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Blackburn® Grounding

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Blackburn® Grounding

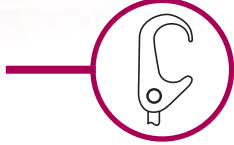
Thomas & Betts

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Tel: 901.252.8000
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Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

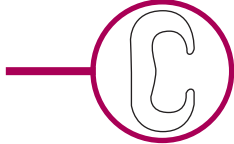
www.tnb.com

Figure 6



See Page C-55

C-Taps



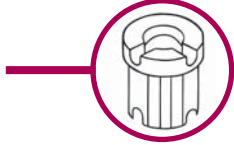
See Page C-60

I-Beam



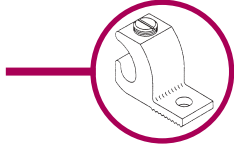
See Page C-63

Type DGC



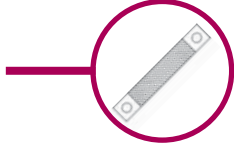
Drive-on
Ground Clamps
See Pages C-69

Type LL, CULL



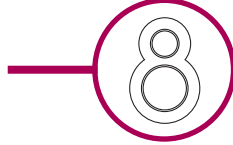
Lay-In
Lug Connectors
See Page C-74

Type FB



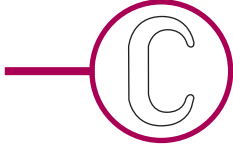
Flexible Braid
Connectors
See Page C-85

Figure 8



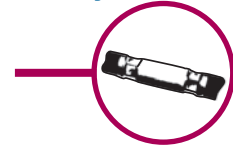
See Page C-55

C-Crimp



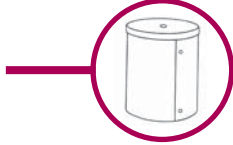
See Page C-60

Two-Way Connector



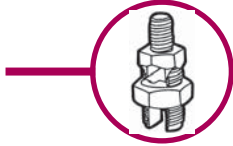
See Page C-63

Ground Electrode Boxes



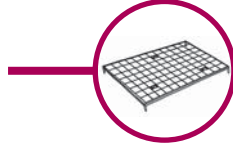
See Page C-70

Type SP



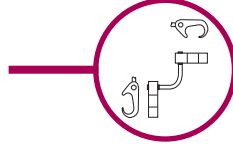
Service Post
Connectors
See Page C-75

Control Mat



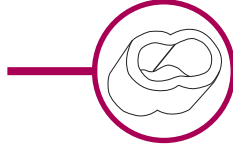
Metallic Gradient
Control Mat
See Page C-88

Figure 6-6



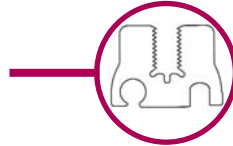
See Page C-56

Type GR



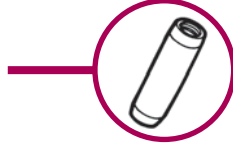
Pigtail
Connectors
See Page C-61

Bus Bar Connector



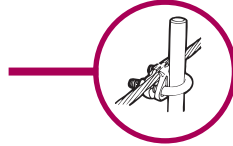
Ground Bus
Bar Connector
See Page C-65

Couplings



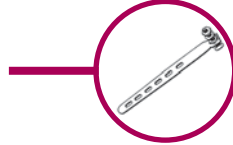
Sectional Ground Rod
Couplings
See Page C-71

Type GUV



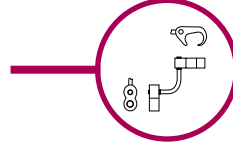
U-Bolt
Ground Clamps
See Page C-76

Type FJ



Flexible Ground
Clamp
See Page C-88

Figure 6-8



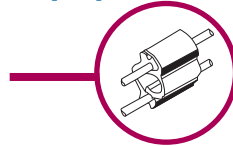
See Page C-56

Grounding Plate



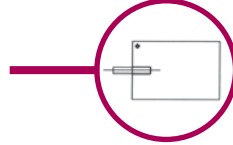
See Page C-61

Snap Tap Connector



See Page C-66

Ground Plate



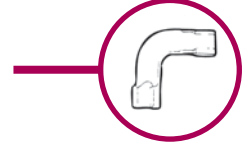
See Page C-72

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



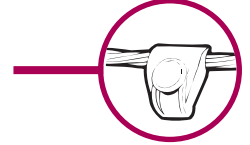
See Page C-62

Type GG, GGH, JAB, G



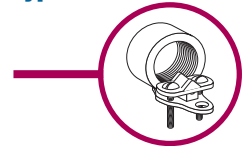
Ground Rod
Clamps
See Pages C-68-C-69

Type GTC



Tower Ground
Clamps
See Page C-73

Type CH

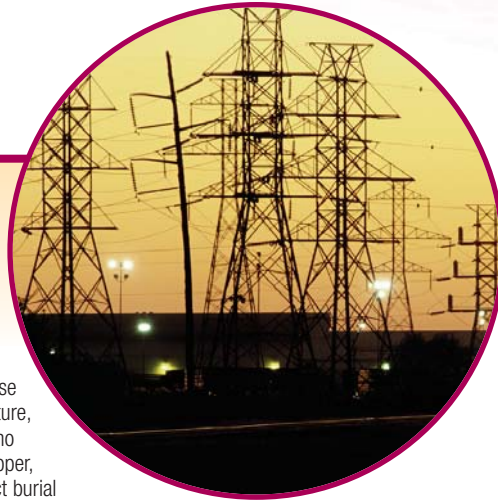


Conduit Hubs
See Page C-82

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.

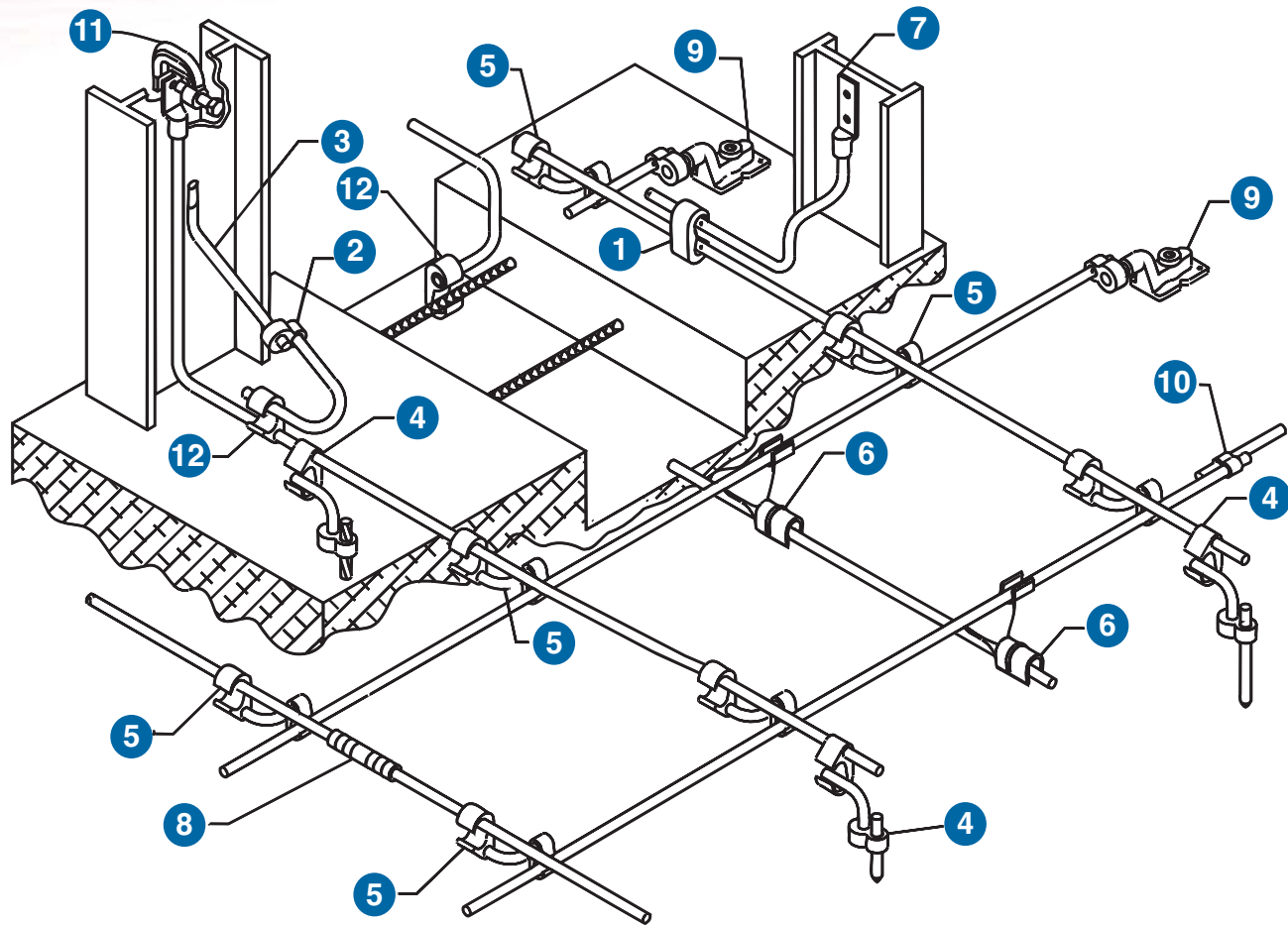
Reliable installations through compression connections

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 |

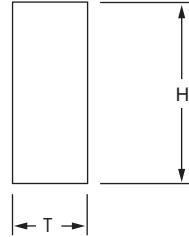
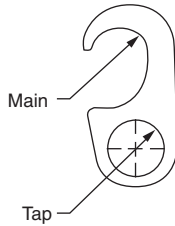
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Tel: 888.862.3289

Figure 6 Compression Ground Tap Connector



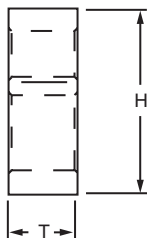
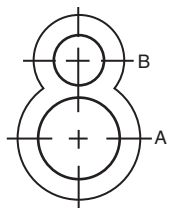

 MEETS
IEEE
 837 REQUIREMENTS

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



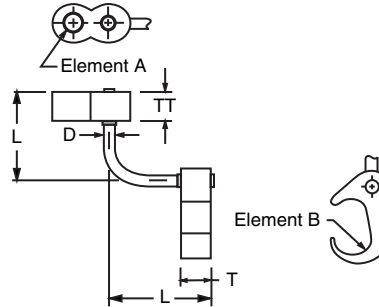
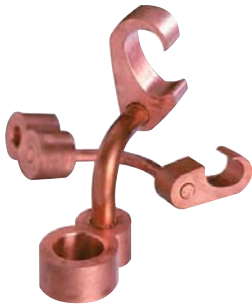

 MEETS
IEEE
 837 REQUIREMENTS

| 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

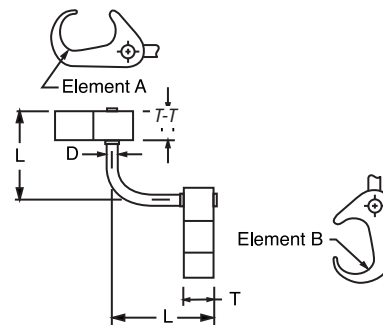
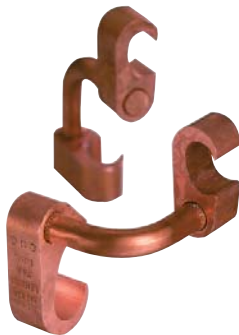
Figure 6 to 8 Compression Ground Rod to Grid Connectors



| 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

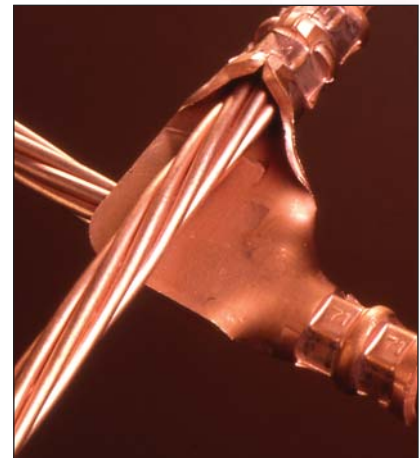
Die Selector Chart: p. B91-B93



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 | ¾" | 80H | #2 or #1 | 50 |
| GG40250-10 | 4/0 or 250 | 71 | 1/0 | 54 | ½" | 71 | 1/0 | 65 |
| | | | | | ¾" | 80H | | |
| | | | | | ½" | 71 | | |
| GG40250-2030 | 4/0 or 250 | 71 | 2/0 or 3/0 | 60 | ½" | 71 | 2/0 or 3/0 | 60 |
| | | | | | ¾" | 80H | 2/0 or 3/0 | 60 |
| | | | | | ½" | 71 | 4/0 or 250 | 71 |
| GG40250-40250 | 4/0 or 250 | 71 | 4/0 or 250 | 71 | ¾" | 80H | 4/0 or 250 | 71 |
| | | | | | ½" | 80H | 4/0 or 250 | 71 |
| GG350-350 | 350 kcmil | 80H | 350 | 80H | — | — | — | — |
| GG500-40250 | 500 kcmil | 87 | 4/0 or 250 | 71 | ¾" | 80H | 500 | 87 |
| | | | | | ½" | 87H | 500 | 87 |
| GG500-500 | 500 kcmil | 87 | 500 | 87 | ¾" | 87 | 500 | 87 |
| GG500-350 | 500 kcmil | 87H | 350 | 80 | ¾" | 87H | 350 | 80H |
| | | | | | ½" | 87H | | |
| GG500-2030 | 500 kcmil | 87H | 2/0 or 3/0 | 60 | ½" | 87H | 2/0 or 3/0 | 60 |
| | | | | | ¾" | | | |

g: p. B74–B90

Die Selector Chart: p. B91–B93

Blackburn®

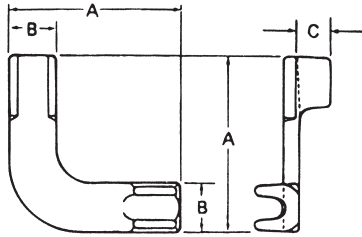
E-Z-Ground® Grounding Connectors

Blackburn® Grounding

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

Type GRD — Cable-to-Cable Connector

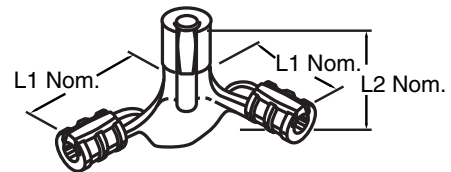
- Cast of high-conductivity bronze alloy
- Suitable for direct burial



| 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 | 1¼ | 1¼ |
| GRD20 | 2/0 | 1/0 | 67.4 | 53 | 2/0 | 1/0 | 67.4 | 53 | — | TBM14M | B10CH | 1 | 3 | 1¼ | ¾ |
| GRD420 | 250 kcmil | 4/0 | 126.6 | 107 | 2/0 | 1/0 | 67.4 | 53 | ¾ | TBM14M | B12CH | 2 | 3¾ | 1¼ | 1¾ |
| GRD40 | 250 kcmil | 4/0 | 126.6 | 107 | 250 kcmil | 4/0 | 126.6 | 107 | ¾ | TBM14M | B12CH | 2 | 3¾ | 1¼ | 1¾ |

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 | 5/8" & 1/2" | 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

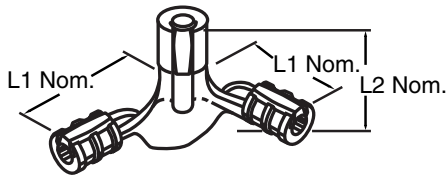
Thomas & Betts

www.tnb.com

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

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Tel: 888.862.3289

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

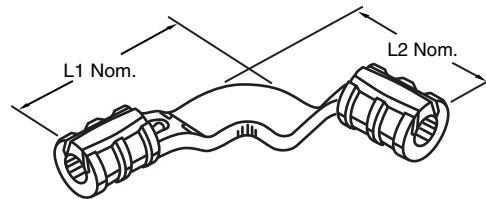


| CABLE SIZE | REINFORCING ROD SIZE | COPPER WELD CONDUCTOR SIZE |
|----------------|----------------------|----------------------------|
| 2, 1 AWG | — | 3 #8 or 3 #6 |
| 1/0, 2/0 AWG | #3 | 3/8 (7 #8) or 1/2 (7 #7) |
| 4/0, 250 kcmil | #4 | 7/16 (19 #9) or (7 #5) |
| 300–350 | #5 | 1/2 (19 #8) or 5/8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

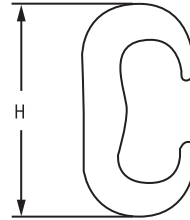
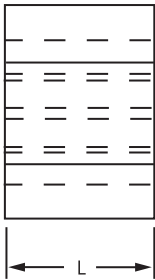
*125H die for 15-ton tool only

Blackburn®

E-Z-Ground® Grounding Connectors

C-Taps

Blackburn® Grounding



MEETS
IEEE
837 REQUIREMENTS

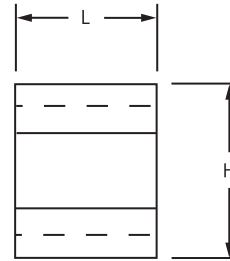
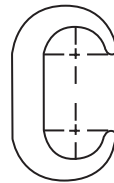
| CAT. NO. | MAIN | TAP | DIMENSIONS (IN.) | | DIES FOR TBM14M, 13100A OR TBM151 * | CRIMPS |
|-----------|--------------------|--------------------|------------------|------|-------------------------------------|--------|
| | | | H | L | | |
| CTP22 | #6 Sol.-#2 Str. | #6 Sol.-#2 Str.** | 1.16 | .75 | 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 ¾ | B58CS | ¼ | ⅝ |
| BC46-BB | 6 Sol.-4 Str. | 6 Sol.-6 Str. | BG OR ¾ | B58CS | ¼ | ¾ |
| BC44 | 6 Sol.-4 Str. | 4 Sol.-4 Str. | BG OR ¾ | B58CS | ¼ | ⅝ |
| BC24 | 2 Sol.-2 Str. | 8 Sol.-4 Str. | C | HBKC | ¾ | ⅞ |
| BC22 | 2 Sol.-2 Str. | 2 Sol.-2 Str. | C | HBKC | ¾ | 1¼ |
| BC202 | 1/0 Sol.-2/0 Str. | 8 Sol.-2 Str. | E or O | HO | ⅝ | 1⅝ |
| BC2020-BB | 1/0 Sol.-2/0 Str. | 1/0 STR.-2/0 Str. | E or O | HO | ⅝ | 1½ |
| BC402 | 3/0 Str.-4/0 Str. | 6 Sol.-2 Str. | F or D3 | HD | 1⅞ | 1¾ |
| BC4020 | 3/0 Str.-4/0 Str. | 1/0 Sol.-2/0 Str. | F or D3 | HD | 1⅞ | 1¾ |
| BC4040 | 3/0 Str.-4/0 Str. | 3/0 Sol.-4/0 Str. | F or D3 | HD | 1⅞ | 1¾ |

^{††}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

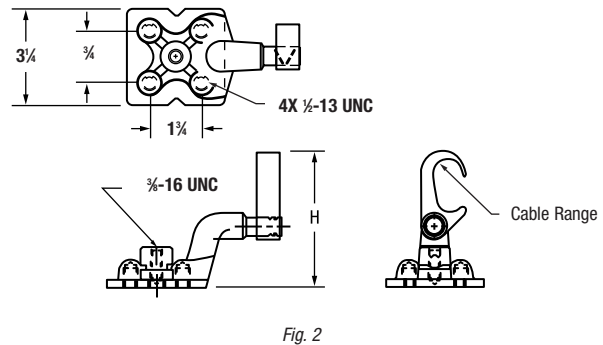
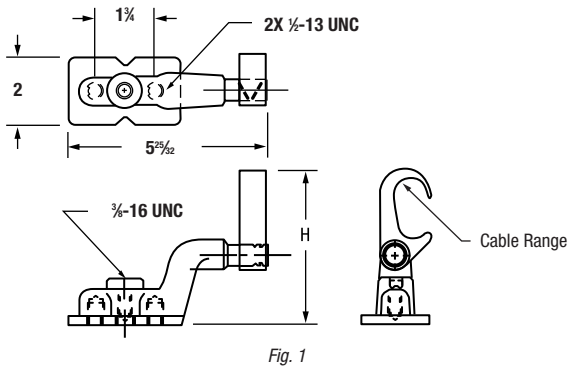
Die Selector Chart: p. B91-B93

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 |

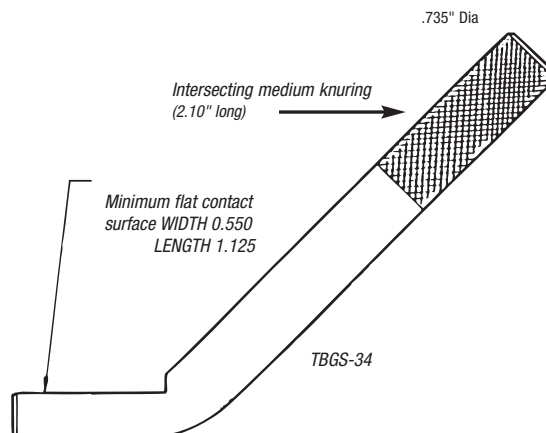
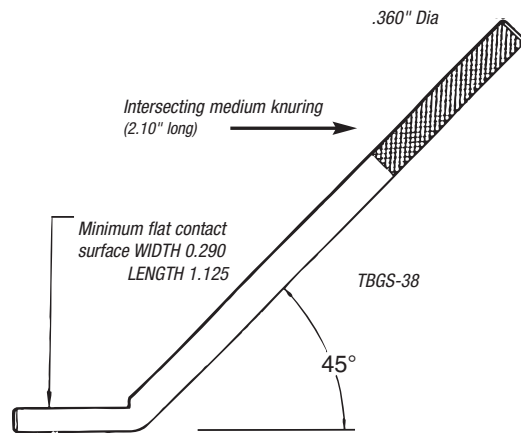
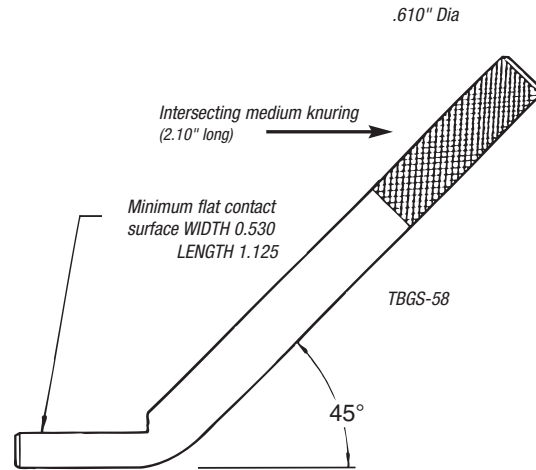
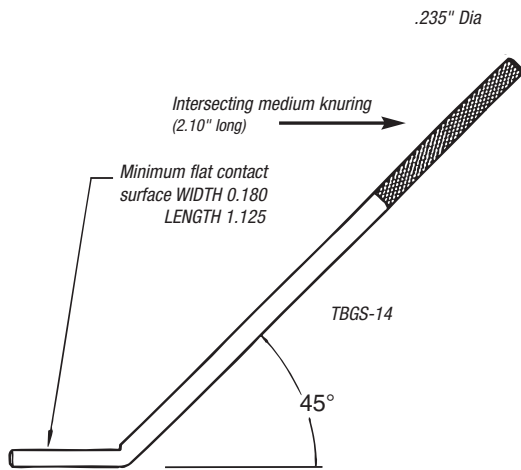


Knurling ensures excellent mechanical pull-out and electrical continuity.

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 | TBM151 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



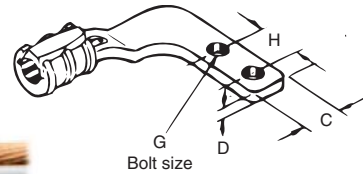
| CAT. NO. | WIRE SIZE | GROUND ROD DIAMETER (IN.) | REBAR # (IN.) | BOLT SIZE (IN.) | DIE CODE |
|-----------|-----------|---------------------------|---------------|-----------------|-----------|
| CC2C-45R | #2-#3 AWG | ½ or ¾ | ¾ | ¼ | 33-BROWN |
| CC1C-45R | #1 AWG | ½ or ¾ | ¾ | ¼ | 37-GREEN |
| 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



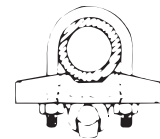
| CAT. NO. | WIRE RANGE | BOLT HOLE | DIE CODE NO.* | UNIT QUAN. | STD. PKG. | WT. PER 100 | HEX DIE | | INCHES | | | | |
|----------|---------------|-----------|---------------|------------|-----------|-------------|----------|--------------|--------|----|---|----|---|
| | | | | | | | CAT. NO. | DIE CODE NO. | L1 | L2 | D | C | H |
| 53055FL | 1/0-2/0 AWG | ¾" | 66 | 2 | 10 | 75 | *15534 | 66 | 4½ | 3½ | 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

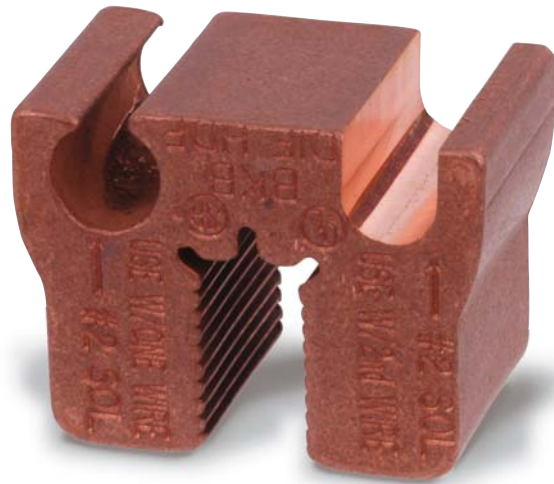
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Tel: 888.862.3289

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

E-Z-Ground® Bus Bar Connector

- Unique, patented 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



Blackburn® Grounding

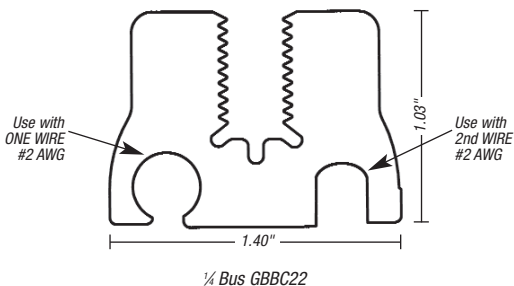


E-Z-Ground® Bus Bar Connectors install in less than 2 minutes with one easy crimp! The connector attaches directly to the bus, saving the labor-intensive process of drilling and tapping. The unique jaw interface of the E-Z-Ground® Bus Bar Connector grips the copper bus, resulting in a low-resistance,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

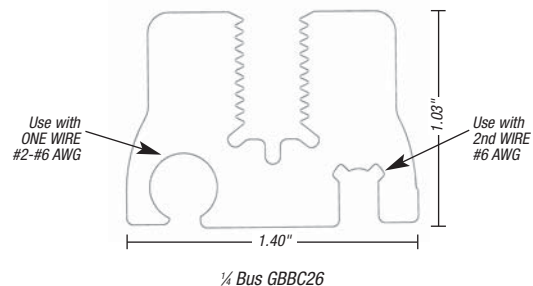
The E-Z-Ground® Bus Bar Connector can be used in OEM applications or telecom applications — cellular, PCS and others. It provides a continuous ground to the copper bus bar, making it ideal for hut and tower applications. The design enables installation in virtually any position, horizontal or vertical, 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®

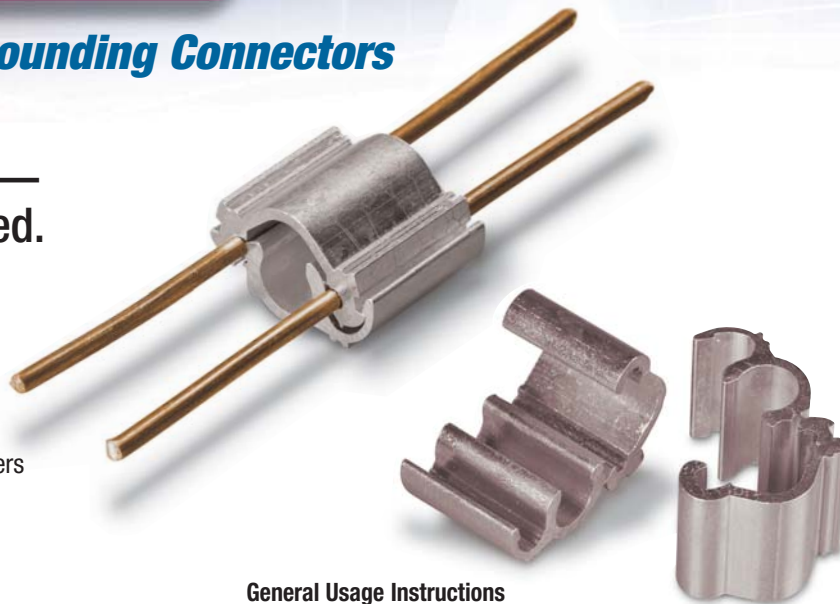
E-Z-Ground® Grounding Connectors

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).

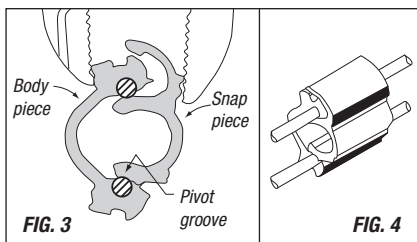
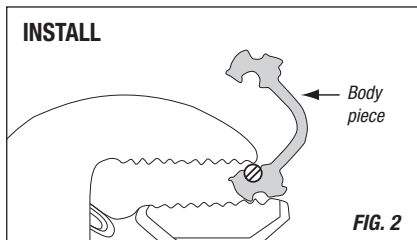
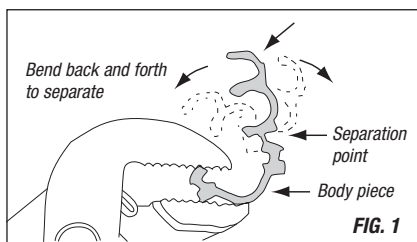
Caution: Be careful not to pinch fingers or thumb when separating parts. Keep fingers out of bend path when bending part against plier jaws.

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.



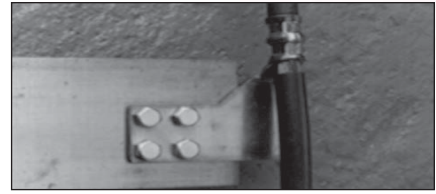
| CAT. NO. | CONNECTOR DESCRIPTION | | PACKAGING | | STANDARD ORDER QUANTITY |
|----------|-----------------------|---------------------------|------------|------------|-------------------------|
| | MAIN | BRANCH | INNER PACK | OUTER PACK | |
| JP62 | #2 AWG Sol. Copper | No. 6 AWG Sol. Copper | 20 | 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.

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 5/16 |
| GFL350 | 1 | 350 kcmil 650/24 775/24 | N/A | 80 | 2 | 3/32 | 4 1/4 | 4 1/4 | 2 5/16 |
| GFL500 ¹ | 1 | 500 kcmil 925/24 | BROWN | 94 | 2 | 3/32 | 5 1/4 | 4 1/4 | 2 5/16 |
| GFL750 ^{1,2} | 2 | 750 kcmil 1100/24 1325/24 1600/24 | BLACK | 106 | 4 | 3/32 | 8 3/8 | 4 1/4 | 2 5/16 |

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.

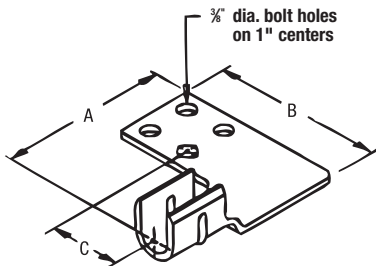


Fig. 1

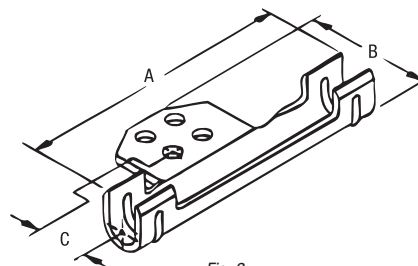


Fig. 2

Blackburn®

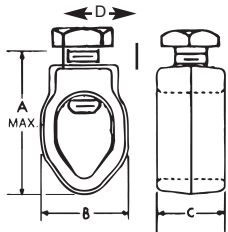
Ground Rod Clamps

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



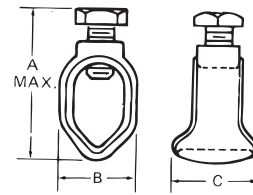
| CAT. NO. | NOMINAL ROD DIA. | | WIRE RANGE | | | DIMENSIONS (IN.) | | | | |
|----------|------------------|-------|------------|---------|-------------------------|-------------------------|---------------|-------|------|------|
| | (IN.) | (MM.) | MAX. | MIN. | MAX. (MM ²) | MIN. (MM ²) | A (MAX.) 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



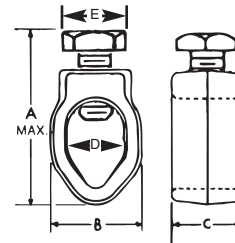
| CAT. NO. | SOCKET SET SCREW | HEX HEAD BOLT | NOMINAL ROD DIA. | | WIRE RANGE | | | | DIMENSIONS (IN.) | | | | |
|----------|------------------|---------------|------------------|----------|------------|-------|-------------------------|-------------------------|-----------------------|-------------------|--------------------------|-------|--------|
| | | | (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 | 5/8 |
| G6 | 1 | 19.0 | 2 Str. | 10 Sol. | 33.6 | 5.2 | — | 7/16-16 | 1 1/16 | 3/8 | 1 3/16 | 1 1/2 |

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

Thomas & Betts

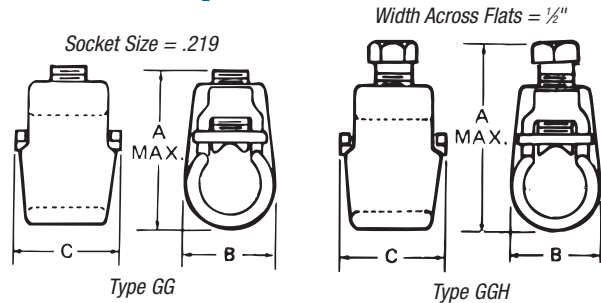
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

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



| CAT. NO.* | | NOMINAL ROD DIA. | | WIRE RANGE | | | | DIMENSIONS (IN.) | | | | |
|------------------|---------------|------------------|------|------------|--------|------------|------------|-----------------------|-------------------|--------------------------|-------|--------|
| SOCKET SET SCREW | HEX HEAD BOLT | (IN.) | (MM) | MAX. | MIN. | MAX. (MM²) | MIN. (MM²) | 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 | 3 1/4 | 1 5/16 |
| — | GG34H | 3/4 | 19.0 | 4/0 Str. | 8 Sol. | 120.6 | 8.3 | — | 3 | 1/2-14 | 1 3/8 | 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

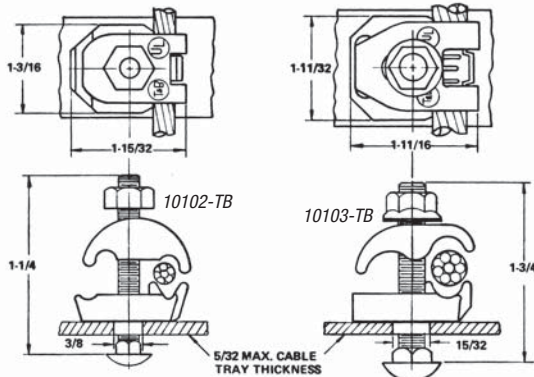
- High-strength copper alloy provides increased tensile strength and long-term corrosion resistance for direct burial applications
- UL486A and UL467 Listed
- RUS Listed



| 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 | 3/8"-18 |
| 10103-TB | #4 Stranded to 4/0 Stranded | 3/8"-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

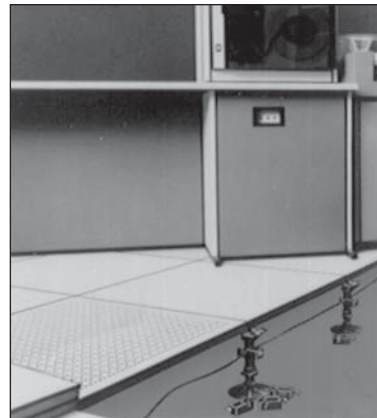


| CAT. NO. | CONDUCTOR RANGE | INSTALLING TOOLS AND DIE CODES TBM14M AND TBM15I | | |
|----------|-----------------|-----------------------------------------------------|----------|------------|
| | | DIE CAT. NO. | DIE CODE | COLOR CODE |
| SRG8-4 | #8 | 15527 | 29 | GRAY |
| | #6 to #4 | 15528 | 33 | 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 |
| 60LCNT2* | 5/8" threadless coupling | 2.5 | .69 |
| 70LCNT* | 3/4" threadless coupling | 3.0 | .97 |
| 60DSNT | 5/8" threadless driving cap | 4.0 | .88 |

*UL Listed.

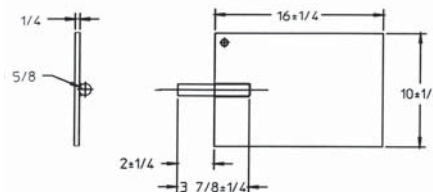
Blackburn®

Ground Plates

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

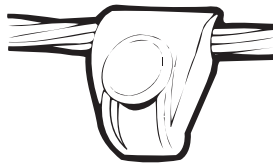


| CAT. NO. | WIRE RANGE | | FINISHED SIZE | SURFACE AREA SQ. IN. |
|----------|------------|---------|---------------|----------------------|
| | MAX. | MIN. | | |
| PBGW | 2/0 Str. | 10 Sol. | 7 x 7 1/2 | 56 |
| PBH* | 4 Str. | 14 Sol. | 7 x 7 1/2 | 56 |

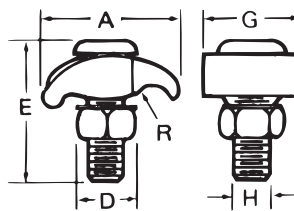
*RUS Listed.

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

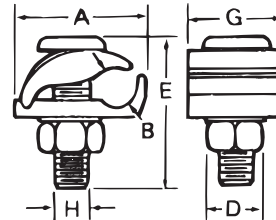
Type GTC — Tower Ground Clamps



- 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

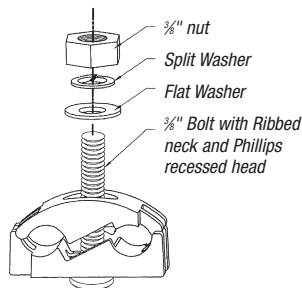


| CAT. NO. | CONDUCTOR RANGE | | | | CHANNEL THICKNESS | DIMENSION (IN.) | | | | | | | |
|----------|-----------------|----------|-----------|-----------|-------------------|-----------------|------|------|---------|---------|-----|------|--|
| | MAX. | MIN. | MAX. (MM) | MIN. (MM) | | A | B | D | E | 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

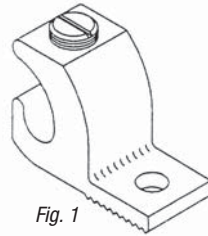
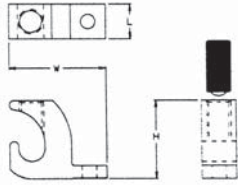


Fig. 1

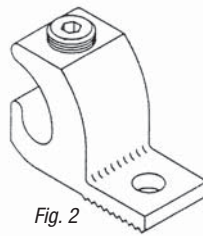


Fig. 2



- 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

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



| 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 6mm ² | 8 4mm ² | 12 10mm ² | .146–.080 4mm ² | ¼–20 x ½ |
| SP1DS | SP1SS | 7 | 10 10mm ² | 6 6mm ² | 10 10mm ² | .170–.102 | ¼–20 x ½ |
| SP2DS | SP2SS | 5 | 10 16mm ² | 4 6mm ² | 10 16mm ² | .217–.102 | ⅝–18 x ⅝ |
| SP3DS | SP3SS | 3 | 10 25mm ² | 2 6mm ² | 10 35mm ² | .271–.102 | ⅝–16 x ⅝ |
| SP4DS | SP4SS | 1 | 8 35mm ² | 2 6mm ² | 8 10mm ² | .332–.128 | ⅝–16 x ⅝ |
| SP5DS | SP5SS | 1/0 | 2 50mm ² | 2 35mm ² | — 35mm ² | .385–.259 | ⅝–13 x ⅝ |
| SP6DS | SP6SS | 2/0 | 2 70mm ² | 2 35mm ² | — 35mm ² | .443–.258 | ⅝–13 x ⅝ |
| SP8DS | SP8SS | 4/0 | 1 95mm ² | — 35mm ² | — — | .570–.289 | ⅝–11 x 1 |
| SP9DS | SP9SS | 350 | 1/0 150mm ² | — 70mm ² | — — | .715–.373 | ⅝–11 x 1 |
| SP10DS | SP10SS | 500 | 3/0 240mm ² | — 95mm ² | — — | .840–.464 | ⅝–10 x 1¼ |

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



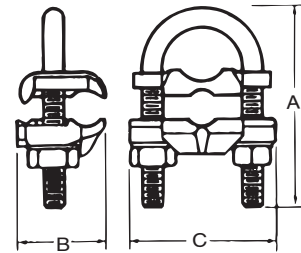
| CAT. NO. CONDUCTOR | | CONDUCTORS STRANDED | | AWG MM ² SOLID | | MAXIMUM DIAMETER RANGE (IN.) | STUD SIZE |
|--------------------|--------|---------------------|---------------------------|---------------------------|-------------------------|------------------------------|-----------|
| DOUBLE | SINGLE | MAX. | MIN. | MAX. | MIN. | | |
| SP0DL | SP0SL | 8 | 12 6mm ² | 8 4mm ² | 12 4mm ² | .146–.080 | ¼–20 x 1 |
| SP1DL | SP1SL | 7 | 10 10mm ² | 6 6mm ² | 10 10mm ² | .170–.102 | ¼–20 x 1 |
| SP2DL | SP2SL | 5 | 10 16mm ² | 4 6mm ² | 10 16mm ² | .217–.102 | ⅝–18 x 1 |
| SP3DL | SP3SL | 3 | 10 25mm ² | 2 6mm ² | 10 35mm ² | .271–.102 | ⅝–16 x 1½ |
| SP4DL | SP4SL | 1 | 8 35mm ² | 2 6mm ² | 8 10mm ² | .332–.128 | ⅝–16 x 1½ |
| SP5DL | SP5SL | 1/0 | 2 50mm ² | 2 35mm ² | — 35mm ² | .385–.259 | ⅝–13 x 1½ |
| SP6DL | SP6SL | 2/0 | 2 70mm ² | 2 35mm ² | — 35mm ² | .443–.258 | ⅝–13 x 1½ |
| SP8DL | SP8SL | 4/0 | 1 95mm ² | — 35mm ² | — — | .570–.289 | ⅝–11 x 1½ |
| SP9DL | SP9SL | 350 | 1/0 150mm ² | — 70mm ² | — — | .715–.373 | ⅝–11 x 1½ |
| SP10DL | SP10SL | 500 | 3/0 240mm ² | — 95mm ² | — — | .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" | 3/8" | — | 2 1/16" | 1 1/16" | 2 1/4" |
| GUV5821 | 2/0 | 4 | 3/4" | 5/8" | 3/8" | — | 2 1/16" | 1 1/16" | 2 1/4" |
| GUV5825 | 250 | 2/0 | 3/4" | 5/8" | 3/8" | — | 2 1 3/16" | 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



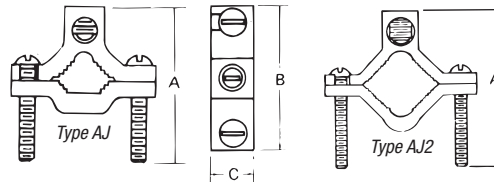
| CAT. NO. | GROUND WIRE SIZE | WATER PIPE SIZE | CAT. NO. | GROUND WIRE SIZE | WATER PIPE SIZE |
|----------|------------------|-----------------|----------|------------------|-----------------|
| 3902 | #4-4/0 AWG | ½"-1" | 3902BU* | #4-4/0 AWG | ½" to 1" |
| 3903 | #4-4/0 AWG | 1¼"-2" | 3903BU* | #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 | ¾-16 | 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.

Thomas & Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289



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



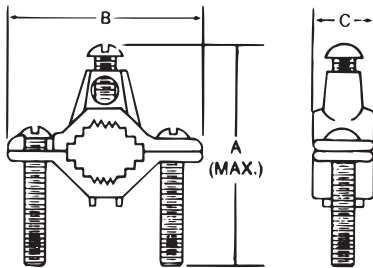
| CAT. NO. | WATER PIPE SIZE | CONDUCTOR RANGE |
|----------|-----------------|------------------|
| JD | ½"-1" | #2 str.-#10 str. |
| J2D | 1¼"-2" | #2 str.-#10 str. |



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 | 6⅝ | 1 |
| J6 | 4¼ to 6 | 4 str. | 10 sol. | 7¼ | 8½ | 1 |

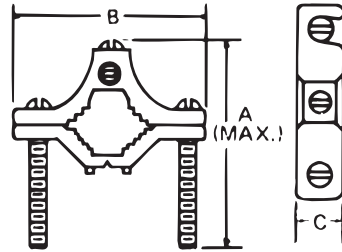
Blackburn®

Ground Clamps

Similar to aluminum water pipe clamp but lighter in construction.

Budget Price Cast Bronze Clamp

Blackburn® Grounding



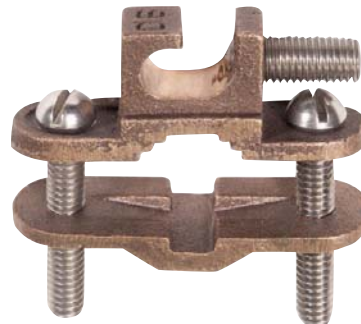
| CAT. NO. | WATER PIPE SIZE | CONDUCTOR RANGE | | DIMENSIONS (IN.) | | |
|----------|-----------------|-----------------|----------|------------------|-------|----|
| | | MAX. | MIN. | A | B | C |
| JJR | ½ to 1 | #4 Str. | #10 Sol. | 2½ | 25/62 | 1½ |

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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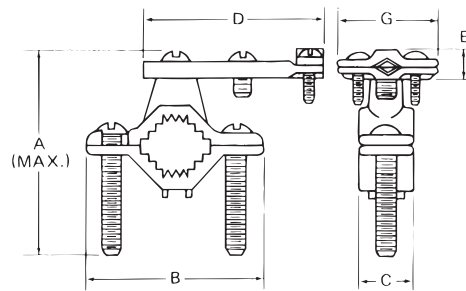
For connecting armored cable to water pipe.



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 | 2⅝ | 2¾ | 1½ | 1¾ |
| JA-2 | 1¼ to 2 | #6 sol. | #10 sol. | 3¼ | 3½ | 1⅞ | 2¾ | 1½ | 1¾ |
| JA-2124 | 2½ to 4 | #6 sol. | #10 sol. | 6 | 6⅞ | 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.

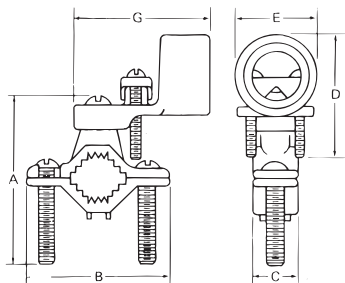


- Continuity from rigid conduit system to ground provided by cast bronze threaded conduit hub
- Hub swings 360° for easy alignment
- Heavy brass washer protects clamped grounding conductor
- Furnished with zinc-plated screws
- Cast bronze pipe clamping portion identical to that used in “JA” clamp

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 | 2⅝ | 1¼ | 1 | 2½ |
| JP-212 | ½ | 1¼ to 2 | #6 sol. | #10 sol. | 3¼ | 3½ | 1⅞ | 1¼ | 1 | 2½ |
| JP-212412 | ½ | 2½ to 4 | #6 sol. | #10 sol. | 6 | 6⅞ | 1 | 1¼ | 1 | 2½ |
| JP-34 | ¾ | ½ to 1 | #2/0 str. | #10 sol. | 2¼ | 2½ | 2⅝ | 2⅞ | 1¼ | 2⅞ |
| JP-234 | ¾ | 1¼ to 2 | #2/0 str. | #10 sol. | 3¼ | 3½ | 1⅞ | 2⅞ | 1¼ | 2⅞ |
| JP-212434 | ¾ | 2½ to 4 | #2/0 str. | #10 sol. | 6 | 6⅞ | 1 | 2⅞ | 1¼ | 2⅞ |
| JP-1 | 1 | ½ to 1 | #3/0 str. | #10 sol. | 2¼ | 2½ | 2⅝ | 2⅞ | 1½ | 2¾ |
| JP-21 | 1 | 1¼ to 2 | #3/0 str. | #10 sol. | 3¼ | 3½ | 1⅞ | 2⅞ | 1½ | 2¾ |
| JP-21241 | 1 | 2½ to 4 | #3/0 str. | #10 sol. | 6 | 6⅞ | 1 | 2⅞ | 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

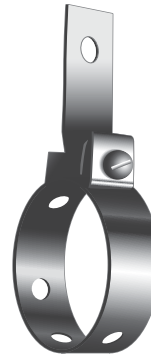


| CAT.NO. | GROUND WIRE RANGE | WATER PIPE & GROUND ROD SIZE/DESC. |
|-------------------|-------------------|------------------------------------|
| 3844* | #8-#4 | ½"-1" |
| 3888 [†] | #8-#4 | ½"-1" also rebar 4-10 |
| 961 | #8 | ¾" - 1" |
| 962** | #8 | ¾" - 2" |
| 963** | #8 | ¾" - 3" |

| 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

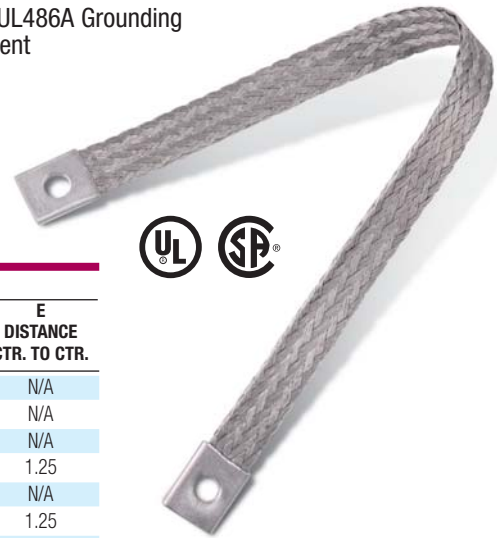
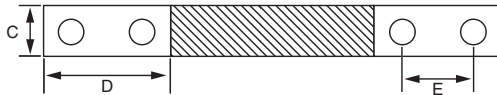
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Technical Services
Tel: 888.862.3289



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 |
| FBD12* | 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.

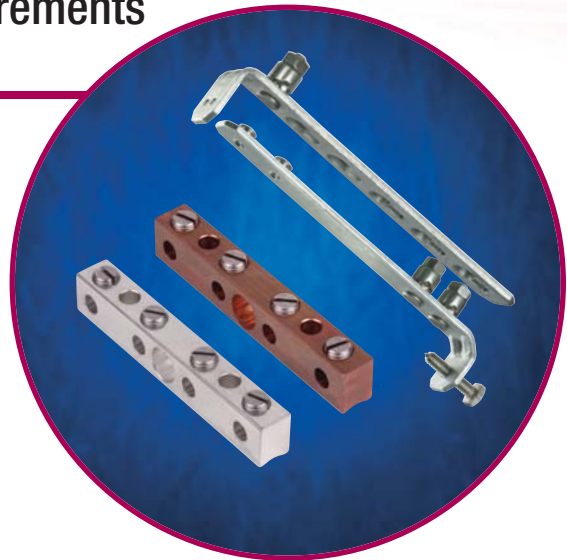
Size calculated in accordance with IEEE No. 80.

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

Intersystem Bonding Termination Ground Clamps



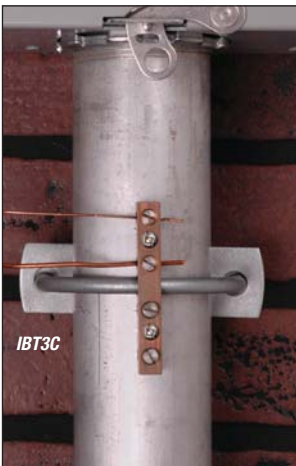
- Convenient, reliable grounding for communications, satellite, CATV and utility services
- Accepts the full range of #14 to #6 AWG ground wire commonly used in the CATV and telephone industries
- Meets or exceeds industry requirements, Bellcore standards and 2008 NEC Section 250.94 requirements
- UL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



Blackburn® Grounding



IBT1



IBT3C



IBT3CB

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

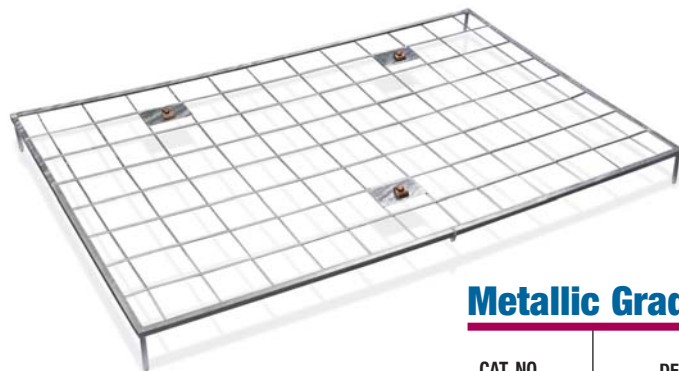
Wall/Pipe Clamps

- Mounts easily on walls (wood, aluminum, brick, mortar or composite material), water pipes or conduit (metallic or plastic) for versatility
- Patent-pending 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" – 15½" 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

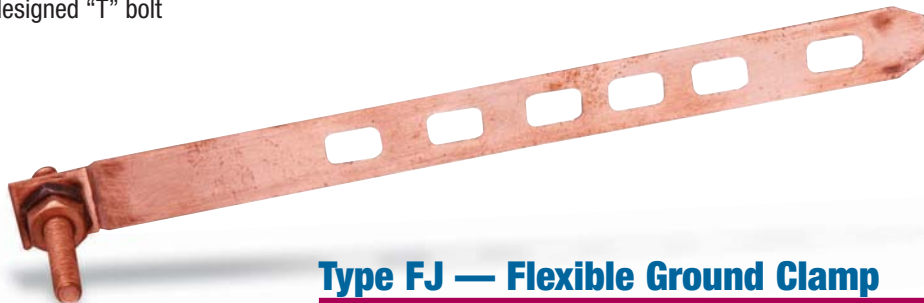
Metallic Gradient Control Mat

| 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 |