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Blackburn® Grounding



Thomas & Betts

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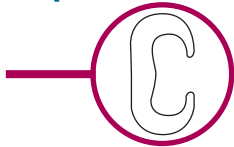
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Figure 6



See Page C-55

C-Taps



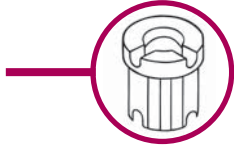
See Page C-60

I-Beam



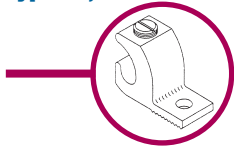
See Page C-63

Type DGC



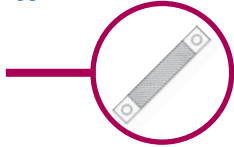
Drive-on
Ground Clamps
See Pages C-69

Type LL, CULL



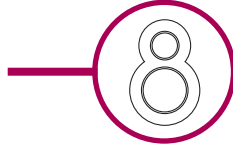
Lay-In
Lug Connectors
See Page C-74

Type FB



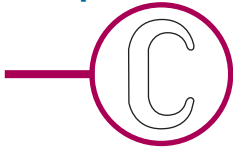
Flexible Braid
Connectors
See Page C-85

Figure 8



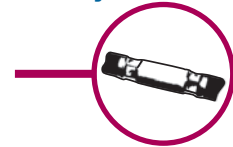
See Page C-55

C-Crimp



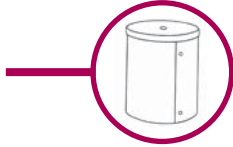
See Page C-60

Two-Way Connector



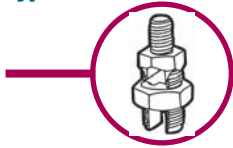
See Page C-63

Ground Electrode Boxes



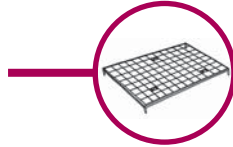
See Page C-70

Type SP



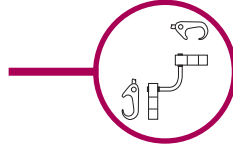
Service Post
Connectors
See Page C-75

Control Mat



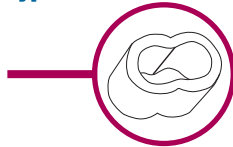
Metallic Gradient
Control Mat
See Page C-88

Figure 6-6



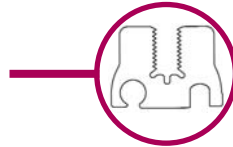
See Page C-56

Type GR



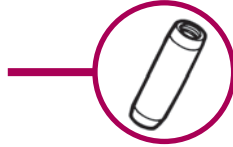
Pigtail
Connectors
See Page C-61

Bus Bar Connector



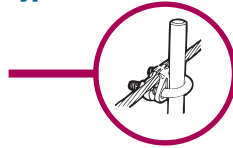
Ground Bus
Bar Connector
See Page C-65

Couplings



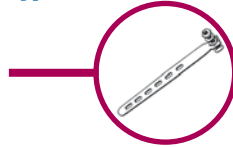
Sectional Ground Rod
Couplings
See Page C-71

Type GUV



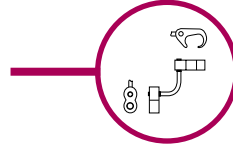
U-Bolt
Ground Clamps
See Page C-76

Type FJ



Flexible Ground
Clamp
See Page C-88

Figure 6-8



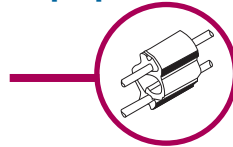
See Page C-56

Grounding Plate



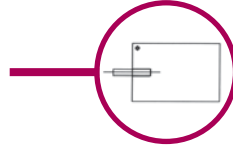
See Page C-61

Snap Tap Connector



See Page C-66

Ground Plate



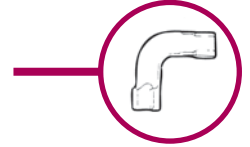
See Page C-72

Ground Clamp



Cast Bronze
Ground Clamp
See Pages C-77-C-83

Type GRD, GG



Ground Grid
Connectors
See Pages C-57-C-59

Grounding Studs



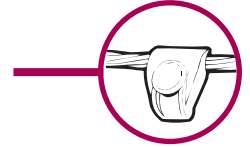
See Page C-62

Type GG, GGH, JAB, G



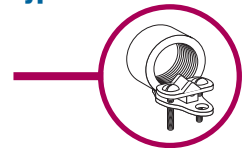
Ground Rod
Clamps
See Pages C-68-C-69

Type GTC



Tower Ground
Clamps
See Page C-73

Type CH



Conduit Hubs
See Page C-82

Compression Method Grounding Connectors save 50–75% in time and labor costs.

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

Thomas & Betts 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 Thomas & Betts compression system uses standard electrical connector installation tools.



Blackburn® Grounding

Meets all applicable specifications

Thomas & Betts grid and ground rod connectors satisfy the requirements of NEC 250-50 for connecting to the Grounding Electrode System. They also meet the requirements of UL Std. 467, UL Std. 486 CSA Std. C22.2 No. 41 and CSA Std. C22.2 No. 65 being acceptable as grounding and bonding equipment suitable for direct burial. Thomas & Betts grid and ground rod connectors also satisfy the recommended practice for the selection of grounding connector joints described in IEEE 837 standard for qualifying permanent connections used in substation grounding.

The connectors conform to the following IEEE Standard 837 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



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 Thomas & Betts method compression, the cross section shows 100% metal with virtually no air spaces.

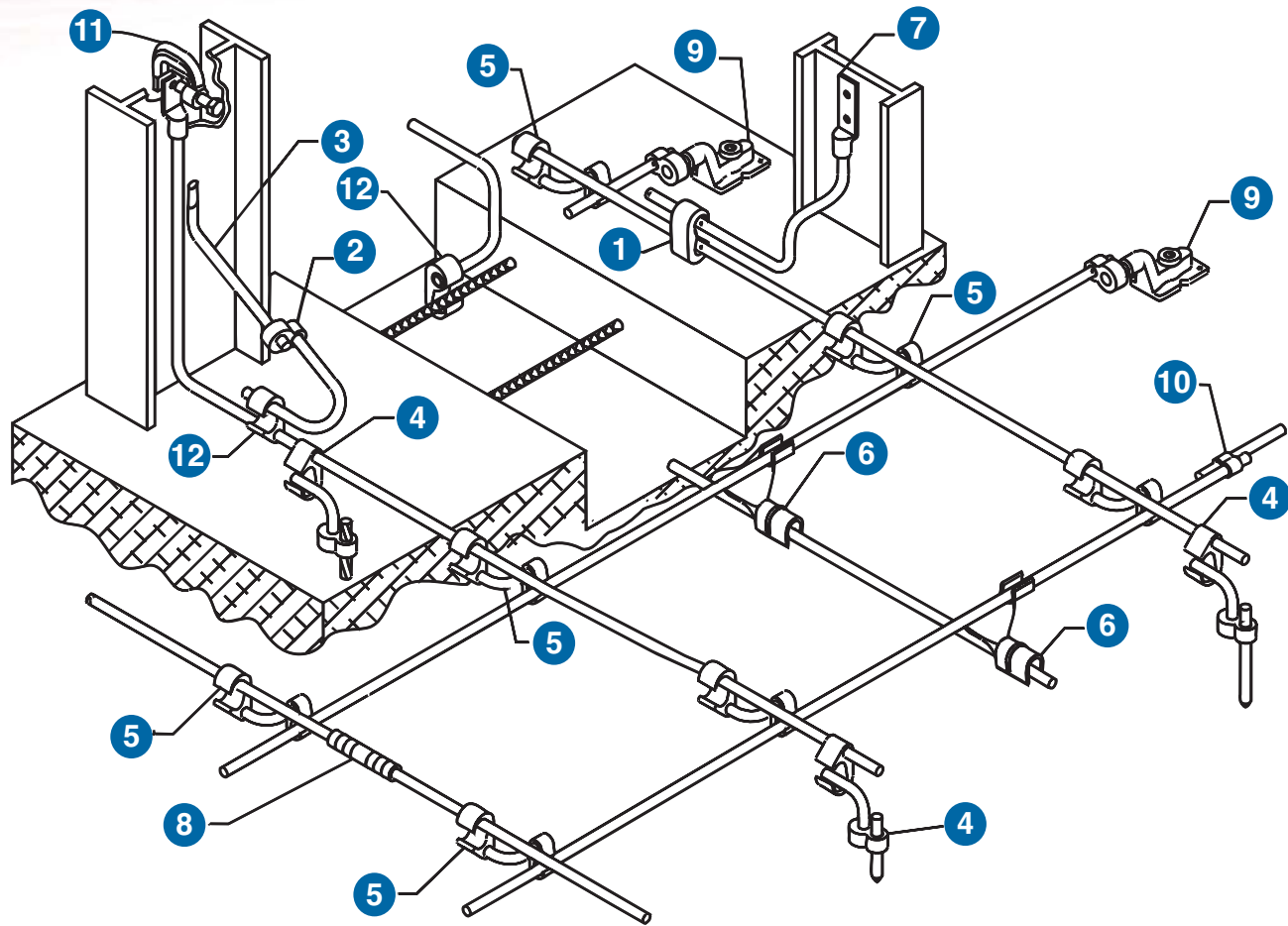
Reliable installations through compression connections

The Thomas & Betts method, utilizing compression tools with matching dies, forms the connector and conductor into a solid, homogeneous mass to provide an optimum electrical bond between connector and conductor. The dies are designed to produce a circumferential, hex-shaped compression rather than a simple indent. The circumferential compression creates a large area of high-pressure contact between cable and connector which, in turn, ensures high conductivity, low resistance and high pullout values exceeding all industry requirements.

Blackburn®

E-Z-Ground® Grounding Connectors

Blackburn® Grounding



Thomas & Betts offers its complete line of grid-ground compression connectors. Our E-Z-Ground® 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.

Thomas & Betts E-Z-Ground® products meet all applicable standards (IEEE837, UL467, CSA 22.2). Connectors are pre-filled with oxide inhibitors and sealed.

- | | | |
|-----------------------------------|----------------------------|-----------------------|
| 1 C-Taps | 5 Figure 6-6 Connectors | 9 Grounding Plate |
| 2 Figure 8 Connector | 6 GG Connectors | 10 Pigtail Connectors |
| 3 Steel Grounding Stud TBG Series | 7 Lug | 11 I Beam Clamp |
| 4 Figure 6-8 Connectors | 8 Splice/Two-Way/Connector | 12 Figure 6 Connector |

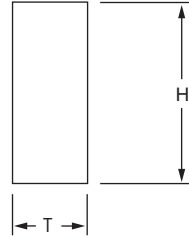
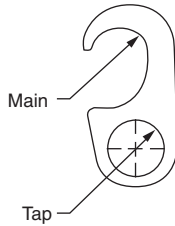
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Figure 6 Compression Ground Tap Connector



MEETS

IEEE

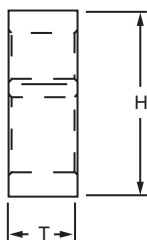
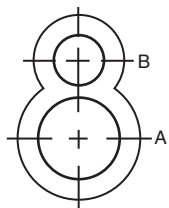
 837 REQUIREMENTS

Blackburn® Grounding

CAT. NO.	APPLICATION		CABLE TO REBAR APPLICATION		DIMENSIONS (IN.)		DIES FOR TBM 14M, 13100A OR TBM15I
	MAIN	TAP	A GROUND ROD	B CABLE RANGE	T	H	
54855	1/0 Str.–250 kcmil or ½"–¾" ROD	#4 Sol.–#2 Str.	#3 Rebar ¾ thru ½ #4 Rebar	#4 Sol.–#2 Str.	¾"	1 ½"	15G86R
54860	1/0 Str.–250 kcmil or ½"–¾" ROD	1/0 Str.–2/0 Str.	#3 Rebar ¾ thru ½ #4 Rebar	1/0 Str.–2/0 Str.	¾"	2 ½"	15G86R
54865-CK	1/0 Str.–250 kcmil or ½"–¾" ROD	3/0 Str.–250 kcmil	#3 Rebar ¾ thru ½ #4 Rebar	3/0 Str.–250 kcmil	¾"	2 ½"	15G86R
54875	#6 Sol.–#2 Str.	#6 Sol.–#2 Str.	—	—	¾"	2 ½"	15501A
54885	250 kcmil–500 kcmil or ¾"–¾" ROD	#4 Sol.–#2 Str.	#5 Rebar ¾ thru ¾ #6 Rebar	#4 Sol.–#2 Str.	¾"	1 ½"	15G126R
54890	250 kcmil–500 kcmil or ¾"–¾" ROD	1/0 Str.–2/0 Str.	#5 Rebar ¾ thru ¾ #6 Rebar	1/0 Str.–2/0 Str.	¾"	2 ½"	15G126R
54895	250 kcmil–500 kcmil or ¾"–¾" ROD	3/0 Str.–250 kcmil	#5 Rebar 5/8 thru ¾ #6 Rebar	3/0 Str.–250 kcmil	¾"	2 ½"	15G126R
54900	250 kcmil–500 kcmil or ¾"–¾" ROD	350 kcmil–500 kcmil	#5 REBAR ¾ thru ¾ #6 Rebar	350 kcmil–500 kcmil	1 ½"	2 ½"	15G121R

* Tin-plated version available of galvanized ground rods. Add suffix -TP

Figure 8 Compression Ground Rod Tap Connector



MEETS

IEEE

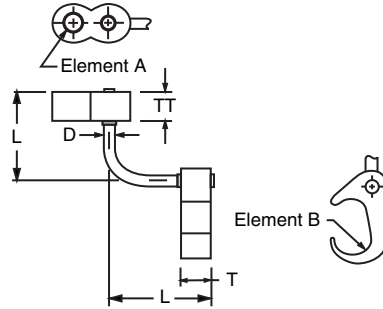
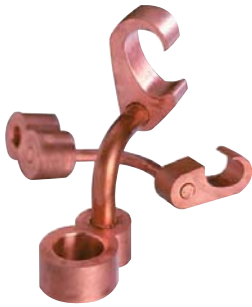
 837 REQUIREMENTS

CAT. NO.	A GROUND ROD	B CABLE RANGE	DIMENSIONS (IN.)		DIES FOR TBM14M 13100A OR TBM15I
			T	H	
GR12-202	½"	2 AWG–2/0 AWG	¾"	1 ½"	15G121R
GR58-202	⅝"	2 AWG–2/0 AWG	¾"	1 ½"	15G121R
GR34-202	¾"	2 AWG–2/0 AWG	¾"	2 ½"	15G121R
GR1-202	1"	2 AWG–2/0 AWG	¾"	2 ½"	15G121R
GR12-40250	½"	3/0 AWG–250 kcmil	¾"	1 ½"	15G121R
GR58-40250	⅝"	3/0 AWG–250 kcmil	¾"	2 ½"	15G121R
GR34-40250	¾"	3/0 AWG–250 kcmil	¾"	2 ½"	15G121R
GR1-40250	1"	3/0 AWG–250 kcmil	¾"	2 ½"	15G121R
GR58-300500	⅝"	300–500 kcmil	¾"	2 ½"	15G121R
GR34-300500	¾"	300–500 kcmil	¾"	2 ½"	15G121R
GR1-300500	1"	300–500 kcmil	¾"	2 ½"	15G121R

Tooling: p. B74–B90

Die Selector Chart: p. B92–B93

Figure 6 to 8 Compression Ground Rod to Grid Connectors

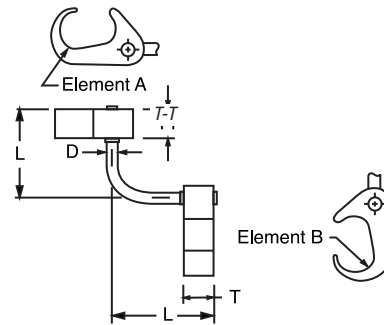
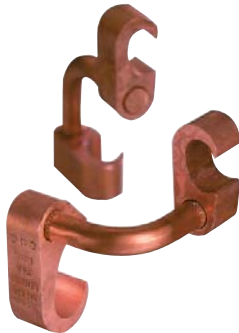


Blackburn® Grounding

CAT. NO.	A GROUND ROD	B CABLE RANGE	DIMENSIONS (IN.)		DIES FOR TBM14M, 13100A OR TBM15I	
			D	L	ELEMENT A	ELEMENT B
54855LR12*	1/2"	2 AWG-250 kcmil	5/16"	2 1/2"	15G86R	15G121R
54885LR12*	1/2"	250 kcmil-500 kcmil	5/16"	2 1/2"	15G126R	15G121R
54865LR58*	5/8"	2 AWG-250 kcmil	5/16"	2 1/2"	15G86R	15G121R
54895LR58*	5/8"	250 kcmil-500 kcmil	5/16"	2 1/2"	15G126R	15G121R
54875LR34*	3/4"	2 AWG-250 kcmil	1/2"	2 5/8"	15G86R	15G121R
54900LR34*	3/4"	250 kcmil-500 kcmil	1/2"	2 5/8"	15G121R	15G121R
54910LR100	1"	2 AWG-250 kcmil	1/2"	2 5/8"	15G86R	15G121R
54920LR100	1"	250 kcmil-500 kcmil	1/2"	2 5/8"	15G126R	15G121R

*Tin-plated version available of galvanized ground rods. Add suffix -TP.

Figure 6 to 6 Compression Ground Grid Connectors



CAT. NO.	ELEMENT A	ELEMENT B	ELEMENT B TO GROUND ROD	ELEMENT B TO REBAR	DIMENSIONS (IN.)			DIE SELECTION FOR TBM14M, 13100A OR TBM15I	
	CABLE TO CABLE				D	T	T-T	A	B
54855L	#6 Sol.-#2 Str.	#6 Sol.-#2 Str.	—	—	7/8"	3/4"	3/4"	15501A	15501A
54865L	#1 Str.-250 kcmil	#6 Sol.-#2 Str.	1/2"-5/8"	3/4"-1/2" #3-#4 Rebar	7/8"	3/4"	3/4"	15G86R	15501A
54875L	#2 Str.-250 kcmil	#2 Str.-250 kcmil	1/2"-5/8"	3/4"-1/2" #3-#4 Rebar	7/8"	3/4"	3/4"	15G86R	15G86R
54885L	250 kcmil-500 kcmil	#6 Sol.-#2 Str.	5/8"-1/2"	5/8"-3/4" #5-#6 Rebar	7/8"	3/4"	3/4"	15G126R	15501A
54895L	250 kcmil-500 kcmil	#2 Str.-250 kcmil	5/8"-1/2"	5/8"-3/4" #5-#6 Rebar	7/8"	3/4"	3/4"	15G126R	15G86R
54900L	250 kcmil-500 kcmil	250 kcmil-500 kcmil	5/8"-1/2"	5/8"-3/4" #5-#6 Rebar	7/8"	1 1/8"	1 1/8"	15G121R15	G121R

Tooling: p. B74-B90

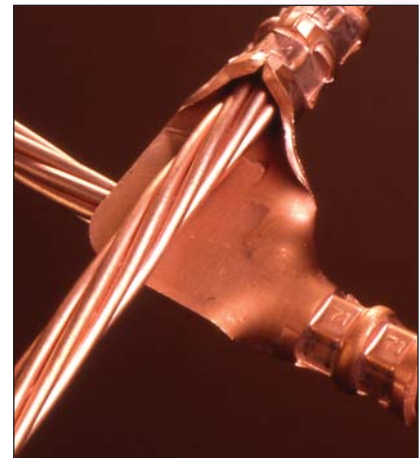
Die Selector Chart: p. B91-B93



One-piece construction for cable-to-cable, cable-to-rod, “T” and “X” connections.

Cable-to-Cable or Cable-to-Rod Connectors

- Suitable for direct burial or in concrete
- Replaces exothermic welds
- Made from high-conductivity wrought copper
- Conforms to IEEE 837 standard
- UL467



Blackburn® Grounding

CAT. NO.	CABLE TO CABLE RANGE				GROUND ROD	ROD TO CABLE		
	MAIN	DIE CODE	BRANCH	DIE CODE		DIE CODE	CABLE	DIE CODE
GG21-21	#2 or #1	45	#2 or #1	45	—	—	—	—
GG10-10	1/0	54	1/0	54	—	—	—	—
GG2030-21	2/0 or 3/0	60	#2	45	—	—	—	—
GG2030-10	2/0 or 3/0	60	1/0	54	—	—	—	—
GG2030-2030	2/0 or 3/0	60	#1	50	—	—	—	—
GG40250-21	4/0 or 250	71	#2	45	½"	71	#2 or #1	45
			#1	50	⅝"	80H	#2 or #1	50
GG40250-10	4/0 or 250	71	1/0	54	½"	71	1/0	65
					⅝"	80H		
					¾"	80H		
GG40250-2030	4/0 or 250	71	2/0 or 3/0	60	½"	71	2/0 or 3/0	60
					⅝"	80H	2/0 or 3/0	60
					¾"	80H	4/0 or 250	71
GG40250-40250	4/0 or 250	71	4/0 or 250	71	½"	71	4/0 or 250	71
					⅝"	80H	4/0 or 250	71
GG350-350	350 kcmil	80H	350	80H	—	—	—	—
GG500-40250	500 kcmil	87	4/0 or 250	71	⅝"	80H	500	87
					¾"	87H	500	87
GG500-500	500 kcmil	87	500	87	¾"	87	500	87
GG500-350	500 kcmil	87H	350	80	⅝"	87H	350	80H
					¾"			
GG500-2030	500 kcmil	87H	2/0 or 3/0	60	⅝"	87H	2/0 or 3/0	60
					¾"			

g: p. B74–B90

Die Selector Chart: p. B91–B93

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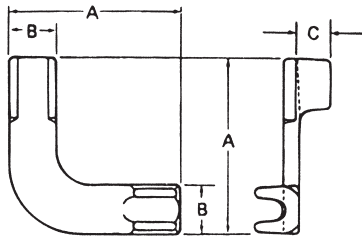
E-Z-Ground® Grounding Connectors

Blackburn® Grounding

For copper cable-to-cable ground-grid connections.

Type GRD — Cable-to-Cable Connector

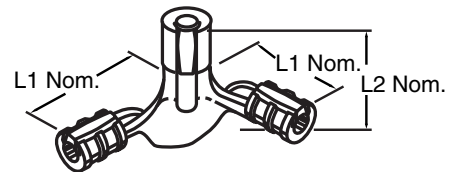
- Cast of high-conductivity bronze alloy
- Suitable for direct burial



CAT. NO.	CONDUCTOR SIZE								GROUND ROD	INSTALLATION INFORMATION			DIMENSIONS (IN.)		
	MAIN				TAP					HYD. TOOL	DIE	NO. CRIMPS	A	B	C
	MAX.	MIN.	MAX. (MM ²)	MIN. (MM ²)	MAX.	MIN.	MAX. (MM ²)	MIN. (MM ²)							
GRD2	1	2	42.4	33.6	1	2	42.4	33.6	—	TBM14M	B09CH	1	2½	¼	¼
GRD20	2/0	1/0	67.4	53	2/0	1/0	67.4	53	—	TBM14M	B10CH	1	3	¼	¼
GRD420	250 kcmil	4/0	126.6	107	2/0	1/0	67.4	53	¾	TBM14M	B12CH	2	3¾	¼	¼
GRD40	250 kcmil	4/0	126.6	107	250 kcmil	4/0	126.6	107	¾	TBM14M	B12CH	2	3¾	¼	¼

For connecting perpendicular runs of stranded copper cable to ground rod

Two Cables-to-Ground Rod Connector — Heavy-Duty Cast Copper^{††}



CAT. NO.	CABLE SIZE		GROUND ROD DIA.	TBM15I DIE FOR CABLE CODE	OVERALL DIM. (IN.)		TBM15I DIE FOR GROUND ROD CODE
	MAIN	TAP			L1	L2	
53065-58GR	250 or 4/0	250 or 4/0	¾" & ½"	87H	4¼	3¼	87H
53065-34GR	250 or 4/0	250 or 4/0	¾	87H	4¼	3¼	106H

Installs with Hydraulic Tools with hex crimp dies.

^{††}Does not meet IEEE837

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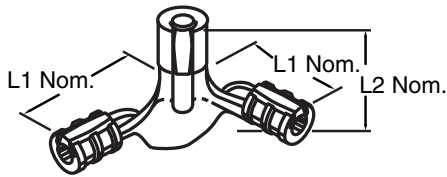
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E-Z-Ground® Grounding Connectors

Copperweld* Conductors & Rebar — for Use with Cast Copper Connectors

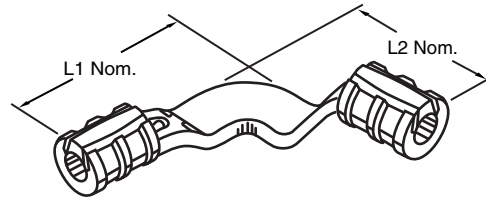


CABLE SIZE	REINFORCING ROD SIZE	COPPER WELD CONDUCTOR SIZE
2, 1 AWG	—	3 #8 or 3 #6
1/0, 2/0 AWG	#3	3/8 (7 #8) or 1/2 (7 #7)
4/0, 250 kcmil	#4	7/16 (19 #9) or (7 #5)
300–350	#5	1/2 (19 #8) or 3/4 (7 #4)
500 kcmil	#6	13/16 (19 #6)

* Reg. Trademark Copperweld Corporation
 UL Listed for use with cast copper connectors.
 Tooling: pp. B74-B90
 Die Selector Chart: pp. B91-B93

Blackburn® Grounding

Grounding Grid Connectors Heavy-Duty Cast Copper ††



CAT. NO.	ROD TO CABLE RANGE		CABLE TO CABLE RANGE		ROD TO CABLE INSTALLING DIE CODE FOR TBM14M, 13100A OR TBM15I		OVERALL DIMENSION (IN.)	
	ROD SIZE (IN.)	CABLE RANGE	MAIN	BRANCH	ROD BARREL	CABLE BARREL	L1	L2
53055	—	—	1/0–2/0 AWG	1/0–2/0 AWG	—	66	3/8	3/8
53059†	1/2–5/8	2–1 AWG	4/0–250 kcmil	2–1 AWG	87H	54H	4 1/2	4 1/8
53060†	1/2–5/8	1/0–2/0 AWG	4/0–250 kcmil	1/0–2/0 AWG	87H	87H	4 1/8	4 1/8
53065†	1/2–5/8	4/0–250 kcmil	4/0–250 kcmil	4/0–250 kcmil	87H	87H	4 1/8	4 1/8
53069†	3/4	1/0–2/0 AWG	300–350 kcmil	1/0–2/0 AWG	106H	66	4 1/2	4 1/2
53071†	3/4	4/0–250 kcmil	300–350 kcmil	4/0–250 kcmil	106H	106H	5 1/4	4 3/2
53073†	3/4	1/0–2/0 AWG	500 kcmil	1/0–2/0 AWG	125H*	66	4 3/8	4 3/8
53075†	1	4/0–250 kcmil	500 kcmil	4/0–250 kcmil	125H*	87H	6 1/8	5
53080†	1	500 kcmil	500 kcmil	500 kcmil	125H*	125H*	5 1/8	5 1/8

Cat. No. 15500 adapter as required for all 15500 Series dies, not for 15600 Series.

† Ground rods 4/0–250 wire barrels suitable for 1/2" smf 3/8" rod

500 kcmil wire barrels suitable for 1" rods

300–500 kcmil wire barrels suitable for 3/4" rods

Hydraulic tools only

†† Does not meet IEE837

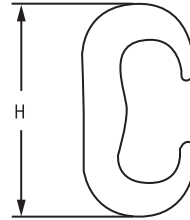
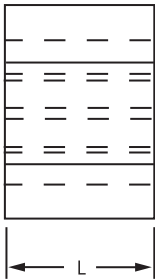
*125H die for 15-ton tool only

Blackburn®

E-Z-Ground® Grounding Connectors

C-Taps

Blackburn® Grounding



MEETS
IEEE
837 REQUIREMENTS

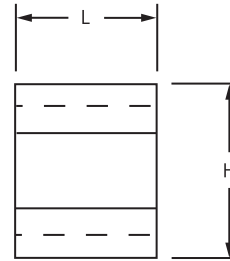
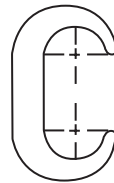
CAT. NO.	MAIN	TAP	DIMENSIONS (IN.)		DIES FOR TBM14M, 13100A OR TBM151 *	CRIMPS
			H	L		
CTP22	#6 Sol.-#2 Str.	#6 Sol.-#2 Str.**	1.16	.75	HBKC	1
CTP202	#1 Str.-2/0 Str.	#6 Sol.-#2 Str.**	1.41	.75	15501A	1
CTP2020	#1 Str.-2/0 Str.	#1 STR.-2/0 Str.	1.54	.75	15501A	1
CTP25020	3/0 Str.-250 kcmil	#6 Sol.-2/0 AWG**	1.97	.75	15G86R	1
CTP250250	3/0 Str.-250 kcmil	3/0 Str.-250 kcmil	2.06	.88	15G86R	1
CTP50020	300-500 kcmil	#6 Sol.-2/0 AWG**	2.42	.88	15G121R	2
CTP500250	300-500 kcmil	3/0 Str.-250 kcmil	2.67	.88	15G121R	2
CTP500500	300-500 kcmil	300-500 kcmil	2.91	1.10	15G121R	3

Material: High-Conductivity Copper.

*Cat. No. 15500 adapter required if using TBM151 and 155XX series dies.

**#6 AWG branch must be doubled.

Copper C-Crimps Wire Combinations^{††}



CAT. NO.	RUN	TAP	DIE INDEX	INSTALLING DIE TBM14M, 13100A, TBM151	DIMENSIONS (IN.)	
					L	H
BC48	6 Sol.-4 Str.	8 Sol.-8 Str.	BG OR ⅝	B58CS	¼	⅝
BC46-BB	6 Sol.-4 Str.	6 Sol.-6 Str.	BG OR ⅝	B58CS	¼	¾
BC44	6 Sol.-4 Str.	4 Sol.-4 Str.	BG OR ⅝	B58CS	¼	5/16
BC24	2 Sol.-2 Str.	8 Sol.-4 Str.	C	HBKC	¾	63/64
BC22	2 Sol.-2 Str.	2 Sol.-2 Str.	C	HBKC	¾	1¾
BC202	1/0 Sol.-2/0 Str.	8 Sol.-2 Str.	E or O	HO	1⅝	1⅝
BC2020-BB	1/0 Sol.-2/0 Str.	1/0 STR.-2/0 Str.	E or O	HO	1⅝	1½
BC402	3/0 Str.-4/0 Str.	6 Sol.-2 Str.	F or D3	HD	1⅝	1⅝
BC4020	3/0 Str.-4/0 Str.	1/0 Sol.-2/0 Str.	F or D3	HD	1⅝	1⅝
BC4040	3/0 Str.-4/0 Str.	3/0 Sol.-4/0 Str.	F or D3	HD	1⅝	1⅝

^{††}Does not meet IEEE837

Tooling: p. B74-B90

Die Selector Chart: p. B91-B93

Thomas & Betts

C-60

www.tnb.com

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

Hex compression intimately bonds cable directly to ground rod.

Pigtail Connectors

- Figure-8 connectors
- Conforms to IEEE 837 standard
- UL467 Listed

When connecting cable to 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 Thomas & Betts series GR12-306. Hex compression with die code embossing shall be used.



MEETS
IEEE
837 REQUIREMENTS

CAT. NO.	CABLE RANGE	GROUND ROD	DIE CODE FOR TBM14M, 13100A OR TBM15I
GR12-306	One Cable: 3/0 to 6 AWG	1/2"	87H
	Two Cables: 2 to 6 AWG		
GR58-406	One Cable: 4/0 to 6 AWG	5/8"	87H
	Two Cables: 2 to 6 AWG		
GR34-4010	One Cable: 4/0 to 1/0 AWG	3/4"	99H

Tooling: p. B74-B90

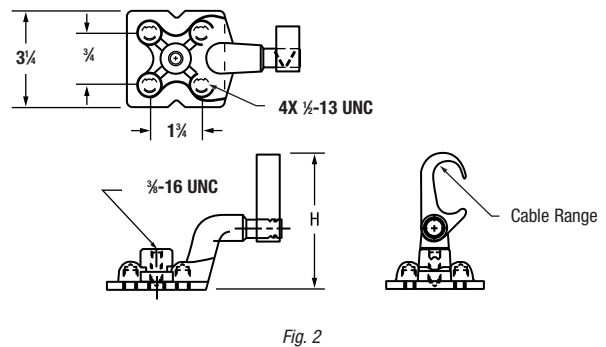
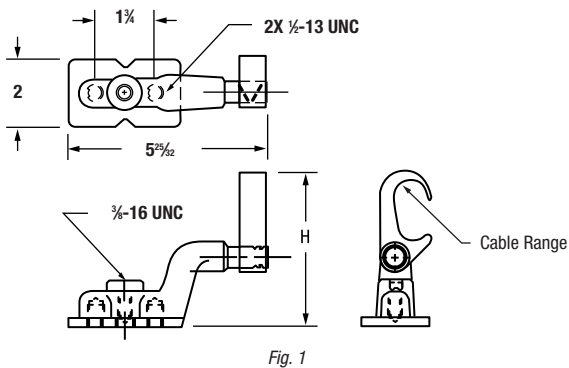
Die Selector Chart: p. B91-B93

Ground Plates



MEETS
IEEE
837 REQUIREMENTS

CAT. NO.	FIG.	CABLE RANGE	H	DIES
GP2250-2	1	2-250 kcmil	3 5/8"	15G86R
GP2250-4	2	2-250 kcmil	4 1/2"	15G86R
GP250500-2	1	250-500 kcmil	3 3/8"	15G126R
GP250500-4	2	250-500 kcmil	4 1/2"	15G126R

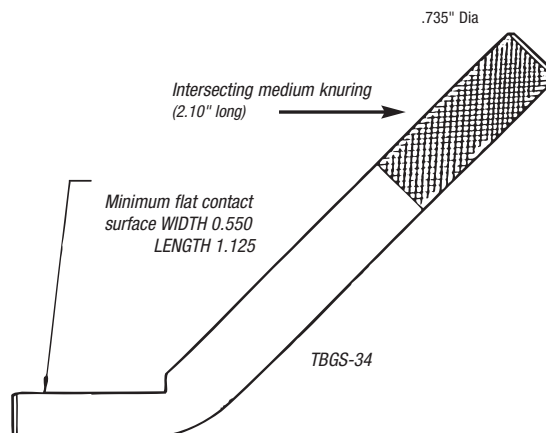
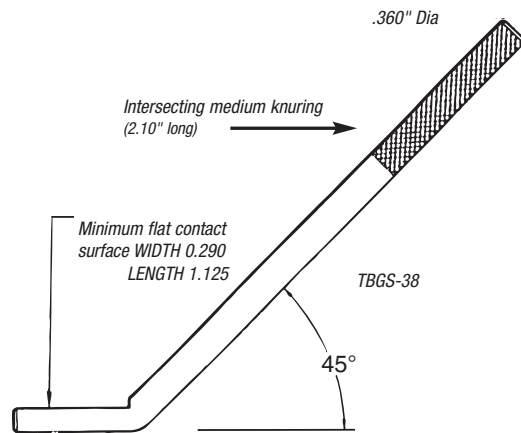
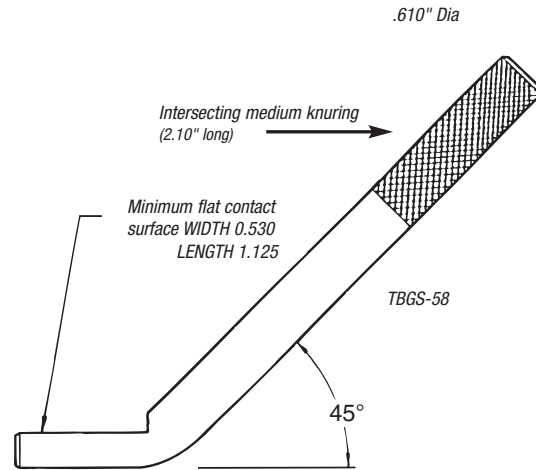
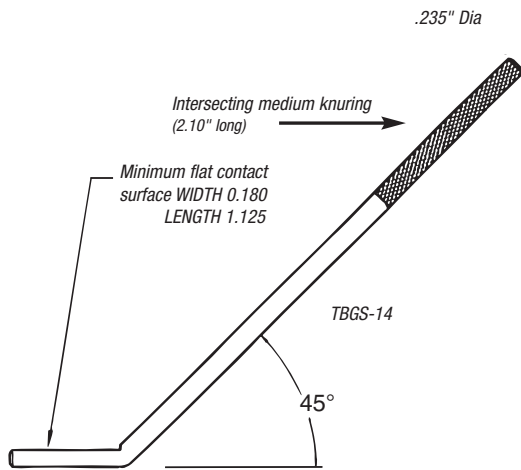


Knurling ensures excellent mechanical pull-out and electrical continuity.

Type TBGS — Structural Grounding Studs

- Easily welded to steel structures with minimal construction welding equipment
- Connect to grounding conductors with appropriate Thomas & Betts 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

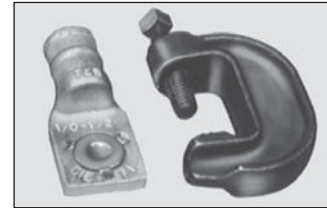
CAT. NO.	ROD SIZE
TBGS-14	¼"
TBGS-38	⅜"
TBGS-58	½"
TBGS-34	¾"



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

I-Beam Ground Clamp

- 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



Blackburn® Grounding



CAT. NO.	WIRE RANGE	TBM15I INSTALLING TOOL, DIE CODE
IBG2-10	2 thru 1/0 AWG	71
IBG20-40	2/0 thru 4/0 AWG	87
IBG350-500	350MCM thru 500 MCM	115

Hydraulic tooling with hex crimp dies.

Satisfies requirements of NEC250-81 and 250-91 for connecting to grounding electrode system.

Cast Copper Two-Way Connector — Heavy-Duty



CAT. NO.	DIE SIZE	DIE CODE
53504	8AWG	29
53505	6AWG	29
53506	4AWG	29
53507	2AWG	45
53508	1AWG	45
53509	1/0AWG	45
53510	2/0AWG	66
53511	3/0AWG	66
53512	4/0AWG	66
53513	250 kcmil	76
53515	350 kcmil	99
53518	500 kcmil	99
53523	750 kcmil	112

Use hydraulic tools with hex dies.

- Made from high-conductivity cast copper
- Electro-tin-plated finish

Blackburn®

E-Z-Ground® Grounding Connectors

Blackburn® Grounding

Provides a permanent, reliable connection.

Ground Clamp

- Crimps to cable
- Clamps to ground rod and rebar
- Uses standard Color-Keyed® hand and hydraulic tools
- Color-coded for easy installation die selection
- Made from high-conductivity wrought copper
- Furnished with stainless steel hardware, ¼" washers, bolts and nuts
- UL467 — approved for direct burial



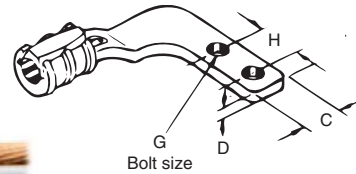
CAT. NO.	WIRE SIZE	GROUND ROD DIAMETER (IN.)	REBAR # (IN.)	BOLT SIZE (IN.)	DIE CODE
CC2C-45R	#2-#3 AWG	½ or ¾	¾	¼	33-BROWN
CC1C-45R	#1 AWG	½ or ¾	¾	¼	37-GREEN
CC10C-56R	1/0 AWG	¾ or 3¼	¾	¾	42-PINK
CC20C-56R	2/0 AWG	¾ or 3¼	¾	¾	45-BLACK
CC40C-56R	4/0 AWG	¾ or ¾	¾	¾	54-PURPLE

UL467 — Approved for direct burial.

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

Flat-Surface Ground Clamp

- Captivated "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



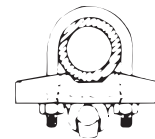
CAT. NO.	WIRE RANGE	BOLT HOLE	DIE CODE NO.*	UNIT QUAN.	STD. PKG.	WT. PER 100	HEX DIE		INCHES				
							CAT. NO.	DIE CODE NO.	L1	L2	D	C	H
53055FL	1/0-2/0 AWG	¾"	66	2	10	75	*15534	66	4½	3¾	¾	1½	1
53065FL	4/0-250 kcmil	¾"	87H	2	10	112	**15506	87H	4½	4¾	¾	1½	1

* TM14M, 13100A, TBM15I with hex crimp dies.

** TBM15I with hex crimp dies only.

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

Grid-to-Fence Ground Clamp



- 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	DIE CODE	STEEL & ALUMINUM LINE POST RANGE (IN.)
FG2040R2	2/0-3/0-4/0	76	2
FG2040R25	2/0-3/0-4/0	76	2½
FG2040R3	2/0-3/0-4/0	76	3
FG210R2	2-1-1/0	66	2
FG210R25	2-1-1/0	66	2½
FG210F3	2-1-1/0	66	3

Install with hydraulic tooling with hex crimp dies.

Thomas & Betts

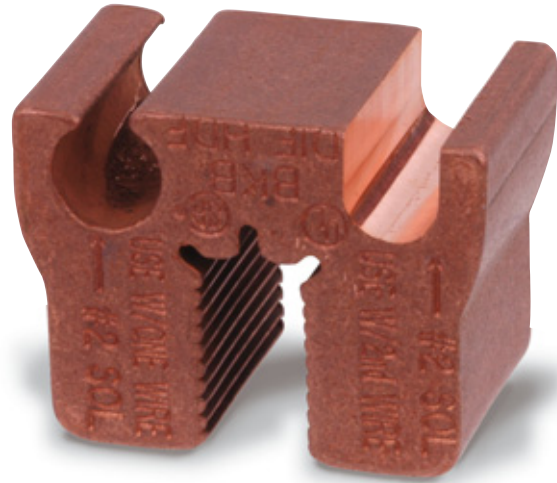
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

Cuts installation time in half — with results superior to conventional connectors.

E-Z-Ground® Bus Bar Connector

- Unique design
- Fast and easy installation
- Superior low-resistance, high-conductivity connections
- Installs with conventional compression tools
- Produces a permanent connection with any combination of copper from #6 to #2 solid or stranded conductor, to ¼" copper bus bar
- Made from pure wrought copper and prefilled with oxide inhibitor
- UL Listed and CSA certified
- Insulated with die HDF

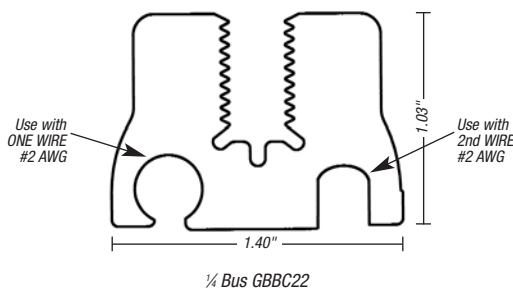


E-Z-Ground® Bus Bar Connectors install in less than 2 minutes with one easy crimp! The connector attaches directly to the bus, saving the labor-intensive process of drilling and tapping. The unique jaw interface of the E-Z-Ground® Bus Bar Connector grips the copper bus, resulting in a low-resistance, high-conductivity connection.

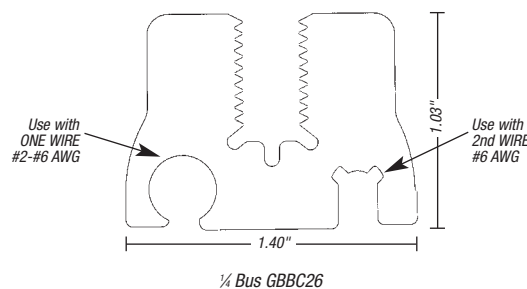
The E-Z-Ground® Bus Bar Connector can be used in OEM applications or telecom applications — cellular, PCS and others. It provides a continuous ground to the copper bus bar, making it ideal for hut and tower applications. The design enables installation in virtually any position, horizontal or vertical, and is suitable for inside and outside plant use. Installation can be completed using any T&B compression tool that accepts U-shaped die sets and is rated 12-ton or higher.

CAT. NO.	BUS BAR THICKNESS (IN.)	CONDUCTOR RANGE	STD. PKG. QTY.
GBBC22	¼	#2 AWG–#2AWG	1
GBBC26	¼	#6 AWG–#2AWG	1

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



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



Blackburn®

E-Z-Ground® Grounding Connectors

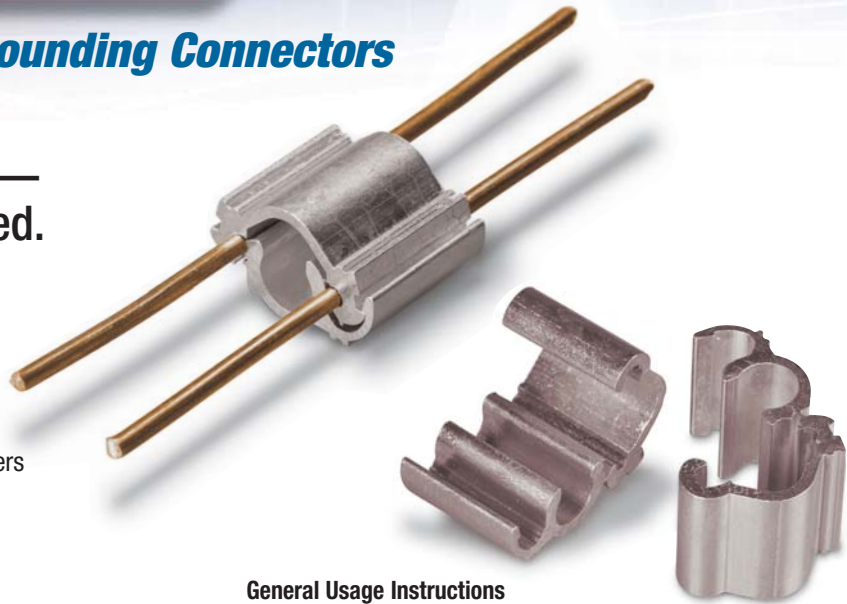
Blackburn® Grounding

A “snap” to assemble — no special tools required.

SnapTap® Connector

- Designed for bonding and grounding applications using copper, steel strand and ground rod
- Easily installed with channel locks or pliers
- Made from high-strength aluminum alloy with tin plating
- Offers excellent electrical and mechanical characteristics
- UL467 tested — exceed performance requirements

With the SnapTap® Connector, you can achieve an electrically superior, pressure-fit connection in seconds without expensive tooling. The connector is also easy to disassemble, requiring only a flat-head screwdriver to release the connected body. A one-piece design keeps parts together, minimizing loss of components prior to assembly. Simply separate the pieces and snap them in place for installation. An audible “snap” indicates that the connection is complete and properly installed.



General Usage Instructions

Separate

No special tools required. Use ordinary parallel jaw pliers to separate the connector into two parts. Hold one side of connector with pliers and bend opposite side back and forth until parts separate (see Fig. 1).

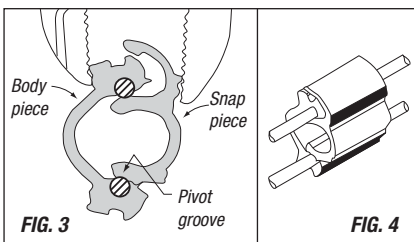
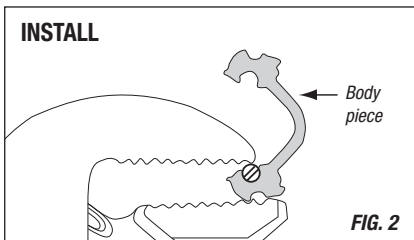
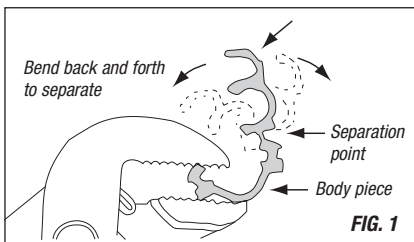
Caution: Be careful not to pinch fingers or thumb when separating parts. Keep fingers out of bend path when bending part against plier jaws.

Installation

1. Strip the insulation from each conductor. Be careful not to nick the conductor. Clean the conductor ends with a wire brush or emery cloth if necessary.
2. Place each conductor into the grooves in BODY piece. Press conductors with pliers to align and seat into grooves (see Fig. 2).
3. Hold the conductors and BODY piece until it stops. Use parallel jaw pliers and grip the SNAP and BODY pieces as shown (see Fig. 3). Apply pressure until connector “snaps” into place. Visually inspect snap to verify full insertion. The connection is now complete (see Fig. 4).

Removal

The connector can be disassembled using a flat-head screwdriver to pry the SNAP piece from BODY piece.



CAT. NO.	CONNECTOR DESCRIPTION		PACKAGING		STANDARD ORDER QUANTITY
	MAIN	BRANCH	INNER PACK	OUTER PACK	
JP62	#2 AWG Sol. Copper	No. 6 AWG Sol. Copper	20	200	200
JP66	#6 AWG Sol. Copper	No. 6 AWG Sol. Copper	20	200	200
JP146	1/4" Steel Strand	No. 6 AWG Sol. Copper	20	200	200
JP5166	5/16" Steel Strand	No. 6 AWG Sol. Copper	20	200	200
JP386	3/8" Steel Strand	No. 6 AWG Sol. Copper	20	200	200
JP126	1/2" Steel Strand	No. 6 AWG Sol. Copper	20	200	200
JP126G	1/2" Ground Rod	No. 6 AWG Sol. Copper	20	200	200
JP2614	1/4" Steel Strand	Two-No. 6 AWG Sol. Copper	20	200	200
JP26516	5/16" Steel Strand	Two-No. 6 AWG Sol. Copper	20	200	200
JP2638	3/8" Steel Strand	Two-No. 6 AWG Sol. Copper	20	200	200
JP2612G*	1/2" Ground Rod	Two-No. 6 AWG Sol. Copper	20	200	200

NOTE: All Toolless Connectors are UL listed. Only items with (*) are CSA listed.

Thomas & Betts

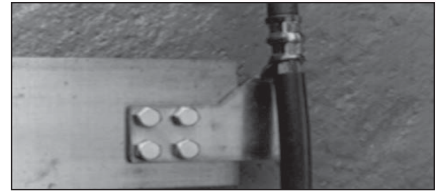
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

A low-cost method of connecting directly to bus bar, eliminating an interface connection.

Riser Cable Flag Connectors for 600V Applications

- Made from high-conductivity wrought copper, plain finish
- All bolt holes are 3/8" on 1" centers



CAT. NO.	FIG. NO.	CABLE SIZE	COLOR KEY	DIE CODE	NO. OF CRIMPS	MATERIAL THK. (IN.)	DIMENSIONS (IN.)		
							A	B	C
GFL2-1	1	#2-#1 150/24 175/24	PINK	42	1	3/32	3 3/8	4	2 5/16
GFL10-20	1	1/0	BLACK	45	1	3/32	3 3/8	4	2 5/16
		2/0 AWG	ORANGE	50					
		225/24	BLACK	45					
		275/24	BLACK	45					
GFL40-250	1	4/0-250 kcmil 325/24 450/24 550/24	RED	71	2	3/32	4 1/4	4 1/4	2 1/16
GFL350	1	350 kcmil 650/24 775/24	N/A	80	2	3/32	4 1/4	4 1/4	2 3/8
GFL500 ¹	1	500 kcmil 925/24	BROWN	94	2	3/32	5 1/4	4 1/4	2 3/8
GFL750 ^{1,2}	2	750 kcmil 1100/24 1325/24 1600/24	BLACK	106	4	3/32	8 3/8	4 1/4	2 3/8

NOTES:

¹TBM15I only.

²Both "U" barrels must be crimped to a single, continuous out length of conductor. It is not to be used as a splice.

Tooling: pp. B76-B92

Die Selector Chart: pp. B93-B95

Installing tools: T&B Cat. No. TBM15I, TBM15BSCR, 13100A, TBM14M, and TBM14BSCR hydraulic tools only.

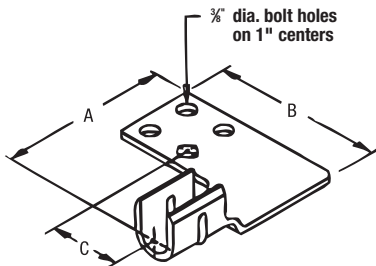


Fig. 1

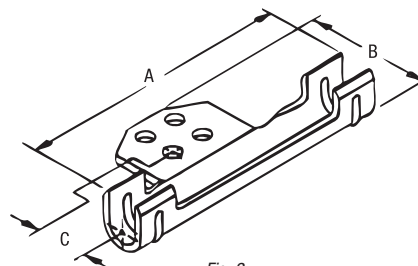


Fig. 2

Blackburn®

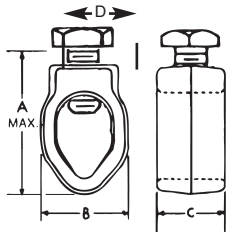
Ground Rod Clamps

Blackburn® Grounding

UL Listed for both copper-clad and galvanized ground rods.

Type JWR — Wide-Range Ground Rod Clamp

- UL 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 lbs. torque capacity



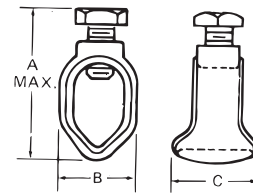
CAT. NO.	NOMINAL ROD DIA.		WIRE RANGE			DIMENSIONS (IN.)				
	(IN.)	(MM.)	MAX.	MIN.	MAX. (MM ²)	MIN. (MM ²)	A (MAX.) BOLT	B	C	D
JWR	3/8*	9.5	1/0 Str.	10 Sol.	53.4	5.2	1.535	1.050	.812	.652
	1/2	12.7	1/0 Str.	10 Sol.	53.4	5.2	1.535	1.050	.812	.652
	3/4	15.8	1/0 Str.	10 Sol.	53.4	5.2	1.535	1.050	.812	.652
	1	19.0	1/0 Str.	8 Sol.	53.4	8.3	1.535	1.050	.812	.652

*3/8" rod not recognized/listed by UL.

Long bearing surface of clamp on ground wire secures ground connection.

Type JAB — Ground Rod Clamps

- Cast of high-strength corrosion-resistant copper alloy
- Both hex head bolts and socket set screws available
- UL Listed for direct burial



TYPE JABH



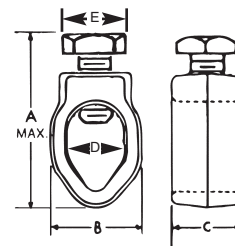
CAT. NO.	SOCKET SET SCREW	HEX HEAD BOLT	NOMINAL ROD DIA.		WIRE RANGE				DIMENSIONS (IN.)				
			(IN.)	(MM)	MAX.	MIN.	MAX. (MM ²)	MIN. (MM ²)	A (MAX.) SOCKET SCREW	A (MAX.) HEX BOLT	SCREW THREAD SIZE UNC-2A	B	C
JAB12*	JAB12H	1/2	12.7	2 Str.	10 Sol.	33.6	5.2	1 19/32	2 3/2	7/16-14	27/32	3/8	19/32
JAB58	JAB58H	3/4	15.8	1/0 Str.	8 Sol.	53.4	8.3	1 7/32	2 3/4	7/16-14	29/32	1	1 1/16
JAB34	JAB34H	3/4	19.0	1/0 Str.	8 Sol.	53.4	8.3	2	2 1/2	7/16-14	1 1/16	1	5 5/16
—	JAB34C	3/4 + 3/8	15.8 to 19.0	4/0 Str.	8 Sol.	95.0	8.3	—	2 1/2	7/16-14	1 1/8	1 1/2	1 3/16
JAB1	JAB1H	1	25.0	4/0 Str.	8 Sol.	107.1	8.3	2 1/4	3	7/16-14	1 1/2	1 1/8	1

* Not CSA listed Add suffix P to Cat. No. for tin-plated clamp.

A dependable ground connection offered at a substantial savings.

Type G — Budget-Line Ground Clamps

- Cast of high-strength corrosion-resistant copper alloy
- Furnished with hex head bolts
- Simplified, compact design makes lasting, trouble-free connection
- UL Listed for direct burial



CAT. NO.	NOMINAL ROD DIA.		WIRE RANGE				DIMENSIONS (IN.)					
	(IN.)	(MM.)	MAX.	MIN.	MAX. (MM ²)	MIN. (MM ²)	A (MAX.) BOLT	SCREW THREAD SIZE UNC-2A	B	C	D	E
G3*	3/8	9.5	4 Str.	10 Sol.	21.1	5.2	1 1/8	3/16-18	1 1/16	1/2	27/64	3/8
G4	1/2	12.7	2 Str.	10 Sol.	33.6	5.2	—	3/16-16	27/32	3/8	37/64	1/2
G5†	3/4	15.8	2 Str.	10 Sol.	33.6	5.2	—	7/16-16	29/32	3/8	43/64	1/2
G6	1	19.0	2 Str.	10 Sol.	33.6	5.2	—	7/16-16	1 1/16	3/8	1 3/16	1/2

*Not UL Listed †RUS Listed Add suffix P to Cat. No. for tin-plated clamp.

Thomas & Betts

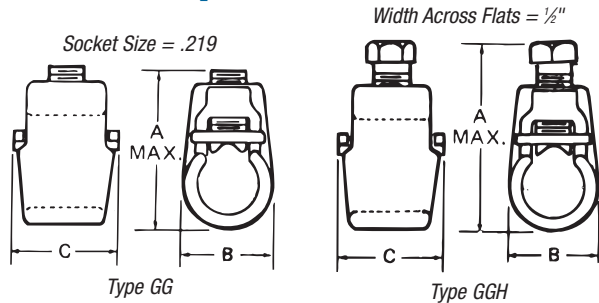
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

Axial groove keeps wire and rod in perfect alignment.

Types GG and GGH — Heavy-Duty Ground Rod Clamps

- Cast of high-strength corrosion-resistant copper alloy
- Both hex head bolts and socket set screws available
- Floating pressure bar distributes pressure evenly over large area of ground wire



Blackburn® Grounding

CAT. NO.*		NOMINAL ROD DIA.		WIRE RANGE				DIMENSIONS (IN.)				
SOCKET SET SCREW	HEX HEAD BOLT	(IN.)	(MM)	MAX.	MIN.	MAX. (MM ²)	MIN. (MM ²)	A (MAX.) SOCKET SCREW	A (MAX.) HEX BOLT	SCREW THREAD SIZE UNC-2A	B	C
GG12	GG12H	1/2	12.7	2 Str.	8 Sol.	33.6	8.3	1 1/4	1 3/8	7/16-14	2 1/2	1 5/16
GG58	GG58H	3/4	15.8	2 Str.	8 Sol.	53.6	8.3	1 3/4	2 1/2	7/16-14	8 3/4	1 5/16
—	GG34H	3/4	19.0	4/0 Str.	8 Sol.	120.6	8.3	—	3	1/2-14	1 1/8	1 1/4

* Add suffix P to Cat. No. for tin-plated clamp.

GG34H has no pressure bar or axial groove.

Drive-on design provides easy, tool-free installation, high-reliability compression-fit connection and room for one or two ground leads.

Type DGC — Drive-On Ground Clamps

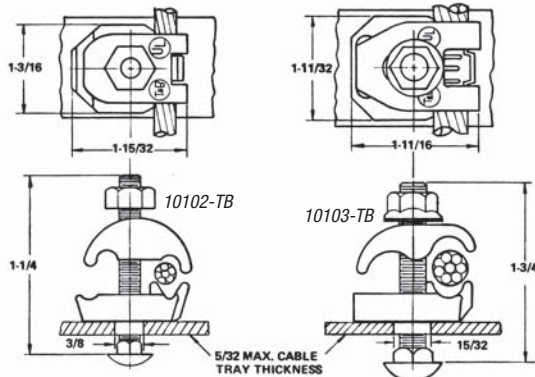
- High-strength copper alloy provides increased tensile strength and long-term corrosion resistance for direct burial applications
- UL486A and UL467 Listed
- RUS Listed



CAT. NO.	GROUND ROD SIZE	GROUND WIRE SIZE
DGC58-44 [†]	3/4 (.555-.565)	1 or 2-#4 Sol.
DGC58-66 [†]	3/4 (.555-.565)	1 or 2-#6 Sol.
DGC58-46	3/4 (.555-.565)	1-#4 Sol., 1-#6 Sol.

[†]RUS Listed

Grounding Connector



- Malleable iron construction
- For use on cable tray up to 5/8" thick



CAT. NO.	GROUND WIRE RANGE (AWG)	CARRIAGE BOLT SIZE
10102-TB	#8 Solid to #2 Stranded	5/8"-18
10103-TB	#4 Stranded to 4/0 Stranded	3/4"-16

Blackburn®

Ground Rod Clamps

Blackburn® Grounding

Compresses #8 AWG through 4/0 AWG cable.

Signal Reference Grid Connector

- Clamps onto pedestal posts up to 1" diameter square and 1¼" round
- Can be used as an "X" or "T" configuration cable to post
- High-conductivity wrought-copper construction

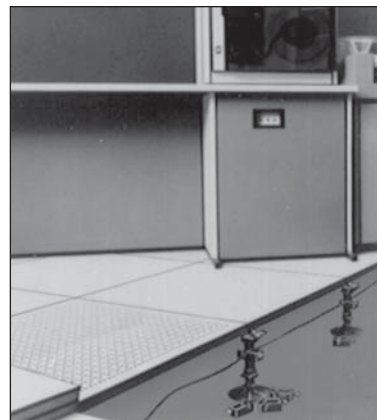


CAT. NO.	CONDUCTOR RANGE	INSTALLING TOOLS AND DIE CODES TBM14M AND TBM15I		
		DIE CAT. NO.	DIE CODE	COLOR CODE
SRG8-4	#8	15527	29	GRAY
	#6 to #4	15528	33	BROWN
SRG2-1	#2 & #1	15508	42	PINK
SRG10-20	1/0 & 2/0	15530	50	ORANGE
SRG30-40	3/0 & 4/0	15511	54	PURPLE

Secures signal reference grid wire to raised-floor support posts.

Signal Reference Grid Clamp

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



CAT. NO.	DESCRIPTION	WIRE RANGE
3900	¾" square to 1" round	#8-#4
3900BP (Bulk Pack)	¾" square to 1" round	#8-#4

UL File No. E-3060

Approved for grounding and bonding per UL 467.

Ground Electrode Boxes



CAT. NO.	DESCRIPTION	WT/ 100		STANDARD PACKAGE
		LB.	KGS.	
51628	Pregalvanized steel	1180	536.3	5
51629	Hot dip galvanized	1200	545.4	5

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

Thomas & Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289



Streamlined design reduces driving friction.

Type C — Sectional Ground Rod Couplings

- Threaded couplings of high strength, corrosion-resistant alloy
- Tapped for use on all standard threaded sectional rods



CAT. NO.	SIZE (NOMINAL DIAMETER)	THREAD SIZE
50C	1/2"	1/2"-13 UNS
50LC**	1/2" L	3/8"-12 UNS
60C**	5/8"	5/8"-11 UNS
70C*	3/4"	3/4"-10 UNS
80C*	1"	1"-8 UNS

*UL Listed 467 (425H).

†CSA lists rods 1/2" and larger, 10' and longer.

‡RUS Listed.

Use with all standard threaded couplings.

Type DS — Driving Studs

- Made of high-strength steel
- Compatible with all standard threaded couplings



CAT. NO.	SIZE (NOMINAL DIAMETER)	THREAD SIZE
50DS	1/2"	1/2"-13 UNS
50LDS**	1/2" L	3/8"-12 UNS
60DS**	5/8"	5/8"-11 UNS
70DS*	3/4"	3/4"-10 UNS
80DS*	1"	1"-8 UNS

*UL Listed 467 (425H).

†CSA lists rods 1/2" and larger, 10' and longer.

‡REA Listed.

For joining non-threaded, copper-bonded steel ground rods.

Threadless Couplings and Driving Cap

- Couplings manufactured of high-strength corrosion-resistant copper alloy
- High-strength hardened steel driving cap prevents "mushrooming" of ground rod while driving to ensure proper fit of coupling



CAT. NO.	DESCRIPTION	DIMENSIONS (IN.)	
		LENGTH	DIAMETER
50LCNT*	1/2" L threadless coupling	3.0	.78
60CNT2*	5/8" threadless coupling	2.5	.69
70CNT*	3/4" threadless coupling	3.0	.97
60DSNT	5/8" threadless driving cap	4.0	.88

*UL Listed.

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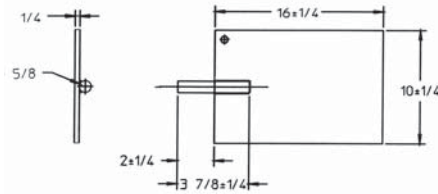
Ground Plates

Blackburn® Grounding

As efficient as two
10-ft. x 5/8" ground rods.

Galvanized Ground Plates

- 1/4" thick, hot-dipped galvanized
- Must be buried at least 600mm (24") below finish grade level, according to CEC Rule 10-702



CAT. NO.	DESCRIPTION	CONDUCTOR RANGE
1016TB	Galvanized ground plates	8 Sol. to 1/0 Str.
1016BTB	Galvanized ground plates with JAB58H connector	8 Sol. to 1/0 Str.

More efficient than butt-wrapping poles.

Type GP — Copper Pole Bottom Ground Plates for Multigrounded Neutral Construction

- 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



CAT. NO.	PIGTAIL WIRE RANGE				DIAMETER OF PLATE	
	MIN.	MAX.	MIN. (MM)	MAX. (MM)	(IN.)	(MM)
GP100	8	2 Sol.	6.3	25.6	7 1/2	191
GP110	8	2 Sol.	6.3	25.6	10	254
GP114	8	2 Sol.	6.3	25.6	14	356
GP1003	#6 AWG solid CU Pigtail with 18" conductor		—	—	7 1/2	191
GP1008	#6 AWG solid CU Pigtail with 8-ft. conductor		—	—	7 1/2	191
GP1108	#6 AWG solid CU Pigtail with 8-ft. conductor		—	—	10	254

Installed cost considerably less than butt-wrapped poles.

Type PB — Copper Pole Ground Plates

- Installed on butt end of utility poles to provide an economical, low-resistance neutral ground
- Plate portion fabricated of .025" pure copper
- PBGW connector is eye-bolt type, cast of corrosion-resistant aluminum bronze alloy, with silicon bronze nut and lockwasher
- PBH connector features riveted all-copper terminal lug for connecting to grounding conductor



CAT. NO.	WIRE RANGE		FINISHED SIZE	SURFACE AREA SQ. IN.
	MAX.	MIN.		
PBGW	2/0 Str.	10 Sol.	7 x 7 1/2	56
PBH*	4 Str.	14 Sol.	7 x 7 1/2	56

*RUS Listed.

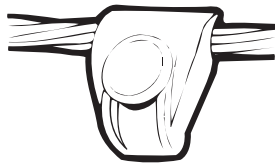
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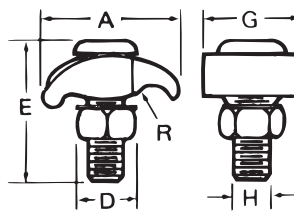
Technical Services
Tel: 888.862.3289

Bolt features square shank to prevent turning and enable clamp to be tightened with a single wrench.

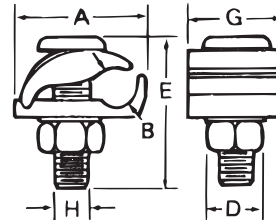
Type GTC — Tower Ground Clamps



- Castings of high-strength, corrosion-resistant copper alloy
- GTC23 and GTC24 are 2-piece clamps for connecting ground lead cable to flat metal surface — ideal for grounding substations on tower footings
- GTC13 and GTC14 are economical 1-piece clamps, which perform the same function as 2-piece clamps, except under-pad support is omitted and conductor connects directly to tower
- Add suffix L to catalog number for 1/2" channel thickness



Type GTC 13 and 14



Type GTC 23 and 24

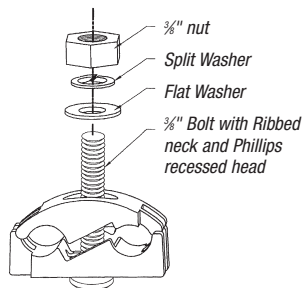


CAT. NO.	CONDUCTOR RANGE				CHANNEL THICKNESS	DIMENSION (IN.)							
	MAX.	MIN.	MAX. (MM)	MIN. (MM)		A	B	D	E	G	H	R	
GTC13	2/0 Str.	4 Sol.	67.4	21.1	1/4	1 1/32	—	9/16	1 2/32	1 3/32	3/8	7/32	
GTC14	250 kcmil	2/0 Str.	126.6	67.4	1/4	1 1/16	—	3/4	1 1/16	1 13/32	1/2	5/16	
GTC23	2/0 Str.	4 Sol.	67.4	21.1	1/4	1 41/64	7/16	9/16	1 21/32	1 3/32	3/8	—	
GTC24	250 kcmil	2/0 Str.	126.6	21.1	1/4	1 5/64	5/8	3/4	1 1/16	1 1/8	1/2	—	

For use with aluminum or copper conductors.

CTG250 Wide-Range Tower Ground Clamp

- May be used in aluminum or galvanized-steel cable tray
- Ribbed neck on the bolt prevents rotation during tightening if .440" dia. hole is used



CAT. NO.	WIDE RANGE (2 SIDES)	HEIGHT	WIDTH	DEPTH	NUT (FLATS)
CTG250	#2 Sol. (.258 Dia.) 250 kcmil (.575 Dia.)	1.95	2.00	1.13	.560

Tin plate body

Galvanized hardware

Dual-rated for both copper and aluminum conductor.
Aluminum Lay-in Lug Connector

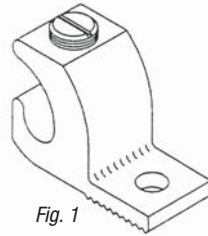
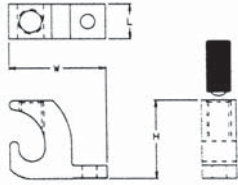


Fig. 1

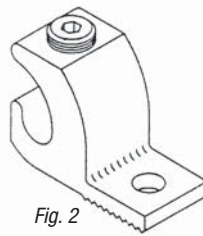


Fig. 2



- Manufactured from 6061-T6 aluminum alloy for maximum strength and conductivity
- Open-faced design enables installer to quickly lay-in grounding conductor as jumper to multiple conduits with no break in ground conductor

CAT. NO.	FIG. NO.	COND. RANGE AWG		STUD SIZE		DIMENSIONS					
		IN.	(MM ²)	IN.	(MM)	H (MM)		W (MM)		L (MM)	
LL414	1	4-14	16-1.5	.22	5.59	.78	19.81	.38	9.65	1.07	27.18
LL1014	1	1/0-14	50-1.5	.27	6.86	1.17	29.72	.60	15.24	1.50	38.10
LL306	2	3/0-6	70-16	.33	8.38	1.56	39.62	.80	20.32	2.00	50.80
LL2506	2	250-6	120-16	.33	8.38	1.79	45.47	.80	20.32	2.20	55.88

90° C Rating (486B Listed)

UL Listed for direct burial.
Copper Lay-In Lug Connector

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



CAT. NO.	COND. RANGE AWG		STUD SIZE		DIMENSIONS					
	IN.	(MM ²)	IN.	(MM)	H (MM)		W (MM)		L (MM)	
CULL414	4-14	16-1.5	.22	5.59	.78	19.81	.38	9.65	1.07	27.18
CULL414-TP*	4-14	16-1.5	.22	5.59	.78	19.81	.38	9.65	1.07	27.18

90° C Rating (486B Listed)

*Tin Plated

Mechanical Grounding Connectors

Designed for grounding one or two cables to steel structure or transformer.

Service Post Connectors

- For copper-to-copper connections
- Can also be used to tap 1 or 2 cables from bus bar
- Bolts machined from high-conductivity bronze alloy
- Nuts cold-formed from high-strength, corrosion-resistant copper alloy
- Pressure bars copper through 4/0 and copper alloy for 350 kcmil and above

- Bolts and nuts of traditional Blackburn hex design for easy installation
- Available in sizes to accommodate AWG copper conductor ranges of #12–500 kcmil stranded and #12–#2 solid
- Both single- and double-conductor and short- and long-stud versions available
- UL486A and UL467 Listed

Type SP-S — Service Post Connectors, Short Stud

- For copper to copper connections
- For grounding of steel structures 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
- UL 486A and UL 467 Listed



Type SP-L — Service Post Connectors, Long Stud

- For copper to copper connections
- For grounding of steel structures 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
- UL 486A and UL 467 Listed
- Pressure bars are copper through 4/0 size; copper alloy is used for 350 kcmil size and above
- Available in sizes accommodating AWG copper conductor ranges of #12–500 kcmil stranded (4mm²–240mm²) and #12–#2 solid (4mm²–35mm²)
- Line includes single conductor and double conductor connectors



CAT. NO. CONDUCTOR		CONDUCTORS STRANDED		AWG MM ² SOLID		MAXIMUM DIAMETER RANGE (IN.)	STUD SIZE
DOUBLE	SINGLE	MAX.	MIN.	MAX.	MIN.		
SP0DS	SP0SS	8	12	8	12	.146–.080	¼–20 x ½
SP1DS	SP1SS	7	10	6	10	.170–.102	¼–20 x ½
SP2DS	SP2SS	5	10	4	10	.217–.102	⅝–18 x ⅝
SP3DS	SP3SS	3	10	2	10	.271–.102	⅝–16 x ⅝
SP4DS	SP4SS	1	8	2	8	.332–.128	⅝–16 x ⅝
SP5DS	SP5SS	1/0	2	2	—	.385–.259	⅝–13 x ⅝
SP6DS	SP6SS	2/0	2	2	—	.443–.258	⅝–13 x ⅝
SP8DS	SP8SS	4/0	1	—	—	.570–.289	⅝–11 x 1
SP9DS	SP9SS	350	1/0	—	—	.715–.373	⅝–11 x 1
SP10DS	SP10SS	500	3/0	—	—	.840–.464	⅝–10 x 1¼



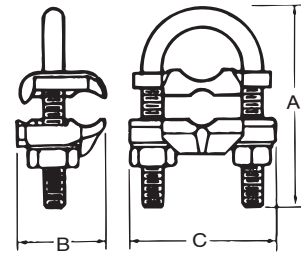
CAT. NO. CONDUCTOR		CONDUCTORS STRANDED		AWG MM ² SOLID		MAXIMUM DIAMETER RANGE (IN.)	STUD SIZE
DOUBLE	SINGLE	MAX.	MIN.	MAX.	MIN.		
SP0DL	SP0SL	8	12	8	12	.146–.080	¼–20 x 1
SP1DL	SP1SL	7	10	6	10	.170–.102	¼–20 x 1
SP2DL	SP2SL	5	10	4	10	.217–.102	⅝–18 x 1
SP3DL	SP3SL	3	10	2	10	.271–.102	⅝–16 x 1½
SP4DL	SP4SL	1	8	2	8	.332–.128	⅝–16 x 1½
SP5DL	SP5SL	1/0	2	2	—	.385–.259	⅝–13 x 1½
SP6DL	SP6SL	2/0	2	2	—	.443–.258	⅝–13 x 1½
SP8DL	SP8SL	4/0	1	—	—	.570–.289	⅝–11 x 1½
SP9DL	SP9SL	350	1/0	—	—	.715–.373	⅝–11 x 1½
SP10DL	SP10SL	500	3/0	—	—	.840–.464	⅝–10 x 1½

Blackburn®

Ground Clamps

Excellent for connecting multiple electrodes with a single cable, such as in substation grounding.

U-Bolt Ground Clamps



Blackburn® Grounding

- For connecting copper or copper-clad steel grounding conductor to ground rod or pipe
- Specially designed spacer provides proper alignment between cable and electrode and affords more positive contact area
- All components cast or forged from copper alloy
- UL467 Listed for direct burial

CAT. NO.*	CONDUCTOR RANGE (CU)		NOMINAL ROD SIZE (IN.)		IPS PIPE SIZE (IN.)		DIMENSIONS (IN.)		
	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	A	B	C
GUV584	4	8	3/4"	5/8"	3/4"	—	2 1/16"	1 1/16"	2 1/4"
GUV5821	2/0	4	3/4"	5/8"	3/4"	—	2 1/16"	1 1/16"	2 1/4"
GUV5825	250	2/0	3/4"	5/8"	3/4"	—	2 1 1/16"	1 1/16"	2 1/4"
GUV784	4	8	1"	7/8"	3/4"	1/2"	2 3/4"	1 1/16"	2 5/8"
GUV7821	2/0	4	1"	7/8"	3/4"	1/2"	2 3/4"	1 1/16"	2 5/8"
GUV7825	250	2/0	1"	7/8"	3/4"	1/2"	2 3/4"	1 1/16"	2 5/8"
GUV1184	4	8	1 1/4"	1 1/8"	1"	—	3 5/16"	1 1/16"	2 3/4"
GUV11821	2/0	4	1 1/4"	1 1/8"	1"	—	3 5/16"	1 1/16"	2 3/4"
GUV1384	4	8	1 1/2"	1 3/8"	1 1/4"	—	3 3/16"	1 9/16"	2 5/8"
GUV13821	2/0	4	1 1/2"	1 3/8"	1 1/4"	—	3 3/16"	1 1/16"	2 5/8"
GUV13825	250	2/0	1 1/2"	1 3/8"	1 1/4"	—	3 3/16"	1 1/16"	2 5/8"
GUV1584	4	8	1 7/8"	1 5/8"	1 1/2"	—	3 5/16"	1 9/16"	3 3/8"
GUV15821	2/0	4	1 7/8"	1 5/8"	1 1/2"	—	3 5/16"	1 1/16"	3 3/8"
GUV15825	250	2/0	1 7/8"	1 5/8"	1 1/2"	—	3 5/16"	1 1/16"	3 3/8"
GUV204	4	8	2 3/8"	2"	2"	—	4 7/16"	1 1/16"	3 1/8"
GUV2021	2/0	4	2 3/8"	2"	2"	—	4 7/16"	1 1/16"	3 1/8"
GUV2025	250	2/0	2 3/8"	2"	2"	—	4 7/16"	1 1/16"	3 1/8"
GUV21221	2/0	4	2 7/8"	2 1/2"	2 1/2"	—	4 5/16"	1 1/16"	4 3/8"
GUV21225	250	2/0	2 7/8"	2 1/2"	2 1/2"	—	4 5/16"	1 9/16"	4 3/8"
GUV3021	2/0	4	3 1/2"	3"	3"	—	5 1/16"	1 1/16"	4 1/8"
GUV3025	250	2/0	3 1/2"	3"	3"	—	5 1/16"	1 1/16"	4 1/8"
GUV31221	2/0	4	4"	3 1/2"	3 1/2"	—	6 1/16"	1 1/16"	5 1/2"
GUV4021	2/0	4	4 1/2"	4"	4"	—	6 5/16"	1 1/16"	5 1/8"
GUV4025	250	2/0	4 1/2"	4"	4"	—	6 5/16"	1 1/16"	5 1/8"

* For tin plating add suffix P to Cat. No. Contact factory for price and availability.

UL does not list tin-plated bronze grounding devices.

Thomas & Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

Blackburn®

Ground Clamps



Waterpipe Ground Clamps



CAT. NO.	GROUND WIRE SIZE	WATER PIPE SIZE
2-TB	#6, #4, #2	½", ¾", 1" or rebar 4-10
3-TB	#6, #4, #2	1½", 1¾" or 2"
4	#6, #4, #2	2½", 3" or 3½"
5-TB	#6, #4, #2	4", 4½" or 5"
6	#6, #4, #2	6"

Malleable iron. #6 – #2 AWG ground wire.

Blackburn® Grounding

Waterpipe Ground Clamps



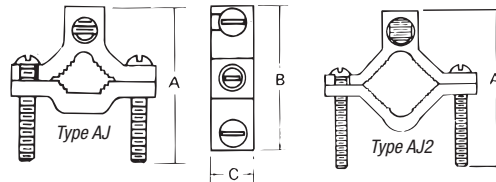
CAT. NO.	GROUND WIRE SIZE	WATER PIPE SIZE	CAT. NO.	GROUND WIRE SIZE	WATER PIPE SIZE
3902	#4-4/0 AWG	½"-1"	3902BU*	#4-4/0 AWG	½" to 1"
3903	#4-4/0 AWG	1¼"-2"	3903BU*	#4-4/0 AWG	1¼" to 2"
3904	#4-4/0 AWG	2½"-3½"	3904BU*	#4-4/0 AWG	2½" to 3½"
3905-TB	#4-4/0 AWG	4"-5"	3905BU*	#4-4/0 AWG	4" to 5"
3906-TB	#4-4/0 AWG	6"	3906BU*	#4-4/0 AWG	6"
3907	#4-4/0 AWG	8"	3907BU*	#4-4/0 AWG	8"
3908	#4-4/0 AWG	10"	3908BU*	#4-4/0 AWG	10"
3909-TB	#4-4/0 AWG	12"	3909BU*	#4-4/0 AWG	12"

*UL Listed for Direct Burial

For connecting grounding conductor to either steel or copper pipe, rod or tubing.

Aluminum Water Pipe Clamp

- For use with copper or aluminum conductor
- Tin plated for corrosion resistance



CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE		DIMENSIONS (IN.)			STEEL CLAMP SCREW	ALUMINUM WIRE SCREW
		MAX.	MIN.	A	B	C		
AJ	½-1	1/0 Str.	#14 Sol.	2½	2¼	¾	¼-20	¾-20 slot
AJ-2	1½-2	250 kcmil	#6	3¾	3¾	¾	⅝-18	1¼-20 socket
AJ-2124	2½-4	250 kcmil	#6	5⅝	6⅝	¾	⅝-16	1¼-20 socket

UL listed for both copper and aluminum conductors to steel pipe and copper water tubing

Blackburn®

Ground Clamps

Economically priced clamps.

Die-Cast Clamps

Blackburn® Grounding



- Made of die-cast zinc alloy with zinc-plated screws
- Model BJA for use with armored cable



CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE	
		MAX.	MIN.
BJ-1	½"-1"	#2 Str.	#10 Sol.
BJA*	½"-1"	#6 AWG	#8 AWG

* Not UL Listed

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



Cast Bronze Clamps with Copper Strap

CAT. NO.	CONDUIT SIZE	WATER PIPE SIZE	CONDUCTOR RANGE	
			MAX.	MIN.
JPS-12	½"	½"-1"	6 sol.	10 sol.
JPS-34	¾"	½"-1"	2/0 str.	10 sol.
JPS-1	1"	½"-1"	3/0 str.	10 sol.

Add suffix C to Cat. No. to specify plating.

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Connects copper ground wire to water pipe, copper tubing or ground rods.

- High strength, high conductivity copper alloy (over 80% copper)
- UL467 Listed for direct burial

Cast Bronze Ground Clamps



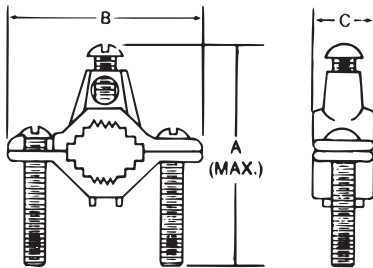
CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE
JD	½"-1"	#2 str.-#10 str.
J2D	1¼"-2"	#2 str.-#10 str.



Blackburn® Grounding

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



Type J — Cast Bronze Ground Clamps

CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE		DIMENSIONS (IN.)		
		MAX.	MIN.	A (MAX.)	B	C
J	½ to 1	2 str.	10 sol.	2¼	2½	¾
J2BB	1¼ to 2	2 str.	10 sol.	3¼	3½	1¼
J2124	2½ to 4	4 str.	10 sol.	6	6⅞	1
J6	4¼ to 6	4 str.	10 sol.	7¼	8½	1

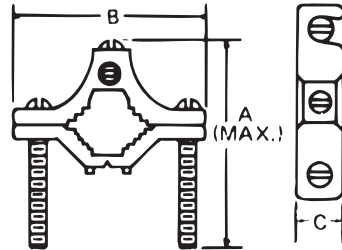
Blackburn®

Ground Clamps

Similar to aluminum water pipe clamp but lighter in construction.

Budget Price Cast Bronze Clamp

Blackburn® Grounding



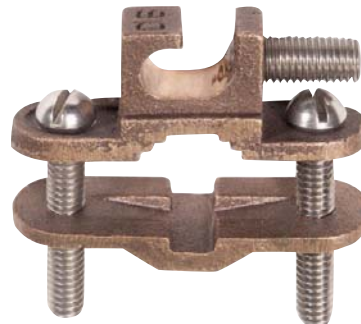
CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE		DIMENSIONS (IN.)		
		MAX.	MIN.	A	B	C
JJR	½ to 1	#4 Str.	#10 Sol.	2½	25/62	1½

Add suffix C to Cat. No. to specify plating.

Lay-in feature reduces installation time for difficult bends or continuous loops of ground wire.

Type JDLI — Direct-Burial Ground Clamp

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



CAT. NO.	PIPE SIZE	REBAR SIZE	GROUND ROD SIZE	CONDUCTOR RANGE	MECH. CONN./ SPLICE (UL LISTED)
JDLI	½"-1"	¾"-1"	¼"-1"	#10 Sol.-#2 Str.	(2) #8 Sol.

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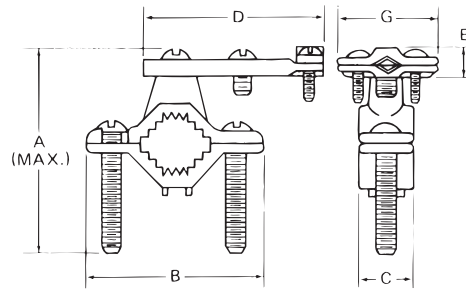
For connecting armored cable to water pipe.



Cast Bronze Clamps

CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE		DIMENSIONS (IN.)					
		MAX.	MIN.	A	B	C	D	E	G
JA	½ to 1	#6 sol.	#10 sol.	2¼	2½	25/32	2¾	1½	1¾
JA-2	1¼ to 2	#6 sol.	#10 sol.	3¼	3½	15/16	2¾	1½	1¾
JA-2124	2½ to 4	#6 sol.	#10 sol.	6	6½	1	2¾	1½	1¾

Add suffix C to Cat. No. to specify plating.



- 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

For grounding rigid conduit systems.

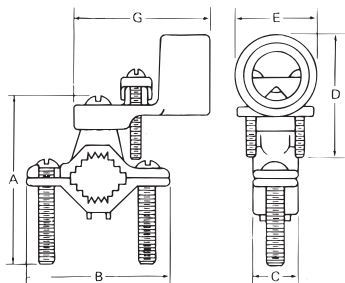


- Continuity from rigid conduit system to ground provided by cast bronze threaded conduit hub
- Hub swings 360° for easy alignment
- Heavy brass washer protects clamped grounding conductor
- Furnished with zinc-plated screws
- Cast bronze pipe clamping portion identical to that used in “JA” clamp

Cast Bronze Clamps for Conduit

CAT. NO.	CONDUIT SIZE	WATER PIPE SIZE	CONDUCTOR RANGE		DIMENSIONS (IN.)					
			MAX.	MIN.	A	B	C	D	E	G
JP-12	½	½ to 1	#6 sol.	#10 sol.	2¼	2½	23/32	1¾	1	2½
JP-212	½	1¼ to 2	#6 sol.	#10 sol.	3¼	3½	15/16	1¾	1	2½
JP-212412	½	2½ to 4	#6 sol.	#10 sol.	6	6½	1	1¾	1	2½
JP-34	¾	½ to 1	#2/0 str.	#10 sol.	2¼	2½	23/32	2½	1¼	2¾
JP-234	¾	1¼ to 2	#2/0 str.	#10 sol.	3¼	3½	15/16	2½	1¼	2¾
JP-212434	¾	2½ to 4	#2/0 str.	#10 sol.	6	6½	1	2½	1¼	2¾
JP-1	1	½ to 1	#3/0 str.	#10 sol.	2¼	2½	23/32	2½	1½	2¾
JP-21	1	1¼ to 2	#3/0 str.	#10 sol.	3¼	3½	15/16	2½	1½	2¾
JP-21241	1	2½ to 4	#3/0 str.	#10 sol.	6	6½	1	2½	1½	2¾

Add suffix C to Cat. No. to specify plating.



Hub swings 360° for ease of alignment.



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

Type JPT — Cast Bronze Clamps for Conduit

CAT. NO.	CONDUIT SIZE	WATER PIPE SIZE	CONDUCTOR RANGE	
			MAX.	MIN.
JPT		½" to 1"		
JPT2	½" or ¾" EMT ½" Rigid	1¼" to 2"	6 Sol.	10 Sol.
JPT4		2½" to 4"		



Conduit Hubs

CAT. NO.	GROUND WIRE SIZE AWG	CONDUIT SIZE
3930	#8 to #2	½" Conduit
3940	#8 to #2	¾" Conduit
3950	#8 to #3/0	1" Conduit
3951	#8 to #4/0	1¼" Conduit

Material: Malleable iron

Provides positive connection between rigid conduit and water system.



- Used in conjunction with “J” clamp
- Rugged cast-bronze threaded hub

Type CH — Bronze Conduit Hubs

CAT. NO.	CONDUIT SIZE (IN.)	CONDUCTOR RANGE	
		MAX.	MIN.
CH12	½	6 Sol.	10 Sol.
CH34	¾	2/0 Str.	10 Sol.
CH1BB	1	3/0 Str.	10 Sol.



Ground Clamp



CAT. NO.	MATERIAL	WATER PIPE, COPPER TUBING SIZE	GRD. ROD SIZE
3826 [†]	M.I.	½", ¾"	½"-1"
3846 [†]	Bronze	½", ¾"	½"-1"
3849•	Brass	½"-1" O.D.	
3840-TB*	M.I.	½", ¾" or 1"	

[†]For unarmored copper wire #6, #4.

• For copper and aluminum conductors; for 14 thru 2 cu. unarmored copper wire — corrosive and outdoor use. UL approved for direct burial.

* #8 thru #4 AWG. Not CSA Certified



3849



3826

Ground Clamps for K&L Grade Copper Tubing Only



CAT.NO.	GROUND WIRE RANGE	WATER PIPE & GROUND ROD SIZE/DESC.
3844*	#8-#4	½"-1"
3888 [†]	#8-#4	½"-1" also rebar 4-10
961	#8	¾" - 1"
962**	#8	¾" - 2"
963**	#8	¾" - 3"

CAT. NO.	DESCRIPTION/CABLE SIZE
31215	Strain Relief Grounding Lug, #6 - 2
31216	Grounding Clamp, 1" Hook-Type, #6 - 2
31253	Grounding Clamp, 1-½" Hook-Type, #6 - 2
31217	Ground Clamp, 1" Straight-Type, #6 - 2
31224	Grounding Clamp, 1-½" Straight-Type, #6 - 2
31230	Wing Screw only

* With Steel Screws ** With Bronze Screws, Not CSA Certified — or UL Listed

[†]UL approved for direct burial. Silicon Bronze Screws.



961

For radio, motor frame and equipment grounding



3840-TB



31215

Disconnect static ground clamp and lug, straight-type (cable not supplied), UL not applicable



3844

For armored and unarmored wire

Cable Tray Ground Clamp



Material: Malleable iron

Standard Finish: Zinc plated



CAT. NO.	DESCRIPTION
10105*	For Single Conductors #4 sol. to 2/0 str.
10109**	For Single Conductors 2/0 sol. to 4/0 str.

* UL Listed #4 to 2/0 AWG copper

** UL Listed 2/0 to 4/0 AWG copper/aluminum

CSA File No. 2884

Blackburn®

Ground Clamps

Blackburn® Grounding

For aluminum and steel cable trays with regular or reinforced flanges.

- Serrations and biting teeth on clamping saddle provide a high-quality bond between conduit and clamp
- Can be clamped to any position in a 90° arc
- Hardened steel screws bite into tray and provide positive bond
- Malleable iron hub and steel U-bolt accept conduit from any angle

Swivel Tray Clamp



CAT. NO.	CONDUIT SIZE
6209	½"–¾"
6210	½" – ¾"
6211	1"–1¼"
6212	1" – 1¼"
6214	1½"–2"
6216	2½"–3"
6218	3½"–4"



Efficiently grounds trailer frames, cable trays, CATV and telephone pedestals.

Beam Grounding Clamp

- Connects #6 to #14 solid copper conductor to metal frames where continuity of grounding can be assured
- 7/16" silicon bronze hex-head bolt installs with cam-wrench, socket or crescent wrench
- Tin-plated square-head bolt enables installation with pliers when tighter ground connection is needed
- Ground wire hole access from four directions minimizes need to bend ground wire
- Designed so ground wire may be installed on clamp prior to mounting clamp on metal frame, reducing installation time
- Beam and ground wire connection can be tightened separately with disconnecting integrity of ground circuit



- High-strength copper alloy (91% nom.) provides greater conductivity, durability and corrosion resistance without the need for plating
- High-strength anchoring bolt penetrates paint or metal oxide



CAT. NO.	DESCRIPTION	CONDUCTOR SIZE (AWG)
TGC	Square-Head Tin-Plated Steel Bolt	#6 to #14 sol.

Listed to UL467

Thomas & Betts

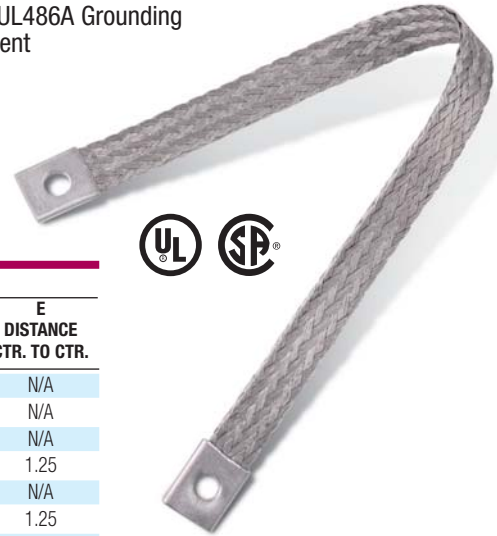
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289



Flexible copper braids for use in substation and grounding applications.

- Tin-plated copper braids and ferrules for high conductivity and corrosion resistance
- Enables linear expansion, equipment vibration and offset connections
- Certified C22.2 No. 41 Grounding & Bonding Equipment
- Listed UL467 and UL486A Grounding & Bonding Equipment



Blackburn® Grounding

Type FB — Flexible Braids

CAT. NO.†	CIRCULAR MILS	BOLT HOLE	NO. OF BRAIDS IN FERRULE	THICKNESS	DIMENSIONS		
					C WIDTH	D FERRULE LENGTH	E DISTANCE CTR. TO CTR.
FBB12-1*	24000	1/4	1	0.140	0.625	0.750	N/A
FBC12-1*	48000	1/6	1	0.148	1.000	1.300	N/A
FBD12-1*	76800	1/6	1	0.200	1.000	1.300	N/A
FB12*	76800	1/6	1	0.200	1.000	2.500	1.25
FB2D12-1*	153600	1/6	2	0.250	1.250	1.500	N/A
FB2D12*	153600	1/6	2	0.250	1.250	2.500	1.25
FB3D12-1*	230400	1/6	3	0.350	1.250	1.500	N/A
FB3D12*	230400	1/6	3	0.350	1.250	2.500	1.25
FBXD12-1*	105600	1/6	1	0.250	1.250	1.500	N/A
FBXD12*	105600	1/6	1	0.250	1.250	2.500	1.25
FB2XD12-1*	211200	1/6	2	0.350	1.250	1.500	N/A
FB2XD12	211200	1/6	2	0.350	1.250	2.500	1.25
FB3XD12-1*	316800	1/6	3	0.400	1.250	1.500	N/A
FB3XD12*	316800	1/6	3	0.400	1.250	2.500	1.25
FBE12-1*	168000	1/6	1	0.500	1.250	2.500	N/A
FBE12*	168000	1/6	1	0.250	1.250	3.500	1.75
FB2E12-1*	336000	1/6	1	0.500	1.250	2.500	N/A
FB2E12*	336000	1/6	2	0.500	1.250	3.500	1.75
FB3E12	504000	1/6	3	0.750	1.250	3.500	1.75
FB4E12	672000	1/6	4	1.000	1.250	3.500	1.75
FBF12	230400	1/6	1	0.300	1.500	3.500	1.75
FB2F12	460800	1/6	2	0.450	1.500	3.500	1.75
FB3F12	691200	1/6	3	0.600	1.625	3.500	1.75
FB4F12	921600	1/6	4	0.750	1.625	3.500	1.75
FBG12	307200	1/6	1	0.380	1.500	3.500	1.75
FB2G12	614400	1/6	2	0.630	1.625	3.500	1.75
FB3G12	921600	1/6	3	0.850	1.625	3.500	1.75
FB4G12	1228800	1/6	4	1.000	1.880	3.500	1.75

† Catalog number shown in 12" lengths. Standard lengths offered in 6, 12, 18, 24, 30 and 36 inches (end to end). Change the 12 in the above catalog numbers to the desired length. (-1) indicates 1 bolt hole per ferrule.

See amperage tables on next page as a reference for grounding and bonding, or continuous current applications.

FB4 series is not listed/certified.

For custom flexible braids, contact Customer Service.

Flexible Braid in a Roll — 10-Foot Minimum

CAT. NO.	CIRCULAR MILS.	THICKNESS (IN.)	WIDTH (IN.)
FBBRL	24000	0.140	0.625
FBCRL	48000	0.148	1.000
FBDRL	76800	0.200	1.000
FBXDRL	105600	0.250	1.250

Ferrules or lugs not included.



Minimum Size Flexible Braid for Continuous Current Applications

CAT. NO.	CIRCULAR MILS	AMPERAGE CAPACITY	CAT. NO.	CIRCULAR MILS	AMPERAGE CAPACITY
FBB12-1	24000	95	FBE12-1	16800	340
FBC12-1	48000	145	FBE12	16800	340
FBD12-1	76800	190	FB2E12-1	336000	530
FBD12	76800	190	FB2E12	336000	530
FB2D12-1	153600	330	FB3E12	504000	700
FB2D12	153600	630	FB4E12	672000	805
FB3D12-1	230400	470	FBF12	230400	360
FB312	230400	470	FB2F12	460800	600
FBXD12-1	105600	235	FB3F12	691200	820
FBXD12	105600	235	FB4F12	921600	1000
FB2XD12-1	211200	400	FBG12	307200	415
FB2XD12	211200	400	FB2G12	614400	700
FB3XD12-1	316800	600	FB3G12	921600	960
FB3XD12	316800	600	FB4G12	1228800	1200

Grounding and Bonding Applications

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 (6 AWG)
300	41 740 (4 AWG)
400	52 620 (3 AWG)
500	66 360 (2 AWG)
600	83 690 (1 AWG)
800	105 600 (1/0)
1 000	133 100 (2/0)
1 200	167 800 (3/0)
1 600	211 600 (4/0)
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 C.E.C.

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	41 740
10 000	52 620	83 690
15 000	83 690	105 600
20 000	105 600	167 800
25 000	133 100	211 600
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 C.E.C.

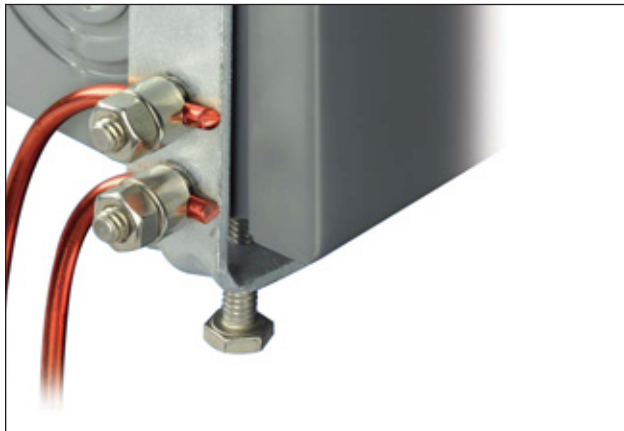
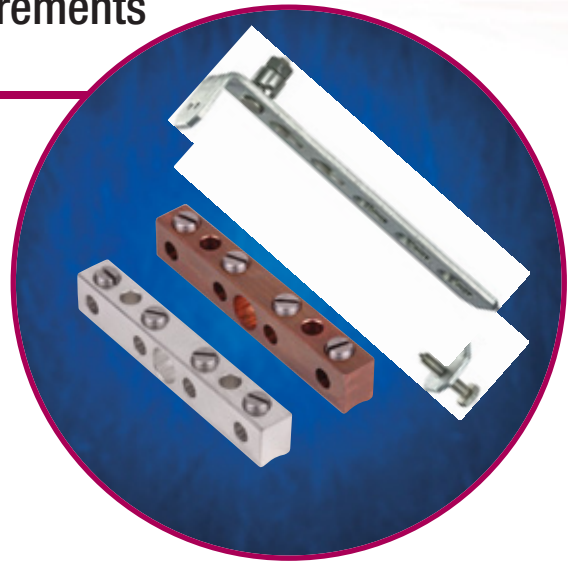
Size calculated in accordance with IEEE No. 80.

Meets 2008 NEC® Section 250.94 requirements for intersystem bonding termination!

Intersystem Bonding Termination Ground Clamps



- Convenient, reliable grounding for communications, satellite, CATV and utility services
- Accepts the full range of #14 to #6 AWG ground wire commonly used in the CATV and telephone industries
- Meets or exceeds industry requirements, Bellcore standards and 2008 NEC Section 250.94 requirements
- UL Listed to UL467, CSA Certified to C22.2 No. 41-07

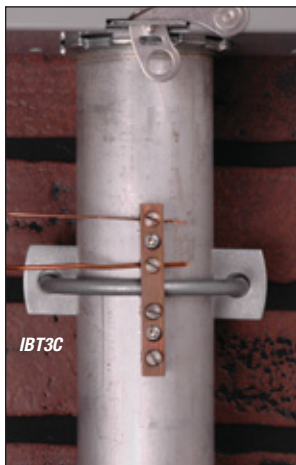


Meter Box Clamps

- Two-piece clamp mounts vertically on the side or horizontally across the top of a meter box – without interfering with cover removal
- Steel clamp brackets mechanically galvanized to ASTM B695 with stainless steel hardware for superior corrosion resistance
- Single, shallow, pointed bolt enables fast and easy installation and positive ground connection
- Dual steel points on slotted bracket penetrate painted surfaces, also ensuring a positive ground connection
- Available in two adjustable sizes to fit any meter box

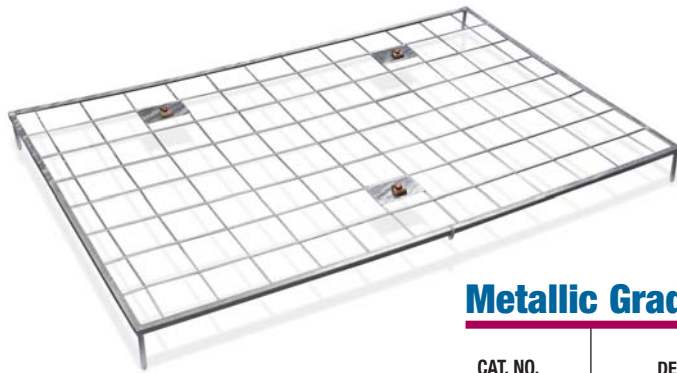
Wall/Pipe Clamps

- Mounts easily on walls (wood, aluminum, brick, mortar or composite material), water pipes or conduit (metallic or plastic) for versatility
- Design enables form fit and alignment with wall or pipe for effective ground and neat, clean appearance to finished installation
- Available in two versions: tin-plated aluminum or bare copper, both with stainless steel screws



CAT. NO.	DESCRIPTION	GROUND WIRE RANGE (AWG)
Intersystem Bonding Termination Ground Clamps for Meter Boxes		
IBT1	Meter Box Clamp, 7" – 10¼" Adjustment Range	#14 – #6
IBT2	Meter Box Clamp, 11-½" – 15¼" Adjustment Range	#14 – #6
Intersystem Bonding Termination Ground Clamps for Wall or Pipe Mounting (includes U-bolt clamp for pipe mounting)		
IBT3A	Wall or Pipe Clamp, Aluminum	#14 – #6
IBT3C	Wall or Pipe Clamp, Copper	#14 – #6
Intersystem Bonding Termination Ground Bars for Wall Mounting		
IBT3AB	Bar only, Aluminum	#14 – #6
IBT3CB	Bar only, Copper	#14 – #6

Avoid ground potential differences.



- Reduces risk and prevents build-up of dangerous potential differences between high-voltage equipment or structures and user standing on ground surface
- CEC Rule 36-308 compliant

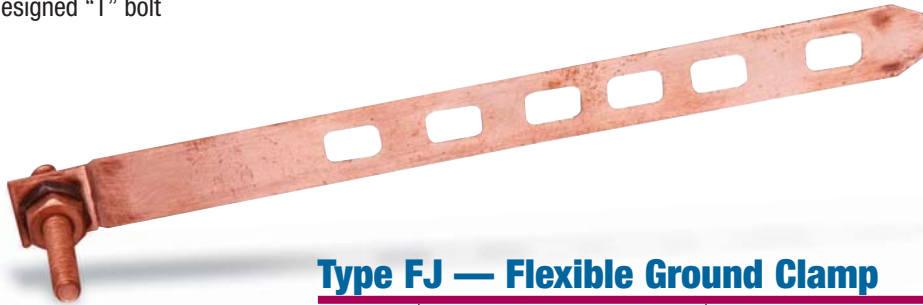
Metallic Gradient Control Mat

CAT. NO.	DESCRIPTION	WT/100		STD. PKG. QTY.
		LB	KG	
64663	Mat with connectors	3,000	1,363	1
64660	Mat without connectors	2,900	1,318	1

4 ft. x 6 ft. hot-dip galvanized mat is made from 6" x 6" welded mesh, 1/4" diameter. Silicone bronze connector, bolt, nut and lockwasher.

For connecting to steel pipe or copper water tube.

- Accommodates 3/8", 1/2", 3/4", 1" and 1 1/4" pipe sizes
- Accommodates 1/2", 3/4", 1 and 1 1/4" copper water tube sizes
- Accommodates copper ground wire #18 through #12
- Specially designed "T" bolt
- 22-gauge soft copper strap with unique locking slots
- Hex head nuts may be tightened with standard wrench or special telephone company hex head driver



Type FJ — Flexible Ground Clamp

CAT. NO.	COPPER GROUND WIRE SIZE		PIPE SIZE (IN.)		COPPER TUBE SIZE (IN.)	
	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.
FJ	12	18	1 1/4	3/8	1 1/4	1/2