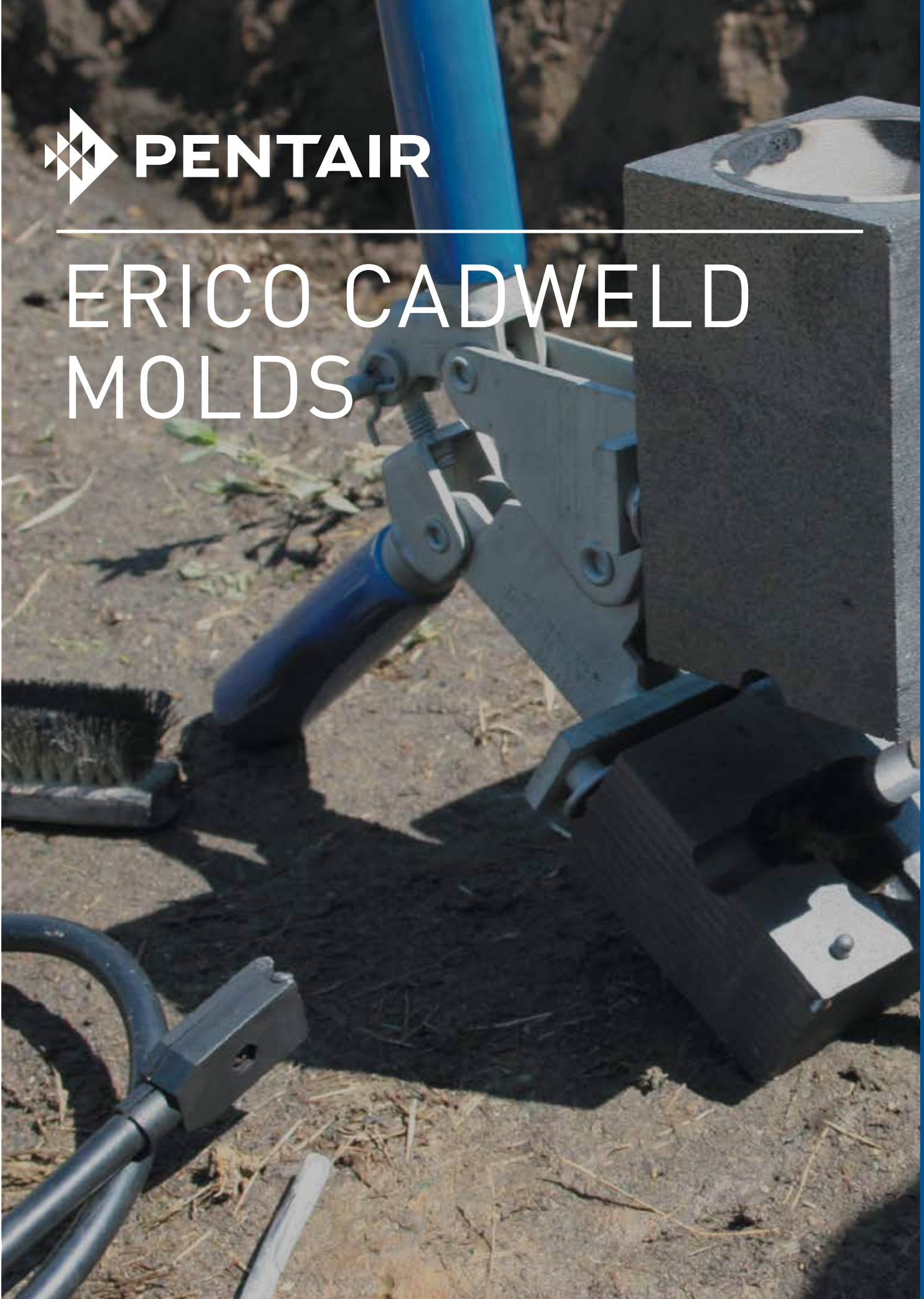


PENTAIR

ERICO CADWELD MOLDS

Grounding Connection Specification

This specification covers the ERICO CADWELD exothermic welding system for use in making electrical connections. The ERICO CADWELD system supplied under this specification shall include welding material, molds, tools and accessories as required.

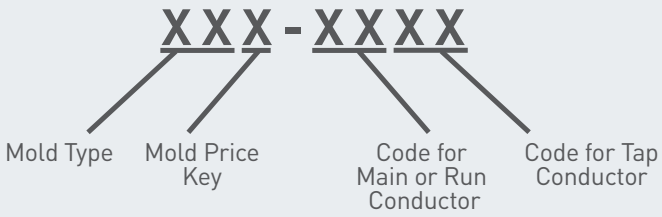
Unless otherwise specified, ERICO CADWELD exothermic welding system shall be used for all electrical grounding connections of copper to copper and copper to steel conductors. ERICO CADWELD connections shall be suitable for exposure to the elements of direct burial in earth or concrete without degradation over the lifetime of the grounding system.

The ERICO CADWELD exothermic welding system furnished under this specification shall meet the applicable requirements of IEEE Standard 80 "IEEE Guide for Safety in AC Substation Grounding" and IEEE Standard 837 IEEE "Standard for Qualifying Permanent Connections Used in Substation Grounding". Independent test data showing conformance to IEEE Std. 837 shall be readily available.

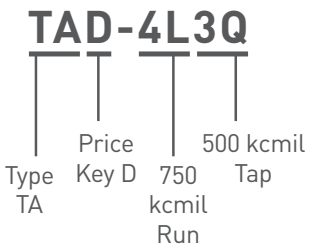
The ERICO CADWELD Mold Numbering System

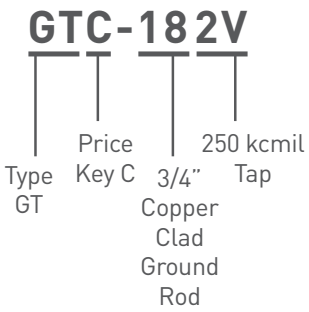
The ERICO CADWELD mold part number gives, in code, the complete information about the mold.

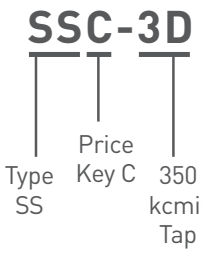
Type of connection, mold price key, and conductor size(s)

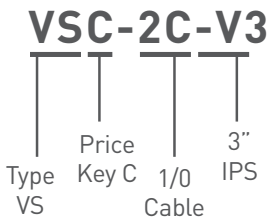


Examples:









CADWELD Connections Used for Grounding Reinforcing Bars

CADWELD provides efficient and permanent connections for both grounding and attaching lightning protection conductors to rebar. When making CADWELD connections to rebar, the normal materials required are: mold, handle and weld metal. In addition, packing material is also required. These materials act as a seal between the mold and rebar to prevent leaks. One unit of packing material must be ordered for each weld.

CADWELD Connections to Structural Reinforcing Bar and Anchor Bolts

Welding of ground conductors to reinforcing bars (rebar) by the CADWELD process should not be harmful if stresses in the rebar are below yield. As design stresses are normally only about 50% to 60% of the nominal yield strength of the rebar, welding by the CADWELD process should not be detrimental under design stresses.

As the ACI Building Code (ACI318-14 Commentary, 25.5.2.1) advises, "splice requirements encourage splicing bars at points of minimum stress ... encourage the location of splices away from regions of high tensile stress." The same advice should apply to locations of CADWELD connections of a ground conductor to rebar. Where possible, locate the weld area away from areas of maximum tensile stress, e.g., near the free end of the bar in a lap splice, on the hook extension for a hooked bar, etc. The same considerations apply to CADWELD connections to anchor bolts.

NOTE:

For lightning protection applications where the main lightning protection conductor is connected to the rebar, ERICO recommends a 2/0 AWG copper conductor for structures over 75 feet in height and a #2 AWG copper conductor for structures under 75 feet. For a bonding conductor, a #6 AWG copper may be used. These sizes meet NFPA78 Code requirement. Anchor bolts are connected in the same way.

All welds to rebar requiring larger than a #150 weld metal will be sold only after review by ERICO.

GT Molds





Global Part Number	Mold Family	Price Key	Ground Rod Type	Ground Rod Diameter, Nominal	Ground Rod Diameter, Actual	Conductor Size	Welding Material	Ease of Use	Handle Clamp	Other Accessories Required
GTC141G	GT	C	Steel	1/2"	0.505"	#6 Solid	90 or 90PLUSF20	Preferred	L160	B1331L x 2
GTC141T	GT	C	Steel	1/2"	0.505"	#2 Solid	90 or 90PLUSF20	Preferred	L160	
GTC141V	GT	C	Steel	1/2"	0.505"	#2 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC142C	GT	C	Steel	1/2"	0.505"	1/0 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC142G	GT	C	Steel	1/2"	0.505"	2/0 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC142Q	GT	C	Steel	1/2"	0.505"	4/0 Concentric	115 or 115PLUSF20	Preferred	L160	
GTC142V	GT	C	Steel	1/2"	0.505"	250 kcmil Concentric	150 or 150PLUSF20	Preferred	L160	
GTC143Q	GT	C	Steel	1/2"	0.505"	500 kcmil Concentric	250 or 250PLUSF20	Preferred	L160	
GTC181K	GT	C	Copper-bonded	3/4"	0.682"	#4 Solid	90 or 90PLUSF20	Preferred	L160	
GTC181L	GT	C	Copper-bonded	3/4"	0.682"	#4 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC181T	GT	C	Copper-bonded	3/4"	0.682"	#2 Solid	90 or 90PLUSF20	Preferred	L160	
GTC181V	GT	C	Copper-bonded	3/4"	0.682"	#2 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC181Y	GT	C	Copper-bonded	3/4"	0.682"	#1 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC182C	GT	C	Copper-bonded	3/4"	0.682"	1/0 Concentric	115 or 115PLUSF20	Preferred	L160	
GTC182G	GT	C	Copper-bonded	3/4"	0.682"	2/0 Concentric	115 or 115PLUSF20	Preferred	L160	
GTC182Q	GT	C	Copper-bonded	3/4"	0.682"	4/0 Concentric	115 or 115PLUSF20	Preferred	L160	
GTC182V	GT	C	Copper-bonded	3/4"	0.682"	250 kcmil Concentric	150 or 150PLUSF20	Preferred	L160	
GTC183A	GT	C	Copper-bonded	3/4"	0.682"	300 kcmil Concentric	200 or 200PLUSF20	Preferred	L160	
GTC183D	GT	C	Copper-bonded	3/4"	0.682"	350 kcmil Concentric	200 or 200PLUSF20	Preferred	L160	
GTC183H	GT	C	Copper-bonded	3/4"	0.682"	400 kcmil Concentric	250 or 250PLUSF20	Preferred	L160	
GTC183Q	GT	C	Copper-bonded	3/4"	0.682"	500 kcmil Concentric	250 or 250PLUSF20	Preferred	L160	
GTC221K	GT	C	Copper-bonded	1"	0.914"	#4 Solid	150 or 150PLUSF20	Preferred	L160	
GTC221L	GT	C	Copper-bonded	1"	0.914"	#4 Concentric	150 or 150PLUSF20	Preferred	L160	
GTC221T	GT	C	Copper-bonded	1"	0.914"	#2 Solid	150 or 150PLUSF20	Preferred	L160	
GTC221V	GT	C	Copper-bonded	1"	0.914"	#2 Concentric	150 or 150PLUSF20	Preferred	L160	
GTC221Y	GT	C	Copper-bonded	1"	0.914"	#1 Concentric	150 or 150PLUSF20	Preferred	L160	
GTC222C	GT	C	Copper-bonded	1"	0.914"	1/0 Concentric	150 or 150PLUSF20	Preferred	L160	
GTC222G	GT	C	Copper-bonded	1"	0.914"	2/0 Concentric	150 or 150PLUSF20	Preferred	L160	

Global Part Number	Mold Family	Price Key	Ground Rod Type	Ground Rod Diameter, Nominal	Ground Rod Diameter, Actual	Conductor Size	Welding Material	Ease of Use	Handle Clamp	Other Accessories Required
GTC222Q	GT	C	Copper-bonded	1″	0.914″	4/0 Concentric	150 or 150PLUSF20	Preferred	L160	
GTC222V	GT	C	Copper-bonded	1″	0.914″	250 kcmil Concentric	200 or 200PLUSF20	Preferred	L160	
GTC223D	GT	C	Copper-bonded	1″	0.914″	350 kcmil Concentric	200 or 200PLUSF20	Preferred	L160	
GTC223H	GT	C	Copper-bonded	1″	0.914″	400 kcmil Concentric	200 or 200PLUSF20	Preferred	L160	
GTC223Q	GT	C	Copper-bonded	1″	0.914″	500 kcmil Concentric	250 or 250PLUSF20	Preferred	L160	
GTC311L	GT	C	Steel	5/8″	0.625″	#4 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC311T	GT	C	Steel	5/8″	0.625″	#2 Solid	90 or 90PLUSF20	Preferred	L160	
GTC311V	GT	C	Steel	5/8″	0.625″	#2 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC311Y	GT	C	Steel	5/8″	0.625″	#1 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC312C	GT	C	Steel	5/8″	0.625″	1/0 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC312G	GT	C	Steel	5/8″	0.625″	2/0 Concentric	115 or 115PLUSF20	Preferred	L160	
GTC312Q	GT	C	Steel	5/8″	0.625″	4/0 Concentric	115 or 115PLUSF20	Preferred	L160	
GTC312V	GT	C	Steel	5/8″	0.625″	250 kcmil Concentric	150 or 150PLUSF20	Preferred	L160	
GTC313A	GT	C	Steel	5/8″	0.625″	300 kcmil Concentric	200 or 200PLUSF20	Preferred	L160	
GTC313D	GT	C	Steel	5/8″	0.625″	350 kcmil Concentric	200 or 200PLUSF20	Preferred	L160	
GTC313H	GT	C	Steel	5/8″	0.625″	400 kcmil Concentric	250 or 250PLUSF20	Preferred	L160	
GTC313Q	GT	C	Steel	5/8″	0.625″	500 kcmil Concentric	250 or 250PLUSF20	Preferred	L160	
GTC331T	GT	C	Steel	3/4″	0.750″	#2 Solid	90 or 90PLUSF20	Preferred	L160	
GTC331Y	GT	C	Steel	3/4″	0.750″	#1 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC333H	GT	C	Steel	3/4″	0.750″	400 kcmil Concentric	250 or 250PLUSF20	Preferred	L160	
GTC331V	GT	C	Steel	3/4″	0.750″	#2 Concentric	90 or 90PLUSF20	Preferred	L160	
GTC332C	GT	C	Steel	3/4″	0.750″	1/0 Concentric	115 or 115PLUSF20	Preferred	L160	
GTC332G	GT	C	Steel	3/4″	0.750″	2/0 Concentric	115 or 115PLUSF20	Preferred	L160	
GTC332Q	GT	C	Steel	3/4″	0.750″	4/0 Concentric	115 or 115PLUSF20	Preferred	L160	
GTC332V	GT	C	Steel	3/4″	0.750″	250 kcmil Concentric	150 or 150PLUSF20	Preferred	L160	
GTC333A	GT	C	Steel	3/4″	0.750″	300 kcmil Concentric	200 or 200PLUSF20	Preferred	L160	
GTC333D	GT	C	Steel	3/4″	0.750″	350 kcmil Concentric	200 or 200PLUSF20	Preferred	L160	
GTC333Q	GT	C	Steel	3/4″	0.750″	500 kcmil Concentric	250 or 250PLUSF20	Preferred	L160	
GTC371L	GT	C	Steel	1″	1.000″	#4 Concentric	150 or 150PLUSF20	Preferred	L160	
GTC371V	GT	C	Steel	1″	1.000″	#2 Concentric	150 or 150PLUSF20	Preferred	L160	
GTC372C	GT	C	Steel	1″	1.000″	1/0 Concentric	150 or 150PLUSF20	Preferred	L160	
GTC372G	GT	C	Steel	1″	1.000″	2/0 Concentric	150 or 150PLUSF20	Preferred	L160	
GTC372Q	GT	C	Steel	1″	1.000″	4/0 Concentric	150 or 150PLUSF20	Preferred	L160	
GTC372V	GT	C	Steel	1″	1.000″	250 kcmil Concentric	200 or 200PLUSF20	Preferred	L160	