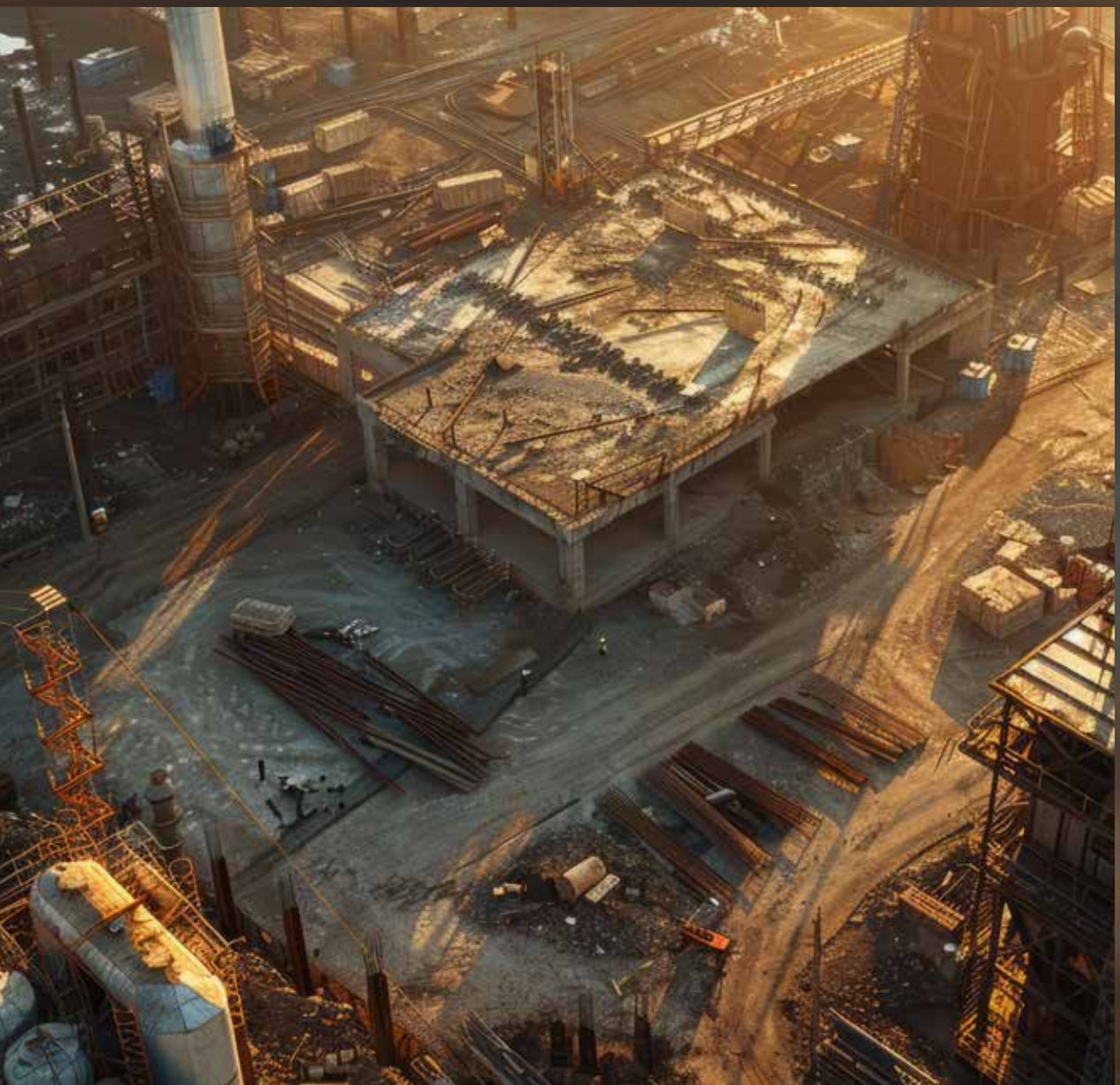
GROUNDING SYSTEMS

EZGround® Blackburn®



GROUNDING SYSTEMS

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Overview

Compression method grounding connectors save 50–75% in time and labor costs

— 01 This installation method results in a long-lasting low-installed cost connection. You can install it and forget it. Before compression, typical cable connector cross section of cable and connector consists of about 75% metal and 25% air. After ABB method compression, the cross section shows 100% metal with virtually no air spaces.

- Eliminates exothermic welding
- Reduces time and labor costs
- Minimizes possibility of poor connections

ABB introduces a method of compression to replace exothermic welding and its associated disadvantages. This compression method is designed to provide quick, reliable connections for grid grounding at significantly lower installed costs because compression connectors install in less time, in any weather, and are unaffected by moisture, reducing downtime. In addition, our compression connectors for grid grounding require no special training for installation. They are made of high-conductivity wrought and cast copper, and are used for connecting and tapping cross grid, loop lines and ground rods for direct burial or concrete embedded ground grid systems. The ABB compression system uses standard electrical connector installation tools.

Meets all applicable specifications
ABB grid and ground rod connectors satisfy the requirements of CEC Section 10 for connecting to the grounding electrode system. They also meet the requirements of UL and CSA standards being acceptable as grounding and bonding equipment suitable for direct burial. ABB grid and ground rod connectors also satisfy the recommended practice for the selection of grounding connector joints described in the IEEE 837 standard for qualifying permanent connections used in substation grounding.

The connectors conform to the following IEEE 837 standard requirements:

- 350 °C current cycling
- Freeze-thaw test
- Accelerated aging – nitric acid/salt spray
- Mechanical, tensile and electromagnetic force (EMF) criteria
- Install in any weather – cut downtime
- Enhance safety
- Easy to install – no special training







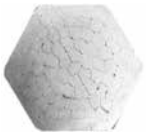
—
01

Overview
Reliable installations through compression connections

—
01 TBM14M (Suggested tool for EZGround connectors to ground rods up to ⅝ in. diameter.)
—
02 Before compression
—
03 After compression



—
02



—
03

—
01

Dies that are used in hand and hydraulic tools contain the die code numbers, which are engraved on the compression surface of the die. Under compression, this number becomes embossed on the completed connection for inspection purposes.

The inspector compares the die code number embossed on the connector with the die table to ensure that the proper connector was compressed with the correct die for that particular size conductor.

This installation method results in a long-lasting, low-installed cost connection. You can install it and forget it. Before compression, typical cable connector cross section of cable and connector consists of about 75% metal and 25% air. After ABB method compression, the cross section shows 100% metal with virtually no air spaces.

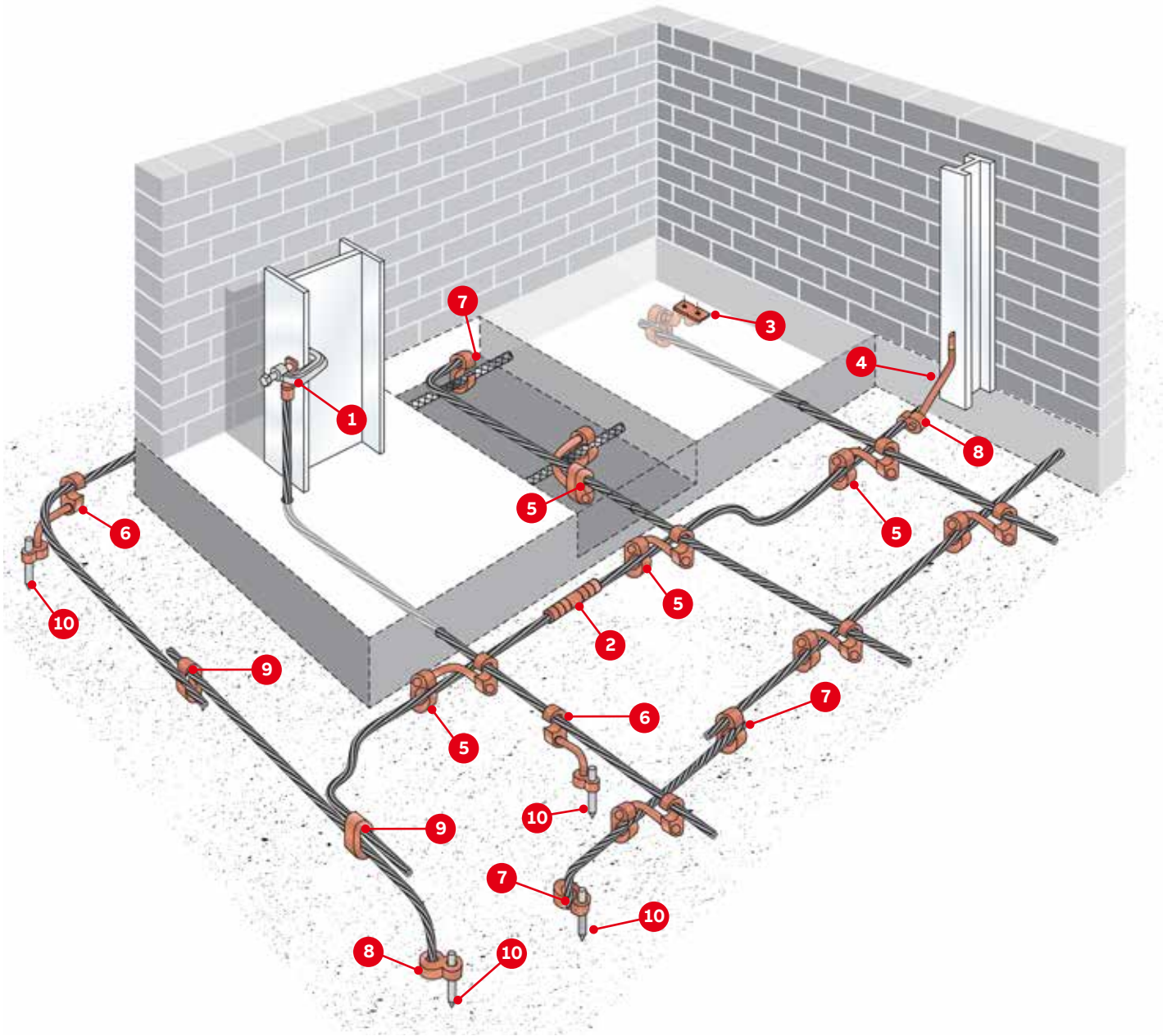


Overview

ABB offers a complete line of grid-ground compression connectors. Our EZGround connectors are designed for direct burial and offer a safe, efficient alternative to exothermic welding products. Grid-ground installations do not require explosive charges, and can be installed in various climate conditions.

These range-taking products will reduce the number of connectors and dies needed for your installation.

EZGround products meet all applicable standards (IEEE 837, UL, CSA). Connectors are prefilled with oxide inhibitors and sealed.



Overview



1 I-beam ground clamp connectors



2* Two-way splice connectors



3 Ground plates



4 Structural grounding studs



5 Figure 6 to 6 compression grid and ground rod connectors



6 Figure 6 to 8 compression ground rod to grid connectors



7 Figure 6 compression ground tap connectors



8 Figure 8 compression ground rod tap connectors



9 C-tap grid tap connectors



10 Galvanized steel ground rods (stainless steel rods are also available)

Copper bonded steel ground rods

Copper bonded steel sectional ground rods

* Color-Keyed® two-way splice connectors

Signal reference grid connectors



Compress #8 AWG throught 4/0 AWG cable

- Clamp onto pedestal posts up to 1 in. diameter square and 1¼ in. round
- Can be used as “X” or “T” configuration cable to post
- High-conductivity wrought-copper construction

	Cat. no.	Conductor range (AWG)	Installing tools and die codes TBM14M and TBM15I		
			Die cat no.	Die code	Colour code
	SRG8-4	#8	15527SS	29	Grey
		#6 to #4	15528SS	33	Brown
	SRG2-1	#2 and #1	15508SS	42	Pink
	SRG10-20	1/0 and 2/0	15530SS	50	Orange
	SRG30-40	3/0 and 4/0	15511SS	54	Purple



Secure signal reference grid wires to raised-floor support posts

- Range-taking design accepts #4 to #8 AWG grid wire and fits ¾ in. square to 1 in. round
- Lay-in feature means no kinks or bends
- Quick, easy installation
- Only one screw to tighten
- Enable grid wire to make direct, low-resistance contact with support posts
- Stamped-steel construction, zinc plated

	Cat. no.	Description	Wire range (AWG)
	3900 (Unit)	¾ in. square to 1 in. round	#8–#4
	3900BP (Bulk pack)	¾ in. square to 1 in. round	#8–#4

Clamps

Waterpipe ground clamps

	Cat. no.	Ground wire size (AWG)	Water pipe size (in.)
	2-TB	#6, #4, #2	½, ¾, 1 or rebar 410
	3-TB	#6, #4, #2	1¼, 1½ or 2
	4-TB	#6, #4, #2	2½, 3 or 3½
	5-TB	#6, #4, #2	4, 4½ or 5
	6-TB	#6, #4, #2	6

Malleable iron crossbar, steel U-bolt complete with copper cable clamp with serrations.

Waterpipe ground clamps

	Cat. no.	Ground wire size (AWG)	Water pipe size (in.)
	3902BU*	#4–4/0	½–1
	3903BU*	#4–4/0	1¼–2
	3904BU*	#4–4/0	2½–3½
	3905BU*	#4–4/0	4–5
	3906BU*	#4–4/0	6
	3907BU*	#4–4/0	8
	3908BU*	#4–4/0	10
	3909BU*	#4–4/0	12

Material: Bronze U-bolt and nut complete with bronzed aluminum cap and crossbar with a bright dip finish. *UL listed for direct burial.

Waterpipe ground clamps

	Cat. no.	Ground wire size (AWG)	Water pipe size (in.)
	3902-TB	#4–4/0	½–1
	3903	#4–4/0	1¼–2
	3904	#4–4/0	2½–3½
	3905-TB	#4–4/0	4–5
	3906-TB	#4–4/0	6
	3907	#4–4/0	8
	3908	#4–4/0	10
	3909-TB	#4–4/0	12

Material: Steel U-bolt and nut complete with bronzed aluminum cap and crossbar cadmium plated plus gold chromate finish.

Ground clamps

	Cat. no.	Material	Water pipe, copper tubing size (in.)	Ground rod size (in.)
	3826*	Malleable iron	½, ¾	½–1
	3846*	Bronze	½, ¾	½–1
	3840-TB•	Malleable iron	½, ¾ or 1	½–1

* For unarmored copper wires #6, #4 AWG. UL approved for direct burial.
• #8 thru #4 AWG. Not CSA certified

Ground clamps for K&L grade copper tubing only

	Cat. no.	Ground wire size (AWG)	Water pipe, copper tubing size (in.)
For armored and unarmored wires	3844*	#8–#4	½–1
	3888**	#8–#4	½–1, also rebar 4–10

* With steel screws.
** UL approved for direct burial. Silicon bronze screws.

Ground clamp accessories

	Cat. no.	Description	For use with
	10102-TB	For 1¼ to 1½ in. cables	#8–#2 AWG ground wire

Material: Malleable iron, zinc plated.

	Cat. no.	For use with
	10105	Single conductors #4 AWG solid to 2/0 AWG str.
	10109	Single conductors 2/0 AWG solid to 4/0 AWG str.

Clamps



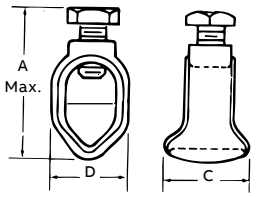
Type JAB — ground rod clamps
- Cast of high-strength corrosion-resistant copper alloy
- Both hex head and socket set screws available
- Long bearing surface of clamp on ground wire secures ground connection
- Listed for direct burial

DB UL CSA

Dimensions (in.)

Cat. no.		Nominal rod dia.		Wire range				A (max.) socket screw	A (max.) hex bolt	Screw thread size UNC-2A	B	C	D
Socket set screw	Hex head Bolt	(in.)	(mm)	Max. (AWG)	Min. (AWG)	Max. (mm^2)	Min. (mm^2)						
JAB12*	JAB12H	½	12.7	2 str.	10 sol.	33.6	5.2	$1^{19}/_{32}$	$2^{3}/_{32}$	$^{7}/_{16}$-14	$^{27}/_{32}$	$^{7}/_{8}$	$^{19}/_{32}$
JAB58	JAB58H	⅝	15.8	1/0 str.	8 sol.	53.4	8.3	$1^{27}/_{32}$	$2^{13}/_{64}$	$^{7}/_{16}$-14	$^{29}/_{32}$	1	$^{11}/_{16}$
JAB34	JAB34H	¾	19.0	1/0 str.	8 sol.	53.4	8.3	2	$2^{11}/_{32}$	$^{7}/_{16}$-14	$^{11}/_{16}$	1	$^{51}/_{64}$
–	JAB34C	¾ + ⅝	15.8 to 19.0	3/0 str.	8 sol.	95.0	8.3	–	$2^{11}/_{32}$	$^{7}/_{16}$-14	1⅛	1$^{1}/_{32}$	$^{13}/_{16}$
JAB1	JAB1H	1	25.0	3/0 str.	8 sol.	107.1	8.3	2¼	3	$^{7}/_{16}$-14	1$^{11}/_{32}$	1$^{1}/_{16}$	1

Diagrams



* CSA not applicable.
Add suffix P to cat. no. for tin-plated clamp.



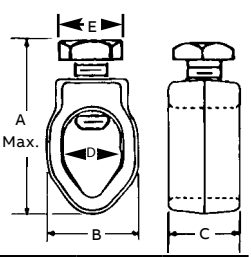
Type G — budget line ground clamps
- A dependable ground connection offered at a substantial saving
- Cast of high-strength corrosion-resistant copper alloy
- Hex head bolts
- Simplified compact design will make a lasting, trouble-free connection
- Listed for direct burial

DB UL CSA

Dimensions (in.)

Cat. no.	Nominal rod dia.		Wire range				A (Max.) Bolt	Screw Thread Size UNC-2A	B	C	D	E
	(in.)	(mm)	Max. (AWG)	Min. (AWG)	Max. (mm^2)	Min. (mm^2)						
G3-TB*	⅜	9.5	4 str.	10 sol.	21.1	5.2	1-⅜	$^{5}/_{16}$-18	$^{11}/_{16}$	½	$^{27}/_{64}$	⅜
G4	½	12.7	2 str.	10 sol.	33.6	5.2	–	⅜-16	$^{27}/_{32}$	⅜	$^{37}/_{64}$	½
G5	⅝	15.8	2 str.	10 sol.	33.6	5.2	–	⅜-16	$^{29}/_{32}$	⅜	$^{43}/_{64}$	½
G6	¾	19.0	2 str.	10 sol.	33.6	5.2	–	⅜-16	1$^{1}/_{16}$	⅜	$^{13}/_{16}$	½

Diagrams



* Not UL listed and CSA not applicable.
Add suffix P to cat. no. for tin-plated clamp.

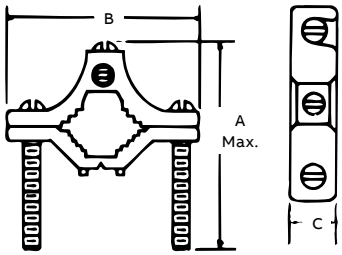
Clamps



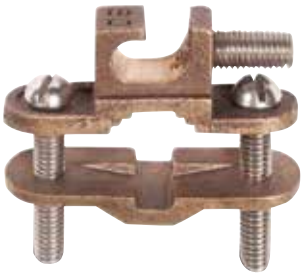
Budget price cast bronze clamp
Similar to aluminum water pipe clamp but lighter in construction.

Cat. no.	Water pipe size (in.)	Conductor range (AWG) Max.	Conductor range (AWG) Min.	Dimensions (in.) A	Dimensions (in.) B	Dimensions (in.) C
JJR	½ to 1	#4 str.	#10 sol.	1 19/32	27/32	7/8

Diagrams



Add suffix C to cat. no. to specify plating.



Type JDLI — direct burial ground clamp
Lay-in feature reduces installation time for difficult bends or continuous loops of ground wire.

- UL listed for direct burial in earth/concrete
- UL listed for connection to ground rod, pipe or rebar up to 1 in.
- Constructed from bronze alloy and high-performance stainless steel bolts
- Designed for easy installation of difficult bends or continuous loops

Cat. no.	Pipe size (in.)	Rebar size (in.)	Ground rod size (in.)	Conductor range (AWG)	Mech. conn./ splice (UL Listed)
JDLI	½–1	3/8–1	¼–1	#10 sol.–#2 str.	(2) #8 AWG sol.

Clamps



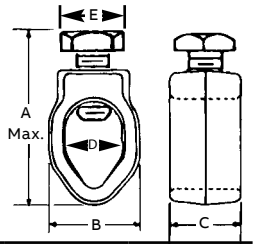
Type JWR — wide-range ground rod clamp

- Listed for direct burial in earth/concrete
- Constructed from bronze alloy and high-performance stainless steel bolt
- Provides wide range of connection sizes
- More than 300 lb torque capacity

DB

	Nominal rod dia.		Wire range				Dimensions (in.)			
Cat. no.	(in.)	(mm)	Max. (AWG)	Min. (AWG)	Max. (mm²)	Min. (mm²)	A (max.) bolt	B	C	D
JWR	⅜*	9.5	1/0 str.	10 sol.	53.4	5.2	1.535	1.050	0.812	0.652
	½	12.7	1/0 str.	10 sol.	53.4	5.2	1.535	1.050	0.812	0.652
	⅝	15.8	1/0 str.	10 sol.	53.4	5.2	1.535	1.050	0.812	0.652
	¾	19.0	1/0 str.	10 sol.	53.4	8.3	1.535	1.050	0.812	0.652

Diagrams



* ⅜ in. rod CSA not applicable/listed by UL.

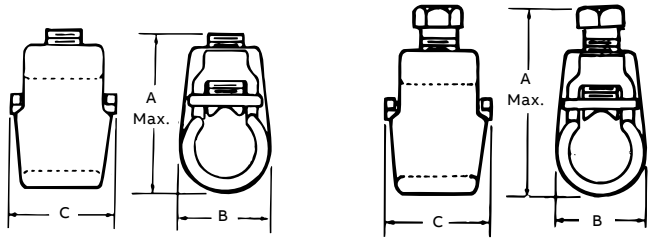


Types GG and GGH — heavy-duty ground rod clamps

- Cast of high-strength corrosion-resistant copper alloy; two types of screws available
- Type GG has a socket set screw
- Type GGH has a hex head bolt
- Floating pressure bar distributes pressure evenly over a large area of the ground wire
- Axial groove keeps wire and rod in perfect alignment

Cat. no.		Nominal rod dia.		Wire range							Dimensions (in.)	
Socket set screw	Hex head bolt	(in.)	(mm)	Max. (AWG)	Min. (AWG)	Max. (mm²)	Min. (mm²)	A (max.) socket screw	A (max.) hex bolt	Screw thread size UNC-2A	B	C
GG12	GG12H	½	12.7	2 str.	8 sol.	33.6	8.3	1 13/64	1 13/16	7/16-14	27/32	15/16
GG58	GG58H	⅝	15.8	2/0 str.	8 sol.	53.6	8.3	1 51/64	2 7/32	7/16-14	61/64	15/16
–	GG34H**	¾	19.0	4/0 str.	8 sol.	120.6	8.3	–	3	½-14	1⅜	1¼

Diagrams



** CSA not applicable.
GG34H has no pressure bar or axial groove.
Add suffix P to cat. no. for tin-plated clamp.

Clamps



Budget price cast bronze clamps

Type swings 360° for ease of alignment.

- Pipe clamping portion identical to “JA” clamp
- Pressure-bar type conduit hub adjusts to fit ½ in. or ¾ in. EMT or ½ in. rigid conduit
- Brass washer provides positive contact with grounding conductor
- Furnished with zinc-plated screws

Cat. no.	Conduit size	Water pipe size (in.)	Conductor range (AWG) Max.	Conductor range (AWG) Min.
JPT	½ in. or ¾ in. EMT, ½ in. rigid	½ to 1	#6 sol.	#10 sol.
JPT2	½ in. or ¾ in. EMT, ½ in. rigid	1¼ to 2	#6 sol.	#10 sol.
JPT4	½ in. or ¾ in. EMT, ½ in. rigid	2½ to 4	#6 sol.	#10 sol.



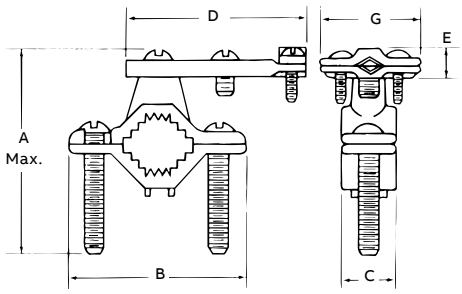
Cast bronze clamps

For connecting armored cable to water pipe.

- Clamping portion similar to standard “J” clamp
- Special pressure bar grips armor or outer cable insulation to reduce chance of grounding conductor being pulled out
- Furnished with zinc-plated screws

Cat. no.	Water pipe size (in.)	Conductor range (AWG) Max.	Conductor range (AWG) Min.	Dimensions (in.) A	B	C	D	E	G
JA	½ to 1	#6 sol.	#10 sol.	2¾	2 11/32	25/32	2 9/32	15/32	1⅜
JA2	1¼ to 2	#6 sol.	#10 sol.	3¾	3½	13/16	2 9/32	15/32	1⅜
JA2124	2½ to 4	#6 sol.	#10 sol.	6	6 5/16	1	2 9/32	15/32	1⅜

Diagrams



Add suffix C to cat. no. to specify plating.

Clamps

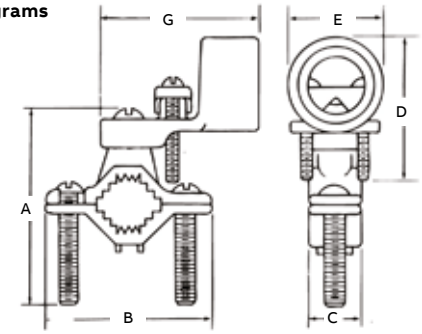


Cast bronze clamps for conduit

- For grounding rigid conduit systems
- Continuity from rigid conduit system to ground provided by cast bronze threaded conduit hub
- Hub swings 360° for easy alignment
- Heavy brass washer protects clamped grounding conductor
- Furnished with zinc-plated screws
- Cast bronze pipe clamping portion identical to that used in “JA” clamp

Cat. no.	Conduit size (in.)	Water pipe size (in.)	Conductor range (AWG)		Dimensions (in.)					
			Max.	Min.	A	B	C	D	E	G
JP12	½	½ to 1	#6 sol.	#10 sol.	2¾	2 11/32	23/32	1 9/64	1	2½
JP212	½	1¼ to 2	#6 sol.	#10 sol.	3¾	3½	13/16	1 9/64	1	2½
JP212412	½	2½ to 4	#6 sol.	#10 sol.	6	6 5/16	1	1 9/64	1	2½
JP34	¾	½ to 1	#2/0 str.	#10 sol.	2¾	2 11/32	23/32	2 5/16	1¼	2 3/16
JP234	¾	1¼ to 2	#2/0 str.	#10 sol.	3¾	3½	13/16	2 5/16	1¼	2 3/16
JP1	1	½ to 1	#3/0 str.	#10 sol.	2¾	2 11/32	23/32	2 5/16	1½	2⅜
JP21	1	1¼ to 2	#3/0 str.	#10 sol.	3¾	3½	13/16	2 5/16	1½	2⅜
JP21241	1	2½ to 4	#3/0 str.	#10 sol.	6	6 5/16	1	2 5/16	1½	2⅜

Diagrams



Add suffix C to cat. no. to specify plating.



Cast bronze clamps with copper strap

- Flexible copper strap makes alignment easy
- For grounding rigid conduit systems
- Same features as “JP” clamp plus flexible copper strap
- Strap helps protect conduit system from water system vibrations
- Furnished with zinc-plated screws

Cat. no.	Conduit size (in.)	Water pipe size (in.)	Conductor range (AWG)	
			Max.	Min.
JPS12	½	½ to 1	#6 sol.	#10 sol.
JPS34	¾	½ to 1	2/0 str.	#10 sol.
JPS1	1	½ to 1	3/0 str.	#10 sol.

Add suffix C to cat. no. to specify plating.

Clamps



Cast bronze ground clamps

- Connect copper ground wire to water pipe, copper tubing or ground rods
- High-strength, high-conductivity copper alloy (over 80% copper)
- UL approved for direct burial

Cat. no.	Water pipe size (in.)	Conductor range
JD	½ to 1	#2 str.–#10 str.
J2D	1¼ to 2	#2 str.–#10 str.

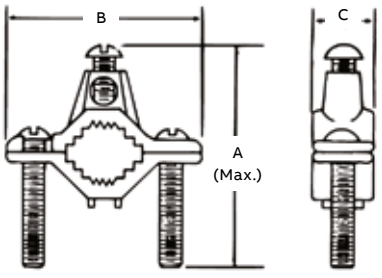


Type J – cast bronze ground clamps

- For connecting grounding conductor to water pipe or copper tube
- Cast of high-strength, highly conductive copper alloy
- Screws plated for corrosion resistance
- UL listed

		Conductor range (AWG)		Dimensions (in.)		
Cat. no.	Water pipe size (in.)	Max.	Min.	A	B	C
J	½ to 1	#2 str.	#10 sol.	2¾	2 11/32	23/32
J2BB	1¼ to 2	#2 str.	#10 sol.	3¾	3½	13/16
J2124	2½ to 4	#2 str.	#10 sol.	6	6 5/16	1
J6	4¼ to 6	#2 str.	#10 sol.	7¼	8⅛	1

Diagrams



Clamps



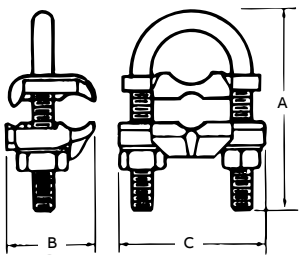
Type GUV – U-bolt clamps

- Listed for direct burial in earth or concrete
- For connecting copper or copper-clad steel grounding conductor to ground rod, pipe or rebar
- Excellent for connecting multiple electrodes with a single cable as in substation grounding
- GUV body components are cast or forged from copper alloy and U-bolts are stainless steel
- Specially designed spacer provides proper alignment between cable and electrode and affords more positive contact area

DB

	Conductor range Cu (AWG)		Nominal rod size (in.)		IPS pipe size (in.)		Dimensions (in.)		
Cat. no.	Max.	Min.	Max.	Min.	Max.	Min.	A	B	C
GUV584	#4	#8	¾	⅝	⅜	–	2 13/16	1 9/16	2¼
GUV5821	2/0	#4	¾	⅝	⅜	–	2 13/16	1 9/16	2¼
GUV5825	250	2/0	¾	⅝	⅜	–	2 13/16	1 9/16	2¼
GUV784	#4	#8	1	⅞	¾	½	2¾	1 9/16	2⅝
GUV7821	2/0	#4	1	⅞	¾	½	2¾	1 9/16	2⅝
GUV7825	250	2/0	1	⅞	¾	½	2¾	1 9/16	2⅝
GUV1184	#4	#8	1¼	1⅛	1	–	3 5/16	1 9/16	2¾
GUV11821	2/0	#4	1¼	1⅛	1	–	3 5/16	1 9/16	2¾
GUV1384	#4	#8	1½	1⅜	1¼	–	3 7/16	1 9/16	2 15/16
GUV13821	2/0	#4	1½	1⅜	1¼	–	3 7/16	1 9/16	2 15/16
GUV13825	250	2/0	1½	1⅜	1¼	–	3 7/16	1 9/16	2 15/16
GUV1584	#4	#8	1⅞	1⅝	1½	–	3 15/16	1 9/16	3 3/16
GUV15821	2/0	#4	1⅞	1⅝	1½	–	3 15/16	1 9/16	3 3/16
GUV15825	250	2/0	1⅞	1⅝	1½	–	3 15/16	1 9/16	3 3/16
GUV204	#4	#8	2⅜	2	2	–	4 7/16	1 9/16	3 11/16
GUV2021	2/0	#4	2⅜	2	2	–	4 7/16	1 9/16	3 11/16
GUV2025	250	2/0	2⅜	2	2	–	4 7/16	1 9/16	3 11/16
GUV21221	2/0	#4	2⅞	2½	2½	–	4 15/16	1 9/16	4 3/16
GUV21225	250	2/0	2⅞	2½	2½	–	4 15/16	1 9/16	4 3/16
GUV3021	2/0	#4	3½	3	3	–	5 9/16	1 9/16	4 13/16
GUV3025	250	2/0	3½	3	3	–	5 9/16	1 9/16	4 13/16
GUV31221	2/0	#4	4	3½	3½	–	6 1/16	1 9/16	5½
GUV4021	2/0	#4	4½	4	4	–	6 5/16	1 9/16	5 11/16
GUV4025	250	2/0	4½	4	4	–	6 5/16	1 9/16	4 13/16

Diagrams



For tin-plated, add suffix TP to cat. no.

Clamps

Technical specifications

01 CI3106
02 CI3108
03 CI3110U
04 CI3112U
05 CIGRC58


01


02


03


04


05

		Ground wire size (AWG)		Ground rod size (in.)	
Cat. no.	**Water pipe size (in.)**	**Min.**	**Max.**	**Galv. steel**	**Copper clad**
Ground clamps (zinc alloy body/steel screws)					
CI3106	½ to 1	#10 sol.	#2 str.	⅝ to 1*	–
Ground clamps (zinc/steel)					
CI3108	½ to 1	#10 sol.	#2 str.	⅝ to 1*	–
For connecting grounding conductor to either galvanized steel rod or water pipe.					
Ground clamps (brass body/brass screws)					
CI3110U	½ to 1	#10 sol.	#2 str.	⅝ to 1*	⅝ to 1
For connecting grounding conductor to either galvanized steel rod, copper clad or water pipe. CSA approved for wet locations and for direct burial.					
Ground clamps (brass body/brass screws)					
CI3112U	1¼ to 2	#10 sol.	#2 str.	–	–
For connecting grounding conductor to water pipe. CSA approved for wet locations and for direct burial.					
Ground rod clamps (bronze body/brass screws)					
CIGRC58	–	#10 sol.	#2 str.	⅝	⅝
CIGRC34		#8 sol.	1/0 str.	¾	¾
For connecting grounding conductor to either galvanized steel rod or copper clad rod. CSA approved for wet locations and for direct burial. *Reversible.					

Clamps

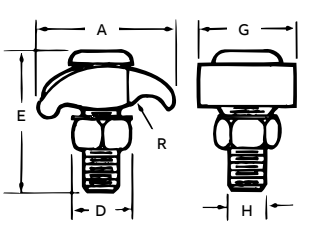


Type GTC – Tower ground clamps

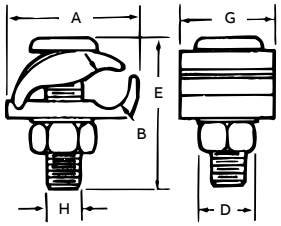
- Bolt has square shank to prevent turning and allow clamp to be tightened with one wrench
- GTC 23 and 24 are two-piece clamps for connecting ground lead cable to flat metal surface; ideal for grounding substations on tower footings
- Castings are of high-strength, corrosion-resistant copper alloy
- GTC 13 and 14 are economical one-piece clamps that perform the same function as two-piece clamps except the under-pad support is omitted and conductor is connected directly to tower
- Add suffix L to cat. no. for ½ in. channel thickness

	Conductor range					Dimensions (in.)						
Cat. no.	Max. (AWG)	Min. (AWG)	Max. (mm²)	Min. (mm²)	Channel thickness (in.)	A	B	D	E	G	H	R
GTC13	2/0 str.	#4 sol.	67.4	21.1	¼	1 15/32	–	9/16	1 21/32	13/32	3/8	7/32
GTC14	250 kcmil	2/0 str.	126.6	67.4	¼	1 15/16	–	¾	1 15/16	1 13/32	½	5/16
GTC23	2/0 str.	#4 sol.	67.4	21.1	¼	1 41/64	7/16	9/16	2 21/32	1 3/32	3/8	–
GTC24	250 kcmil	2/0 str.	126.6	21.1	¼	1 61/64	5/8	¾	1 15/16	1 3/8	½	–

Diagrams



Type GTC 13 and 14



Type GTC 23 and 24

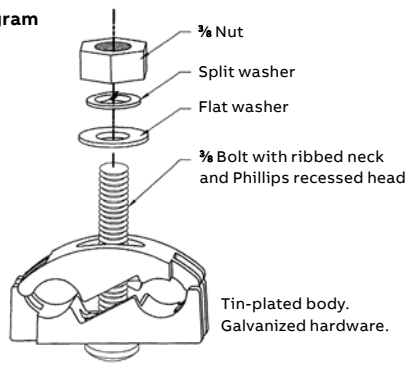


CTG250 – Wide range tower ground clamp

- For use with aluminum or copper conductors and in aluminum or galvanized steel cable tray
- Ribbed neck on the bolt prevents rotation during tightening if 0.440 in. dia. hole is used

Cat. no.	Wire range (2 sides) (AWG or kcmil)	Height (in.)	Width (in.)	Depth (in.)	Nut (flats) (in.)
CTG250	#2 sol. (0.258 in. Dia.), 250 (0.575 in. Dia.)	1.95	2.00	1.13	0.560

Diagram



Clamps





I-beam ground clamps

Connect ground cable to I-beam or any 1 in. maximum structural steel member – without welding or drilling.

- Breakaway bolt head shears at predetermined torque to ensure tight connection
- Heavy-duty compression lug provides excellent current-carrying capabilities
- Surface of steel must be cleaned in accordance with installation instruction sheet provided with product
- Connector made of high-conductivity cast copper bright dip
- Clamp made of drop-forged high-grade steel, zinc-plated

Cat. no.	Wire range (AWG or kcmil)	TBM15I, TBM15 Installing tool, die code	Die cat. no.	Number of crimps
IBG2-10	#2–1/0	66H	15534SS	2
IBG20-40	2/0–4/0	76H	15512SS	2
IBG350-500	350–500	115H	15504SS	2

Hydraulic tooling with hex crimp dies.
Use 15500TB adaptor for TBM15I 15-ton tool.





Ground clamps

For permanent, reliable connection.

- Crimp to cable
- Clamp to ground rod and rebar
- Use standard Color-Keyed hand and hydraulic tools
- Colour-coded for easy installation die selection
- Made from high-conductivity wrought copper
- Furnished with stainless steel hardware, ¼ in. washers, bolts and nuts

DB

Cat. no.	Wire size (AWG)	Ground rod diameter (in.)	Rebar (in.)	Bolt size (in.)	Die code and colour
CC2C-45R	#2–#3	½ or ⅝	0.80	0.25	33 Brown
CC1C-45R	#1	½ or ⅝	0.80	0.25	37 Green
CC10C-56R	1/0	⅝ or ¾	0.83	0.38	42 Pink
CC20C-56R	2/0	⅝ or ¾	0.83	0.38	45 Black
CC40C-56R	4/0	⅝ or ¾	0.83	0.38	54 Purple

UL Approved for direct burial.

Clamps



Flat-surface ground clamps

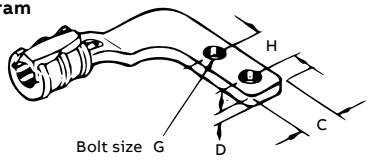
Terminate or connect continuous runs of copper cable to flat surfaces.

- Captive “keeper bar” design extends cable range and helps hold cable prior to crimping, facilitating installation
- Saddles marked with conductor size and die code
- Conductor can be assembled to saddle with standard dies and hydraulic tools
- Made from high-conductivity cast copper

DB

Cat. no.	Wire range (AWG or kcmil)	Bolt hole (in.)	Die code no.	Qty.	Std. pkg.	Wt. per 100	Hex die Cat. no.	Hex die Die code no.	Dimensions in. (mm) L1	L2	D	C	H
53055FL	1/0–2/0 AWG	⅜	66	2	10	75	15534*	66	4.09 (103.9)	3.66 (93.0)	0.28 (7.1)	1.38 (35.1)	1.00 (25.4)
53065FL	4/0–250 kcmil	⅜	87H	2	10	112	15506**	87H	4.50 (114.3)	4.09 (103.9)	0.31 (7.9)	1.38 (35.1)	1.00 (25.4)

Diagram



* TBM14M, 13100A, TBM15I with hex crimp dies.
** TBM15I with hex crimp dies only.



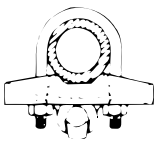
Grid-to-fence ground clamps

Bond copper conductors to steel or aluminum fence post or top rail of round fence posts.

- Provide quick, dependable installation at low installed cost
- Use no incendiary materials
- Body made from cast copper alloy with steel U-bolt

Cat. no.	Ground cable range (AWG)	Die code	Steel and aluminum line post range (in)
FG2040R2	2/0–3/0–4/0	76	2.00
FG2040R25	2/0–3/0–4/0	76	2.50
FG2040R3	2/0–3/0–4/0	76	3.00
FG210R2	#2–#1–1/0	66	2.00
FG210R25	#2–#1–1/0	66	2.50
FG210F3	#2–#1–1/0	66	3.00

Diagram



Install with hydraulic tooling with hex crimp dies.

Service post connectors



Type DS – Service post connectors, short stud application
The Blackburn line of service post connectors is designed for applications including steel structure, fence post or transformer grounding involving one or two cables. Service posts can also be used to tap one or two cables from bus bar.

Construction and ratings
Bolts used in the service post are machined from high-conductivity bronze alloy while the nuts are cold-formed from high-strength, corrosion-resistant copper alloy. Pressure bars are copper through 4/0 size, while copper alloy is used for 350 kcmil size and above. Bolts and nuts are of the traditional Blackburn hex design for easy installation.

Service post connectors are available in sizes accommodating AWG copper conductor ranges of #12–500 kcmil stranded (4 mm^2–240 mm^2) and #12–#2 solid (4 mm^2–35 mm^2).
The line includes both short and long stud versions for single and double conductor connectors.

- For copper to copper connections
- For grounding of steel structures, fence posts or transformers using one or two cables
- For tapping one or two cables from bus bar
- Hex design bolts are machined from high-conductivity bronze alloy
- Nuts and pressure bars are cold-formed from high-strength copper or copper alloy

Cat. no.		Conductor range stranded AWG (mm^2)		Conductor range solid AWG (mm^2)		Maximum diameter range (in.)	Stud size (in.)
Double conductor	Single conductor	Max.	Min.	Max.	Min.		
SP0DS	SP0SS	#8 (6)	#12 (4)	#8 (6)	#12 (4)	0.146–0.080	¼–20 x ½
SP1DS	SP1SS	#7 (10)	#10 (6)	#6 (10)	#10 (6)	0.170–0.102	¼–20 x ½
SP2DS	SP2SS	#5 (16)	#10 (6)	#4 (16)	#10 (6)	0.217–0.102	5/16–18 x ⅝
SP3DS	SP3SS	#3 (25)	#10 (6)	#2 (35)	#10 (6)	0.271–0.102	⅜–16 x ⅝
SP4DS	SP4SS	#1 (35)	#8(6)	#2 (35)	#8 (10)	0.332–0.128	⅜–16 x ⅝
SP5DS	SP5SS	1/0 (50)	#2 (35)	#2 (35)	–	0.385–0.259	½–13 x ¾
SP6DS	SP6SS	2/0 (70)	#2 (35)	#2 (35)	–	0.443–0.258	½–13 x ¾
SP8DS	SP8SS	4/0 (95)	#1 (35)	–	–	0.570–0.289	⅝–11 x 1
SP9DS	SP9SS	350 (150)	1/0 (70)	–	–	0.715–0.373	⅝–11 x 1
SP10DS	SP10SS	500 (240)	3/0 (95)	–	–	0.840–0.464	¾–10 x 1¼

Service post connectors



Type SP – Service post connectors, long stud

- For copper to copper connections
- For grounding of steel structures, fence posts or transformers using one or two cables
- For tapping one or two cables from bus bar
- Hex design bolts are machined from high-conductivity bronze alloy
- Nuts and pressure bars are cold-formed from high-strength copper or copper alloy
- Pressure bars are copper through 4/0 AWG size; copper alloy is used for 350 kcmil size and above
- Available in sizes accommodating AWG copper conductor ranges of #12–500 kcmil stranded (4 mm²–240 mm²) and #12–#2 solid (4 mm²–35 mm²)
- Line includes single conductor and double conductor connectors

Cat. no.		Conductor range stranded AWG (mm²)		Conductor range solid AWG (mm²)		Maximum diameter range (in.)	Stud size (in.)
Double conductor	Single conductor	Max.	Min.	Max.	Min.		
SP0DL	SP0SL	#8 (6)	#12 (4)	#8 (6)	#12 (4)	0.146–0.080	¼–20 x 1
SP1DL	SP1SL	#7 (10)	#10 (6)	#6 (10)	#10 (6)	0.170–0.102	¼–20 x 1
SP2DL	SP2SL	#5 (16)	#10 (6)	#4 (16)	#10 (6)	0.217–0.102	5⁄16–18 x 1
SP3DL	SP3SL	#3 (25)	#10 (6)	#2 (35)	#10 (6)	0.271–0.102	⅜–16 x 1⅛
SP4DL	SP4SL	#1 (35)	#8 (6)	#2 (35)	#8 (10)	0.332–0.128	⅜–16 x 1⅛
SP5DL	SP5SL	1/0 (50)	#2 (35)	#2 (35)	–	0.385–0.259	½–13 x 1¼
SP6DL	SP6SL	2/0 (70)	#2 (35)	#2 (35)	–	0.443–0.258	½–13 x 1¼
SP8DL	SP8SL	4/0 (95)	#1 (35)	–	–	0.570–0.289	⅝–11 x 1½
SP9DL	SP9SL	350 (150)	1/0 (70)	–	–	0.715–0.373	⅝–11 x 1½
SP10DL	SP10SL	500 (240)	3/0 (95)	–	–	0.840–0.464	¾–10 x 1¾

Transformer tank ground connectors

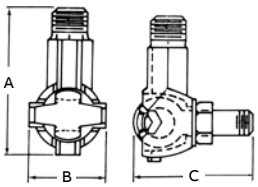


Type TTC –Transformer tank ground connectors

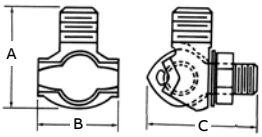
- Transformer grounding connectors are cast of high-conductivity bronze; ½ in.–13 stud fits all standard EEI-NEMA distribution transformers
- Eye bolt on TTC2 rotates to accommodate cable in either vertical or horizontal direction
- One size connector to handle full range of grounding conductors from #8 through 2/0 AWG str.
- No special tools required

	Conductor range					Dimensions (in.)		
Cat. no.	Max. (AWG)	Min. (AWG)	Max. (mm²)	Min. (mm²)	Stud thread size UNC-2A	A	B	C
TTC2	2/0 str.	#8 sol.	67.4	8.3	½ in.–13	$1\frac{51}{64}$	$1\frac{9}{64}$	$1\frac{21}{32}$
TTC3	#1 str.	#10 sol.	42.4	5.2	½ in.–13	$1\frac{3}{8}$	$1\frac{3}{64}$	$1\frac{9}{16}$
TTC4+	#1 str.	#10 sol.	42.4	5.2	½ in.–13	$1\frac{1}{4}$	$\frac{7}{8}$	$1\frac{3}{8}$
TTC2P+	2/0 str.	#8 sol.	67.4	8.3	½ in.–13	$1\frac{51}{64}$	$1\frac{9}{64}$	$1\frac{21}{32}$
TTC3P*	#1 str.	#10 sol.	42.4	5.2	½ in.–13	$1\frac{3}{8}$	$1\frac{3}{64}$	$1\frac{9}{16}$
TTC4P*	#1 str.	#10 sol.	42.4	5.2	½ in.–13	$1\frac{1}{4}$	$\frac{7}{8}$	$1\frac{3}{8}$

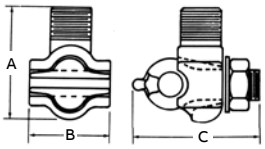
Diagrams



TTC2



TTC4



TTC3

* Tin-plated.
\+ RUS listed.

Conduit hubs



Conduit hubs

Cat. no.	Ground wire size (AWG)	Conduit/wire size
3930	#8 to #2	½ in. Conduit
3940	#8 to #2	¾ in. Conduit
3950	#8 to 3/0	1 in. Conduit
3951	#8 to 4/0	1¼ in. Conduit
3960	#8 to #4	Armored wire

Material: Malleable iron.



Type CH – Bronze conduit hubs

- Rugged cast bronze threaded hub
- Provide positive connection between rigid conduit and water system in conjunction with “J” clamp

		Conductor range (AWG)	
Cat. no.	Conduit size (in.)	Max.	Min.
CH12	½	#6 sol.	#10 sol.
CH34	¾	2/0 str.	#10 sol.
CH1BB	1	3/0 str.	#10 sol.

Lay-in lug connectors



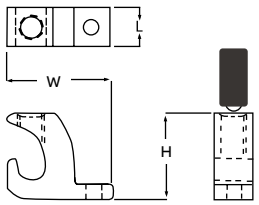
Copper lay-in lug connectors

- Ideal for swimming pool grounding applications
- Carries “DB” marking for direct burial
- Open-faced design enables installer to quickly lay in the grounding conductor as a jumper to multiple conduits with no break in the ground conductor

DB

					Dimensions					
	Conductor range		Stud size		H		W		L	
Cat. no.	AWG	mm²	in.	mm	in.	mm	in.	mm	in.	mm
CULL414	4-14	16-1.5	0.22	5.59	0.78	19.81	0.38	9.65	1.07	27.18
CULL414TP*	4-14	16-1.5	0.22	5.59	0.78	19.81	0.38	9.65	1.07	27.18

Diagram



* Tin-plated.
90 °C rating.



Blackburn lay-in lug

	Conductor range		Stud size	
Cat. no.	AWG	mm²	in.	mm
LL414	#4–#14	16–1.5	0.22	5.59
LL1014	1/0–#14	50–1.5	0.27	6.86
LL306	3/0–#6	70–16	0.33	8.38
LL2506	250–#6	120–16	0.33	8.38

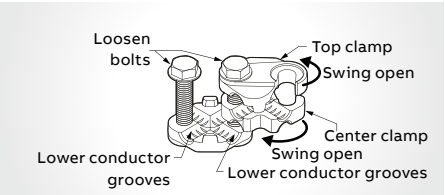
These grounding connectors are dual rated for aluminum and copper conductors.
The open-face design allows the installer to quickly lay in the grounding conductor as a jumper.

Lay-in lug connectors

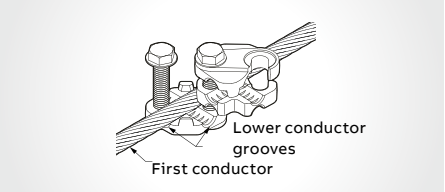


Mechanical lay–in ground connector

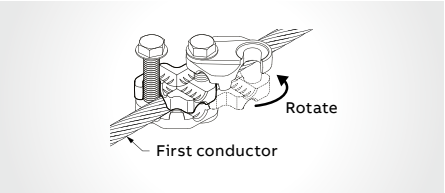
Cat. no.	Range (AWG or kcmil)	Torque
MLG25020	250 through 2/0 stranded	40 feet/pounds



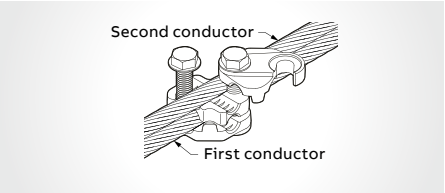
Step 1
- Open grounding connector by loosening bolts
- Swing top and center clamps to the side to expose lower conductor grooves.



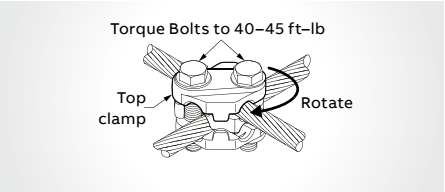
Step 2
- Lay in first conductor into lower conductor groove



Step 3
- Rotate center clamp into position over first conductor



Step 4
- Lay in second conductor into center clamp conductor groove (parallel conductor style is shown)



Step 5
- When conductors are in place, rotate top clamp over the second conductor and torque bolts to 40–45 ft-lb (cross conductor style is shown)

Ground plates

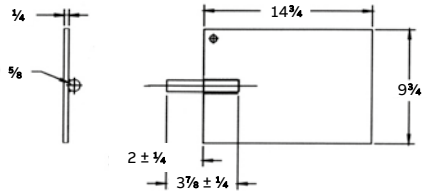


Galvanized grounding plates

- Made of high-quality steel, hot dip galvanized
- Major time and cost savings vs ground rods

Cat. no.	Description	Wire range (AWG)	Std. pkg.
1016TB	Galvanized grounding plate	#8 sol. to 3/0 str.	1
1016BTB	Galvanized grounding plate (complete with JAB34C connector)	#8 sol. to 3/0 str.	1

Diagrams



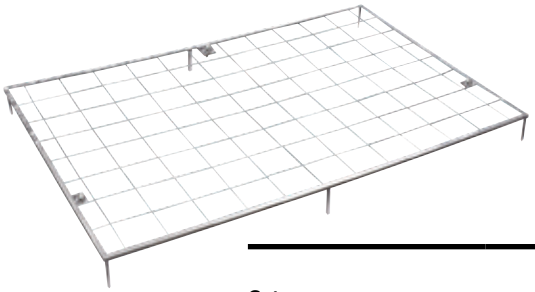
* CSA not applicable.



Ground electrode boxes

Cat. no.	Description
51628-TB	Pregalvanized steel
51629	Hot dip galvanized steel
51628-ALTA	Ground electrode box for Alberta only

14 gauge steel, 10 in. diameter, 12 in. depth.



Metallic gradient control mats

- To reduce risk and prevent build up of dangerous potential differences between high-voltage equipment or structures and the user standing on the ground surface. CEC Rule 36-308.

			Wt./100	
Cat. no.	Description	Std. pkg.	lb	kg
64663	Mat with hardware	1	3000	1363

4 ft. x 6 ft. hot dip galvanized mat is made from 6 in. x 6 in. welded mesh. ¼ in. diameter.
With hardware 3½ x ½ galvanized bolts, 3 galvanized washers and 3 galvanized nuts.
Custom ground mat also available upon request.

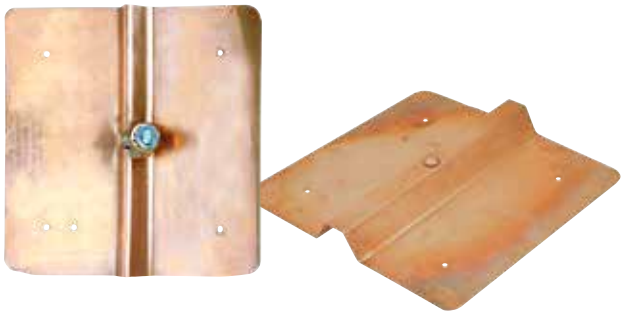
Ground plates



Type GP – Copper pole bottom ground plates for multigrounded neutral construction

- More efficient than butt wrapping poles
- Made of electrolytic sheet copper
- Built-in high-pressure connector for ground lead, or supplied with #6 AWG copper pigtail pre-attached
- Plates are grooved for trapping moisture

			Pigtail wire range		Diameter of plate	
Cat. no.	Min. (AWG)	Max. (AWG)	Min. (mm^2)	Max. (mm^2)	(in.)	(mm)
GP100	#8	#2 sol.	6.3	25.6	7½	191
GP110			6.3	25.6	10	254
GP114			6.3	25.6	14	356
GP1003	#6 AWG solid Cu pigtail with 18 in. conductor		–	–	7½	191
GP1008	#6 AWG solid Cu pigtail with 18 in. conductor		–	–	7½	191
GP1108	#6 AWG solid Cu pigtail with 18 in. conductor		–	–	7½	254



Type PB — Copper pole ground plates

- Installed on butt end of utility poles to provide an economical, low resistance neutral ground
- Installed cost considerably less than butt-wrapped poles. Plate portion fabricated of 0.025 in. pure copper.
- PBGW connector is eye-bolt type, cast of corrosion-resistant aluminum bronze alloy, with silicon bronze nut and lock washer. Riveted all-copper terminal lug is an integral part of the PBH, and provides the means of connection to the grounding conductor.

	Wire range (AWG)			
Cat. no.	Max.	Min.	Finished size (in.)	Surface area (sq. in.)
PBGW	2/0 str.	#10 sol.	7 x 7⅝	56
PBH*	#4 str.	#14 sol.	7 x 7⅝	56

* RUS Listed.

Ground tap connectors

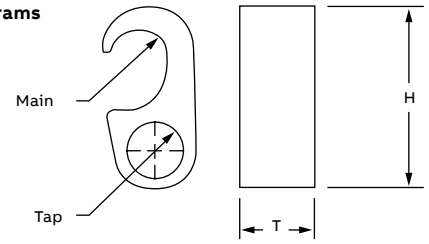


Figure 6 compression ground tap connectors
- Material: High-conductivity copper
- Acceptable for direct burial

DB Meets **IEEE** 837 requirements

Cat. no.	Application (AWG or kcmil) Main	Tap	Cable to rebar application* Main	Tap (AWG or kcmil)	Dimensions in. (mm) T	H	Dies for TBM14M, 13100A or TBM15I	Number of crimps
54855	1/0 str.–250 or ½ in.–⅝ in. rod	#4 sol.–#2 str.	#3 Rebar ⅜ thru ½ in. #4 rebar	#4 sol.–#2 str.	0.75 (19.1)	1.94 (49.3)	15G86R	1
54860		1/0 str.–2/0 str.		1/0 str.–2/0 str.	0.75 (19.1)	2.19 (55.6)	15G86R	1
54865-CK		3/0 str.–250		3/0 str.–250	0.75 (19.1)	2.19 (55.6)	15G86R	1
54875	#6 sol.–#2 str.	#6 sol.–#2 str.	–	–	0.75 (19.1)	2.56 (65.0)	15501A	1
54885	250–500 or ⅝ in.–¾ in. rod	#4 sol.–#2 str.	–	–	0.75 (19.1)	1.94 (49.3)	15G126R	1
54890	250–500 or ⅝ in.–¾ in. rod	1/0 str.–2/0 str.	#5 Rebar ⅝ thru ¾ in. #6 rebar	1/0 str.–2/0 str.	0.75 (19.1)	2.13 (54.1)	15G126R	1
54895		3/0 str.–250		3/0 str.–250	0.75 (19.1)	2.19 (55.6)	15G126R	1
54900		350–500		350–500	1.38 (35.1)	2.44 (62.0)	15G121R	3

Diagrams



* CSA not applicable.
Tin-plated version of galvanized ground rods available. Add suffix -TP to cat. no.
Use 15500TB adaptor for TBM15I 15-ton tool.

Meets **IEEE** 837-2014 requirements



Cat. no.	Application Main	Tap (AWG or kcmil)	Dies for ABB tools (Figure 2)	L (in.)
54865-CKN*	⅝ in. rod	3/0 str.–250	15506SS	1½
54860N	⅝ in. rod	1/0 str.–2/0 str.	15506SS	1½
54855N	⅝ in. rod	#4 sol.–#2 str.	15506SS	1½
54875N	#6 sol. – #2 str.	#6 sol.–#2 str.	15517SS	1½

Diagrams

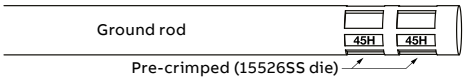


Figure 1

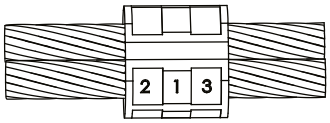
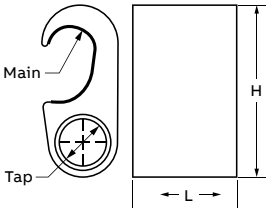


Figure 2 – Requires 3 crimps



All parts ending by the letter N are IEEE837-2014 compliant.
Use hydraulic tool 13100A, TBM14M TBM14CR-LI, TBM15CR-LI, TBM15, or TBM15I with die indicated in chart.
Use 15500TB adaptor for TBM15I 15-ton tool.

IMPORTANT: For 54865-CKN only. To be in compliance with IEEE837-2014, the ground rod should be pre-crimped with die 15526SS (45H) as shown in Figure 1.

Ground rod tap connectors



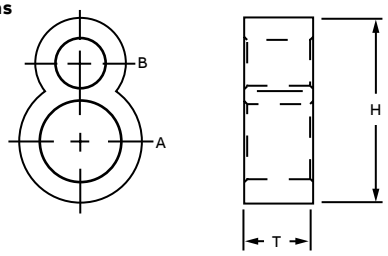
Figure 8 compression ground rod tap connectors

- Material: High-conductivity copper
- Acceptable for direct burial

DB Meets **IEEE** 837 requirements

Cat. no.	A (in.) Ground rod	B Cable range (AWG or kcmil)	Dimensions in. (mm) T	H	Dies for TBM14M 13100A or TBM15I	Number of crimps
GR12-202*	½	#2–2/0	0.88 (22.4)	1.94 (49.3)	15G121R	2
GR58-202*	⅝	#2–2/0	0.88 (22.4)	1.97 (50.0)	15G121R	2
GR34-202*	¾	#2–2/0	0.88 (22.4)	2.19 (55.6)	15G121R	2
GR1-202	1	#2–2/0	0.88 (22.4)	2.56 (65.0)	15G121R	2
GR12-40250*	½	4/0–250	0.88 (22.4)	1.94 (49.3)	15G121R	2
GR58-40250*	⅝	4/0–250	0.88 (22.4)	2.13 (54.1)	15G121R	2
GR34-40250*	¾	4/0–250	0.88 (22.4)	2.19 (55.6)	15G121R	2
GR1-40250	1	4/0–250	0.88 (22.4)	2.44 (62.0)	15G121R	2
GR58-300500*	⅝	300–500	0.88 (22.4)	2.13 (54.1)	15G121R	2
GR34-300500*	¾	300–500	0.88 (22.4)	2.44 (62.0)	15G121R	2
GR1-300500	1	300–500	0.88 (22.4)	2.69 (68.3)	15G121R	2

Diagrams



*Tin-plated version of galvanized ground rods available. Add suffix -TP to cat. no.
Use 15500TB adaptor for TBM15I 15-ton tool.
Optional ground rod knurling die for 14- and 15-ton tools: 15508. Knurling tool: 240-31565-94.

Ground rod to grid connectors

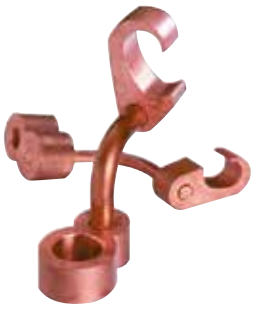
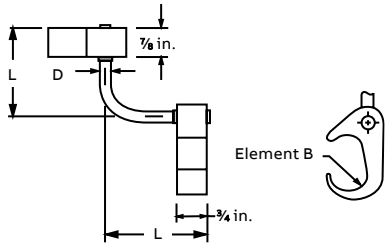


Figure 6 to 8 compression ground rod to grid connectors

DB Meets **IEEE** 837 requirements

Cat. no.	A in. (mm) Ground rod	B Cable range (AWG or kcmil)	Dimensions in. (mm) D	L	Dies for TBM14M, 13100A or TBM15I Element A	Element B
54855LR12*	½ (12.7)	#2–250	0.31 (7.8)	2.50 (63.5)	15G121R	15G86R
54885LR12*	½ (12.7)	250–500	0.31 (7.8)	2.50 (63.5)	15G121R	15G126R
54865LR58*	⅝ (16.0)	#2–250	0.31 (7.8)	2.50 (63.5)	15G121R	15G86R
54895LR58*	⅝ (16.0)	250–500	0.31 (7.8)	2.50 (63.5)	15G121R	15G126R
54875LR34*	¾ (19.1)	#2–250	0.50 (12.7)	2.63 (66.8)	15G121R	15G86R
54900LR34*	¾ (19.1)	250–500	0.50 (12.7)	2.63 (66.8)	15G121R	15G126R
54910LR100	1 (25.4)	#2–250	0.50 (12.7)	2.63 (66.8)	15G121R	15G86R
54920LR100	1 (25.4)	250–500	0.50 (12.7)	2.63 (66.8)	15G121R	15G126R

Diagrams



*Tin-plated version available for galvanized ground rods. Add suffix -TP to cat. no.

Ground grid connectors

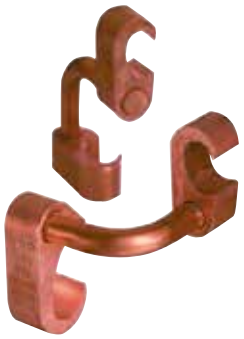
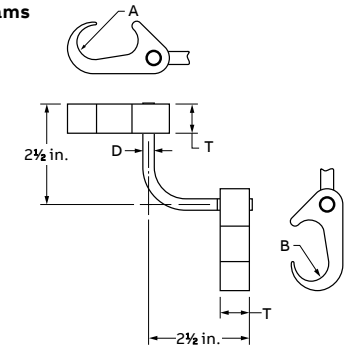


Figure 6 to 6 compression ground grid connectors
- Material: High-conductivity copper
- Acceptable for direct burial

DB Meets **IEEE** 837 requirements

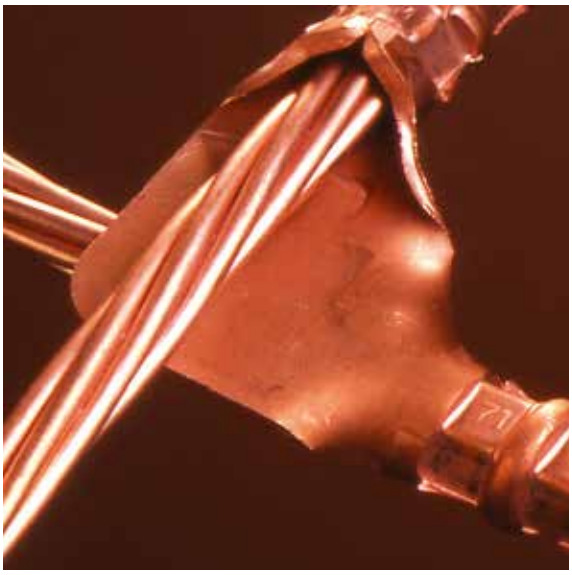
Cat. no.	A Cable range (AWG or kcmil)	B to cable range (AWG or kcmil)	B to ground rod	B to rebar	D (in.)	T (in.)	Dies for ABB tool* A	Number of crimps	B	Number of crimps
54900L	250–500	250–500	⅝ in.–¾ in. rod	#5-#6 (⅝ in.–¾ in.)	¾	1⅛	15G121R	3	15G121R	3
54895L	#2 str.–250	250–500	⅝ in.–¾ in. rod	#5-#6 (⅝ in.–¾ in.)	½	¾	15G86R	1	15G126R	1
54885L	#6 sol.–#2 str.	250–500	⅝ in.–¾ in. rod	#5-#6 (⅝ in.–¾ in.)	⅝	¾	15501A	1	15G126R	1
54875L	#2 str.–250	#2 str.–250	½ in.–⅝ in. rod	#3-#4 (⅜ in.–½ in.)	½	¾	15G86R	1	15G86R	1
54865L	#6 sol.–#2 str.	#1 str.–250	½ in.–⅝ in. rod	#3-#4 (⅜ in.–½ in.)	5⁄16	¾	15501A	1	15G86R	1
54855L	#6 sol.–#2 str.	#6 sol.–#2 str.	–	–	5⁄16	¾	15501A	1	15501A	1

Diagrams



*Use hydraulic tool 13100A, TBM14CR-LI, TBM14M, TBM15CR-LI, TBM15, or TBM15I or with die marked on cat. no.
Use 15500TB adaptor for 15-ton tool TBM15I.

Cable-to-cable or cable-to-rod connectors



One-piece construction for cable-to-cable, cable-to-rod, "T" and "X" connections

- Suitable for direct burial or in concrete
- Replaces exothermic welds
- Made from high-conductivity wrought copper

DB Meets **IEEE** 837 requirements

	Cable to cable range								Rod to cable range					
Cat. no.	**Main (AWG or kcmil)**	**Die code**	**TBM14 and 15 Die cat. no.**	**Number of crimps**	**Branch (AWG or kcmil)**	**Die code**	**TBM14 and 15 Die cat. no.**	**Number of crimps**	**Ground rod (in.)**	**Die code**	**TBM14 and 15 Die cat. no.**	**Cable (AWG or kcmil)**	**Die code**	**TBM14 and 15 Die cat. no.**
GG21-21	#2 or #1	45	15526SS	2	#2 or #1	45	15526SS	2	–	–	–	–	–	–
GG10-10	1/0	54	15511SS	2	1/0	54	15511SS	2	–	–	–	–	–	–
GG2030-21	2/0 or 3/0	60	15532SS	2	#2 or #1	50–45	15526SS 15530SS	2	–	–	–	–	–	–
GG2030-10	2/0 or 3/0	60	15532SS	2	1/0	54H	15511SS	2	–	–	–	–	–	–
GG2030-2030	2/0 or 3/0	60	15532SS	2	2/0–3/0	60	15532SS	2	–	–	–	–	–	–
GG40250-21	4/0 or 250	71H	15514SS		#2	45 50	15526SS 15530SS	2	½ ⅝	71 80H	15514SS 15517SS	#2 or #1 #2 or #1	45 50	15526SS 15530SS
GG40250-10	4/0 or 250	71H	15514SS		1/0	54H	15511SS	2	½ ⅝	71 80H	15514SS 15517SS	1/0	54	15511SS
GG40250-2030	4/0 or 250	71H	15514SS		2/0 or 3/0	60	15532SS	2	½ ⅝	71 80H	15514SS 15517SS	2/0 or 3/0 2/0 or 3/0	60 60	15532SS 15532SS
GG40250-40250	4/0 or 250	71H	15514SS		4/0 or 250	71H	15514SS	2	½ ⅝	71 80H	15514SS 15517SS	4/0 or 250 4/0 or 250 4/0 or 250	71H 71H 71H	15514SS 15514SS
GG500-40250	500	87H	15506SS		4/0 or 250	71H	15514SS	2	¾ ⅝	87H	15506SS	4/0 or 250 4/0 or 250 4/0 or 250	71H 71H 71H	15514SS 15514SS
GG500-500	500	87H	15506SS		500	87H	15506SS	2	¾ ⅝	87H	15506SS	500	87H	15506SS
GG500-350	500	87H	15506SS		350	80H	15606SS	2	¾ ⅝	87H	15506SS	350	80H	15506SS
GG500-2030	500	87H	15506SS		2/0 or 3/0	60	15532SS	2	¾ ⅝	87H	–	2/0 or 3/0	60	15532SS
GG350-350	350	80H	15506SS		350	80H	15606SS	2	–	–	–	–	–	–

Uses 15500TB adaptor for 15-ton tools.
Optional ground rod knurling die or TBM14 and 15 tools: 15508SS.
Optional ground rod knurling tool: 240-31565-94.

Two cables to ground rod

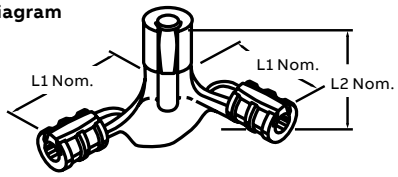


For connecting perpendicular runs of stranded copper cable to ground rod

DB

Cat. no.	Cable size (AWG or kcmil) Main	Tap	Ground rod dia. (in.)	Cable and rod installing dies for TBM14 and 15 Ground cable Die code	Cat. no.	Number of crimps	Ground rod Die code	Cat. no.	Number of crimps	Overall dimensions in. (mm) L1	L2
53065-58GR	250 or 4/0	250 or 4/0	⅝ and ½	87H	15506SS	2	87H	15506SS	2	4.94 (125.5)	3.25 (82.6)
53065-34GR	250 or 4/0	250 or 4/0	¾	87H	15515SS	2	106H	15515SS	2	4.94 (125.5)	3.25 (82.6)

Diagram



Use T&B hydraulic tools with hex crimp dies.
Optional ground rod knurling die for TBM14 and 15 Tools: 15508SS.
Optional ground rod knurling Tool: 240-31565-94.
Use 15500TB adaptor for TBM15-Ton Tool.

Cable size (AWG or kcmil)	Reinforcing rod size	Copperweld* conductor size
#2, #1	–	3 #8 or 3 #6
1/0, 2/0	#3	⅜ (7 #8) or 7/16 (7 #7)
4/0, 250	#4	7/16 (19 #9) or (7 #5)
300–350	#5	21/32 (19 #8) or ⅝ (7 #4)
500	#6	13/16 (19 #6)

* Reg. Trademark Copperweld Corporation.
UL listed for use with cast copper connectors.

Grounding grid connectors



53065



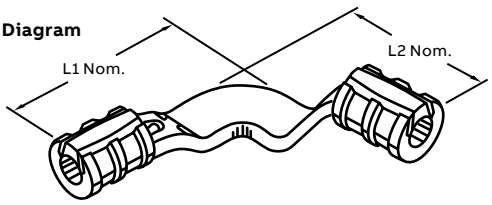
53055

Heavy-duty cast copper**

DB

Cat. no.	Rod to cable range: Rod size (in.)	Rod to cable range: Cable range (AWG or kcmil)	Cable to cable range rod (AWG or kcmil): Main	Cable to cable range rod (AWG or kcmil): Branch	Cable and rod installing dies for TBM14 and 15: Die code	Cable and rod installing dies for TBM14 and 15: Cat. no.	Cable and rod installing dies for TBM14 and 15: Number of crimps	Die code	Cat. no.	Number of crimps	Overall dimensions in. (mm): L1	Overall dimensions in. (mm): L2
53055	–	–	1/0–2/0	1/0–2/0	–	–	–	66	15534SS	1	3.88 (98.6)	3.88 (98.6)
53059*	½–⅝	#2–#1	4/0–250	#2–#1	87H	15506SS	2	54H	15511SS	2	4.16 (105.7)	4.56 (115.8)
53060*	½–⅝	1/0–2/0	4/0–250	1/0–2/0	87H	15506SS	2	87H	15506SS	2	4.44 (112.8)	4.44 (112.8)
53065*	½–⅝	4/0–250	4/0–250	4/0–250	87H	15506SS	2	87H				
53069*	¾	1/0–2/0	300–350	1/0–2/0	106H	15515SS	2	66	15534SS	1	4.59 (116.6)	4.59 (116.6)
53071*	¾	4/0–250	300–350	4/0–250	106H	15515SS	2	106H	15515SS	2	5.25 (133.4)	4.78 (121.4)
53073*	1	1/0–2/0	500	1/0–2/0	125H	15603	3	66	15534SS	1	4.81 (122.2)	4.88 (124.0)
53075*	1	4/0–250	500	4/0–250	125H	15603	3	87H	15506SS	2	6.56 (166.6)	5.00 (127.0)
53080*	1	500	500	500	125H	15603	3	125H	15603	3	5.19 (131.8)	5.19 (131.8)

Diagram



* 4/0–250 wire barrels suitable for ½ in. and ⅝ in. rod, 300–500 kcmil wire barrels suitable for ¾ in. rods, 500 kcmil wire barrels suitable for 1 in. rods.
** Do not meet IEEE837.
Cat. no. 15500TB adaptor is required for all 15500SS series dies, not for 15600SS series, crimp with 15-ton tools.
Hydraulic tools only.

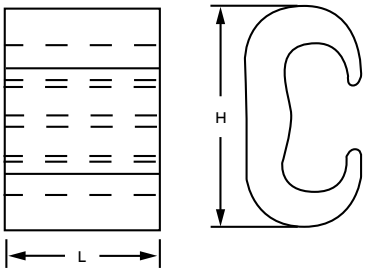
C-Taps



DB Meets **IEEE** 837 requirements

Cat. no.	Cable range (AWG or kcmil) Main	Tap	Dimensions in. (mm) H	L	Dies for TBM14M, 13100A or TBM15I*	Crimps
CTP22	#6 sol.–#2 str.	#6 sol.–#2 str.**	1.16 (29.5)	0.75 (19.1)	HBKC	1
CTP202	#1 str.–2/0 str.	#6 sol.–#2 str.**	1.41 (35.8)	0.75 (19.1)	15501A	1
CTP2020	#1 str.–2/0 str.	#1 str.–2/0 str.	1.54 (39.1)	0.75 (19.1)	15501A	1
CTP25020	3/0 str.–250	#6 sol.–2/0**	1.97 (50.0)	0.75 (19.1)	15G86R	1
CTP250250	3/0 str.–250	3/0 str.–250	2.06 (52.3)	0.88 (22.4)	15G86R	1
CTP50020	300–500	#6 sol.–2/0**	2.42 (61.5)	0.88 (22.4)	15G121R	2
CTP500250	300–500	3/0 str.–250	2.67 (67.8)	0.88 (22.4)	15G121R	2
CTP500500†	300–500	300–500	2.91 (73.9)	1.10 (27.9)	15G121R	3

Diagrams



* Cat. no. 15500 adaptor required if using TBM15I and 155XX series dies.
** #6 AWG branch must be doubled.
† Must use TBM15I tool
Material: High-conductivity copper.

C-Taps



DB Meets **IEEE** 837-2014 requirements

Cat. no.	Ø A cable (AWG or kcmil)	Ø B cable (AWG or kcmil)	H (in.)	L (in.)	Crimps	Dies for tools*
CTP22N	#6 sol.–#2 str.	#6 sol.–#2 str.	1 5/32	1½	3	15534SS (Fig.1)
CTP202N	#1 str.–2/0 str.	#6 sol.–#2 str.	1 13/32	1½	3	15517SS (Fig.1)
CTP2020N	#1 str.–2/0 str.	#1 str.–2/0 str.	1 9/16	1½	3	15517SS (Fig.1)
CTP25020N	3/0 str.–250	#1 str.–2/0 str.	1 31/32	1½	3	15506SS (Fig.1)
CTP250250N†	3/0 str.–250	3/0 str.–250	2 1/16	1½	3	15506SS (Fig.1)
CTP500250N	300–500	3/0 str.–250	2.72	2.5	5	15603SS
CTP50020N	300–500	#6 sol.–2/0 str.	2.42	2.5	5	15603SS
CTP500500N**	300–500	300–500	2.92	2.5	5	15G121N

Diagrams

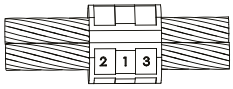
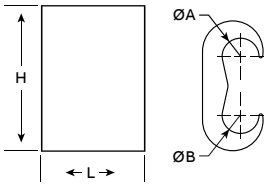


Figure 1 – Requires 3 crimps



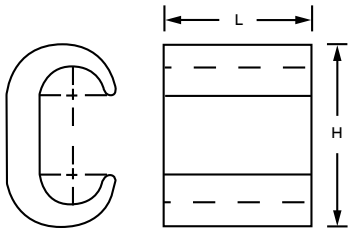
* These dies may be used with the TBM15CR-LI or TBM15I compression tools. Please note that the die adapter 15500-TB is required for use with these tools.
**Can be used with ¾ in. (17.3 mm) copper-clad ground rod. The ground rod must be pre-crimped with die 15507SS to comply with IEEE 837-2014.
† Can be used with ⅝ in. (15.8 mm) copper-clad ground rod. The ground rod must be pre-crimped with die 15526SS to comply with IEEE 837-2014.



Copper C-crimps wire combinations**

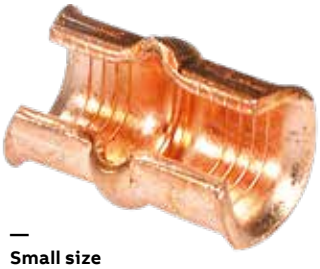
Cat. no.	Cable range (AWG) Run	Cable range (AWG) Tap	Die index	Manual tool OD series	Installing die 14- and 15-ton tools	Dimensions in. (mm) L	Dimensions in. (mm) H
BC48	6 sol.–4 str.	8 sol.–8 str.	BG or ⅝	BY31	B58CS	0.64 (16.3)	0.56 (14.2)
BC46-BB	6 sol.–4 str.	6 sol.–6 str.	BG or ⅝	BY31	B58CS	0.64 (16.3)	0.75 (19.1)
BC44	6 sol.–4 str.	4 sol.–4 str.	BG or ⅝	BY31	B58CS	0.64 (16.3)	0.80 (20.3)
BC24	2 sol.–2 str.	8 sol.–4 str.	C	BY33	HBKC	0.75 (19.1)	0.98 (24.9)
BC22	2 sol.–2 str.	2 sol.–2 str.	C	BY33	HBKC	0.75 (19.1)	1.05 (26.7)
BC202	1/0 sol.–2/0 str.	8 sol.–2 str.	E or O	–	HO	0.94 (23.9)	1.31 (33.3)
BC2020-BB	1/0 sol.–2/0 str.	1/0 str.–2/0 str.	E or O	–	HO	0.94 (23.9)	1.34 (34.0)
BC402	3/0 str.–4/0 str.	6 sol.–2 str.	F or D3	–	HD	1.06 (26.9)	1.63 (41.4)
BC4020	3/0 str.–4/0 str.	1/0 sol.–2/0 str.	F or D3	–	HD	1.06 (26.9)	1.63 (41.4)
BC4040	3/0 str.–4/0 str.	3/0 sol.–4/0 str.	F or D3	–	HD	1.06 (26.9)	1.63 (41.4)

Diagrams



**Do not meet IEEE 837.

C-Taps



Small size

Cat. no.	Code wire comb. (AWG) Main	Branch	Group 1	TMB62PCR-LI	Die Smart™ Tools	Group 2	Group 3	Insulation choice Adhesive	Shrink tubing	Dimensions in. (mm) L	H	Colour code
54705	#12	#14	6TON21SS	TBM6221	–	•	•	AC5X3	HS12-6	0.31 (7.9)	0.31 (7.9)	Red
	#14	#16	6TON21SS	TBM6221	–	•	•	AC5X3	HS12-6	0.31 (7.9)	0.31 (7.9)	
54710	#10	#10	6TON24SS	TBM6224	–	•	•	AC5X3	HS12-6	0.56 (14,2)	0.44 (11.2)	Blue
	#8	#12	6TON24SS	TBM6224	–	•	•	AC5X3	HS12-6	0.56 (14,2)	0.44 (11.2)	
54715	#6	#10, 12	6TON29SS	TBM6229	–	•	•	AC5X3	HS12-6	0.56 (14.2)	0.63 (16.0)	Grey
	#8	#8, 10, 12	6TON29SS	TBM6229	–	•	•	AC5X3	HS12-6	0.56 (14.2)	0.63 (16.0)	
54720	#4 ou 5		6TON33SS	TBM6233	TBM8-750C20	•	•	AC5X3	HS6-1	1.16 (29.5)	0.69 (17.5)	Brown
	#6	#6, 8	6TON33SS	TBM6233	TBM8-750C20	•	•	AC5X3	HS6-1	1.16 (29.5)	0.69 (17.5)	
54725	#3	#6, 8, 10, 12***	6TON37SS	TBM6237	TBM8-750C2530	•	•	AC5X3	HS6-1	1.16 (29.5)	0.81 (20.6)	Green
	#4 ou 5	#6, 5	6TON37SS	TBM6237	TBM8-750C2530	•	•	AC5X3	HS6-1	1.16 (29.5)	0.81 (20.6)	
54730	#2	#6, 8, 10, 12	6TON42SS	TBM6242	TBM8-750C2530		•	AC5X3	HS6-1	1.16 (29.5)	0.84 (21.3)	Pink
	#3	#5	6TON42SS	TBM6242	TBM8-750C2530		•	AC5X3	HS6-1	1.16 (29.5)	0.84 (21.3)	
	#4	#3	6TON42SS	TBM6242	TBM8-750C2530		•	AC5X3	HS6-1	1.16 (29.5)	0.84 (21.3)	
54735	#1	#4, 5, 6, 8, 10, 12	6TON45SS	TBM6245	TBM8-750C3540		•	AC5X3	HS6-1	0.06 (1.5)	0.88 (22.4)	Black
	#2	#4, 5	6TON45SS	TBM6245	TBM8-750C3540		•	AC5X3	HS4-30	0.06 (1.5)	0.88 (22.4)	
	#3	#3, 4	6TON45SS	TBM6245	TBM8-750C3540		•	AC5X3	HS4-30	0.06 (1.5)	0.88 (22.4)	
54740	1/0	#4, 5, 6, 8, 10, 12	6TON50SS	TBM6250	TBM8-750C3540		•	AC5X3	HS4-30	1.69 (42,9)	0.97 (24.6)	Orange
	#1	#3, 4	6TON50SS	TBM6250	TBM8-750C3540		•	AC5X3	HS4-30	1.69 (42,9)	0.97 (24.6)	
	#2	#2, 3	6TON50SS	TBM6250	TBM8-750C3540		•	AC5X3	HS4-30	1.69 (42,9)	0.97 (24.6)	
54745	2/0	#3, 4, 5, 6, 8, 10, 12	6TON54SS	TBM6254	TBM8-750C4550		•	AC5X3	HS4-30	1.69 (42,9)	1.06 (26.9)	Purple
	1/0	#2, 3	6TON54SS	TBM6254	TBM8-750C4550		•	AC5X3	HS4-30	1.69 (42,9)	1.06 (26.9)	
	#1	#1, 3	6TON54SS	TBM6254	TBM8-750C4550		•	AC5X3	HS4-30	1.69 (42,9)	1.06 (26.9)	
54750	3/0	#2, 3, 4, 5, 6, 8, 10, 12	6TON62SS	TBM6262	TBM8-750C4550		•	AC5X3	HS4-30	1.69 (42.9)	1.19 (30.2)	Yellow
	2/0	#1, 2	6TON62SS	TBM6262	TBM8-750C4550		•	AC5X3	HS4-30	1.69 (42,9)	1.19 (30.2)	
	1/0	1/0, 1	6TON62SS	TBM6262	TBM8-750C4550		•	AC5X3	HS4-30	1.69 (42,9)	1.19 (30.2)	

Diagrams

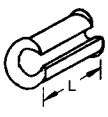


Fig. 1

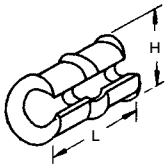


Fig. 2

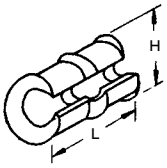


Fig. 3

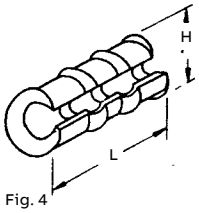


Fig. 4

*** When using #3 AWG on main and #12 AWG on branch with Smart Tools and dies, #12 AWG wire must be doubled (hair-pinned) and placed on branch for crimping.
Group 1 = TBM6H, TBM62PCR-LI, TBM62CR-LI, TBM6UNICR-LI.
Group 2 = TBM45S, TBM41E (require 2 compressions within each crimp area).
Group 3 = TBM4/4S, TBM5S, TBM6S, TBM8/8S, TBM6H (require 1 compression within each crimp area).

C-Taps



Certified to 600 V

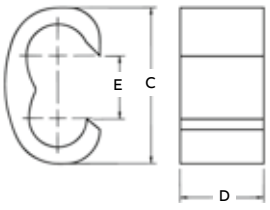
- More economical than other taps and split bolts in terms of purchase, inventory, installation time, insulation and maintenance
- Color-coded for easy matching with proper die
- Barely larger than conductor insulation once installed

Material – High-conductivity wrought copper
Finish – Plain

Large size

Cat. no.	Wire size (AWG or kcmil) Main	Branch	Dimensions in. (mm) C	D	E	Installing die Tool	Cat. no.	Die code	No. of crimps	Colour code
54755	#1	#1	1.93 (49.0)	0.75 (19.1)	0.53 (13.5)	TBM14M	15512SS	76	1	Blue
	1/0	1/0–#2				TBM15I	15512SS*	76		
	2/0	2/0–#3				TBM12	TBM12D-4	76		
	3/0	1/0–#6				13100A	15512SS	76		
	4/0	#1–#8								
54760	2/0	2/0–#1	1.43 (36.3)	0.75 (19.1)	0.59 (15.0)	TBM14M	15506SS	87H	2	Brown
	3/0	3/0–#3				TBM15I	15506SS*	87H		
	4/0	4/0–#4				TBM12	TBM12D-3	87H		
	250	#1–#8				13100A	15506SS	87H		
54765	2/0	2/0–#1	1.68 (42.7)	1.00 (25.4)	0.64 (16.3)	TBM14M	15505SS	99H	2	Pink
	3/0	3/0–#2				TBM15I	15505SS*	99H		
	4/0	4/0–#4				TBM12	TBM12D-2	99H		
	250	3/0–#6				13100A	15505SS	99H		
	300	2/0–#8								
54770	4/0	4/0–2/0	1.68 (42.7)	1.00 (25.4)	0.68 (17.3)	TBM14M	15515SS	106H	2	Black
	250	250–#1				TBM15I	15515SS*	106H		
	300	4/0–#4				TBM12	TBM12D-2	106H		
	350	3/0–#6				13100A	15515SS	106H		
54775**	250	250	1.88 (47.8)	1.25 (31.8)	0.81 (20.6)	TBM14M	15504SS	115H	2	Yellow
	300	300–3/0				TBM15I	15504SS*	115H		
	350	350–1/0				TBM12	TBM12D-1	115H		
	400	300–#2				13100A	15504SS	115H		
	450	250–#4								
	500	250–#6								
54780	350	350–4/0	2.18 (55.4)	1.25 (31.8)	0.82 (20.08)	TBM15I	15603	125H	2	N/A
	400	400–2/0								
	450	450–#1								
	500	500–#2								
54785	750	4/0–#6	2.12 (53.8)	2.00 (50.8)	1.00 (25.4)	TBM15I	15603	125H	3	N/A
54790	750	750–4/0	2.68 (68.1)	2.00 (50.8)	1.31 (33.3)	TBM15I	15603	125H	3	N/A

Diagrams



UL approved for direct burial.
For covers see the Color-Keyed compression connector system catalogue.
Taps can be supplied tin-plated. Add suffix "TP" to any cat. no. (i.e. 54725TP).
* Cat. no. 15500TB adaptor required if using TBM15I and 155xx series dies.
** #6 AWG branch must be doubled.
Tooling and die selector chart, see the Color-Keyed tools, dies and kits catalogue.

Copper lugs

Heavy-duty two-hole NEMA lugs



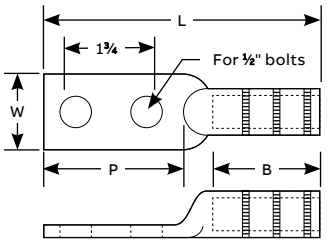
- Heavy-wall lugs for grounding and other critical applications
- Able to handle the most severe heavy-loading applications
- Ease cable insertion

Heavy-duty two-hole NEMA lugs

Meets **IEEE** 837 -2014 requirements

Cat. no.	Wire size (AWG or kcmil)	Installing dies*	Dimensions (in.) B	L	P	W
HDL 2 N	#2	15508SS	1½	5¼	3	13/16
HDL 1 N	#1	15526SS	1½	5¼	3	13/16
HDL 1/0 N	1/0	15530SS	1½	5¼	3	13/16
HDL 2/0 N	2/0	15511SS	1¾	5½	3	15/16
HDL 3/0 N	3/0	15532SS	1 11/16	5 3/16	3	1
HDL 4/0 N	4/0	15514SS	1¾	5⅝	3	1⅛
HDL 250 N	250	15517SS	1¾	5⅝	3	1¼
HDL 300 N	300	15506SS	2¼	5 13/16	3	1⅜
HDL 350 N	350	15503SS	2 5/16	6 9/16	3	1 9/16
HDL 500 N	500	15609SS	2⅝	6⅜	3	1¾
HDL 750 N**	750	Consultez votre représentant ABB.	3⅜	7 3/16	3	2 3/16
HDL 1000 N**	1,000	Consultez votre représentant ABB.	4⅝	9⅝	3⅝	2⅝

Diagram



Note: For tin plating, add suffix "-TN" after the catalogue number.
For oxide-inhibiting compound, contact your ABB representative.
*These dies may be used with the TBM15CR-LI or TBM15I compression tools. Please note that the die adapter 15500-TB is required for use with these tools.

** Do not meet IEEE 837-2014 requirements.

Pigtail connectors





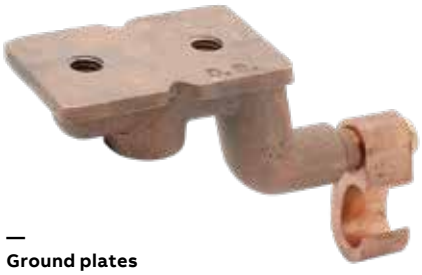
Hex compression intimately bonds directly to copper-clad ground rod

- Figure 8 connectors
- Conforms to IEEE 837 standard
- UL listed

When connecting cable to copper-clad ground rod for direct burial or in concrete, the connector shall be wrought copper with minimum conductivity of 99% I.A.C.S., such as ABB series GR12-306. Hex compression with die code embossing shall be used.

DB Meets **IEEE** 837 requirements

Cat. no.	Cable range (AWG)	Copper clad ground rod (in.)	Die code for TBM14M, TBM15, 13100A or TBM15I	No. of crimps	Die cat. no.
GR12-306	One cable: 3/0 to #6 Two cables: #2 to #6	½	87H	2	15506
GR58-406	One cable: 4/0 to #6 Two cables: #2 to #6	⅝	87H	2	15506
GR34-4010	One cable: 4/0 to 1/0	¾	99H	2	15505



Ground plates

DB Meets **IEEE** 837 requirements

Cat. no.	Fig.	Cable range (AWG or kcmil)	H in. (mm)	No. of crimps	Die code for 14- and 15-ton tools
GP2250-2	1	#2–250	3.63 (92.2)	1	15G86R
GP2250-4	2	#2–250	4.22 (107.2)	1	15G86R
GP250500-2	1	250–500	3.63 (92.2)	2	15G126R
GP250500-4	2	250–500	4.22 (107.2)	2	15G126R

Diagrams

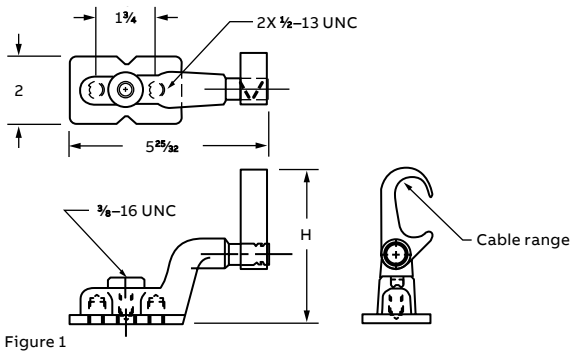


Figure 1

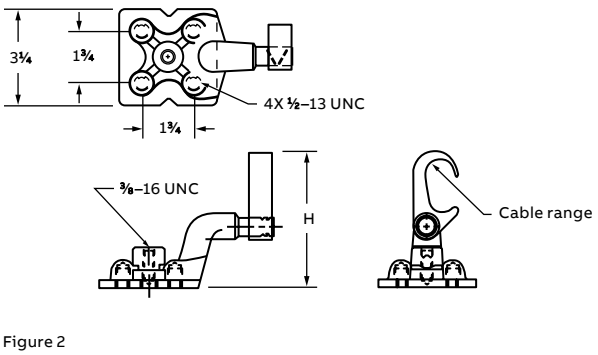


Figure 2

Grounding studs

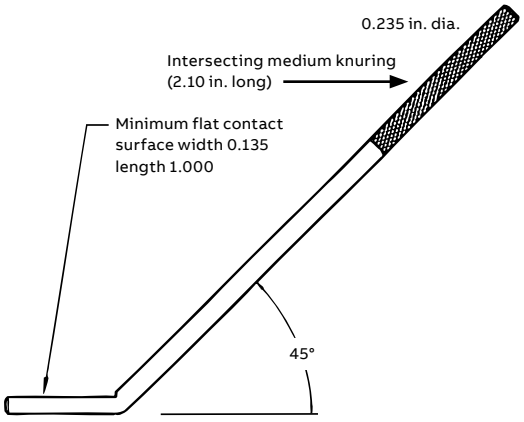


Type TBGS structural grounding studs
Knurling ensures excellent mechanical pull-out and electrical continuity.

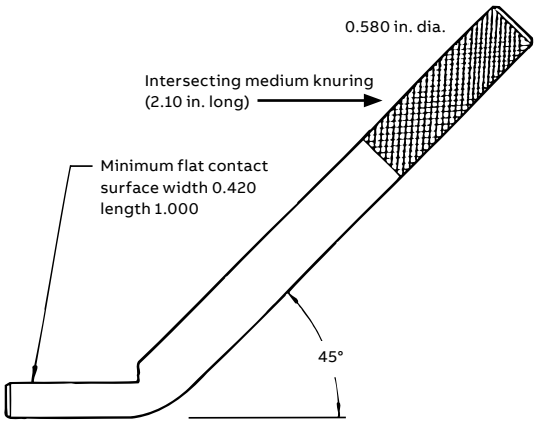
- Easily welded to steel structures with minimal construction welding equipment
- Connect to grounding conductors with appropriate ABB grounding connectors
- Knurled portion of stud resists pull-out and provides electrical continuity to ensure the integrity of the grounding circuit
- Constructed of high-strength steel and coated with corrosion-resistant copper cyanide

Cat. no.	Rod size (in.)
TBGS-14	0.25
TBGS-38	0.38
TBGS-58	0.63
TBGS-34	0.75

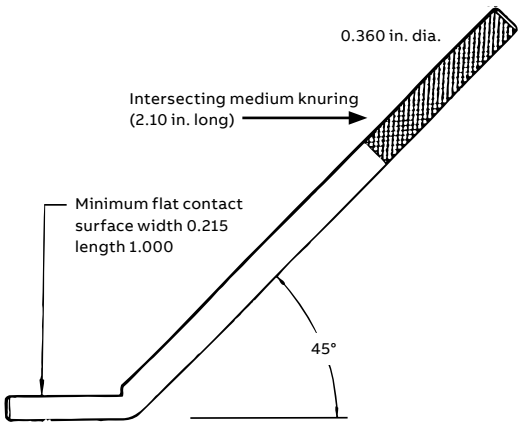
Diagrams



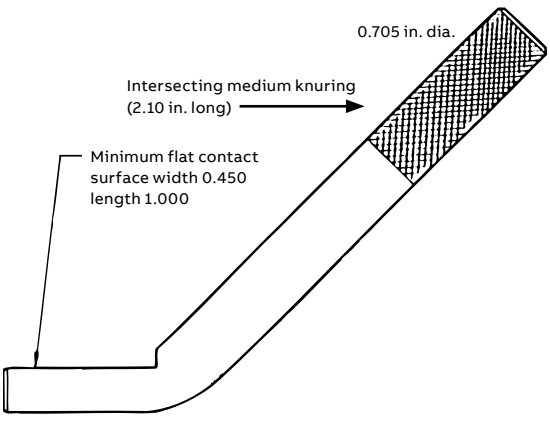
TBGS-14



TBGS-58

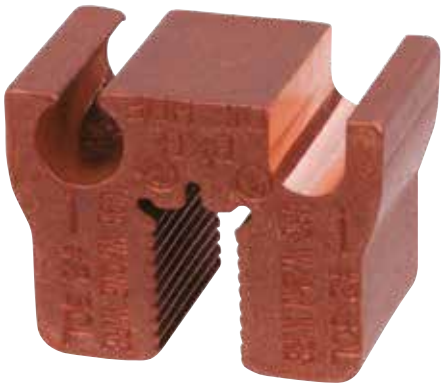


TBGS-38



TBGS-34

Bus bar connectors



Cuts installation time in half – with results superior to conventional connectors

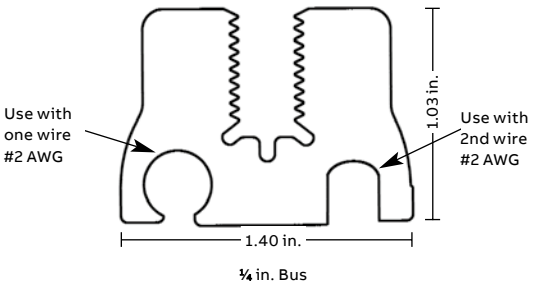
- Unique
- Fast and easy installation
- Superior low-resistance, high-conductivity connections
- Install with conventional compression tools
- Produce a permanent connection with any combination of copper from #6 to #2 AWG solid or stranded conductors, to ¼ in. copper bus bar
- Made from pure wrought copper and prefilled with oxide inhibitor
- CSA certified and UL listed
- Installed with die HDF

EZGround bus bar connectors install in less than 2 minutes with one easy crimp. The connector attaches directly to the bus, saving the labor-intensive process of drilling and tapping. The unique jaw interface of the EZGround bus bar connector grips the copper bus, resulting in a low-resistance, high-conductivity connection.
The EZGround bus bar connectors can be used in OEM applications or telecom applications – cellular, PCS and others. They provide a continuous ground to the copper bus bar, making them ideal for tower applications. The design enables installation in virtually any position, horizontal or vertical, and is suitable for inside and outside plant use. Installation can be completed using tool TBM14, TBM14MC or TBM14CR-LI.

Busbar connectors

Cat. no.	Ground bus bar (in.)	Conductor range (AWG)	Tools	Die	Std. pkg. qty.
GBBC22	¼	#2–#2	TBM14M, TBM14MC, TBM14CR-LI	HDF	1
GBBC26	¼	#6–#2	TBM14M, TBM14MC, TBM14CR-LI	HDF	1

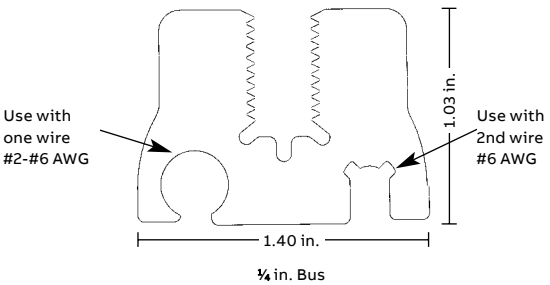
Diagrams



¼ in. Bus

Cat. no. GBBC22

Use this side of the connector when using only one wire.



¼ in. Bus

Cat. no. GBBC26

Use this side of the connector only when using two wires.

Ground rods



Galvanized ground rods

- Made of high-strength quality cold-drawn steel (1035) hot dip galvanized
- Meets ANSI CI35.30-1979 requirements
- Stainless steel rods are also available (for more detailed information, contact your ABB regional sales office)

	Trade size		Rod size (nominal diameter x length)		Plating thickness		Weight per 100	
Cat. no.	in.	ft.	mm	m	(mils)	Standard packaging	lb	kg
GR5006	½	6	12.7	1.8	4	10	410	186
GR6256	⅝	6	15.8	1.8	4	5	600	272
GR6258 (0.620 – 0.630)	⅝	8	15.8	2.4	4	5	800	363
GR6250 (0.555 – 0.565)	⅝	10	15.8	3.0	4	5	1,000	454
GR6260 (0.620 – 0.630)	⅝	10	15.8	3.0	4	5	1,000	454
GR7506	¾	6	17.3	1.8	4	5	700	318
GR7508 (0.745 – 0.755)	¾	8	17.3	2.4	4	5	1,200	545
GR7510 (0.745 – 0.755)	¾	10	17.3	3.0	4	5	1,500	681



Copper-bonded steel ground rods

- All EZGround ground rods have a heavy uniform covering of electrolytic copper bonded to a rigid steel core
- Copper ions are forced electrically to join with the steel core, establishing a corrosion-resistant bond between the copper and the steel

	Trade size		Rod size (nominal diameter x length)		Plating thickness		Weight per 100	
Cat. no.	in.	ft.	mm	m	(mils)	Standard packaging	lb	kg
5005	½	5	12.7	1.5	10	10	305	138
5006	½	6	12.7	1.8	10	5	370	168
5008	½	8	12.7	2.4	10	5	545	247
5010	½	10	12.7	3.0	10	5	611	277
6256	⅝	6	15.8	1.8	10	5	508	230
6258*	⅝	8	15.8	2.4	10	5	678	308
6260*	⅝	10	15.8	3.0	10	5	847	384
7508*	¾	8	17.3	2.4	10	5	992	450
7510*	¾	10	17.3	3.0	10	5	1,240	462
1010*	1	10	25.4	3.0	10	1	2,248	1,020

* Ground rods are UL listed (425H), except for regular rods shorter than 8 ft. or less than ½ in.
cULus lists rods ½ in. and larger, 10 ft. and longer.



Knurling die for 14- and 15-ton tools

Cat. no.	Description
15508SS	For ⅝ in. and ¾ in. ground rods

Used to knurl ground rods in order to increase the pullout value of the compression connection by as much as 20%. Use hand knurling tool cat. no. 240-31565-94 for all ground rods.

Ground rods



Sectional-type ground rods

- Sectional-type ground rods have the same high quality as regular copper-bonded steel ground rods and are threaded top and bottom

	Trade size		Rod size (nominal diameter x length)		Plating thickness			Weight per 100	
Cat. no.	in.	ft.	mm	m	(mils)	Thread size	Standard packaging	lb	kg
5008LS	½	8	12.7	2.4	10	9/16–12	5	546	248
5010LS	½	10	12.7	3.0	10	9/16–12	5	682	309
6258S	⅝	8	15.8	2.4	10 mils	⅝–11	5	670	308
6260S	⅝	10	15.8	3.0	10 mils	⅝–11	5	837	384
7506S	¾	6	17.3	1.8	5 mils	¾–10	5	774	160
7508S	¾	8	17.3	2.4	10 mils	¾–10	5	992	450
7510S	¾	10	17.3	3.0	10 mils	¾–10	5	1,040	562
1010S	1	10	25.4	3.0	10 mils	8–1	1	2,248	1,020

cULus lists rods ½ in. and larger, 10 ft. and longer.



Couplings

- Threaded couplings are made of high-strength, corrosion-resistant alloy. Streamlined design reduces driving friction. Couplings are tapped for use on all standard threaded sectional rods.

Cat. no.	Rod size diameter (in.)	Thread size (UNS)	Standard packaging	Weight per 100 (lb)
50LC	½	9/16 po – 12	25	17
60C	⅝	⅝ po – 11	25	25
70C	¾	¾ po – 10	25	38
80C	1	1 – 8	10	75



Driving studs

- Driving studs of high-strength steel
- May be used with all standard threaded couplings

Cat. no.	Rod size diameter (in.)	Thread size (UNS)	Standard packaging	Weight per 100 (lb)
50LDS*	½	9/16 in. – 12	10	16
60DS*+	⅝	5/8 in. – 11	25	23
80DS	1	1 – 8	10	75

* UL Listed
\+ CSA Certified

Ground rods



Threadless couplings and driving caps for standard copper bonded ground rods
Threadless couplings
- For joining non-threaded, sectional, copper-bonded, steel ground rods
- Coupling is manufactured of a high-strength, corrosion-resistant silicon bronze

Threadless driving caps
- Prevent “mushrooming” of ground rod while driving to ensure proper fit of coupling
- Driving cap is manufactured of high-strength, hardened steel

		Dimensions (in.)			
Cat. no.	**Size (in.)**	**Length**	**Diameter**	**Standard packaging**	**Weight per 100 (lb)**
Threadless couplings					
50CNT	½	3.0	0.78	25	34
60CNT2	⅝	2.5	0.69	25	34
70CNT	¾	3.0	0.97	25	31
Driving caps					
60DSNT *	⅝	4.0	0.88	10	43

* UL not applicable

Ground rod drivers



Photo includes ground rod driver and insert.

For installing ground rods, there's no safer, simpler or more effective tool than the ABB ground rod driver. It can be used on all types of ground rods including copper-bonded, galvanized and stainless steel.

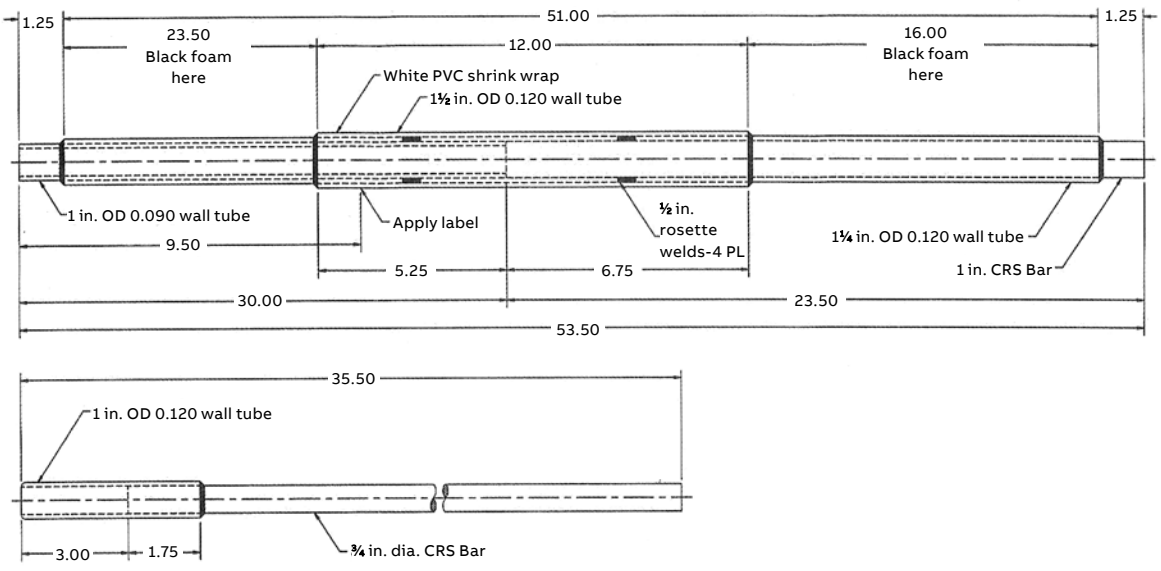
Integral inserts prevent the driver from slipping off the rod near ground level. The inserts are ⅝ in. and ¾ in., and are interchangeable with the standard driver body. The convenient retaining collar holds the insert in the tool when not in use. ABB ground rod drivers have a heavy-duty steel construction that allows maximum force for driving ground rods, while the efficient design ensures that minimal lifting force is required. The ground rod end is designed for high-impact applications to ensure quality connections.

- Unique design allows installation of 10-foot rods from ground level
- Heavy-duty steel construction
- Ergonomic grip provides ease and comfort with increased safety
- Complete with interchangeable parts that are range-taking for different diameter ground rods
- Two interchangeable inserts allow the same tool to be used with all sizes of rods
- Completely self-contained and easy to store

Ground rod drivers

Cat. no.	Description	Weight (lb)	Maximum rod diameter (in.)	Std. pkg.
TBRD58	5 ft. Ground rod driver with ⅝ in. insert	25	0.63	1
TBRD34	5 ft. Ground rod driver with ¾ in. insert		0.75	1
TBS58	Replacement ⅝ in. insert	4	0.63	1
TBS34	Replacement ¾ in. insert		0.75	1

Diagrams



Flexible braids

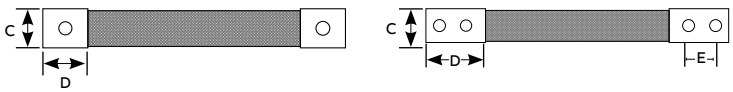


Flexible braid for grounding, bonding and continuous current applications

- Tin-plated copper braids and ferrules for high conductivity and corrosion resistance
- Flexible copper braids for use in substation and grounding applications
- Flexible braids allow for linear expansion, equipment vibration and offset connections

					Dimensions (in.)			
Cat. no.	Circular mils	Wire Equivalent	Bolt hole (in.)	No. of braids by ferrule	(T) Thickness	(C) Width	(D) Ferrule length	(E) Distance ctr. to ctr.
FBB12-1*	24,000	6 AWG	¼	1	0.140	0.625	0.750	–
FBC12-1*	48,000	3 AWG	⅜	1	0.148	1.000	1.300	–
FBD12-1*	76,800	1 AWG	⅜	1	0.200	1.000	1.300	–
FBD12*	76,800	1 AWG	⅜	1	0.200	1.000	2.500	1.25
FB2D12-1*	153,600	154 kcmil	⅜	2	0.250	1.250	1.500	–
FB2D12*	153,600	154 kcmil	⅜	2	0.250	1.250	2.500	1.25
FB3D12-1*	230,400	231 kcmil	⅜	3	0.350	1.250	1.500	–
FB3D12*	230,400	231 kcmil	⅜	3	0.350	1.250	2.500	1.25
FBXD12-1*	105,600	1/0 AWG	½	1	0.250	1.250	1.500	–
FBXD12*	105,600	1/0 AWG	½	1	0.250	1.250	2.500	1.25
FB2XD12-1*	211,200	4/0 AWG	½	2	0.350	1.250	1.500	–
FB2XD12*	211,200	4/0 AWG	½	2	0.350	1.250	2.500	1.25
FB3XD12-1*	315,800	316 kcmil	½	3	0.400	1.250	1.500	–
FB3XD12*	315,800	316 kcmil	½	3	0.400	1.250	2.500	1.25
FBE12-1*	168,000	3/0 AWG	½	1	0.500	1.250	2.500	–
FBE12**	168,000	3/0 AWG	½	1	0.250	1.250	3.500	1.75
FB2E12-1*	336,000	350 kcmil	½	1	0.500	1.250	2.500	–
FB2E12*	336,000	350 kcmil	½	2	0.500	1.250	3.500	1.75
FB3E12	504,000	500 kcmil	½	3	0.750	1.250	3.500	1.75
FB4E12	672,000	672 kcmil	½	4	1.00	1.25	3.500	1.75
FBF12	230 400	231 kcmil	½	1	0.300	1.500	3.500	1.75
FB2F12	460,800	462 kcmil	½	2	0.450	1.500	3.500	1.75
FB3F12	691,200	696 kcmil	½	3	0.600	1.625	3.500	1.75
FB4F12	921,600	928 kcmil	½	4	0.750	1.625	3.500	1.75
FBG12	307,200	308 kcmil	½	1	0.380	1.500	3.500	1.75
FB2G12	614,400	616 kcmil	½	2	0.630	1.625	3.500	1.75
FB3G12	921,600	928 kcmil	½	3	0.850	1.625	3.500	1.75
FB4G12	1,228,800	1,250 kcmil	½	4	1.000	1.880	3.500	1.75

Diagrams



*UL listed 467/486 and CSA certified C22.2 No. 41 as grounding and bonding equipment.
Standard lengths offered in 6, 12, 18, 24, 30 and 36 inches (end to end). Change the 12 in the above catalogue numbers to the desired length.
(-1) indicates 1 bolt hole per ferrule.
For custom flexible braids, contact your ABB regional sales office.

Flat braided tinned copper cable *

Cat. no.	Circular mils	Thickness (in.)	Width (in.)
FBBRL	24,000	0.140	0.625
FBCRL	48,000	0.418	1.000
FBDRL	76,800	0.200	1.000
FBXDRL	105,600	0.250	1.250

Cable only, sold in roll. Minimum quantities apply to some products; contact your representative for more information.

Minimum size conductors for bonding raceways and equipment

Rating or setting of overcurrent device in circuit ahead of equipment, conduit, etc. Not exceeding — Amperes	Copper wire circular mils
200	26,240
300	41,740
400	52,620
500	66,360
600	83,690
800	105,600
1,000	133,100
1,200	167,800
1,600	211,600
2,000	250,000
2,500	350,000
3,000	400,000
4,000	500,000
5,000	700,000
6,000	800,000

Based on table 16 CEC.

Minimum size of bare copper grounding conductor

Maximum available short circuit current amperes	Maximum fault duration with exothermic weld, compression or bolted joint	
	0.5 seconds circular mils	1.0 second circular mils
5,000	26,240	47,740
10,000	52,620	83,690
15,000	83,690	105,600
20,000	105,600	167,800
25,000	133,100	211,600
30,000	167,800	211,600
35,000	211,600	250,000
40,000	211,600	300,000
50,000	250,000	350,000
60,000	300,000	500,000
70,000	350,000	600,000
80,000	400,000	600,000
90,000	500,000	700,000
100,000	500,000	700,000

Based on table 51 CEC. Size calculated in accordance with IEEE No.80.

Competitive cross reference

Figure 6 — Compression ground tap connectors

EZGround	Burndy	Ilsco
54855	YGHP29C2	GGC-2
54860	YGHP29C26	GGC-3
54865	YGHP29C29	GGC-4
54875	YGHP2C2	GGC-1
54885	YGHP34C2	GGC-5
54890	YGHP34C26	GGC-6
54895	YGHP34C29	GGC-7
54900	YGHP34C34	GGC-8

Figure 6 to figure 6 — Compression ground grid connectors

EZGround	Burndy	Ilsco
54855L	YGL2C2	–
54855LR12	YGLR29C12	–
54865L	YGL29C2	GGA-2
54865LR58	YGLR29C58	–
54875L	YGL29C29	GGA-3
54875LR34	YGLR29C34	–
54885L	YGL34C2	GGA-4
54885LR12	YGLR34C12	–
54895L	YGL34C29	GGA-5
54895LR58	YGLR34C58	–
54900L	YGL34C34	GGA-6
54900LR34	YGLR34C34	–
54910LR100	YGLR29C100	–
54920LR100	YGLR34C100	–

C-crimp series BC

EZGround	Burndy	Ilsco
BC202	YC26C2	–
BC2020-BB	YC26C26	–
BC22	YC2C2	ULT-7-Z
BC24	YC2C4	ULT-6-Z
BC402	YC28C2	–
BC4020	YC28C26	–
BC4040	YC28C28	ULT-12-Z
BC44	YC4C4	ULT-5-Z
BC46-BB	YC4C6	ULT-4-Z
BC48	YC4C8	–

C-taps

EZ Ground	Burndy	Ilsco
CTG250	GCM28CG3	–

Type SP — Service post connectors

Blackburn	Penn Union	Burndy	Ilsco/Utilco	Kupler
SP0DL	SCS-0A1	K2C15B1	–	–
SP1DL	SCS-1A1	K2C17B1	–	–
SP2DL	SCS-2A1	K2C20B1	–	–
SP3DL	SCS-3A1	K2C22B1	–	–
SP4DL	SCS-4A1	K2C23B1	–	–
SP5DL	SCS-5A1	K2C25B1	–	–
SP6DL	SCS-6A1	K2C26B1	–	–
SP8DL	SCS-8A1	K2C28B1	–	–
SP9DL	SCS-9A1	K2C31B1	–	–
SP10DL	SCS-10A1	K2C34B1	–	–
SP0SL	SSS-0A1	KC15B1	–	–
SP1SL	SSS-1A1	KC17B1	–	–
SP2SL	SSS-2A1	KC20B1	–	–
SP3SL	SSS-3A1	KC22B1	–	–
SP4SL	SSS-4A1	KC23B1	–	–
SP5SL	SSS-5A1	KC25B1	–	–
SP6SL	SSS-6A1	KC26B1	–	–
SP8SL	SSS-8A1	KC28B1	–	–
SP9SL	SSS-9A1	KC31B1	–	–
SP10SL	SSS-10A1	KC34B1	–	–

Flexible braids

Blackburn	Penn Union	Burndy	Ilsco/ Utilco	Penn-Union	Anderson	Dossert	Gedney
FB2D12	–	B2D12N	–	FXB2A-12-Q	–	–	–
FB2E12	–	B2E12N		FXB2C-12N-Q	–	–	–
FB2F12	–	B2F12N		FXB2D-12N-Q	–	–	–
FB3D12	–	B3D12N		FXB3A-12-Q	–	–	–
FB3E12	–	B3E12N		FXB3C-12N-Q	–	–	–
FB3F12	–	B3F12N		–	–	–	–
FB3XD12	–	B4D12N		–	–	–	–
FB4E12	–	B4E12N		FXB4C-12N-Q	–	–	–
FB4F12	–	B4F12N		FXB4D-12N-Q	–	–	–
FBD12	–	BD12N		FXBA-12-Q	–	–	–
FBD18	–	–		FXBA-18-Q	–	–	–
FBD24	–	–		FXBA-24-Q	–	–	–
FBE12	–	BE12N		FXBB-12N-Q	–	–	–
FBF12	–	BF12N		FXBD-12N-Q	–	–	–
FBG12	–	–		FXBE-12N-Q	–	–	–
FBG18	–	–		FXBE-18S-Q	–	–	–
FBG24	–	–		FXBE-24S-Q	–	–	–

Competitive cross reference

Ground plates							
EZGround	**Burndy**	–	–	–	–	–	–
GP2250-2	YGF29-2N						
GP2250-4	YGF29-4N						
GP250500-2	YGF34-2N						
GP250500-4	YGF34-4N						
Figure 8 — Compression tap connectors for copper ground rods							
EZGround	**Burndy**	–	–	–	–	–	–
GR1-202	YGHR26C100						
GR12-202	YGHR26C12						
GR12-40250	YGHR29C12						
GR1-300500	YGHR34C100						
GR1-40250	YGHR29C100						
GR34-202	YGHR26C34						
GR34-300500	YGHR34C34						
GR34-40250	YGHR29C34						
GR58-202	YGHR26C58						
GR58-300500	YGHR34C58						
GR58-40250	YGHR29C58						
Type TBGS — Structural grounding studs							
EZGround	**Burndy**	–	–	–	–	–	–
TBGS14	GSTUD14HY						
TBGS34	GSTUD34HY						
TBGS38	GSTUD38HY						
TBGS58	GSTUD916HY						

Type JAB — Ground rod clamps							
Blackburn	**Penn Union**	**Burndy**	**Ilsco**	**Eritech**	**Anderson**	**Joslyn**	**Dossert**
JAB12	CAB-1	GRC12	CGRC48	HDC12	–	J8391AB	GNA50
JAB58	CAB-2	GRC58	CGRC58	–	–	J8392AB	GNA62
JAB34	CAB-3	–	–	HDC34	–	J8393AB	GNA75
JAB34C	–	GRC3426	CGRC68	–	–	–	–
JAB1	–	–	–	–	–	–	–
JAB12H	CAB-1	–	–	HDC12	GC-103-01	J8491AB	GN-50
JAB58H	CAB-2	–	–	HDC58R	GC-103-02	A8393AB	GN-62
JAB34H	CAB-3	–	–	HDC34	GC-103-03	J8493AB	GN-75
JAB1H	–	–	–	–	–	–	–

Type G — Budget line ground rod clamps							
Blackburn	**Penn Union**	**Burndy**	**Ilsco**	**Eritech**	**Anderson**	**Joslyn**	**Dossert**
G3	CAB-1	GRC12	–	CP38	–	–	–
G4	CEB-1	GRC-12	GRC-48	CP12	GC-4	–	GNL50
G5	CEB-2	GRC-58	GRC-58	CP58	GC-5	–	GNL62
G6	CEB-3	GRC34	GRC-68	CP34	GC-6	–	GNL75

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All other trademarks are the property of their respective owners.

Competitive cross reference

Type GUV — U-bolt clamps							
Blackburn	**Penn Union**	**Burndy**	**Ilsco/Utilco**	**Homac®**	**Anderson**	**Dossert**	**Gedney**
GUV4021	–	GAR2226	–	–	–	–	–
GUV4025	–	GAR2229	–	–	–	–	–
GUV584	–	GAR644C	–	–	–	–	–
GUV5821	–	GAR6426	–	–	–	–	–
GUV5825	–	GAR6429	–	–	–	–	–
GUV784	GPL-8	GAR144C	–	–	–	–	–
GUV7821	GPL-9	GAR1426	–	–	–	–	–
GUV7825	GPL-10	GAR1429	–	–	–	–	–
GUV1184	GPL-14	GAR154C	–	–	–	–	–
GUV11821	GPL-15	GAR1526	–	–	–	–	–
GUV1384	GPL-20	GAR164C	–	–	–	–	–
GUV13821	–	GAR1626	–	–	–	–	–
GUV13825	GPL-22	GAR1629	–	–	–	–	–
GUV1584	GPL-26	GAR174C	–	–	–	–	–
GUV15821	GPL-27	GAR1726	–	–	–	–	–
GUV15825	GPL-28	GAR1729	–	–	–	–	–
GUV204	GPL-32	GAR184C	–	–	–	–	–
GUV2021	GPL-33	GAR1826	–	–	–	–	–
GUV2025	GPL-34	GAR1829	–	–	–	–	–
GUV21221	GPL-39	GAR1926	–	–	–	–	–
GUV21225	GPL-40	GAR1929	–	–	–	–	–
GUV3021	GPL-45	GAR2026	–	–	–	–	–
GUV3025	GPL-46	GAR2029	–	–	–	–	–
GUV31221	GPL-51	GAR2126	–	–	–	–	–

Type GTC — Tower ground clamps							
Blackburn	**Penn Union**	**Burndy**	**Ilsco/Utilco**	**Homac**	**Anderson**	**Dossert**	**Gedney**
GTC13	GMS-2	GBM26	–	–	GC140-01	GFM-13	–
GTC14	GMS-3	GBM29	–	–	GC-140-02	GFM-25	–
GTC23	GM-2	GB26	–	–	GC141-01	GF13	–
GTC24	GM-3	GB29	–	–	–	GF25	–

Type TTC — Transformer tank ground connectors							
Blackburn	**Penn Union**	**Burndy**	**Ilsco/Utilco**	**Homac**	**Anderson**	**Dossert**	**Eritech**
TTC2	HGSE-020	EQC632C	–	–	GTCL-34A	–	TGC210
TTC3	HGSE-C1	–	–	–	GTCL-23A	TGC8-50	–
TTC4	–	–	–	–	–	–	–
TTC2P	–	–	–	–	–	–	–
TTC3P	GSE-C1TN	–	–	–	GTC23A-TP	TGC8-50SN	–
TTC4P	–	–	–	–	–	–	–

Type GP — Copper pole bottom ground plates							
Blackburn	**Penn Union**	**Burndy**	**Isco/Utilco**	**Homac**	**Anderson**	**Dossert**	**Eritech**
GP100	–	–	–	5575	–	–	EGP100

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Replacement ABB catalogue number

Old ABB cat. no.	New cat. no.
BP4UCR	TBM6UCR-LI
BPI42300CR	TBM62CR-LI
BPLT14BSR	TBM14CR-LI
BPLT15BSCR	TBM15CR-LI
BPLT58BSCT	TBM58PCTS-LI
BPLT62BSCR	TBM62PCR-LI
BPLT6500BSCR	TBM6PCR-LI
BPLT6BSCR	TBM6PCR-LI
HMC-5630	HMC5630-LI
HMC5750	HMC5750-LI

Replacement ABB catalogue number

Old ABB cat. no.	New cat. no.
TBM14BSCR	TBM14CR-LI
TBM15BSCR	TBM15CR-LI
TBM4BB	TBM45BB and TBM45S
TBM54BSCT	TBM54CT-LI
TBM54BSCTS	TBM54CTS-LI
TBM58BSCT	TBM58PCTS-LI
TBM61520BSCR	BPLT62BSCR
TBM62BSCR	TBM62PCR-LI
TBMODBSCR	TBM6UNICR-LI