



**THORNE &
DERRICK**
INTERNATIONAL

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StructuredGround™ Direct Burial Compression Grounding System

The Panduit® StructuredGround™ Direct Burial Compression Grounding System provides the **highest performance and most reliable compression connection in the industry**. This system offers the speed and safety of a compression connection, while complying with the industry requirements of IEEE Std. 837. The fully inspectable system that is UL 467 Listed and CSA 22.2 Certified, ensures that the installed product operates safely. Wide range-taking and universal designs provide installation flexibility with a minimum number of parts, reducing procurement and inventory costs. Innovative features assure a high quality bond, reducing labor costs and improving crimp quality.



IEEE



Key Features

Benefits

Meets IEEE Std 837	Offers the speed and safety of a compression connection through patented crimp technology for maximum reliability. Compliant to IEEE837, Rev 2002 and 2014.*
Exceeds UL 467 and CSA 22.2 with Panduit or industry standard crimping tools and Panduit crimping dies	Standards compliance and full inspectability ensures that the installed product operates safely, while reducing installation tool costs and providing convenience
Complies with MIL-STD-202G (METHOD 201A)	Reliable performance in high vibration environments
Compression connection	Non-flammable process that installs quickly and safely in any weather condition
Wide range-taking ability and multi-conductor designs 	Provide design and installation flexibility with a minimum number of parts, reduce procurement costs, ease inventory management, and improve availability to meet critical project schedules
Pre-applied conductive antioxidant compound 	Ensures a high quality mechanical and electrical bond, speeding installation
Slotted tap design and locator die 	Speeds installation time, reduces labor costs and improves crimp quality

*Contact Customer Service (cs@panduit.com) for specifics on compliance to IEEE837-2014.

Applications



Oil and Gas



Industrial Facilities



Cell Towers



Construction

StructuredGround™ Direct Burial Compression Grounding System

Meets the most stringent industry standards while offering unmatched ease of installation and safety.

Why Does This Matter?

Grounding is a critical functioning part of the electrical system. The integrity of your grounding system is dependent upon your connectors withstanding the environment in which they are installed. Achieving this reliability, while maximizing safety and speeding installation ensures a grounding system that will provide you with the greatest value.

With the StructuredGround™ Direct Burial Compression Grounding System, you benefit from a connector that meets the highest performance specification in the industry, faster installation, ensured safety in any weather condition, with a minimum investment in tooling and inventory.

Tested to IEEE 837, Rev 2002 and 2014



The IEEE Green Book, "IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems (IEEE Std 142-2007)", states: "(i)t is recommended that [grounding] connections meet the requirements of IEEE Std 837." The purpose of the "IEEE Std 837 for Qualifying Permanent Connections used in Substation Grounding" standard is to give assurance to the user that a connection meeting the requirements of this standard will perform in a satisfactory manner over the lifetime of the installation.

IEEE Std 837 goes beyond the testing required by UL 467 and CSA 22.2, requiring sequences of environmental simulations including: lightning strike, freeze-thaw cycling, and chemical corrosion, to provide better assurance that the grounding system will remain viable throughout its installed life.

Panduit's enhanced crimp process, using patented technology, achieves the latest performance requirements and continues to provide unmatched verification of corrosion resistance. See page 8.

Reduces Installation Costs



- Can be installed in any weather – from extreme cold to wet conditions – the StructuredGround™ Direct Burial Compression Grounding System will keep your construction project on time and on budget
- Wide range-taking components can go from #6 to 500 kcmil wire with only five parts in the GCE and GCC families, minimizing inventory and tool investment
- Only a single die required to crimp each element
- Full inspectability – die index numbers are embossed on the connector body during the crimp process allowing the inspector to quickly and easily identify a proper installation

Increases Job-Site Safety



- No weld connections – special protective equipment or extra clothing is not required
- Full inspectability – die index numbers are embossed on the connector body during the crimp process allowing the inspector to quickly and easily identify a proper installation
- Hydraulic and battery operated compression connection crimping tools reduce operator stress and fatigue



1

Conductor to Conductor

E Style and Cross Connectors:
Creates bonds between parallel
grounding conductors.

See pages 4 & 5



4

Conductor to Building Steel

Universal Beam Grounding Clamp:
Bonds structural steel to grounding
conductor system.

See page 6



2

Conductor to Rebar

E Style and Cross Connectors:
Allows bonds to reinforcing bars.

See pages 4 & 5



5

Conductor to Grounding Electrodes

Grounding Plate Connector:
Allows bonds through concrete.

See page 6



3

Conductor to Ground Rod

E Style and Cross Connectors:
Creates bonds
between perpendicular
grounding conductors.

See pages 4 & 5



6

Related Product LCC-W

Long Barrel Two-Hole
Code Conductor Lugs:
For use with stranded
copper conductors.

Visit www.panduit.com
for complete part details.



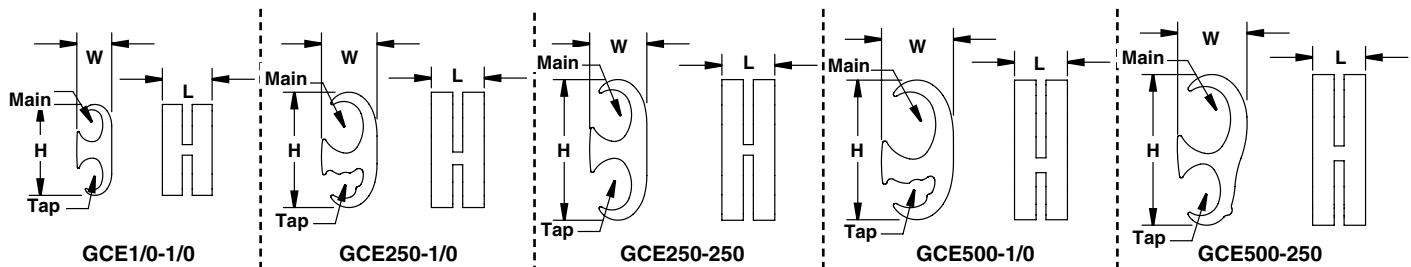
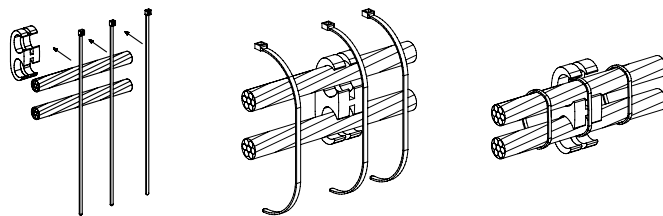
StructuredGround™ Direct Burial Compression Grounding System



- Wide range-taking ability and multi-conductor design provide flexibility with a minimum number of parts, allowing for conductor to conductor, conductor to rebar, and conductor to ground rod applications
- Designed for the enhanced crimp process using patented technology which meets IEEE Std 837
- Slotted design allows quick and easy assembly of conductor to connector using Panduit cable ties, included
- Patented pre-applied conductive antioxidant compound ensures a high quality mechanical and electrical bond, speeding installation
- Color-coded and marked with Panduit die index numbers for proper crimp die selection
- UL 467 Listed and CSA 22.2 Certified for grounding and bonding suitable for direct burial in earth or concrete when crimped with Panduit or industry standard crimping tools and Panduit dies
- Complies with vibration tests per MIL-STD-202G (METHOD 201A)



Views using cable ties



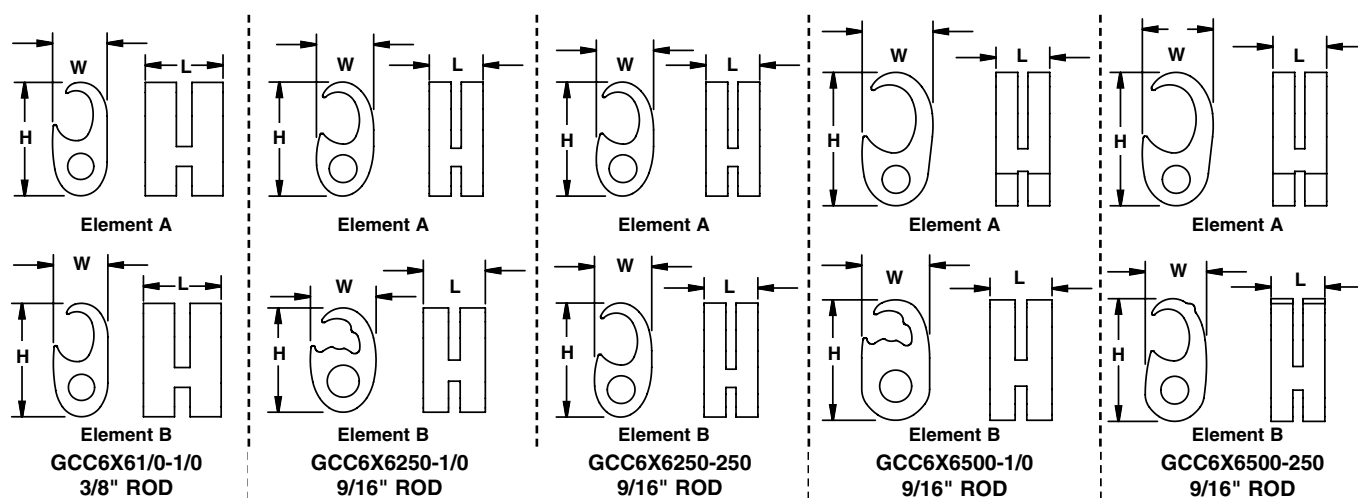
Part Number	Element	Copper Conductor Size Range AWG (mm ²)	Ground Rod Size In. (mm)	Rebar Size In. (mm)	Figure Dimensions In. (mm)			Panduit Color Code	Panduit Die Index No.	Std. Pkg. Qty.	Crimp Process*	
					L	W	H				UL Listed and CSA Certified	IEEE Std 837
GCE1/0-1/0	Main	#6 SOL – 1/0 STR (16 – 50)	—	—	0.94 (23.9)	0.66 (16.8)	1.72 (43.7)	Red	PG10	1	Traditional	Traditional
	Tap	#6 SOL – 1/0 STR (16 – 50)	—	—	—	—	—	—	—	—	—	—
GCE250-1/0	Main	1/0 STR – 250 kcmil (70 – 120)	1/2 – 5/8 (12.7 – 15.9)	3/8 – 1/2, #3 – #4 (9.5 – 12.7), (#10 – #13)	1.00 (25.4)	1.06 (26.9)	2.18 (55.4)	Black	PG25	1	Traditional	Enhanced
	Tap	#6 SOL – 1/0 STR (16 – 50)	—	—	—	—	—	—	—	—	—	—
GCE250-250	Main	1/0 STR – 250 kcmil (70 – 120)	1/2 – 5/8 (12.7 – 15.9)	3/8 – 1/2, #3 – #4 (9.5 – 12.7), (#10 – #13)	1.00 (25.4)	1.08 (27.4)	2.66 (67.6)	Black	PG25	1	Traditional	Enhanced
	Tap	#6 SOL – 1/0 STR (16 – 50)	—	—	—	—	—	—	—	—	—	—
GCE500-1/0	Main	250 – 500 kcmil (150 – 240)	1/2 – 3/4 (12.7 – 19.1)	5/8 – 3/4, #5 – #6 (15.9 – 19.1), (#16 – #19)	1.00 (25.4)	1.36 (34.5)	2.64 (67.1)	Blue	PG50	1	Traditional	Enhanced
	Tap	#6 SOL – 1/0 STR (16 – 50)	—	—	—	—	—	—	—	—	—	—
GCE500-250	Main	250 – 500 kcmil (150 – 240)	1/2 – 3/4 (12.7 – 19.1)	5/8 – 3/4, #5 – #6 (15.9 – 19.1), (#16 – #19)	1.00 (25.4)	1.32 (33.4)	2.85 (72.4)	Blue	PG50	1	Traditional	Enhanced
	Tap	1/0 STR – 250 kcmil (70 – 120)	—	—	—	—	—	—	—	—	—	—

*See page 8 for crimp process details.

See page 7 for a complete list of installation tooling and die selections.

IEEE **UL** **CSA** **DB** **RATED** **Grounding Cross Connectors**

- Only a single die required to crimp each element, which speeds installation and reduces costs
- Wide range-taking ability and multi-conductor design provide flexibility with a minimum number of parts, allowing for conductor to conductor, conductor to rebar, and conductor to ground rod applications
- Designed for the enhanced crimp process using patented technology which meets IEEE Std 837
- Slotted design allows quick and easy assembly of conductor to connector using Panduit cable ties, included
- Patented pre-applied conductive antioxidant compound ensures a high quality mechanical and electrical bond, speeding installation
- Color-coded and marked with Panduit die index numbers for proper crimp die selection
- UL 467 Listed and CSA 22.2 Certified for grounding and bonding suitable for direct burial in earth or concrete when crimped with Panduit or industry standard crimping tools and Panduit dies
- Complies with vibration tests per MIL-STD-202G (METHOD 201A)



Part Number	Element	Copper Conductor Size Range AWG (mm ²)	Ground Rod Size In. (mm)	Rebar Size In. (mm)	Figure Dimensions In. (mm)			Panduit Color Code	Panduit Die Index No.	Std. Pkg. Qty.	Crimp Process*	
					L	W	H				UL Listed and CSA Certified	IEEE Std 837
GCC6X61/0-1/0	A	#6 SOL – 1/0 STR (16 – 50)	—	—	0.94 (23.9)	0.66 (16.8)	1.37 (34.8)	Red	PG10	1	Traditional	Traditional
	B											
GCC6X6250-1/0	A	#2 SOL – 250 kcmil (35 – 120)	1/2 – 5/8 (12.7 – 15.9)	3/8 – 1/2, #3 – #4 (9.5 – 12.7), (#10 – #13)	1.00 (25.4)	1.06 (26.9)	2.12 (53.8)	Black	PG25	1	Traditional	Enhanced
	B	#6 SOL – 1/0 STR (16 – 50)	—	—			1.68 (42.7)					
GCC6X6250-250	A	#2 SOL – 250 kcmil (35 – 120)	1/2 – 5/8 (12.7 – 15.9)	3/8 – 1/2, #3 – #4 (9.5 – 12.7), (#10 – #13)	1.00 (25.4)	1.06 (26.9)	2.12 (53.8)	Black	PG25	1	Traditional	Enhanced
	B											
GCC6X6500-1/0	A	250 – 500 kcmil (150 – 240)	1/2 – 3/4 (12.7 – 19.1)	5/8 – 3/4, #5 – #6 (15.9 – 19.1), (#16 – #19)	1.00 (25.4)	1.32 (33.5)	2.48 (63.0)	Blue	PG50	1	Traditional	Enhanced
	B	#6 SOL – 1/0 STR (16 – 50)	—	—		1.09 (27.7)	1.94 (49.3)					
GCC6X6500-250	A	250 – 500 kcmil (150 – 240)	1/2 – 3/4 (12.7 – 19.1)	5/8 – 3/4, #5 – #6 (15.9 – 19.1), (#16 – #19)	1.00 (25.4)	1.32 (33.5)	2.48 (63.0)	Blue	PG50	1	Traditional	Enhanced
	B	#2 SOL – 250 kcmil (35 – 120)	—	—		1.16 (29.5)	2.29 (58.2)					

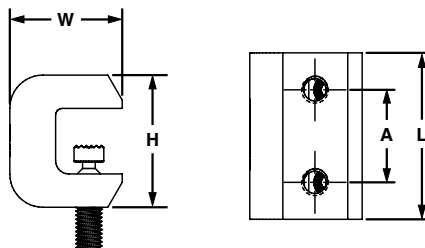
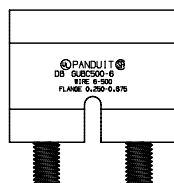
*See page 8 for crimp process details.

See page 7 for a complete list of installation tooling and die selections.

StructuredGround™ Direct Burial Compression Grounding System

IEEE LISTED UL CERTIFIED DB RATED Universal Beam Grounding Clamp **PATENTED**

- Universal, fits on a wide range of standard (angled) and wide flange (parallel) structural steel beams
- Provides a mounting pad suitable for a two-hole compression lug
- Installs quickly and easily with standard 1/4 inch key hex wrench tooling
- UL 467 Listed and CSA 22.2 Certified for grounding and bonding suitable for direct burial in earth or concrete
- Complies with vibration tests per MIL-STD-202G (METHOD 201A)

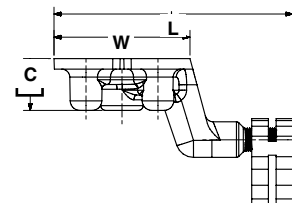
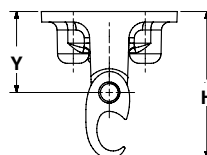
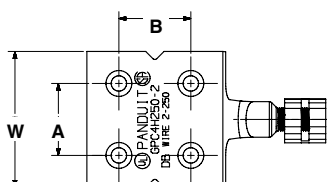


Part Number	Copper Conductor Size Range AWG (mm²)	Flange Thickness In. (mm)	Thread Size In.	Figure Dimensions In. (mm)				Std. Pkg. Qty.
				A	L	W	H	
GUBC500-6	#6 AWG – 500 kcmil (16 – 240)	0.250 – 0.675 (6.3 – 17.1)	1/2 – 13	1.75 (44.4)	3.15 (80.0)	2.13 (54.0)	2.50 (63.5)	1

For stainless steel mounting hardware kit, order part number GLMHK (includes two hex head bolts, two split lock washers and two SAE flat washers).

IEEE LISTED UL CERTIFIED DB RATED Grounding Plate Connector

- Slotted design allows quick and easy assembly of conductor to connector using Panduit cable ties included
- Patented pre-applied conductive antioxidant compound ensures a high quality mechanical and electrical bond, speeding installation
- Complies with vibration tests per MIL-STD-202G (METHOD 201A)
- Made from high conductivity copper; provides strength and premium electrical properties
- Color-coded and marked with Panduit die index numbers for proper crimp die selection
- UL 467 Listed and CSA 22.2 Certified for grounding and bonding suitable for direct burial in earth or concrete when crimped with Panduit or industry standard crimping tools and Panduit dies



Part Number	Copper Conductor Size Range AWG (mm²)	Thread Size In.	Figure Dimensions In. (mm)							Panduit Color Code	Panduit Die Index No.	Std. Pkg. Qty.	Crimp Process*	
			L	W	H	Y	A	B	C				UL Listed and CSA Certified	IEEE Std 837
GPC4H250-2	#2 SOL – 250 kcmil (35 – 120)	1/2 – 13	5.81 (147.5)	3.31 (84.0)	3.58 (90.9)	1.97 (50.0)	1.75 (44.5)	1.75 (44.5)	1.26 (32.0)	Black	PG25	1	Traditional	Enhanced

For stainless steel mounting hardware kit, order part number GLMHK (includes two hex head bolts, two split lock washers and two SAE flat washers).

*See page 8 for crimp process details.

See page 7 for a complete list of installation tooling and die selections.

Locator Dies **PATENTED**

- Locating rib feature positions tap, ensuring full-width crimp
- Color-coded for easy matching to color coding marked on connectors
- Embosses die index number on connector barrels for post crimp inspection
- Part number permanently marked on crimp die for easy identification
- Provides circumferential crimp resulting in terminations with premium electrical and mechanical performance



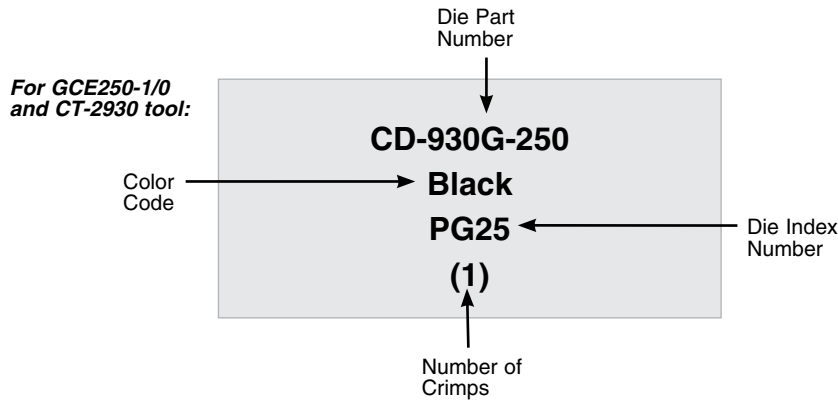
Used to Install Panduit Tap Part Numbers			
Part Number	Copper Tap	Copper Die Color and No.	Std. Pkg. Qty.
CD-930G-1/0	GCE1/0-1/0, GCC6X61/0-1/0	Red PG10	1
CD-930G-250	GCE250-1/0, GCE250-250, GCC6X6250-1/0, GCC6X6250-250, GPC4H250-2	Black PG25	1
CD-930G-500	GCE500-1/0, GCE500-250, GCC6X6500-1/0, GCC6X6500-250	Blue PG50	1

*See page 8 for crimp process details.

See page 7 for a complete list of installation tooling and die selections.

Installation Tooling and Die Selections for Types GCE, GCC, and GPC

How to read this chart



Installation Tools		
12 TON	14 TON	15 TON
Panduit		
CT-2931	CT-930 CT-930CH CT-2930 CT-2930/L CT-2930/LE	CT-940CH CT-2940 CT-2940/L CT-2940/LE
Burndy		
Y750, Y750-2, Y750BH, Y750BH-2, BAT750-14V, PAT750-18V, PAT750C-18V, PAT750XT-18V, PAT750CXT-18V, LPHY750	—	Y46, Y46C, LPHY46
Thomas & Betts		
—	TBM14M, TBM14MC, 13100A, TBM14RH, TBM14BSCR, BPLT14BSERI	TBM15 TBM15BSCR
Panduit Crimp Die Part Number/ Color Code/Die Index Number/ (Number of Crimps)		
CD-930G-1/0 Red PG10 (1)		
CD-930G-250 Black PG25 (1)		
CD-930G-250 Black PG25 (1)		
CD-930G-500 Blue PG50 (1)		
CD-930G-500 Blue PG50 (1)		

Panduit Part Number	Element	Copper Conductor Size Range	Ground Rod Size In.	Rebar Size In.
GCE1/0-1/0	Main	#6 AWG SOL – 1/0 AWG STR	—	—
	Tap	#6 AWG SOL – 1/0 AWG STR	—	—
GCC6X61/0-1/0	A	#6 AWG SOL – 1/0 AWG STR	—	—
	B	#6 AWG SOL – 1/0 AWG STR	—	—
GCE250-1/0	Main	1/0 AWG SOL – 250 kcmil	1/2 – 5/8	3/8 – 1/2, #3 – #4
	Tap	#6 AWG SOL – 1/0 AWG STR	—	—
GCC6X6250-1/0	A	#2 AWG SOL – 250 kcmil	1/2 – 5/8	3/8 – 1/2, #3 – #4
	B	#6 AWG SOL – 1/0 AWG STR	—	—
GCE250-250	Main	1/0 AWG SOL – 250 kcmil	1/2 – 5/8	3/8 – 1/2, #3 – #4
	Tap	1/0 AWG SOL – 250 kcmil	1/2 – 5/8	3/8 – 1/2, #3 – #4
GCC6X6250-250	A	#2 AWG SOL – 250 kcmil	1/2 – 5/8	3/8 – 1/2, #3 – #4
	B	#2 AWG SOL – 250 kcmil	1/2 – 5/8	3/8 – 1/2, #3 – #4
GPC4H250-2		#2 AWG SOL – 250 kcmil	—	—
GCE500-1/0	Main	250 – 500 kcmil	1/2 – 3/4	5/8 – 3/4, #5 – #6
	Tap	#6 AWG SOL – 1/0 AWG STR	—	—
GCC6X6500-1/0	A	250 – 500 kcmil	1/2 – 3/4	5/8 – 3/4, #5 – #6
	B	#6 AWG SOL – 1/0 AWG STR	—	—
GCE500-250	Main	250 – 500 kcmil	1/2 – 3/4	5/8 – 3/4, #5 – #6
	Tap	1/0 AWG SOL – 250 kcmil	—	—
GCC6X6500-250	A	250 – 500 kcmil	1/2 – 3/4	5/8 – 3/4, #5 – #6
	B	#2 AWG SOL – 250 kcmil	—	—

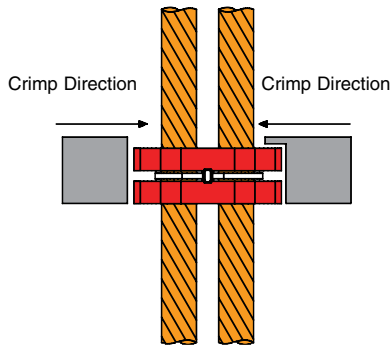
15 ton tools require the CD-940-DA adapter when used with CD-930G series crimping dies.
Panduit crimping dies must be used with all tooling (Panduit and competitor).

StructuredGround™ Direct Burial Compression Grounding System



Traditional Crimp Process**

STEP 1) Position tap in die and crimp



The traditional crimp process embosses the die number on the part *once*, for full inspectability

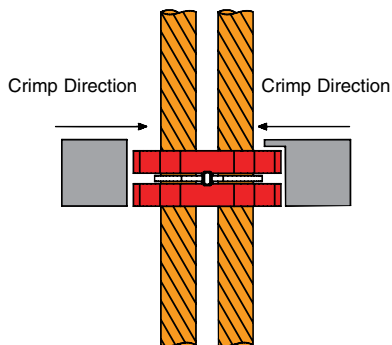


**GCE1/0-1/0 and GCC6X61/0-1/0 achieve IEEE Std 837 through the traditional crimp process.

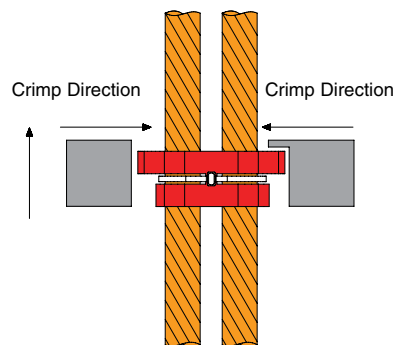


Enhanced Crimp Process – Using Patented Technology

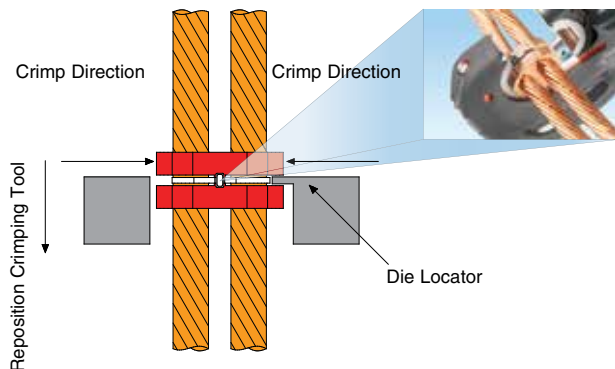
STEP 1) Position tap in die and crimp



STEP 3) Reposition crimping tool, position tap in die and crimp



STEP 2) Reposition crimping tool, identify slotted tap design, align with locator die and crimp



The enhanced crimp process embosses the die number on the part *twice*, for full inspectability



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