ERITECH®

Cathodic Protection Connections

Featuring CADWELD® Molds Weld Metal and Accessories

Facility Electrical Protection

ERICO®

Introduction/Table of Contents

The CADWELD Process

CADWELD connections are the accepted method of attaching Cathodic Protection leads to pipes (steel or cast iron), tanks and structures.

CADWELD connections weld the conductors and the structure to be protected so no galvanic corrosion can occur at the interface. The CADWELD process is specifically formulated to provide minimum heat effect on steel, which is especially important on thin-wall, high-stress pipes.

CADWELD connections are also used for header cable taps, conductor splices and terminations, and ground rod connections.

ERICO® Facts

A CADWELD Connection . . .

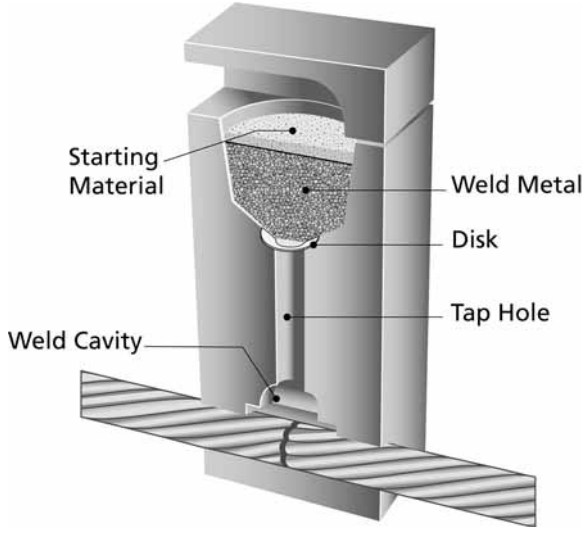
- Has current carrying capacity equal to that of the conductor.
- Is permanent with a low resistance connection that cannot loosen or corrode.
- Uses lightweight, inexpensive equipment.
- Requires no external source of power or heat.
- Requires no special skills.
- Can be easily checked for quality.

ERICO is the pioneer of the CADWELD Exothermic Welding Process for permanent Cathodic Protection connections. Specifying the CADWELD Process in your construction plans will dramatically extend the lifespan of infrastructure systems.

CADWELD connections are made with a semi-permanent graphite mold, which holds the conductors to be welded. Weld metal (a mixture of copper oxide and aluminum) is dumped into the top of the mold. The mold is covered and the weld metal ignited. The exothermic reaction produces molten copper, which results in a permanent, high conductivity connection.

TABLE OF CONTENTS

INTRODUCTION	
Connections to Steel	Page
CAHA Type	1
CAHC Type	2
CAVS Type	3
Connections to Cast Iron	
CAHB Type	4
CAHE Type	4
CAVH Type	4
Connections to Ground Rod	
Type CAGR	5
Type CAGT	5
Connections of Cable to Cable	
Type CAPC	6
Type CASS	6
Type CATA	7
Connections of Cable to Lug	
Type CALA	7
Bonds	
Plain Strap Bonds	8
Punched Strap Bonds	9
Formed Terminal - Factory & Field Made	10
Formed Terminal - with Pigtail	11
Welders and Molds	12
Weld Metal	12
Tools and Materials	13 - 15
Technical Information	
PIPING CODE	16
PIPE WALL THICKNESS	17
Ductile Iron	17
Cross Reference	18

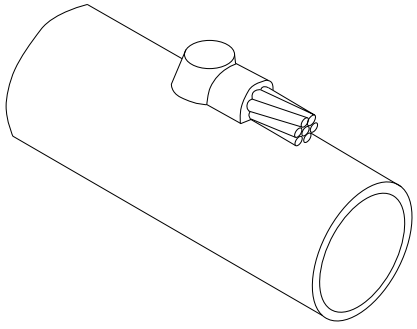


Connections to Steel — Type CAHA

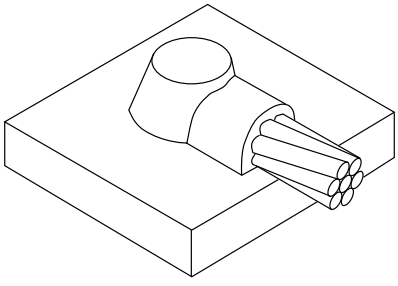
Tap conductor to top of horizontal STEEL pipe or flat surface.
Note: For DUCTILE IRON, see page 17.

Conductor Size	Surface	Welder Part No.†	Welder Price	Weld Metal
#14 to #10 Solid (use sleeve CAB-133-1H)* or #8 Solid or Stranded, or #6 Solid	Flat (4" & larger pipe) 3/4" to 3-1/2" pipe	CAHAA-1G CAHAA-1GA	CAA CAA	CA15 CA15
6 Stranded	Flat (4" & larger pipe) 3/4" to 3-1/2" pipe	CAHAA-1H CAHAA-1HA	CAA CAA	CA15 CA15
4 Solid	Flat (6" & larger pipe) 3/4" to 3-1/2" pipe 4" to 5" pipe	CAHAA-1K CAHAA-1KA CAHAA-1KB	CAA CAA CAA	CA15 CA15 CA15
4 Stranded	Flat (6" & larger pipe) 3/4" to 3-1/2" pipe 4" to 5" pipe	CAHAA-1L CAHAA-1LA CAHAA-1LB	CAA CAA CAA	CA15 CA15 CA15
2 Solid	Flat (10" & larger pipe) 1" to 3-1/2" pipe 4" to 8" pipe	CAHAA-1T CAHAA-1TA CAHAA-1TB	CAA CAA CAA	CA25 CA25 CA25
2 Stranded	Flat (16" & larger pipe) 1" to 3-1/2" pipe 4" to 8" pipe 10" to 14" pipe	CAHAA-1V CAHAA-1VA CAHAA-1VB CAHAA-1VC	CAA CAA CAA CAA	CA32 CA32 CA32 CA32
1 Stranded	Flat (16" & larger pipe) 1-1/2" to 3-1/2" pipe 4" to 8" pipe 10" to 14" pipe	CAHAA-1Y CAHAA-1YA CAHAA-1YB CAHAA-1YC	CAA CAA CAA CAA	CA45 CA45 CA45 CA45
1/0 Stranded	Flat (20" & larger pipe) 2-1/2" to 3-1/2" pipe 4" to 8" pipe 10" to 18" pipe	CAHAA-2C CAHAA-2CA CAHAA-2CB CAHAA-2CC	CAA CAA CAA CAA	CA65 CA65 CA65 CA65
2/0 Stranded	Flat (20" & larger pipe) 2-1/2" to 3-1/2" pipe 4" to 8" pipe 10" to 18" pipe	CAHAA-2G CAHAA-2GA CAHAA-2GB CAHAA-2GC	CAA CAA CAA CAA	CA65 CA65 CA65 CA65

*1 sleeve per connection.
† Welder Part No. includes mold frame. If mold only (less frame) is required, order - Welder Part No. - "M".



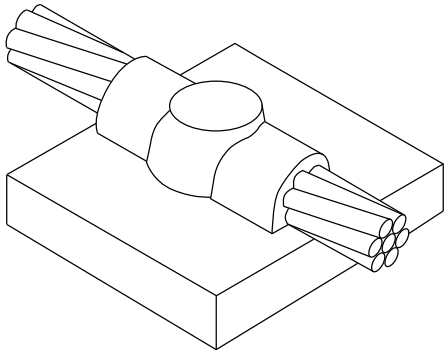
CAHA - Cable to Horizontal Steel Pipe



CAHA - Cable on surface

Through conductor to top of horizontal STEEL pipe or flat surface.
NOTE: For DUCTILE IRON, see page 17.

Conductor Size	Surface	Welder Part No.†	Welder Price	Weld Metal
#14 to #10 Solid (use sleeve CAB-133-1H)* or #8 Solid or Stranded, or #6 Solid	Flat (12" & larger pipe) 3/4" to 2" pipe 2-1/2" to 5" pipe 6" to 10" pipe	CAHCA-1G CAHCA-1GA CAHCA-1GB CAHCA-1GC	CAA CAA CAA CAA	CA25 CA25 CA25 CA25
6 Stranded	Flat (12" & larger pipe) 3/4" to 2" pipe 2-1/2" to 5" pipe 6" to 10" pipe	CAHCA-1H CAHCA-1HA CAHCA-1HB CAHCA-1HC	CAA CAA CAA CAA	CA25 CA25 CA25 CA25
4 Solid	Flat (12" & larger pipe) 3/4" to 2" pipe 2-1/2" to 5" pipe 6" to 10" pipe	CAHCA-1K CAHCA-1KA CAHCA-1KB CAHCA-1KC	CAA CAA CAA CAA	CA25 CA25 CA25 CA25
4 Stranded	Flat (12" & larger pipe) 3/4" to 2" pipe 2-1/2" to 5" pipe 6" to 10" pipe	CAHCA-1L CAHCA-1LA CAHCA-1LB CAHCA-1LC	CAA CAA CAA CAA	CA25 CA25 CA25 CA25
2 Solid	Flat (14" & larger pipe) 2" to 3-1/2" pipe 4" to 6" pipe 8" to 10" pipe	CAHCA-1T CAHCA-1TA CAHCA-1TB CAHCA-1TC	CAA CAA CAA CAA	CA32 CA32 CA32 CA32
2 Stranded	Flat (18" & larger pipe) 2" to 3-1/2" pipe 4" to 8" pipe 10" to 16" pipe	CAHCA-1V CAHCA-1VA CAHCA-1VB CAHCA-1VC	CAA CAA CAA CAA	CA45 CA45 CA45 CA45
1 Stranded	Flat (18" & larger pipe) 2" to 3-1/2" pipe 4" to 8" pipe 10" to 16" pipe	CAHCA-1Y CAHCA-1YA CAHCA-1YB CAHCA-1YC	CAA CAA CAA CAA	CA45 CA45 CA45 CA45
1/0 Stranded	Flat (30" & larger pipe) 3" to 4" pipe 5" to 6" pipe 8" to 10" pipe 12" to 28" pipe	CAHCA-2C CAHCA-2CA CAHCA-2CB CAHCA-2CC CAHCA-2CD	CAA CAA CAA CAA CAA	CA65 CA65 CA65 CA65 CA65
2/0 Stranded	Flat (30" & larger pipe) 3" to 4" pipe 5" to 6" pipe 8" to 10" pipe 12" to 28" pipe	CAHCA-2G CAHCA-2GA CAHCA-2GB CAHCA-2GC CAHCA-2GD	CAA CAA CAA CAA CAA	CA65 CA65 CA65 CA65 CA65



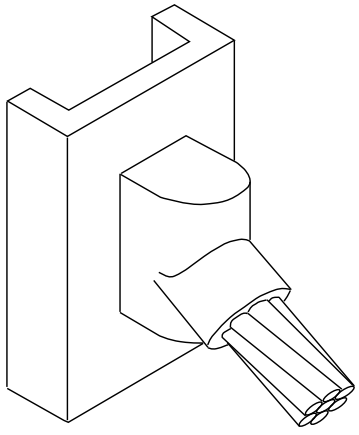
CAHC – Cable on surface

* 2 sleeves per connection.
† Welder Part No. includes mold frame. If mold only (less frame) is required, order - Welder Part No. - "M".

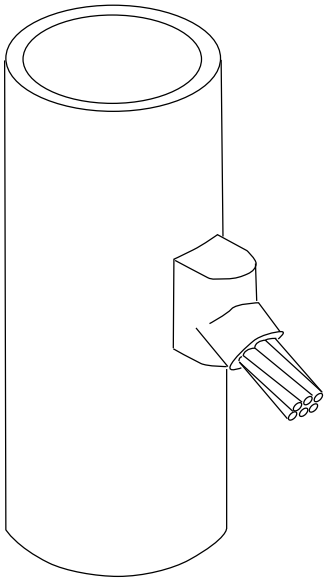
Ph: 1-800-677-9089
www.erico.com

Tap conductor to vertical STEEL pipe or flat surface.
NOTE: For DUCTILE IRON, see page 17.

Conductor Size	Surface	Welder Part No.†	Welder Price	Weld Metal
#14 to #10 Solid (use sleeve CAB-133-1H)* or #8 Solid or Stranded, or #6 Solid	Flat (12" & larger pipe) 3/4" to 3-1/2" pipe 4" to 10" pipe	CAVST-1G CAVST-1GA CAVST-1GB	CAT CAT CAT	CA15 CA15 CA15
6 Stranded	Flat (12" & larger pipe) 3/4" to 3-1/2" pipe 4" to 10" pipe	CAVST-1H CAVST-1HA CAVST-1HB	CAT CAT CAT	CA15 CA15 CA15
4 Solid	Flat (12" & larger pipe) 3/4" to 1-1/2" pipe 2" to 4" pipe 5" to 10" pipe	CAVST-1K CAVST-1KA CAVST-1KB CAVST-1KC	CAT CAT CAT CAT	CA25 CA25 CA25 CA25
4 Stranded	Flat (12" & larger pipe) 3/4" to 1-1/2" pipe 2" to 4" pipe 5" to 10" pipe	CAVST-1L CAVST-1LA CAVST-1LB CAVST-1LC	CAT CAT CAT CAT	CA25 CA25 CA25 CA25
2 Solid	Flat (14" & larger pipe) 1" to 1-1/2" pipe 2" to 4" pipe 5" to 12" pipe	CAVST-1T CAVST-1TA CAVST-1TB CAVST-1TC	CAT CAT CAT CAT	CA25 CA25 CA25 CA25
2 Stranded	Flat (14" & larger pipe) 1" to 1-1/2" pipe 2" to 3" pipe 4" to 6" pipe 8" to 12" pipe	CAVST-1V CAVST-1VA CAVST-1VB CAVST-1VC CAVST-1VD	CAT CAT CAT CAT CAT	CA32 CA32 CA32 CA32 CA32
1 Stranded	Flat (18" & larger pipe) 1-1/2" to 2-1/2" pipe 3" to 4" pipe 5" to 10" pipe 12" to 16" pipe	CAVSP-1Y CAVSP-1YA CAVSP-1YB CAVSP-1YC CAVSP-1YD	CAP CAP CAP CAP CAP	CA45 CA45 CA45 CA45 CA45
1/0 Stranded	Flat (18" & larger pipe) 2-1/2" to 4" pipe 5" to 10" pipe 12" to 16" pipe	CAVSP-2C CAVSP-2CA CAVSP-2CB CAVSP-2CC	CAP CAP CAP CAP	CA65 CA65 CA65 CA65
2/0 Stranded	Flat (18" & larger pipe) 3" to 4" pipe 5" to 10" pipe 12" to 16" pipe	CAVSP-2G CAVSP-2GA CAVSP-2GB CAVSP-2GC	CAP CAP CAP CAP	CA65 CA65 CA65 CA65



CAVS

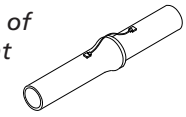


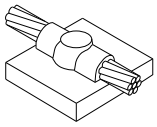
CAVS – Cable on surface

* 1 sleeve per connection.
† Welder Part No. includes mold frame. If mold only (less frame) is required, order - Welder Part No. - "M".

Connections to Cast Iron — Type CAHB & CAHE

Type CAHB Tap conductor to top of horizontal CAST IRON pipe or flat surface.





Type CAHE Through conductor to top of horizontal CAST IRON pipe or flat surface.

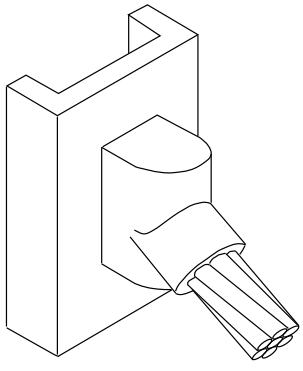
TYPE CAHB					TYPE CAHE		
Welder Part No.†	Welder Price	Weld Metal	Conductor Size	Surface	Welder Part No.†	Welder Price	Weld Metal
CAHBA-1G CAHBA-1G-P.S.*	CAA CAA	CA25XF-19 CA25XF-19	#14 to #10 Solid (use sleeve CAB-133-1H)** or #8 Solid or Stranded, or #6 Solid	Flat (30" & larger pipe) 4" to 24" pipe	CAHEA-1G CAHEA-1G-P.S.*	CAA CAA	CA32XF-19 CA32XF-19
CAHBA-1H CAHBA-1H-P.S.*	CAA CAA	CA25XF-19 CA25XF-19	6 Stranded	Flat (30" & larger pipe) 4" to 24" pipe	CAHEA-1H CAHEA-1H-P.S.*	CAA CAA	CA32XF-19 CA32XF-19
CAHBA-1K CAHBA-1K-P.S.*	CAA CAA	CA45XF-19 CA45XF-19	4 Solid	Flat (30" & larger pipe) 4" to 24" pipe	CAHEA-1K CAHEA-1K-P.S.*	CAA CAA	CA45XF-19 CA45XF-19
CAHBA-1L CAHBA-1L-P.S.*	CAA CAA	CA45XF-19 CA45XF-19	4 Stranded	Flat (30" & larger pipe) 4" to 24" pipe	CAHEA-1L CAHEA-1L-P.S.*	CAA CAA	CA45XF-19 CA45XF-19
CAHBA-1T CAHBA-1T-P.S.*	CAA CAA	CA45XF-19 CA45XF-19	2 Solid	Flat (30" & larger pipe) 4" to 24" pipe	CAHEA-1T CAHEA-1T-P.S.*	CAA CAA	CA45XF-19 CA45XF-19
CAHBA-1V CAHBA-1V-P.S.*	CAA CAA	CA45XF-19 CA45XF-19	2 Stranded	Flat (30" & larger pipe) 4" to 24" pipe	CAHEA-1V CAHEA-1V-P.S.*	CAA CAA	CA45XF-19 CA45XF-19
CAHBA-1Y CAHBA-1Y-P.S.*	CAA CAA	CA65XF-19 CA65XF-19	1 Stranded	Flat (30" & larger pipe) 4" to 24" pipe	CAHEA-1Y CAHEA-1Y-P.S.*	CAA CAA	CA65XF-19 CA65XF-19

* Specify pipe size. Example: For #2 stranded to 6" pipe. (Type CAHB) CAHBA-1V-6, (Type CAHE) CAHEA-1V-6.
** 1 Sleeve per connection for Type CAHB. 2 Sleeves per connection for Type CAHE.
† Welder Part No. includes mold frame. If mold only (less frame) is required, order - Welder Part No. - "M".

Do not use Types CAHB, CAHE, or CAVH on soil pipe (ASTM A74-82)
A test weld should be made on a section of the pipe being used to determine possibility of detrimental metallurgical effects. For DUCTILE IRON, see page 17.

Connections to Cast Iron — Type CAVH

Type CAVH Tap conductor to vertical CAST IRON pipe or flat surface.



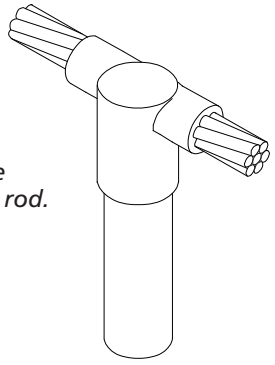
CAVH

Conductor Size	Surface	Welder Part No.†	Weld Price	Weld Metal
#14 to #10 Solid (use sleeve CAB-133-1H)** or #8 Solid or Stranded, or #6 Solid	Flat (30" & larger pipe) 4" to 24" pipe	CAVHT-1G CAVHT-1G-P.S.*	CAT CAT	CA25XF-19 CA25XF-19
6 Stranded	Flat (30" & larger pipe) 4" to 24" pipe	CAVHT-1H CAVHT-1H-P.S.*	CAT CAT	CA25XF-19 CA25XF-19
4 Solid	Flat (30" & larger pipe) 4" to 24" pipe	CAVHT-1K CAVHT-1K-P.S.*	CAT CAT	CA32XF-19 CA32XF-19
4 Stranded	Flat (30" & larger pipe) 4" to 24" pipe	CAVHT-1L CAVHT-1L-P.S.*	CAT CAT	CA32XF-19 CA32XF-19
2 Solid	Flat (30" & larger pipe) 4" to 24" pipe	CAVHP-1T CAVHP-1T-P.S.*	CAP CAP	CA45XF-19 CA45XF-19
2 Stranded	Flat (30" & larger pipe) 4" to 24" pipe	CAVHP-1V CAVHP-1V-P.S.*	CAP CAP	CA45XF-19 CA45XF-19
1 Stranded	Flat (36" & larger pipe) 4" to 30" pipe	CAVHP-1Y CAVHP-1Y-P.S.*	CAP CAP	CA65XF-19 CA65XF-19

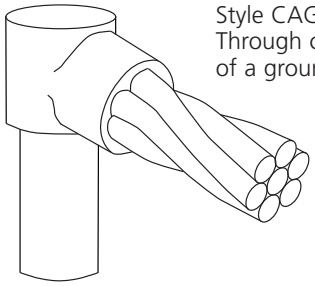
* Specify pipe size. Example: For #2 stranded to 6" pipe, CAVHP-1V-6.
**1 sleeve per connection.
† Welder Part No. includes mold frame. If mold only (less frame) is required, order - Welder Part No. - "M".

Ph: 1-800-677-9089
www.erico.com

Connections to Ground Rods — Type CAGR & CAGT



Style CAGR Tap conductor to the top of a ground rod.



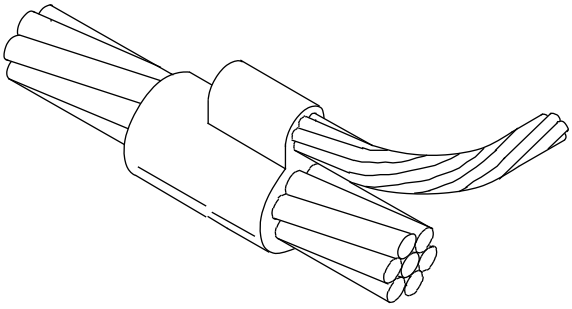
Style CAGT
Through conductor to the top of a ground rod.

Ground Rod Size[1]	Conductor Size	STYLE GR Welder Part No.[†]	STYLE GR Welder Price	STYLE GR Weld Metal	STYLE GT Welder Part No.[†]	STYLE GT Welder Price	STYLE GT Weld Metal
Nominal 1/2" (Actual .475 Dia.)	#14 to #10 Solid (use sleeve CAB-133-1H)* or #8 Solid or Stranded, or #6 Solid	CAGRT-151G	CAT	CA25	CAGTT-151G	CAT	CA32
	6 Stranded	CAGRT-151H	CAT	CA25	CAGTT-151H	CAT	CA32
	4 Solid	CAGRT-151K	CAT	CA25	CAGTT-151K	CAT	CA32
	4 Stranded	CAGRT-151L	CAT	CA25	CAGTT-151L	CAT	CA32
	2 Solid	CAGRT-151T	CAT	CA32	CAGTP-151T	CAP	CA45
	2 Stranded	CAGRT-151V	CAT	CA32	CAGTP-151V	CAP	CA45
	1 Stranded	CAGRP-151Y	CAP	CA45	CAGTP-151Y	CAP	CA65
	1/0 Stranded	CAGRP-152C	CAP	CA65	CAGTP-152C	CAP	CA65
	2/0 Stranded	CAGRP-152G	CAP	CA65	CAGTP-152G	CAP	CA65
Nominal 5/8" (Actual .563 Dia.)	#14 to #10 Solid (use sleeve CAB-133-1H)* or #8 Solid or Stranded, or #6 Solid	CAGRT-161G	CAT	CA32	CAGTP-161G	CAP	CA45
	6 Stranded	CAGRT-161H	CAT	CA32	CAGTP-161H	CAP	CA45
	4 Solid	CAGRT-161K	CAT	CA32	CAGTP-161K	CAP	CA65
	4 Stranded	CAGRT-161L	CAT	CA32	CAGTP-161L	CAP	CA65
	2 Solid	CAGRP-161T	CAP	CA45	CAGTP-161T	CAP	CA65
	2 Stranded	CAGRP-161V	CAP	CA45	CAGTP-161V	CAP	CA65
	1 Stranded	CAGRP-161Y	CAP	CA45	CAGTP-161Y	CAP	CA65
	1/0 Stranded	CAGRP-162C	CAP	CA65	CAGTN-162C	CAN	2-CA45
	2/0 Stranded	CAGRP-162G	CAP	CA65	CAGTN-162G	CAN	2-CA45
Nominal 3/4" (Actual .682 Dia.)	#14 to #10 Solid (use sleeve CAB-133-1H)* or #8 Solid or Stranded, or #6 Solid	CAGRT-181G	CAT	CA32	CAGTP-181G	CAP	CA45
	6 Stranded	CAGRT-181H	CAT	CA32	CAGTP-181H	CAP	CA45
	4 Solid	CAGRP-181K	CAP	CA45	CAGTP-181K	CAP	CA65
	4 Stranded	CAGRP-181L	CAP	CA45	CAGTP-181L	CAP	CA65
	2 Solid	CAGRP-181T	CAP	CA45	CAGTP-181T	CAP	CA65
	2 Stranded	CAGRP-181V	CAP	CA45	CAGTP-181V	CAP	CA65
	1 Stranded	CAGRP-181Y	CAP	CA45	CAGTP-181Y	CAP	CA65
	1/0 Stranded	CAGRP-182C	CAP	CA65	CAGTN-182C	CAN	2-CA45
	2/0 Stranded	CAGRP-182G	CAP	CA65	CAGTN-182G	CAN	2-CA45

[1] For plain (unthreaded) copper-clad ground rods only. For threaded copper-clad rods or for steel rods, contact ERICO for part number.
[†] Welder Part No. includes mold frame. If mold only (less frame) is required, order - Welder Part No. - "M".
* 1 sleeve per GR connection. 2 sleeves per GT connection.

Connections of Cable to Cable — Type CAPC

Type CAPC
Tap cable to a through cable.
Also see Type CATA, page 7

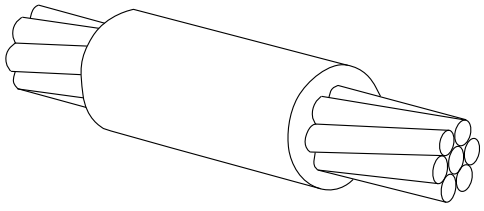


Conductor Size*		Welder	Welder	Weld
Run	Tap	Part No.†	Price	Metal
6 Stranded	6 Stranded	CAPCT-1H1H	CAT	CA25
	6 Solid	CAPCT-1H1G	CAT	CA25
	8 Stranded	CAPCT-1H1E	CAT	CA25
	8 Solid	CAPCT-1H1D	CAT	CA25
4 Stranded	4 Stranded	CAPCT-1L1L	CAT	CA32
	6 Stranded	CAPCT-1L1H	CAT	CA32
	6 Solid	CAPCT-1L1G	CAT	CA32
	8 Stranded	CAPCT-1L1E	CAT	CA32
	8 Solid	CAPCT-1L1D	CAT	CA32
2 Stranded	2 Stranded	CAPCP-1V1V	CAP	CA65
	4 Stranded	CAPCP-1V1L	CAP	CA45
	6 Stranded	CAPCT-1V1H	CAT	CA32
	6 Solid	CAPCT-1V1G	CAT	CA32
	8 Stranded	CAPCT-1V1E	CAT	CA32
	8 Solid	CAPCT-1V1D	CAT	CA32
1 Stranded	2 Stranded	CAPCP-1Y1V	CAP	CA65
	4 Stranded	CAPCP-1Y1L	CAP	CA45
	6 Stranded	CAPCP-1Y1H	CAP	CA45
	6 Solid	CAPCP-1Y1G	CAP	CA45
	8 Stranded	CAPCP-1Y1E	CAP	CA45
	8 Solid	CAPCP-1Y1D	CAP	CA45
1/0 Stranded	2 Stranded	CAPCP-2C1V	CAP	CA65
	4 Stranded	CAPCP-2C1L	CAP	CA65
	6 Stranded	CAPCP-2C1H	CAP	CA45
	6 Solid	CAPCP-2C1G	CAP	CA45
	8 Stranded	CAPCP-2C1E	CAP	CA45
	8 Solid	CAPCP-2C1D	CAP	CA45
2/0 Stranded	2 Stranded	CAPCN-2G1V	CAN	2-CA45
	4 Stranded	CAPCP-2G1L	CAP	CA65
	6 Stranded	CAPCP-2G1H	CAP	CA65
	6 Solid	CAPCP-2G1G	CAP	CA65
	8 Stranded	CAPCP-2G1E	CAP	CA65
	8 Solid	CAPCP-2G1D	CAP	CA65

* For #10 Solid through #14 Tap, use sleeve CAB-133-1H on wire in welder for #6 Stranded Tap.
† Welder Part No. includes mold frame. If mold only (less frame) is required, order - Welder Part No. - "M".

Connections of Cable to Cable — Type CASS

Type CASS
Splice of conductors.



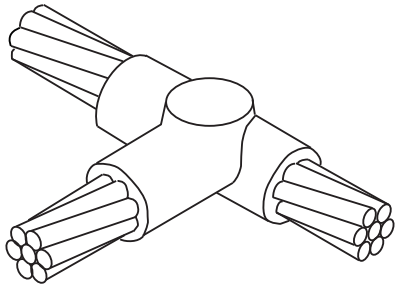
Conductor Size	Welder Part No.†	Welder Price	Weld Metal
12 Solid	CASST-001	CAT	CA15
10 Solid	CASST-1A	CAT	CA15
8 Solid	CASST-1D	CAT	CA15
6 Solid	CASST-1G	CAT	CA25
6 Stranded	CASST-1H	CAT	CA25
4 Solid	CASST-1K	CAT	CA25
4 Stranded	CASST-1L	CAT	CA25
2 Solid	CASST-1T	CAT	CA32
2 Stranded	CASST-1V	CAT	CA32
1 Stranded	CASST-1Y	CAT	CA32
1/0 Stranded	CASSP-2C	CAP	CA45
2/0 Stranded	CASSP-2G	CAP	CA65

† Welder Part No. includes mold frame. If mold only (less frame) is required, order - Welder Part No. - "M".

Ph: 1-800-677-9089
www.erico.com

Connections of Cable to Cable — Type CATA

Type CATA connections are available for any combination of run and tap conductor sizes. For small size taps, the Type CAPC is recommended. Contact your local distributor or ERICO for additional information.

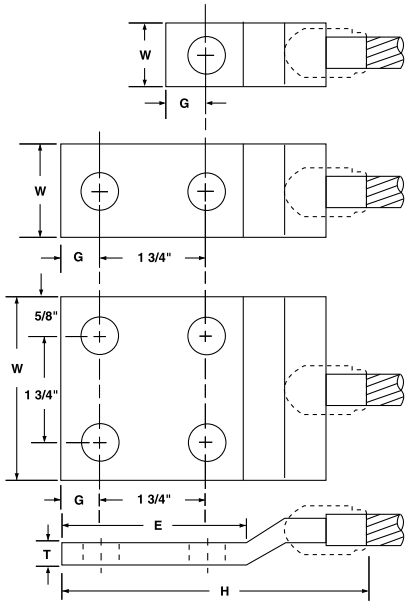


Concentric Strand Copper Cable

Cable Size Run	Cable Size Tap	Welder Mold Part No.	Weld Price	Metal
2	2	CATAN-1VIV	CAN	CA45
	4	CATAN-1V1L	CAN	CA45
1	1	CATAN-1Y1Y	CAN	CA45
	2	CATAN-1Y1V	CAN	CA45
	4	CATAN-1Y1L	CAN	CA45
1/0	1	CATAN-2C1Y	CAN	CA45
	2	CATAN-2C1V	CAN	CA45
	4	CATAN-2C1L	CAN	CA45
2/0	1	CATAN-2G1Y	CAN	CA45
	2	CATAN-2G1V	CAN	CA45
	4	CATAN-2G1L	CAN	CA45

Connections of Cable to Lug — Type CALA

Type CALA
Cable terminals (Lugs).

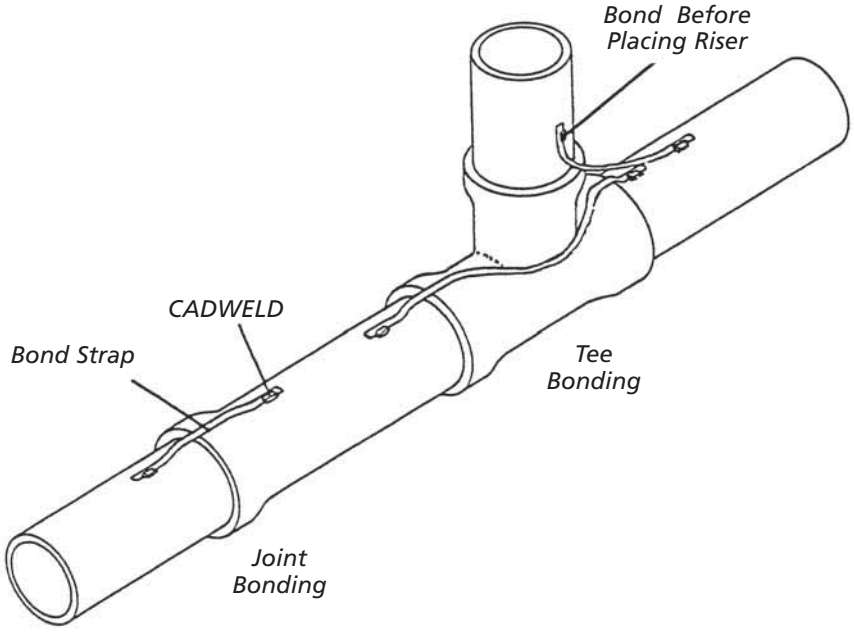


Conductor Size	Welder Part No.†	Weld Price	Weld Metal	Lug Part No.[3]	Lug Size	Stud Size
#8 Solid or Stranded, or #6 Solid[1]	CALAT-1G	CAT	CA25	CAB-101-AA	1/16X1/2	1/4
6 Stranded[2]	CALAT-1H	CAT	CA25			
4 Solid	CALAT-1K	CAT	CA25			
4 Stranded	CALAT-1L	CAT	CA25			
2 Solid	CALAT-1T	CAT	CA32			
2 Stranded	CALAT-1V	CAT	CA32			
1 Stranded	CALAT-1Y	CAT	CA32			
1/0 Stranded	CALAP-2C	CAP	CA45			
2/0 Stranded	CALAP-2G	CAP	CA45	CAB-101-CE	1/8X1	3/8

[1] Requires sleeve CAB-133-1L (1 per connection).
[2] Requires sleeve CAB-112 (1 per connection).
[3] Two hold lugs also available.
† Welder Part No. includes mold frame. If mold only (less frame) is required, order - Welder Part No. - "M".

In colder climates, water distribution pipes occasionally freeze in the winter. To thaw the ice, a high current (for example, from a welding machine) is applied to heat the pipe and thaw the ice. To accomplish this, each pipe joint must be efficiently bonded to control the electrical path and to prevent burning the pipe gaskets. 3/4" wide copper bonding straps, welded to the pipe with CADWELD connections, provide the necessary bond or current path across the pipe joints. The bonding strips have been tested at over 500 amperes.

The straps may also be used to provide continuity for Cathodic protection or grounding systems.



Straps

Size	Part No.
1/16" x 3/4"	CAA817A - "L"
1/16" x 1"	CAA817B - "L"

L = Length in inches

To Cast Iron or Ductile Iron Pipe

Pipe Size	1/16" x 3/4" Strap Mold Part No.†	1/16" x 1" Strap and Wider Mold Part No.†	Price Key	Weld Metal
4" - 12"	CACHA-ADC-A	CACHA-AEC-A	CAA	CA32XF19
14" - 30"	CACHA-ADC-B	CACHA-AEC-B	CAA	CA32XF19
Over 30"	CACHA-ADC	CACHA-AEC	CAA	CA32XF19
As Specified #	CACHA-ADC-(PS)*	CACHA-AEC-(PS)*	CAA	CA32XF19

To Steel Pipe

Pipe Size	1/16" x 3/4" Strap Mold Part No.†	1/16" x 1" Strap and Wider Mold Part No.†	Price Key	Weld Metal
4" - 12"	CACHA-ADS-A	CACHA-AES-A	CAA	CA32
14" - 30"	CACHA-ADS-B	CACHA-AES-B	CAA	CA32
Over 30"	CACHA-ADS	CACHA-AES	CAA	CA32
As Specified #	CACHA-ADS-(PS)*	CACHA-AES-(PS)*	CAA	CA32

† Mold part number listed is mold with frame. For mold only, add suffix - M to part number (e.g., CACHA-ADC-M).
# When only one pipe size is involved, order mold to fit that pipe size.
* Add pipe size (PS).

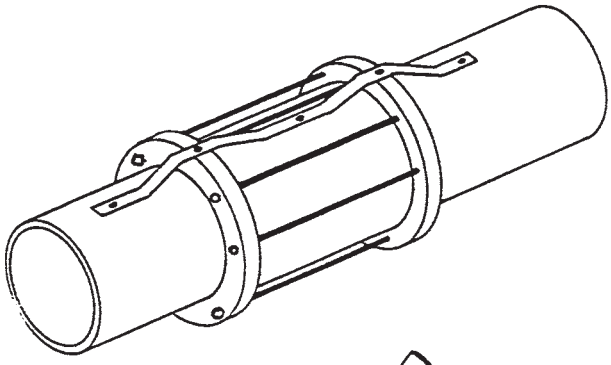
Ph: 1-800-677-9089
www.erico.com

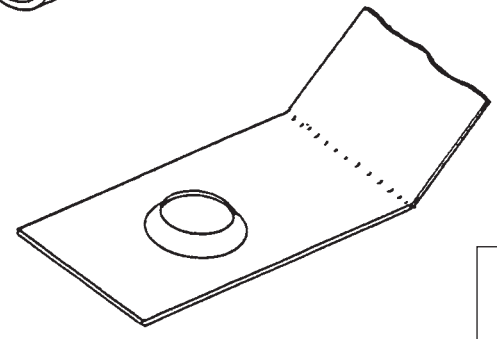
The CADWELD "Punched Strap" Bond allows bonding across joints of steel pipe with a bond of approximately 1/0 AWG size using a CA15 Weld Metal. This allows larger size bonds on steel pressure pipe covered by ANSI/ASME B31. (See page 16).

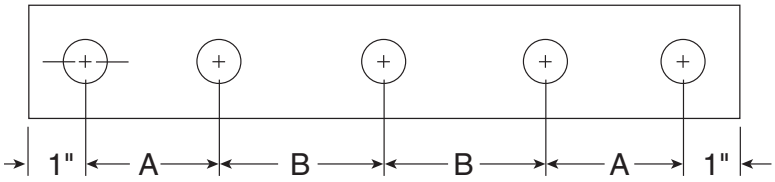
The Punched Strap bond is fabricated from 1/16" x 1-1/4" soft copper, allowing easy hand forming over the pipe coupling.

The 5-hole model is used on "Dresser Type" pipe couplings with two welds to the pipe and three to the coupling, made through the holes.

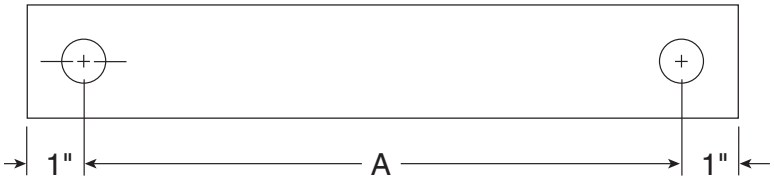
A 2-hole model (the 'B' dimensions are zero) is used across standard mechanical joints or across "Dresser Type" joints when the coupling does not have to be bonded.



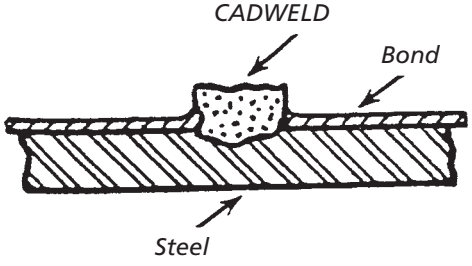




5-Hole Bond



2-Hole Bond



ORDERING INFORMATION

A. BOND; CAB496A__B__

"B" dimension } in fourths } 1-3/8"
"A" dimension } of an inch } min.

Example:

a) 5-hole bond
A = 3-3/4" (15 fourths)
B = 6-1/4" (25 fourths)
P/N CAB496A15B25

b) 2-hole bond
A = 16" (64 fourths)
B = 0" (0 fourths)
P/N CAB496A64B0

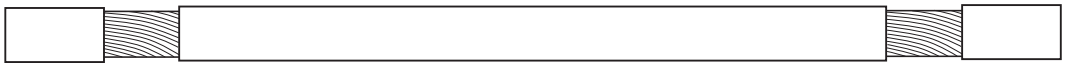
B. CADWELD BOND;
a) Mold with frame/Handle P/N CAHAA-AF
b) Replacement Mold ONLY P/N CAHAA-AFM

C. CADWELD WELD METAL;
CA15

FACTORY MADE BONDS

Bonds with terminals formed on the ends are often used for bonding pipe joints and fittings. The formed terminal allows a smaller weld metal size to be used.

Conductor Size	Insulated Bond Part No.	Bare Bond Part No.
#2	CAF1-1V – length in inches	CAF2-1V – length in inches
1/0	CAF1-2C – length in inches	CAF2-2C – length in inches
2/0	CAF1-2G – length in inches	CAF2-2G – length in inches

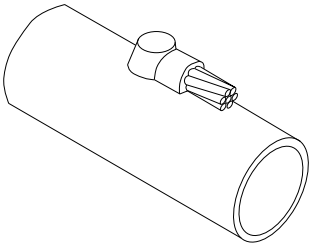


FIELD MADE BONDS

Formed Terminal Bonds may be made in the field using sleeves (one per conductor end) and forming them in the hammer dies listed.

Conductor Size	Sleeve Part No.	Hammer Die Part No.
#4	CAS-20-F	JD11
#2	CAS-09-F	JD09
1/0	CAS-05-F	JD05
2/0	CAS-03-F	JD03

WELDERS FOR FORMED TERMINAL BONDS



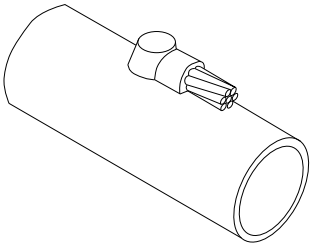
Type CAFS Welders for STEEL Pipe.

For DUCTILE IRON, see page 17.

Type CAFC Welders for CAST IRON Pipe.

Do not use on soil pipe. (ASTM A74-82).

A test weld should be made on a section of the pipe being used to determine possibility of detrimental metallurgical effects.

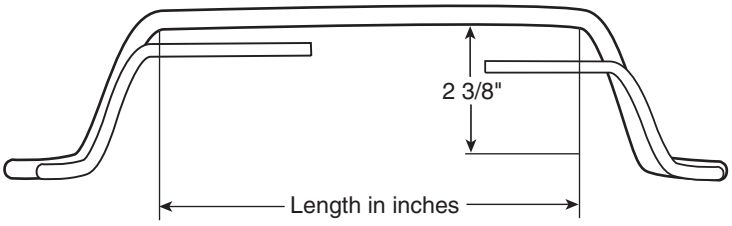


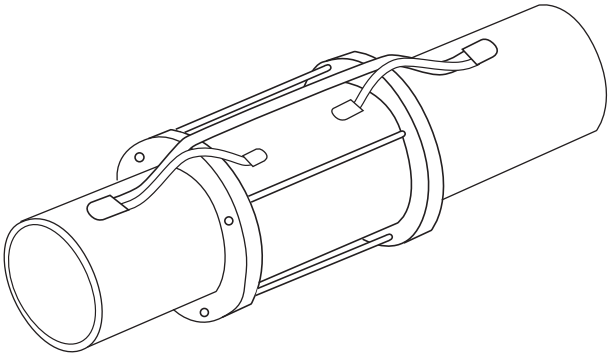
STEEL					CAST IRON			
Surface	Welder Part No.†	Welder Price	Weld Metal	Conductor Size	Surface	Welder Part No.†	Welder Price	Weld Metal
Flat (10" & larger pipe)	CAFSA-1L	CAA	CA25	#4	Flat (30" & larger pipe)	CAFCA-1L	CAA	CA32XF-19
4" pipe	CAFSA-1LA	CAA	CA25		4" to 24" pipe	CAFCA-1L-P.S*	CAA	CA32XF-19
6 to 8" pipe	CAFSA-1LB	CAA	CA25					
Flat (10" & larger pipe)	CAFSA-1V	CAA	CA25	#2	Flat (30" & larger pipe)	CAFCA-1V	CAA	CA32XF-19
4" pipe	CAFSA-1VA	CAA	CA25		4" to 24" pipe	CAFCA-1V-P.S*	CAA	CA32XF-19
6 to 8" pipe	CAFSA-1VB	CAA	CA25					
Flat (12" & larger pipe)	CAFSA-2C	CAA	CA32	1/0	Flat (30" & larger pipe)	CAFCA-2C	CAA	CA45XF-19
4" pipe	CAFSA-2CA	CAA	CA32		4" to 24" pipe	CAFCA-2C-P.S*	CAA	CA45XF-19
6 to 10" pipe	CAFSA-2CB	CAA	CA32					
Flat (12" & larger pipe)	CAFSA-2G	CAA	CA45	2/0	Flat (36" & larger pipe)	CAFCA-2G	CAA	CA65XF-19
4" pipe	CAFSA-2GA	CAA	CA45		4" to 30" pipe	CAFCA-2G-P.S*	CAA	CA65XF-19
6 to 10" pipe	CAFSA-2GB	CAA	CA45					

* Indicate pipe size.

† Replacement molds (graphite portion) are available by ordering Welder Part No. - "M".

Ph: 1-800-677-9089
www.erico.com





Type CADS Welders for Steel Pipe

FACTORY MADE BONDS with Pigtails for "Dresser Type" Pipe Couplings

Insulated, formed terminal bonds with insulated pigtails are used to bond across the joint and to bond both the middle ring and follower ring of Dresser Type Couplings.

Conductor Size	Pigtail Size	Bond Part No.
#2	#12 Solid	CAD1-1V-length in inches
1/0	8 Solid	CAD1-2C-length in inches

Type DC Welders for CAST IRON Pipe

Do not use on soil pipe. (ASTM A-74-82).

A test weld should be made on a section of the pipe being used to determine possibility of detrimental metallurgical effects.

For DUCTILE IRON, See page 17.

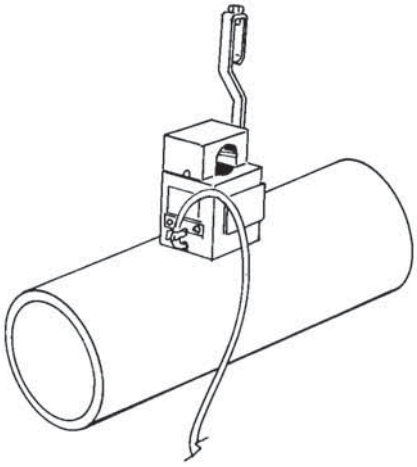
Bond[1]	Pipe Size	TERMINAL WELDER Welder Part No.[†]	Welder Price	Weld Metal	PIGTAIL WELDER Welder Part No.[†]	Welder Price	Weld Metal
TYPE CADS WELDERS FOR STEEL PIPE							
CAD1-1V (#2)	4" pipe 6" to 8" pipe 10" & larger pipe	CADSA-1VA CADSA-1VB CADSA-1V	CAA CAA CAA	CA25 CA25 CA25	CAHAA-1G	CAA	CA15
CAD1-2C (1/0)	4" pipe 6" to 10" pipe 12" & larger pipe	CADSA-2CA CADSA-2CB CADSA-2C	CAA CAA CAA	CA32 CA32 CA32	CAHAA-1D	CAA	CA15
TYPE CADS WELDERS FOR CAST IRON PIPE							
CAD1-1V (#2)	4 to 24" pipe 30" & larger pipe	CADCA-1VA-P.S* CADCA-1V	CAA CAA	CA32XF-19 CA32XF-19	CAHBA-1G-P.S.* CAHBA-1G	CAA CAA	CA25XF-19 CA25XF-19
CAD1-2C (1/0)	4 to 24" pipe 30" & larger pipe	CADCA-2C-P.S.* CADCA-2C	CAA CAA	CA45XF-19 CA45XF-19	CAHBA-1D-P.S.* CAHBA-1D	CAA CAA	CA25XF-19 CA25XF-19

* Add pipe size. Example: CADCA-IV-12 for 12" pipe.
[†] Welder Part No. includes mold frame. If mold only (less frame) is required, order - Welder Part No. - "M".
[1] For factory made bonds listed above.

Welders and Molds

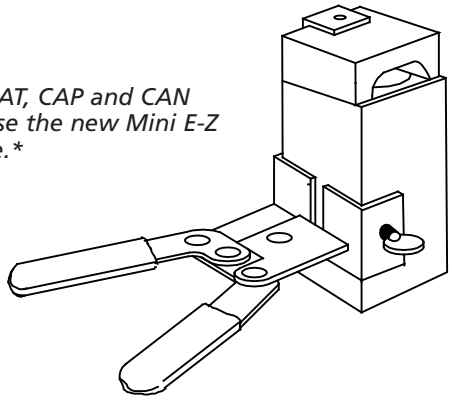
CADWELD WELDERS AND MOLDS

When making a CADWELD connection, an accurate control of the CADWELD process is accomplished by using a semi-permanent graphite mold. Control is exercised over the direction and speed of the molten CADWELD weld metal flow and final shape. The graphite used in a CADWELD mold is a high temperature type that lasts for an average of 50 to 100 CADWELD connections under normal usage.



*Welder Price CAA is a solid block with a hold-down handle.**

*Welder Price CAT, CAP and CAN are split and use the new Mini E-Z Change handle.**



* Welder Part No. includes mold frame.
If mold only (less frame) is required, order - Welder Part No. - "M".

Weld Metal

CADWELD WELD METAL

CADWELD weld metal is a mixture of copper oxide and aluminum, packaged by size in plastic tubes. Each tube contains the starting material at the bottom of the plastic tube, with the Weld Metal on top. These materials are not explosive and not subject to spontaneous ignition. These containers are packaged in boxes along with metal disks. Each weld uses one disk.

Two types of CADWELD weld metal are used for Cathodic protection connections:

1. F-33 alloy is used for all connections of cable to cable and cable to steel or stainless steel pipe. The F-33 weld metal containers have green caps.
2. XF-19 alloy is used for all connections to cast iron. XF-19 weld metal containers have orange caps.

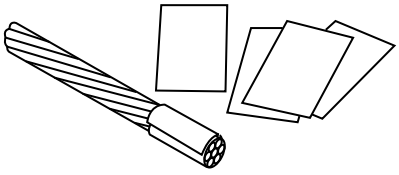
NOTE: For DUCTILE IRON, see page 17.

Size	PACKED PER Box**	Std. Pkg.
CA15	20	100
CA25	20	100
CA32	20	100
CA45	20	100
CA65	20	100

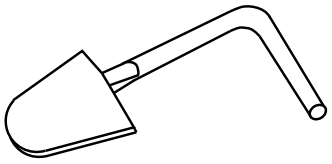
* XF-19 Alloy packed in same quantities.
XF-19 Alloy not available in 15 size.
**Disks are included.

Ph: 1-800-677-9089
www.erico.com

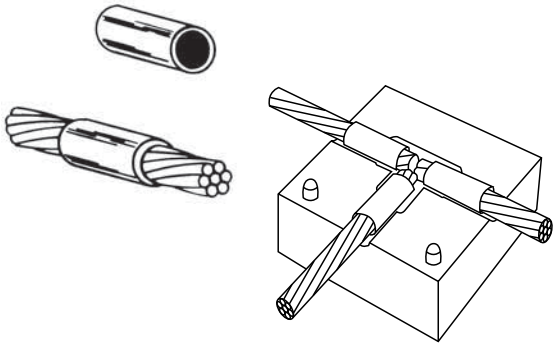
Tools and Materials



CADWELD WRAP SLEEVE CAB140A
CADWELD Wrap Sleeve is wrapped around the cable until the diameter is about the same as the cable opening in the mold.



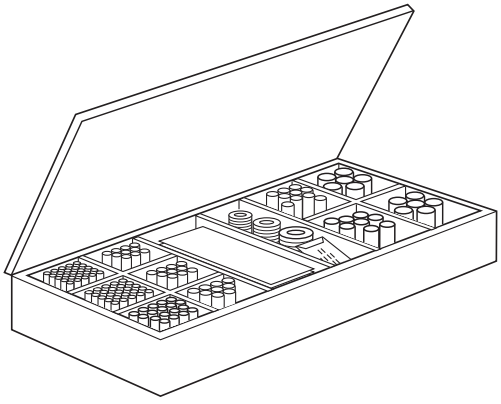
MOLD CLEANER CAB-136-A
Mold Cleaners are useful for removing the slag from CAA molds after making a CADWELD connection.



ADAPTER SLEEVES
Small conductors may be built up to fit the opening of larger size welders using either adapter sleeves or shim stock.

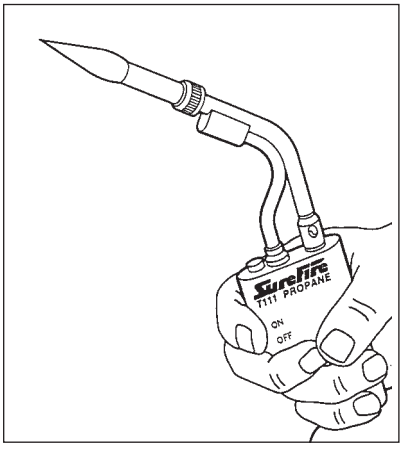
Cable Size		Use Adapter	Use in Mold for Conductor Size	
Stranded	Solid	Sleeve Part No.	Stranded	Solid
#12, 14	#10, 12, 14	CAB-133-1H	#6	#6
10	8, 10	CAB-133-1K	--	4
7, 8, 10	6, 8	CAB-133-1L	4	--
6	5	CAB-112	2	--

Adapter sleeves can be used when a limited number of connections are to be made with a smaller conductor in a larger welder.



CADWELD Sleeve Kit

T427 Includes:			
Product#	Quantity	Product#	Quantity
B1331H	25	B1332L	8
B1331L	25	B1332Q	12
B112	18	B140A	10
B1331V	10	B117A	20
B1331Y	10	B117B	10
B1332C	9	B117C	10
B1332G	10	T320A	10

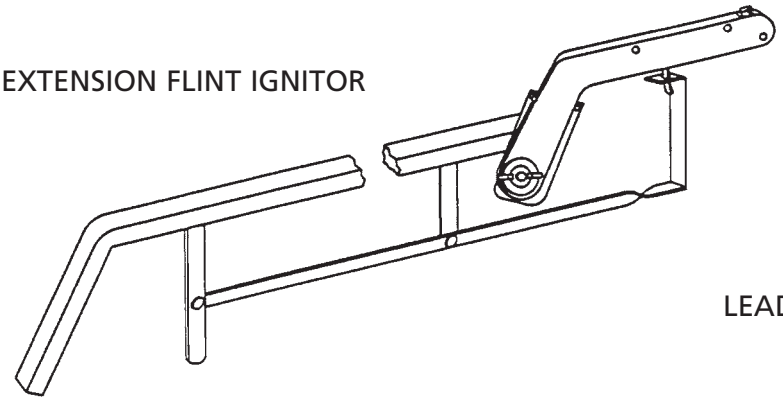


SUREFIRE™ CAT-111
Self-igniting propane torch head. Squeeze the control knob for an instant flame. Release and it's out. No flame adjusting. And, the burn tip remains cool during normal use. Operates on its side or upside down. Can withstand 60-MPH winds without flareout. Saves fuel. Safer to use. Fits all standard 14 and 16 oz. propane cylinders.

SUREFIRE™ is a trademark of IPI.

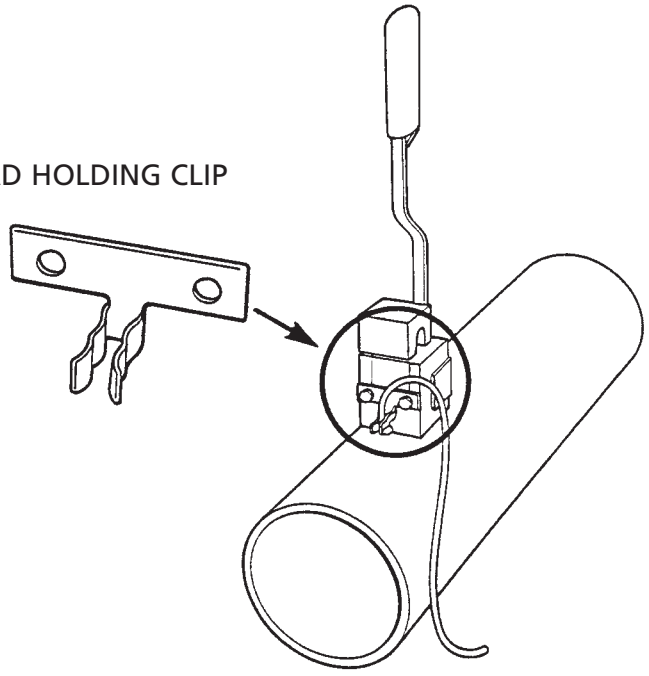
Tools and Materials

EXTENSION FLINT IGNITOR

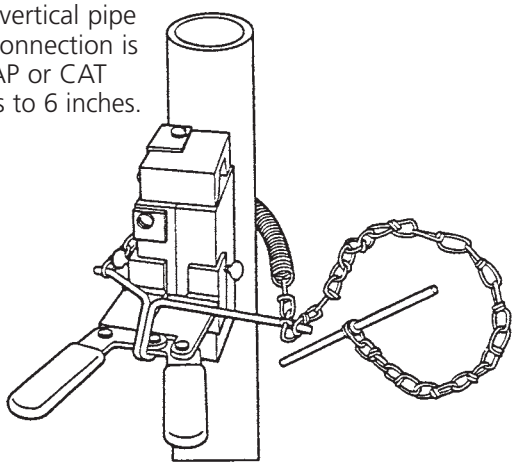


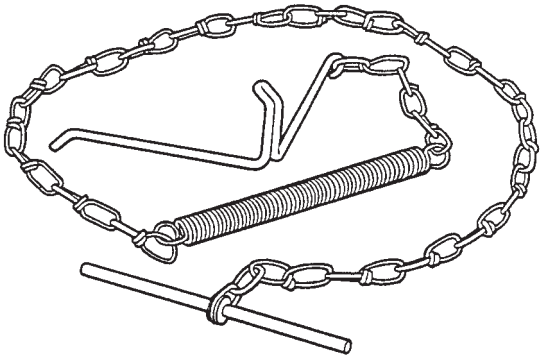
Cat. No.	Description
CAB-321-30	Extension including Flint Ignitor (30 inches long)
CAT-320	Replacement Flint Ignitor Only
CAT-320-A	Replacement Flints
CAB-322	Lead Holding Clip - Fits all CAA Price Welders

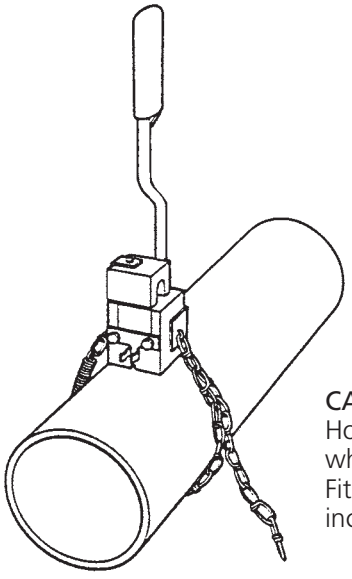
LEAD HOLDING CLIP



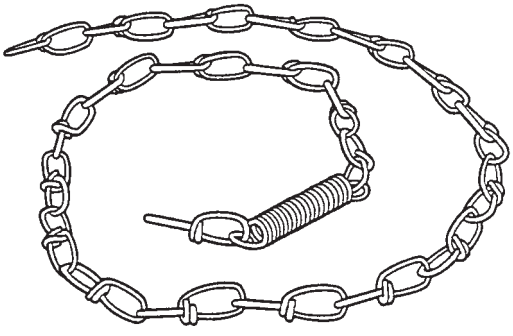
CAB-319 VERTICAL PIPE CLAMP
Holds the welder to a vertical pipe while the CADWELD connection is made. Fits all CAN, CAP or CAT price welders and pipes to 6 inches.







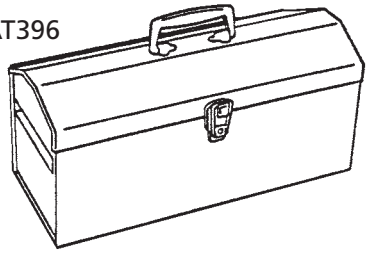
CAB-320 HORIZONTAL PIPE CLAMP
Holds the welder to a horizontal pipe while the CADWELD connection is made. Fits all CAA price welders and pipes to 6 inches.



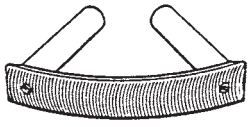
Ph: 1-800-677-9089
www.erico.com

Tools and Materials

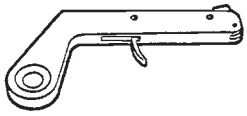
CAT396



CAT321



CAT320



CAT305

CAT336

CAT335

CAT328

CAT329

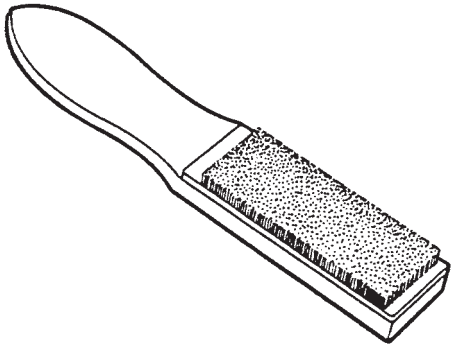
TOOL BOXES AND TOOLS

Item	Part No.
TOOL BOXES ONLY	CAT-396
COMPLETE KIT BOX AND TOOLS	CAT-343[1]
RASP	CAT-321
Replacement blade for Rasp	CAT-321-A
Flint Ignitor	CAT-320
Screw Driver	CAT-305
Wire Brush	CAT-336
Crimping Tool	CAT-335
Disk Container	CAT-328
Card Cloth Brush	CAT-313
File and Handle	CAT-329
Mold Sealer	CAT-403

Tools also available separately.
[1]Uses tool box CAT-396

BRUSH

The **CAT-313** Card Cloth Brush is used to clean all types of copper conductors. Its short stiff bristles provide for easy removal of oxides.



MOLD SEALER

Mold Sealer is required around the cable on outside of the CADWELD mold for Types CAHA, CAHB, CAHC, and CAHE.

CAT-403 - 2# Package

CADWELD CONNECTIONS TO PIPELINES

1. The American Society of Mechanical Engineers* (ASME) publishes codes relating to the design and installation of pressure piping systems:
   1.1. ANSI/ASME B31.8- 2000, GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS.
   1.2. ANSI/ASME B31.4- 1998, LIQUID TRANSPORTATION SYSTEMS FOR HYDROCARBONS, LIQUID PETROLEUM GAS, ANHYDROUS AMMONIA, AND ALCOHOLS.
2. In both, under Corrosion Control, the standard allows the attachment of electrical leads using exothermic welding but limits the size of the weld metal used to:
   2.1. CA15 for steel pipe.
   2.2. CA32XF19 for cast, wrought and ductile iron pipe.
3. These restrictions allow for the welding of #4 AWG and smaller wire to steel pipe using CADWELD Cathodic Type CAHA connections and #6 AWG and smaller to cast, wrought, and ductile iron using Type CAHB connections.

When larger sized conductors must be attached to pressure piping systems covered by these codes, several alternative solutions are available:

3.1. Using a Formed Terminal Bond (page 10), a #2 AWG can be welded to cast, wrought and ductile iron with a CA32XF19.

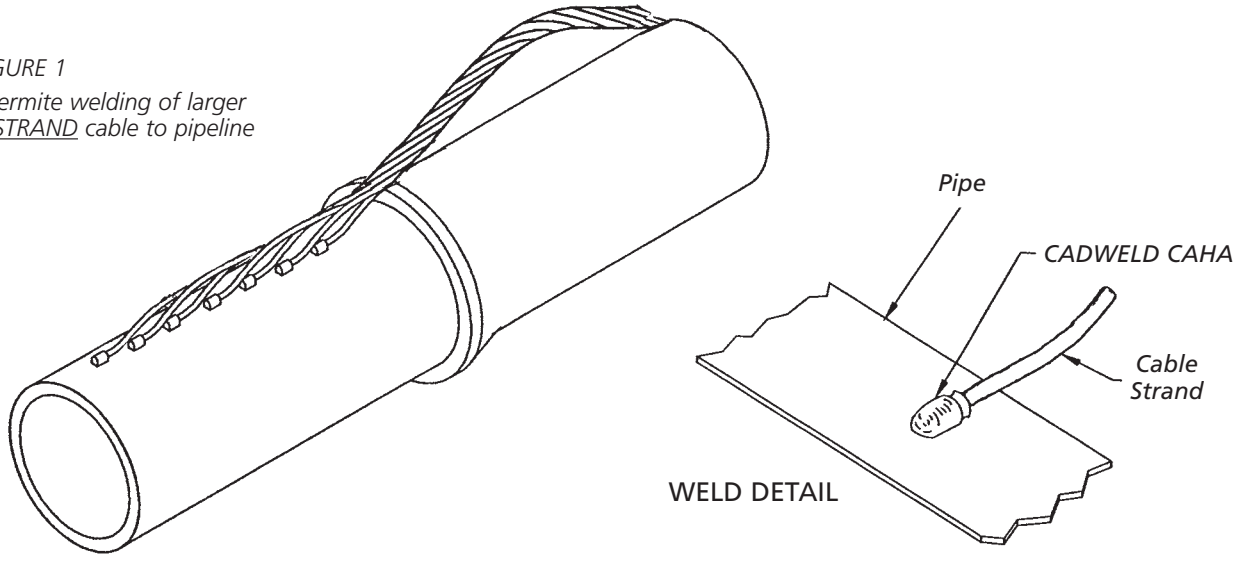
3.2. Using a CADWELD Bonding Strap (page 8), a 1/6" x 1" copper strip (equivalent to slightly smaller than a #1 AWG) can be welded to a cast, wrought and ductile iron pipe with a CA32XF19.

3.3. The "Punched Strap" Bond (page 9) (1/16" x 1-1/4" copper, equivalent to slightly less than a 1/0 AWG) can be welded to steel pipe using a CA15. The 5-hole model is used for "Dresser Type" couplings and the 2-hole model for standard joints.

3.4. The strands of a larger 7 strand conductor can be spread and each strand welded separately (figure 1) as noted in the following table:

* Available from: The American Society of Mechanical Engineers United Engineering Center, 345 East 47th Street, New York, NY 10017.

FIGURE 1
Thermite welding of larger 7 STRAND cable to pipeline



Conductor 7 Strand	Welder For Each Strand For Steel Pipe	Weld Metal
4/0	CAHAA1H	CA15
3/0 to #1	CAHAA1G	CA15
#2 to #4	CAHAA1G with sleeve B1331H	CA15

Ph: 1-800-677-9089
www.erico.com

CADWELD Connections and Pipe Wall Thickness

The following is a discussion of the minimum pipe size required for safe installation of CADWELD Cathodic Connections considering of the service conditions and without special factory testing. Several things must be considered as outlined below.

For a particular wall thickness:

a. The hoop stress in the pipe will increase as the pipe diameter increases.

b. The heat dissipation will be affected by the thermal characteristics of the material in the pipe.

c. The heat dissipation will be affected by the rate of flow of the material through the pipe while making the weld.

d. The pipe strength will be affected by the temperature of the pipe (material temperature).

e. Any internal coating of the pipe must be checked to find if the temperature of the pipe directly under the weld will adversely affect it.

Based on a minimum wall thickness of 0.109 inches* (2.769 mm) and using a CA15 Weld Metal (the maximum allowed to oil or gas piping systems per ANSI/ASME B31.4 and B31.8), the minimum recommended pipe size and schedule is:

Nominal Pipe Size	Schedule	Wall Thickness
1/2"	40	0.109
3/4"	40	0.113
1 to 2"	10	.0109
2-1/2 to 4"	10	1.120
5 to 8"	5	0.109
10" and larger	5	>0.109

Tests made by operating gas companies indicate no damage to a 4" Grade 52 pipe having a 0.109" wall when making a weld to the pipe at 500 psig using a CA15. Welds made to a steel plate 0.109" thick had a maximum copper penetration depth of less than 0.010". Other tests on tubes with a 0.125" or 0.150" wall showed a copper penetration of 0.005' maximum.

Ductile Iron

Tests by ERICO, Inc. indicate that connections to DUCTILE IRON pipe can be made using the CADWELD molds and weld metal designated to be used on steel pipe.

However, some reports from the field suggest that all ductile iron is not the same. In some cases the material for steel will not work. In such cases, the molds and weld material for cast iron do work.

We therefore, suggest:

1. Whenever possible, make tests on the ductile iron pipe being used to determine if the material for steel can be used.

-OR-

2. Use the material for cast iron. It will make satisfactory connections on all ductile iron.

Cross Reference

Thermoweld Part Number	CADWELD Part Number
M100	CAHAA1G
M101	CAHAA1GA
M102	CAHAA1H
M103	CAHAA1HA
M104	CAHAA1K
M105	Call ERICO
M106	CAHAA1L
M107	CAHAA1LA
M108	Call ERICO
M109	CAHAA1T
M110	CAHAA1TA
M111	Call ERICO
M112	CAHAA1V
M113	CAHAA1VA
M114	CAHAA1VA
M115	CAHAA1VB
M116	CAHAA1Y
M117	CAHAA1YA
M118	Call ERICO
M119	Call ERICO
M120	CAHAA2C
M121	CAHAA2CA
M122	Call ERICO
M123	CAHAA2CC
M124	CAHAA2G
M125	Call ERICO
M126	CAHAA2GB
M127	CAHGAA2GC
M142	CAVST1G
M150	CAVST1GA
M151	CAVST1GB
M144	CAVST1H
M152	CAVST1HA
M153	CAVST1HB
M145	CAVST1K
M186	CAVST1KA
M187	CAVST1KB
M188	CAVST1KC
M146	CAVST1L
M189	CAVST1LA
M190	CAVST1LB
M191	CAVST1LC
M147	CAVST1T
M192	CAVST1TA
M193	CAVST1TB
M194	CAVST1TC
M148	CAVST1V
M195	CAVST1VA
M196	CAVST1VB
M197	CAVST1VC
M198	CAVST1VD
M2586	CAVSP2C
M2587	CAVSP2CA
M2588	CAVSP2CB
M2589	CAVSP2CC
M2590	CAVSP2G
M2591	CAVSP2GA
M2592	CAVSP2GB
M2593	CAVSP2GC

Thermoweld Part Number	CADWELD Part Number
M156	CAHBA1G
M157	CAHBA1H
M158	CAHBA1K
M159	CAHBA1L
M160	CAHBA1T
M161	CAHBA1V
M162	Call ERICO
M163	CAHBA1Y
M164	Call ERICO
M165	Call ERICO
M2594S	CAVHT1G
M2594	CAVHT1H
M2595S	CAVHT1K
M2595	CAVHT1L
M2596S	CAVHP1T
M2596	CAVHP1V
M2597S	Call ERICO
M2597	CAVHP1Y
M2598	Call ERICO
M2599	Call ERICO
M1960	CAGRT151H
M1961	CAGRT151L
M1962	CAGRT151V
M1963	CAGRT151Y
M1964	CAGRT152C
M1965	CAGRT152G
M1968	CAGRT161H
M1969	CAGRT161L
M1970	CAGRP161V
M1971	CAGRP161Y
M1972	CAGRP162C
M1973	CAGRP162G
M1974	CAGRT181G
M1975	CAGRT181G
M1976	CAGRT181H
M1977	CAGRP181L
M1978	CAGRP181V
M1979	CAGRP181Y
M1980	CAGRP182C
M1981	CAGRP182G
M1982	CAGTT151G
M1983	CAGTT151G
M1984	CAGTT151H
M1985	CAGTT151L
M1986	CAGTP151V
M1987	CAGTP151Y
M1988	CAGTP152C
M1989	CAGTP152G
M1990	CAGTP161G
M1991	CAGTP161G
M1992	CAGTP161H
M1993	CAGTP161L
M1994	CAGTP161V
M1995	CAGTP161Y
M1996	CAGTN162C
M1997	CAGTN162G
M1998	CAGTP181G
M1999	CAGTP181G
M2000	CAGTP181H

Thermoweld Part Number	CADWELD Part Number
M2001	CAGTP181L
M2002	CAGTP181V
M2003	CAGTP181Y
M2004	CAGTN182C
M2005	CAGTN182G
M1927	CAPGT12CU
M1928	CAPGT10CU
M1929	CAPGT08CU
M1930	CAPGT06CU
M1931	CAPGT1G1D
M1932	CAPGT06CU
M1933	CAPGT1G1D
M1934	CAPGT1H1H
M1935	CAPGT1L1E
M1936	CAPGT1L1H
M1937	CAPGT1L1L
M1938	CAPGT1V1E
M1939	CAPGT1V1H
M1940	CAPGP1V1L
M1941	CAPGP1V1V
M1942	CAPGP1Y1E
M1943	CAPGP1Y1H
M1944	CAPGP1Y1L
M1945	CAPGP1Y1Y
M1946	CAPGP2C1E
M1947	CAPGP2C1H
M1948	CAPGP2C1L
M1949	CAPGP2C2C
M1950	CAPGP2G1E
M1951	CAPGP2G1H
M1952	CAPGP2G1L
M1953	CAPGN2G2G
15P	CA15
15PS	CA15S
25P	CA25
32P	CA32
45P	CA45
65P	CA65
15PCI	CA15XF19
25PCI	CA25XF19
32PCI	CA32XF19
45PCI	CA45XF19
65PCI	CA65XF19
A200	CAB1331H
A201	CAB1331L
A202	CAB112
A203	B1332C
A204	B1332L
A205	B1332Q
A206	B1332G
A304	CAT329
A305	CAT336
A306	CAT313
A309P	CAT320
A309PI	T320A
A320	B117A
B101	CAT321
B101P	CAT321A

™ Thermoweld is a trademark of Continental Industries.

Ph: 1-800-677-9089
www.erico.com

CADWELD Applications

Buried Cast or Ductile Iron Pipelines

Secure your investment by specifying the CADWELD Process for Cathodic Protection connections. The CADWELD exothermic welding process produces a molecular bond to the surface of the pipe. CADWELD connections are permanent and ensure the highest degree of electrical continuity, eliminating the potential for corrosion problems.

Vertical Steel Applications

ERICO makes Cathodic Protection easy for even the most difficult vertical steel applications. We offer a comprehensive line of magnetic clamps, attachments and tools specifically engineered for the challenges of vertical steel.

Reinforced Concrete Protection

Chloride contamination of reinforcing steel in concrete structures plagues many cold climate communities. To arrest corrosion, engineers specify Cathodic Protection systems for concrete road bridges and parking structures. CADWELD connections can be easily made to uneven surfaces of reinforcing steel rods for lasting protection.

Copper Cable Connections

Mechanical connections for electrical cable loosen and deteriorate with age. For superior performance, specify CADWELD exothermic connections to assure a permanent, molecular bond between connecting cables for full conductivity.

ERICO®

www.erico.com

AUSTRALIA
Phone +61-2-9751-8500
Fax +61-2-9475-5334

CHINA
Phone +86-21-3430-4878
Fax +86-21-5831-8177

HUNGARY
Phone +068-00-165-38
Fax +31-13-583-5499

NORWAY
Phone +800-100-73
Fax +800-100-66

SWITZERLAND
Phone +0800-558-697
Fax +0800-559-615

BELGIUM
Phone +0800-757-48
Fax +0800-757-60

DENMARK
Phone +808-89-373
Fax +808-89-372

INDONESIA
Phone +62-21-575-0941
Fax +62-21-575-0942

POLAND
Phone +48-71-374-4022
Fax +48-71-374-4043

THAILAND
Phone +66-2-267-5776
Fax +66-2-636-6988

BRAZIL
Phone +55-11-3623-4333
Fax +55-11-3621-4066

FRANCE
Phone +33-4-77-365-656
Fax +33-4-77-553-789

ITALY
Phone +39-02-8474-2250
Fax +39-02-8474-2251

SINGAPORE
Phone +65-6-268-3433
Fax +65-6-268-1389

UNITED ARAB EMIRATES
Phone +971-4-881-7250
Fax +971-4-881-7270

CANADA
Phone +1-800-677-9089
Fax +1-800-677-8131

GERMANY
Phone +0-800-189-0272
Fax +0-800-189-0274

MEXICO
Phone +52-55-5260-5991
Fax +52-55-5260-3310

SPAIN
Phone +34-93-467-7726
Fax +34-93-467-7725

UNITED KINGDOM
Phone +0808-2344-670
Fax +0808-2344-676

CHILE
Phone +56-2-370-2908
Fax +56-2-370-2914

HONG KONG
Phone +852-2764-8808
Fax +852-2764-4486

NETHERLANDS
Phone +31-13-583-5400
Fax +31-13-583-5499

SWEDEN
Phone +0207-909-08
Fax +0207-989-64

UNITED STATES
Phone +1-440-248-0100
Fax +1-440-248-0723

WARNING
ERICO products shall be installed and used only as indicated in ERICO's product instruction sheets and training materials. Instruction sheets are available at www.erico.com and from your ERICO customer service representative. Improper installation, misuse, misapplication or other failure to completely follow ERICO's instructions and warnings may cause product malfunction, property damage, serious bodily injury and death.

Copyright ©2009 ERICO International Corporation. All rights reserved.
CADDY, CADWELD, CRITEC, ERICO, ERIFLEX, ERITECH, and LENTON are registered trademarks of ERICO International Corporation.