High AIC and -50°C temperature certifications do not apply for Group B.

[Ⓒ] Enclosures with PB23, RR2 and RR3 options are rated NEMA 3R. All other options maintain NEMA 4X rating.

[Ⓓ] 15-125A rated 600Y/347 VAC maximum; 150-250A rated 600 VAC maximum.

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Ordering information:

Part number example

EBMX2C-F2W4B-100 RLN AIC

EBMX **2** **C-F** **2** **W** **4** **B-100** **RLN**

Series

EBMX Hazardous rated enclosure with clamping technology

Enclosure size

2 NEMA sizes 0-2
3 NEMA sizes 3 & 4

Function

C Combo starter in clamped EBMX enclosure

Combo starter function

F Full voltage, non-reversing starter, 120V coil, breaker, with CPT
G Full voltage, non-reversing starter[Ⓔ], breaker, without CPT
H Full voltage, non-reversing starter, 120V coil, HMCP, with CPT
K Full voltage, non-reversing starter[Ⓔ], HMCP, without CPT

Line voltage

1 120 VAC
2 240 VAC
4 480 VAC
6 600 VAC

Starter manufacturer

W Eaton

NEMA starter size

0
1
2
3
4

Breaker trip[Ⓔ]

(only with "F" or "G" as combo starter function)

015	050	125
020	070	150
030	090	175
040	100	200

HMCP trip[Ⓔ]

(only with "H" or "K" as combo starter function)

003	030	100
007	050	250
015	070	

Cover operators[Ⓔ]

GLB	Green LED pilot light with blank legend plate
GLF	Green LED light with "OFF" legend plate
PB23	Start/Stop pushbutton with "START" & "STOP" legend plates (two positions)
RLB	Red LED pilot light with blank legend plate
RLN	Red LED light with "ON" legend plate
RR2	2-position selector switch with "ON-OFF" legend plate
RR3	3-position selector switch with "HAND-OFF-AUTO" legend plate
BLANK	No cover operators

Options[Ⓔ]

AIC	65kAIC at 480V, 35kAIC at 600V
BST	Shunt trip, 120V
ER[Ⓔ]	Electronic overload relay (starter)
ET	Electronic trip breaker (thermal magnetic standard)
HT	Ambient compensated breaker; +60°C enclosure rating
MT	Freeze-tested breaker; -50°C enclosure rating
R11	Space heater, 25 watts, 120V
R22	Space heater, 25 watts, 240V
R44	Space heater, 25 watts, 480V
S214	External ground lug
S752	External epoxy coating
S753	Internal and external epoxy coating
S756V	Breather and drain (Class I, Groups B, C, D)
S781	Auxiliary contact on starter: (1) NO & (1) NC
S782	Auxiliary contacts on starter: (2) NO & (2) NC
S783	Auxiliary contacts on starter: (3) NO & (3) NC
S784	Auxiliary switch on circuit breaker: 1A & 1B
S785	Auxiliary switches on circuit breaker: 2A & 2B
S786	12-point terminal block, 30 amp, 300V

FLA

	FLA range	NEMA size		
		0, 1	2	3, 4
Blank or ER option	0.0 - 0.0	•	•	•
A	0.8 - 1.3	•	•	
B	1.2 - 2.0	•	•	
C	1.8 - 2.9	•	•	
D	2.2 - 3.5	•	•	
E	3.2 - 5.2	•	•	
F	4.6 - 7.4	•	•	
G	6.8 - 11.0	•	•	
H	9.1 - 14.0	•	•	
J	14.0 - 22.8	•	•	
L	23.5 - 38.5	•	•	
M	39.6 - 57.4		•	
N	53.9 - 74.9		•	
P	8.0 - 11.5			•
Q	11.4 - 15.7			•
R	14.3 - 19.0			•
S	18.0 - 24.5			•
T	24.6 - 33.4			•
V	33.5 - 45.6			•
W	45.7 - 62.1			•
X	62.2 - 84.6			•
Y	84.7 - 115.0			•
Z	106.0 - 144.0			•

[Ⓔ]High AIC and -50°C temperature certifications do not apply for Group B.

[Ⓔ]Enclosures with PB23, RR2 and RR3 options are rated NEMA 3R. All other options maintain NEMA 4X rating.

[Ⓔ]Starter coil equals line voltage.

[Ⓔ]15-125A rated 600Y/347 VAC maximum; 150-250A rated 600 VAC maximum.

[Ⓔ]List selected operators in order starting with the top position.

[Ⓔ]List selected options in alphanumeric order.

[Ⓔ]Available with NEMA starter sizes 0-3. Pushbutton provided in cover for manual reset.

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Freedom starter and G-Series breaker:

Motor starter		Circuit breaker		
Horsepower	Line voltage	NEMA size	Amperage	Frame
1	120	0	20	EG/PDG
3	240		20	
5	480		15	
5	600		15	
2	120	1	30	EG/PDG
5	240		30	
7.5	240		50	
10	480		30	
10	600	2	30	EG/PDG
3	120		50	
10	240		50	
15	240		70	
15	480		40	
15	600		40	
20	480		50	
20	600		50	
25	480	3	70	EG/PDG
25	600		70	
20	240		90	
25	240		100	
30	240		125	
30	480		70	
30	600		70	
40	480		90	
40	600		90	
50	480		100	
50	600		100	
40	240	4	175	JG
50	240		200	
60	480		125	
60	600		100	
75	480		150	
75	600		125	
100	480		200	
100	600		150	

Note: 120V is single-phase; other voltages are polyphase.

Freedom starter and G-Series HMCP:

Motor starter		HMCP		
Horsepower	Line voltage	NEMA size	Amperage	Frame
3	240	0	15	EG/PDG
3	480		7	
3	600		7	
5	480		15	
5	600	1	15	EG/PDG
7.5	240		30	
7.5	480		15	
10	480		30	
10	600	2	15	EG/PDG
10	240		50	
15	240		100	
15	480		30	
20	600	3	30	EG/PDG
25	480		50	
25	600		50	
30	240		100	
30	600	4	50	JG
50	480		100	
50	600		100	
50	240		250	
100	480		250	
100	600		250	

Reference tables:

Starter electronic overload relay settings

NEMA size	FLA range (A)
0	1-5
1	4-20
2	9-45
3	20-100
4	28-140

Breaker electronic trip dial settings

Amperage (A)	Range (A)
50	20, 25, 30, 32, 40, 45, 50
100	40, 45, 50, 63, 70, 80, 90, 100
160	63, 80, 90, 100, 110, 125, 150, 160
200	100, 125, 150, 160, 170, 200, 225, 250

Control circuit transformer, 50/60 Hz, fusing for primary and secondary^N

NEMA size	VA
0-2	100
3	200
4	300

HMCP trip settings

Amperage (A)	Trip range (A)
3	9-33
7	21-77
15	45-165
30	90-330
50	150-550
70	210-770
100	300-1100
250	1250-2500

^L High AIC and -50°C temperature certifications do not apply for Group B.

^M Enclosures with PB23, RR2 and RR3 options are rated NEMA 3R. All other options maintain NEMA 4X rating.

^N Fuses not included.

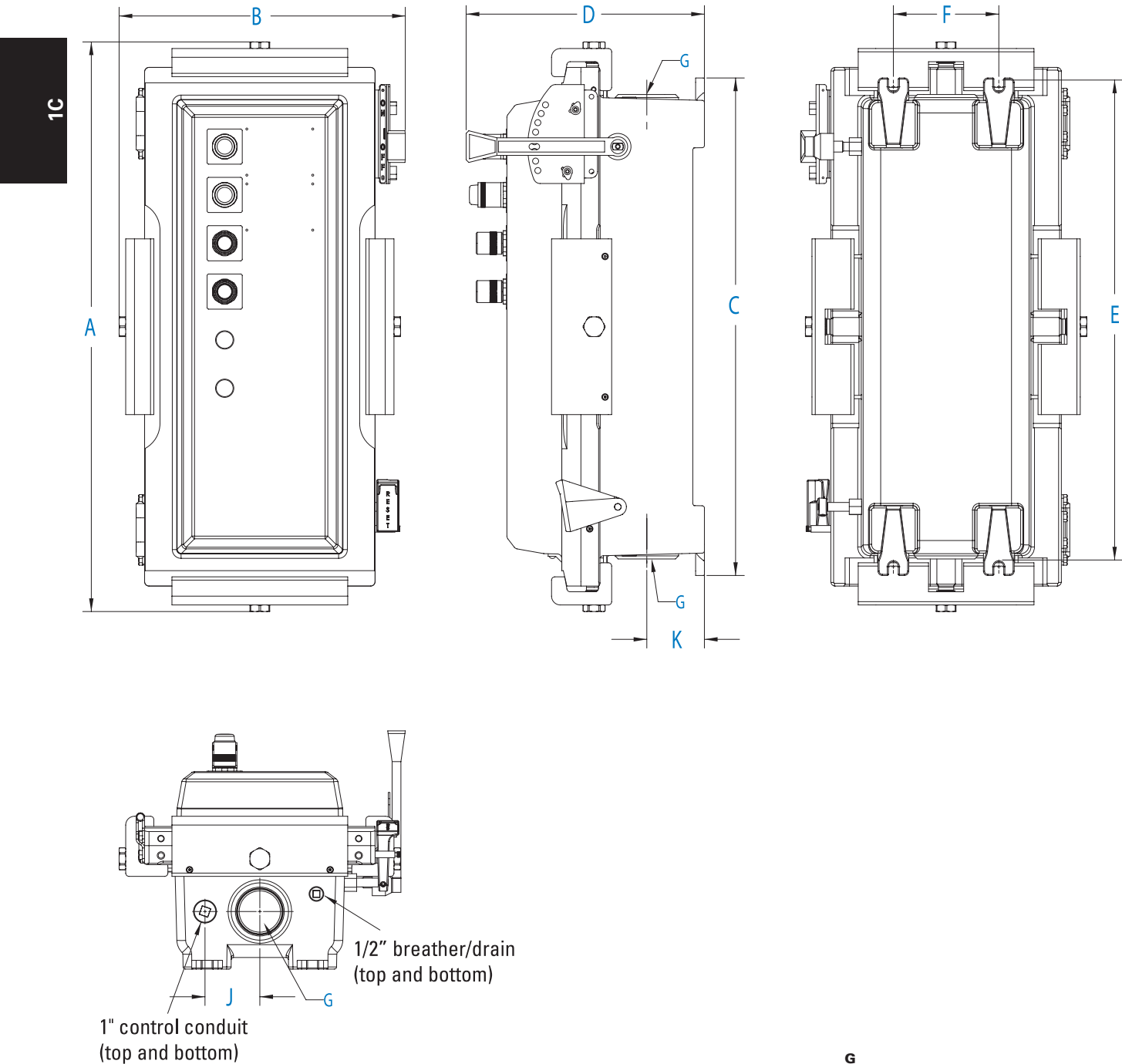
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Dimensions (in inches):



Enclosure size	A	B	C	D	E	F	G		J	K
							Drilled and tapped	With reducer		
2	32.40	16.28	28.31	13.56	27.25	6.00	3 NPT	2.5 NPT	3.12	3.28
3	42.28	17.93	38.15	13.85	37.25	6.00	3 NPT	2.5 NPT	3.93	3.56

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