GROUNDING CONNECTION SPECIFICATION

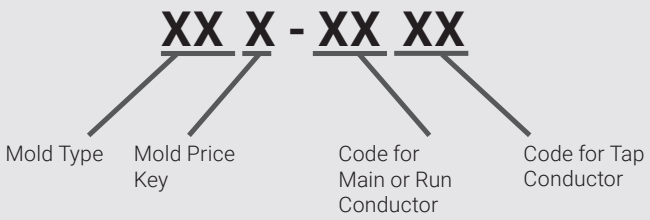
This specification covers the nVent ERICO Cadweld exothermic welding system for use in making electrical connections. The Cadweld system supplied under this specification shall include welding material, molds, tools and accessories as required.

Unless otherwise specified, Cadweld exothermic welding system shall be used for all electrical grounding connections of copper to copper and copper to steel conductors. 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.

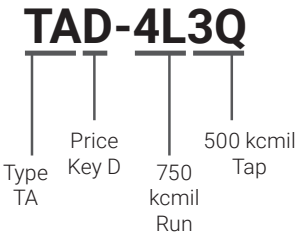
The Cadweld exothermic welding system furnished under this specification shall meet the applicable requirements of IEEE Standard 80 "IEEE Guide for Safety in AC Substation Grounding" and IEEE Standard 837 IEEE "Standard for Qualifying Permanent Connections Used in Substation Grounding". Independent test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

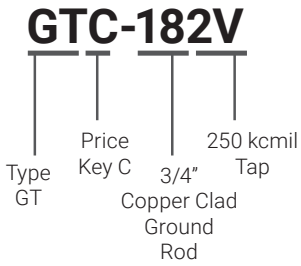
The Cadweld Mold Numbering System

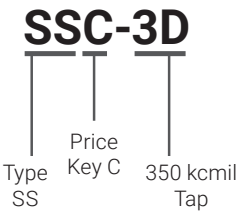
The Cadweld mold part number gives, in code, the complete information about the mold.
Type of connection, mold price key, and conductor size(s)

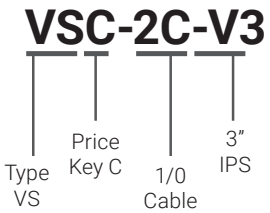


Examples:









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.

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.

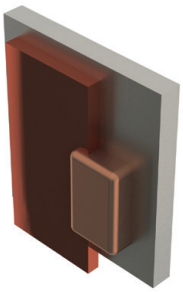
As the ACI Building Code (ACI318-14 Commentary, 25.5.2.1) advises, "splice requirements encourage splicing bars at points of minimum stress … encourage the location of splices away from regions of high tensile stress." The same advice should apply to locations of Cadweld connections of a ground conductor 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.

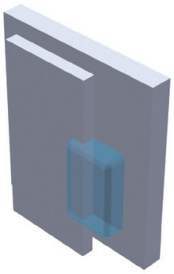
NOTE:

For lightning protection applications where the main lightning protection conductor is connected to the rebar, nVent 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 nVent ERICO.

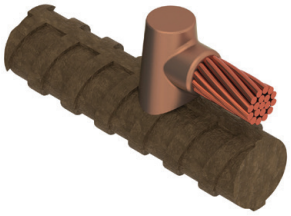
CF MOLDS





Global Part Number	Mold family	Price Key	Lug/Busbar Size	Connects To	Welding Material Required	Ease of Use	Handle Clamp Required
CFCDELH	CF	C	3/16" x 1"	Steel Surface	150 or 150PLUSF20	Easy	L160
CFDEHRH	CF	D	1/4" x 2" and wider	Steel Surface	150 x 2 or 300PLUSF20	Easy	L160

CABLE TO REBAR



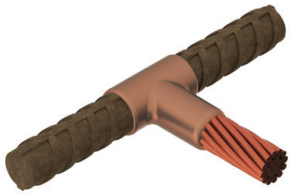
- Forms a permanent, low resistance connection
- Provides a molecular bond
- Cadweld Exothermic Connections are rated with the same current capacity as the conductor
- Portable installation equipment with no external source of power required
- Installers can be easily trained to make Cadweld Exothermic Connections
- Connections are visually inspected

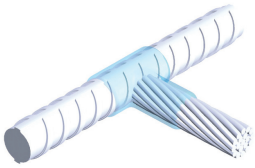
RR MOLDS

Global Part Number	Mold Family	Price Key	Rebar Size, US	Conductor Size	Welding Material Required	Shim / Batting Required	Ease of Use	Handle Clamp Required	Conductor Sleeve
RRA521H	RR	A	#4	#6 Concentric	25 or 25PLUSF20	B143B	Preferred		B112
RRA521K	RR	A	#4	#4 Solid	32 or 32PLUSF20	B143B	Preferred		
RRA521L	RR	A	#4	#4 Concentric	32 or 32PLUSF20	B143B	Preferred		
RRA521T	RR	A	#4	#2 Solid	45 or 45PLUSF20	B143A	Preferred		
RRA521V	RR	A	#4	#2 Concentric	45 or 45PLUSF20	B143A	Preferred		
RRA521Y	RR	A	#4	#1 Concentric	65 or 65PLUSF20	B143A	Preferred		
RRA531D	RR	A	#5	#8 Solid	25 or 25PLUSF20	B143B	Preferred		B1331K
RRA531G	RR	A	#5	#6 Solid	25 or 25PLUSF20	B143B	Preferred		B1331L
RRA531H	RR	A	#5	#6 Concentric	25 or 25PLUSF20	B143B	Preferred		B112
RRA531K	RR	A	#5	#4 Solid	32 or 32PLUSF20	B143B	Preferred		
RRA531L	RR	A	#5	#4 Concentric	32 or 32PLUSF20	B143B	Preferred		
RRA531T	RR	A	#5	#2 Solid	45 or 45PLUSF20	B143A	Preferred		
RRA531V	RR	A	#5	#2 Concentric	45 or 45PLUSF20	B143A	Preferred		
RRA531Y	RR	A	#5	#1 Concentric	65 or 65PLUSF20	B143A	Preferred		
RRA541G	RR	A	#6	#6 Solid	25 or 25PLUSF20	B143B	Preferred		B1331L
RRA541H	RR	A	#6	#6 Concentric	25 or 25PLUSF20	B143B	Preferred		B112
RRA541L	RR	A	#6	#4 Concentric	32 or 32PLUSF20	B143B	Preferred		
RRA541T	RR	A	#6	#2 Solid	45 or 45PLUSF20	B143B	Preferred		

Global Part Number	Mold Family	Price Key	Rebar Size, US	Conductor Size	Welding Material Required	Shim / Batting Required	Ease of Use	Handle Clamp Required	Conductor Sleeve
RCE592G	RC	E	#11	2/0 Concentric	115 or 115PLUSF20	B144B	Preferred	L160	
RCE592Q	RC	E	#11	4/0 Concentric	150 or 150PLUSF20	B144B	Preferred	L160	
RCE602G	RC	E	#14	2/0 Concentric	115 or 115PLUSF20	B144B	Preferred	L160	
RCE602Q	RC	E	#14	4/0 Concentric	150 or 150PLUSF20	B144B	Preferred	L160	
RCE612G	RC	E	#18	2/0 Concentric	115 or 115PLUSF20	B144B	Preferred	L160	

RH MOLDS





Global Part Number	Mold Family	Price Key	Rebar Size, US	Conductor Size	Welding Material Required	Shim / Batting Required	Ease of Use	Handle Clamp Required	Conductor Sleeve
RHC512C	RH	C	#3	1/0 Concentric	90 or 90PLUSF20	B141A	Preferred	L160	
RHC512Q	RH	C	#3	4/0 Concentric	115 or 115PLUSF20	B141A	Preferred	L160	
RHC521H	RH	C	#4	#6 Concentric	65 or 65PLUSF20	B141A	Preferred	L160	B112
RHC521L	RH	C	#4	#4 Concentric	65 or 65PLUSF20	B141A	Preferred	L160	
RHC521V	RH	C	#4	#2 Concentric	65 or 65PLUSF20	B141A	Preferred	L160	
RHC522C	RH	C	#4	1/0 Concentric	90 or 90PLUSF20	B141A	Preferred	L160	
RHC522G	RH	C	#4	2/0 Concentric	90 or 90PLUSF20	B141A	Preferred	L160	
RHC522Q	RH	C	#4	4/0 Concentric	115 or 115PLUSF20	B141A	Preferred	L160	
RHC531H	RH	C	#5	#6 Concentric	90 or 90PLUSF20	B141A	Preferred	L160	B112
RHC531L	RH	C	#5	#4 Concentric	90 or 90PLUSF20	B141A	Preferred	L160	
RHC531T	RH	C	#5	#2 Solid	90 or 90PLUSF20	B141A	Preferred	L160	
RHC531V	RH	C	#5	#2 Concentric	90 or 90PLUSF20	B141A	Preferred	L160	
RHC532C	RH	C	#5	1/0 Concentric	115 or 115PLUSF20	B141A	Preferred	L160	
RHC532G	RH	C	#5	2/0 Concentric	115 or 115PLUSF20	B141A	Preferred	L160	
RHC532Q	RH	C	#5	4/0 Concentric	150 or 150PLUSF20	B141A	Preferred	L160	
RHC541L	RH	C	#6	#4 Concentric	90 or 90PLUSF20	B141A	Preferred	L160	
RHC541V	RH	C	#6	#2 Concentric	90 or 90PLUSF20	B141A	Preferred	L160	
RHC542C	RH	C	#6	1/0 Concentric	115 or 115PLUSF20	B141A	Preferred	L160	
RHC542G	RH	C	#6	2/0 Concentric	115 or 115PLUSF20	B141A	Preferred	L160	
RHC542Q	RH	C	#6	4/0 Concentric	150 or 150PLUSF20	B141A	Preferred	L160	