GROUNDING CONNECTION SPECIFICATION

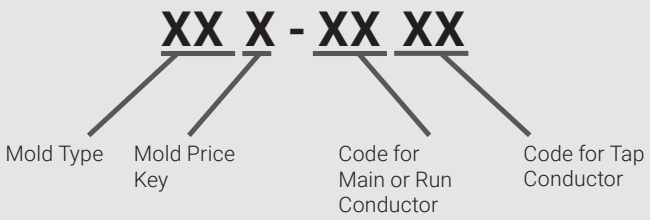
This specification covers the nVent ERICO Cadweld exothermic welding system for use in making electrical connections. The Cadweld system supplied under this specification shall include welding material, molds, tools and accessories as required.

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.

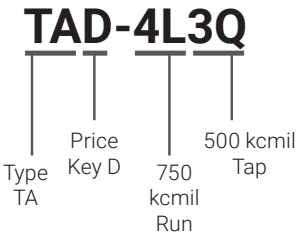
The Cadweld exothermic welding system furnished under this specification shall meet the applicable requirements of IEEE Standard 80 "IEEE Guide for Safety in AC Substation Grounding" and IEEE Standard 837 IEEE "Standard for Qualifying Permanent Connections Used in Substation Grounding". Independent test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

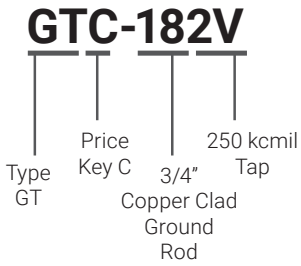
The Cadweld Mold Numbering System

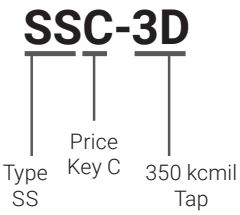
The Cadweld mold part number gives, in code, the complete information about the mold.
Type of connection, mold price key, and conductor size(s)

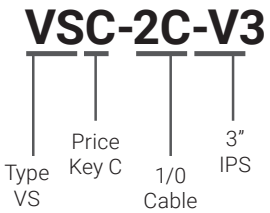


Examples:









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.

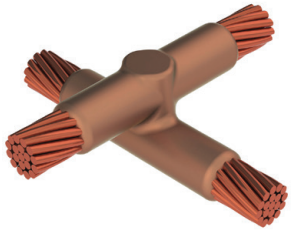
As the ACI Building Code (ACI318-14 Commentary, 25.5.2.1) advises, "splice requirements encourage splicing bars at points of minimum stress … encourage the location of splices away from regions of high tensile stress." The same advice should apply to locations of Cadweld connections of a ground conductor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

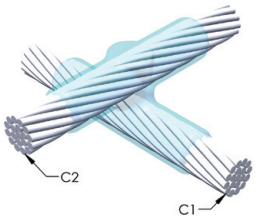
NOTE:

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.

XB MOLDS





Global Part Number	Mold Family	Price Key	Conductor 1	Conductor 2	Welding Material	Ease of Use	Handle Clamp (Sold separately unless noted)
XB32C2C	XB	3	1/0 Concentric	1/0 Concentric	150 or 150PLUSF20	Easy	L163
XB32G2G	XB	3	2/0 Concentric	2/0 Concentric	200 or 200PLUSF20	Easy	L163
XB32L2L	XB	3	3/0 Concentric	3/0 Concentric	250 or 250PLUSF20	Easy	L163
XB32Q2Q	XB	3	4/0 Concentric	4/0 Concentric	250 or 250PLUSF20	Easy	L163
XB32V2V	XB	3	250 kcmil Concentric	250 kcmil Concentric	150 x 2 or 300PLUSF20	Easy	L163
XB43D3D	XB	4	350 kcmil Concentric	350 kcmil Concentric	500 or 500PLUSF20	Easy	L164
XBC1K1K	XB	C	#4 Solid	#4 Solid	65 or 65PLUSF20	Easy	L160
XBC1L1L	XB	C	#4 Concentric	#4 Concentric	65 or 65PLUSF20	Easy	L160
XBC1T1T	XB	C	#2 Solid	#2 Solid	90 or 90PLUSF20	Easy	L160
XBC1V1L	XB	C	#2 Concentric	#4 Concentric	65 or 65PLUSF20	Easy	L160
XBC1V1V	XB	C	#2 Concentric	#2 Concentric	90 or 90PLUSF20	Easy	L160
XBC1Y1Y	XB	C	#1 Concentric	#1 Concentric	115 or 115PLUSF20	Easy	L160
XBC2C1V	XB	C	1/0 Concentric	#2 Concentric	115 or 115PLUSF20	Easy	L160
XBK3X3X	XB	K	600 kcmil Concentric	600 kcmil Concentric	500 x 2 or 1000PLUSF20	Easy	Includes Frame w/ Handles
XBK4L3Q	XB	K	750 kcmil Concentric	500 kcmil Concentric	500 x 2 or 1000PLUSF20	Easy	Includes Frame w/ Handles
XBK4L4L	XB	K	750 kcmil Concentric	750 kcmil Concentric	250 x 5 or 1250PLUSF20	Easy	Includes Frame w/ Handles
XBK4Y3Q	XB	K	1000 kcmil Concentric	500 kcmil Concentric	500 x 2 or 1000PLUSF20	Easy	Includes Frame w/ Handles
XBK4Y4Y	XB	K	1000 kcmil Concentric	1000 kcmil Concentric	500 x 3 or 1500PLUSF20	Easy	Includes Frame w/ Handles
XBM2C2C	XB	M	1/0 Concentric	1/0 Concentric	150 or 150PLUSF20	Easy	Includes Frame w/ Handles
XBM2G2G	XB	M	2/0 Concentric	2/0 Concentric	200 or 200PLUSF20	Easy	Includes Frame w/ Handles
XBM2L2L	XB	M	3/0 Concentric	3/0 Concentric	250 or 250PLUSF20	Easy	Includes Frame w/ Handles
XBM2Q2Q	XB	M	4/0 Concentric	4/0 Concentric	250 or 250PLUSF20	Easy	Includes Frame w/ Handles
XBM2V2V	XB	M	250 kcmil Concentric	250 kcmil Concentric	150 x 2 or 300PLUSF20	Easy	Includes Frame w/ Handles
XBP1G1G	XB	P	#6 Solid	#6 Solid	32 or 32PLUSF20	Easy	Clamp Included
XBP1H1H	XB	P	#6 Concentric	#6 Concentric	45 or 45PLUSF20	Easy	Clamp Included
XBQ2C2C	XB	Q	1/0 Concentric	1/0 Concentric	150 or 150PLUSF20	Easy	L160
XBQ2G1V	XB	Q	2/0 Concentric	#2 Concentric	150 or 150PLUSF20	Easy	L160
XBQ2G2C	XB	Q	2/0 Concentric	1/0 Concentric	200 or 200PLUSF20	Easy	L160
XBQ2G2G	XB	Q	2/0 Concentric	2/0 Concentric	200 or 200PLUSF20	Easy	L160
XBQ2Q2C	XB	Q	4/0 Concentric	1/0 Concentric	200 or 200PLUSF20	Easy	L160
XBQ2Q2G	XB	Q	4/0 Concentric	2/0 Concentric	200 or 200PLUSF20	Easy	L160