



# Grounding Catalog



Top Photo: 01-M-044 Clamp #6 to 2 3/8 Bus



Bottom Photo: 01-M-046 Adapter 1" to 4" Bus with 01-M-044 clamp

Maclean Power Systems Grounding Products have been manufactured for over 25 years for the Power Utility Industry. Our products have been developed by working in conjunction with several utilities to provide Temporary Grounding Products that meet their applications and safety requirements. Our products are recognized for their quality, reliability with the safety of workers as a first priority.

Maclean Power Systems Grounding Products are manufactured to the latest ASTM F855-2009, CAN-ULC-61230 and IEC 61230 Standards. All products have been tested at independent laboratories to the above standards.

\* Grounding assemblies are provided with a certificate of registration that gives traceability for the end user.

\* Grounding assemblies have sealing tape and heat shrink over the ferrules and cable end to inhibit moisture penetration and extend the life of the assembly.

\* Ball Studs, Grounding Studs and ferrules are machined from 99.9% pure copper to give maximum strength and conductivity. Test reports are available upon request.

Maclean Power Systems products can be used for Temporary Grounding Applications in Generating Stations, in Transmission and Distribution sub stations, on Transmission and Distribution lines and also for underground applications.

Maclean Power Systems has recently tested to Grade 5H and 7H of the latest ASTM F855 Standard. These items are:

Universal Clamps: 01-M-034, 01-M-037, 01-M-044, HC-10042, HC-10041 and HC-10041A

Ferrules: 01-M-038-2/0 (3H) 01-M-038-4/0 (5H) 01-M-038-350-3/4-HC (7H)

EPDM Cables: 2/0 cable (3H) 4/0 cable (5H) 350MCM cable (7H)

Maclean Power Systems is aware that the demand for electricity is forever increasing which means that the fault currents available are also increasing this is why we are continuing to develop innovative products that will meet the future demands.

## Table of Contents

<b>GR2 - Single Phase Assemblies</b>	<b>GR7 - Ball Stud &amp; Transmission Clamps</b>	<b>GR12 - NEMA &amp; CadWeld Ball Studs</b>
<b>GR3 - Three Phase Assemblies</b>	<b>GR8 - 2" IPS C Clamp 1.5" to 6 5/8" Grounding Connector</b>	<b>GR13 - Grounding Studs &amp; Connectors for Tubes</b>
<b>GR4 - Ferrules &amp; Cable terminations</b>	<b>GR9 - Elbow Assemblies &amp; Jumpers</b>	<b>GR14 - Grounding Connectors for Conductors</b>
<b>GR5 - Grounding Cable</b>	<b>GR10 - Grounding Clusters &amp; Rod</b>	<b>GR15 - Grounding Accessories</b>
<b>GR6 - Universal &amp; Duckbill Clamps</b>	<b>GR11 - Ball Studs</b>	<b>GR16 - Jumper Accessories</b>



# MacLean Power Systems

Please note that because MacLean Power Systems follows a policy of continuous product improvement, we reserve the right to change specifications and drawings at any time without notice.



# Single Phase Assemblies

**BD**

**B2**

**2/0**

**Y**

**10**

Cable End 1	
<b>B</b>	= Universal Grounding Clamp 01-M-037
<b>B2</b>	= Two grounding ball studs 25 mm installed on clamp
<b>BD</b>	= One grounding ball stud 25 mm installed on right hand side of clamp (jaw facing user)
<b>BG</b>	= One grounding ball stud 25 mm installed on left hand side of clamp (jaw facing user)
<b>H</b>	= Universal Grounding Clamp 01-M-034
<b>H2</b>	= Two grounding ball studs 20 mm installed on clamp
<b>HD</b>	= One grounding ball stud 20 mm installed on right hand side of clamp (jaw facing user)
<b>HG</b>	= One grounding ball stud 20 mm installed on left hand side of clamp (jaw facing user)
<b>D</b>	= Duck Bill Clamp HCDB-117
<b>DS</b>	= Duck Bill Clamp with Serrated Jaws HCDB-117S
<b>P</b>	= With Parking Stud Installed
<b>P</b>	= 20 mm Ball Stud Grounding Clamp HC-10015
<b>Q</b>	= 25 mm Ball Stud Grounding Clamp HC10015-A
<b>C</b>	= C Clamp 01-M-044
<b>C1</b>	= C Clamp 01-M-044A for 30 MM Ball stud
<b>UA</b>	= Universal Grounding Clamp HC-10041-A
<b>S</b>	= C Clamp HC-10042
<b>M</b>	= Cable with ferrule
<b>U</b>	= Universal Grounding Clamp HC-10041
<b>Z 15</b>	= 15kV Elbow
<b>Z 25</b>	= 25kV Elbow

Cable End 2	
<b>B</b>	= Universal Grounding Clamp 01-M-037
<b>B2</b>	= Two grounding ball studs 25 mm installed on clamp
<b>BD</b>	= One grounding ball stud 25 mm installed on right hand side of clamp (jaw facing user)
<b>BG</b>	= One grounding ball stud 25 mm installed on left hand side of clamp (jaw facing user)
<b>H</b>	= Universal Grounding Clamp 01-M-034
<b>H2</b>	= Two grounding ball studs 20 mm installed on clamp
<b>HD</b>	= One grounding ball stud 20 mm installed on right hand side of clamp (jaw facing user)
<b>HG</b>	= One grounding ball stud 20 mm installed on left hand side of clamp (jaw facing user)
<b>D</b>	= Duck Bill Clamp HCDB-117
<b>DS</b>	= Duck Bill Clamp with Serrated Jaws HCDB-117S
<b>P</b>	= With Parking Stud Installed
<b>P</b>	= 20 mm Ball Stud Grounding Clamp HC-10015
<b>Q</b>	= 25 mm Ball Stud Grounding Clamp HC10015-A
<b>C</b>	= C Clamp 01-M-044
<b>C1</b>	= C Clamp 01-M-044A for 30 MM Ball stud
<b>UA</b>	= Universal Grounding Clamp HC-10041-A
<b>S</b>	= C Clamp HC-10042
<b>M</b>	= Cable with ferrule
<b>E</b>	= Exception
<b>T</b>	= T-Handle HC-10026

**Cable Length**  
Cable length in feet

Jacket Type	
<b>B</b>	= (Class K) - Carolprene black opaque jacket
<b>C</b>	= (Class M) - Carol orange opaque jacket
<b>E</b>	= (Class K) - red opaque jacket
<b>S</b>	= (Class K) Silicone transparent jacket
<b>Y</b>	= (Class K) - yellow opaque jacket

Cable size	
<b>2</b>	= 2 AWG (1H)
<b>1/0</b>	= 1/0 AWG (2H)
<b>2/0</b>	= 2/0 AWG (3H)
<b>4/0</b>	= 4/0 AWG (5H)
<b>350</b>	= 350 MCM (7H)
<b>500</b>	= 500 MCM



Cable End 1

Cable End 2

Single Phase Assembly



Cascade Assembly



Carrying Bag

01-C-025-25



Cluster Assembly



# Three Phase Cluster Assemblies

**BD** - **B2** - **2/0** - **Y** - **10** - **Y** - **10**

Cable End 1	
<b>B</b>	= Universal Grounding Clamp 01-M-037
<b>B2</b>	= Two grounding ball studs 25 mm installed on clamp
<b>BD</b>	= One grounding ball stud 25 mm installed on right hand side of clamp (jaw facing user)
<b>BG</b>	= One grounding ball stud 25 mm installed on left hand side of clamp (jaw facing user)
<b>H</b>	= Universal Grounding Clamp 01-M-034
<b>H2</b>	= Two grounding ball studs 20 mm installed on clamp
<b>HD</b>	= One grounding ball stud 20 mm installed on right hand side of clamp (jaw facing user)
<b>HG</b>	= One grounding ball stud 20 mm installed on left hand side of clamp (jaw facing user)
<b>D</b>	= Duck Bill Clamp HCDB-117
<b>DS</b>	= Duck Bill Clamp with Serrated Jaws HCDB-117S
<b>P</b>	= With Parking Stud Installed
<b>P</b>	= 20 mm Ball Stud Grounding Clamp HC-10015
<b>Q</b>	= 25 mm Ball Stud Grounding Clamp HC10015-A
<b>C</b>	= C Clamp 01-M-044
<b>U</b>	= Universal Grounding Clamp HC-10041
<b>S</b>	= Universal Grounding Clamp HC-10042
<b>M</b>	= Cable with ferrule
<b>Z 15</b>	= 15kV Elbow
<b>Z 25</b>	= 25kV Elbow
<b>Z 35</b>	= 35kV Elbow

Cable End 2	
<b>B</b>	= Universal Grounding Clamp 01-M-037
<b>B2</b>	= Two grounding ball studs 25 mm installed on clamp
<b>BD</b>	= One grounding ball stud 25 mm installed on right hand side of clamp (jaw facing user)
<b>BG</b>	= One grounding ball stud 25 mm installed on left hand side of clamp (jaw facing user)
<b>H</b>	= Universal Grounding Clamp 01-M-034
<b>H2</b>	= Two grounding ball studs 20 mm installed on clamp
<b>HD</b>	= One grounding ball stud 20 mm installed on right hand side of clamp (jaw facing user)
<b>HG</b>	= One grounding ball stud 20 mm installed on left hand side of clamp (jaw facing user)
<b>D</b>	= Duck Bill Clamp HCDB-117
<b>DS</b>	= Duck Bill Clamp with Serrated Jaws HCDB-117S
<b>P</b>	= With Parking Stud Installed
<b>P</b>	= 20 mm Ball Stud Grounding Clamp HC-10015
<b>Q</b>	= 25 mm Ball Stud Grounding Clamp HC10015-A
<b>C</b>	= C Clamp 01-M-044
<b>U</b>	= Universal Grounding Clamp HC-10041
<b>S</b>	= Universal Grounding Clamp HC-10042
<b>M</b>	= Cable with ferrule
<b>Z 15</b>	= 15kV Elbow
<b>Z 25</b>	= 25kV Elbow
<b>Z 35</b>	= 35kV Elbow
<b>T</b>	= T-Handle HC-10026

Cable Size	
<b>2</b>	= 2 AWG (1H)
<b>1/0</b>	= 1/0 AWG (2H)
<b>2/0</b>	= 2/0 AWG (3H)
<b>4/0</b>	= 4/0 AWG (5H)

Cable Length (L2)	
	Cable length in feet

Letter "Y"	
<b>Y</b>	= Three Phase Assembly

Jacket Type	
<b>B</b>	= Carolprene - black opaque jacket
<b>C</b>	= Carol (Class M) - orange opaque jacket
<b>E</b>	= Excelene (Class K) - red jacket
<b>S</b>	= Silicone - transparent jacket
<b>Y</b>	= Grounding Cable - yellow opaque jacket

Cable Length (L1)	
	Cable length in feet



Cable End 1

Cable End 2

Single Phase Assembly



Carrying Bag

01-C-025-25



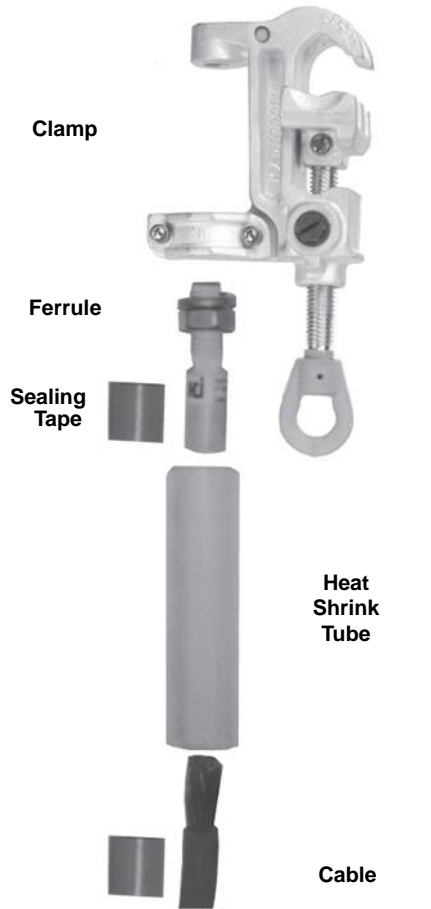
Cascade Assembly



Three Phase Assembly



# Grounding Assemblies



## Grounding Assemblies

### Features

- All grounding components can be sold separately
- For other components, see following pages

## Sealing Tape

Catalog Number	Required Per End	Length (In)
HC-10068-C	1	6

Note: Can order complete 25ft roll HC-10068

## Clear Polymer Heat Shrink Tube

Catalog Number	Required Per End	Length (In)	I.D. (In)	For Cable Size
HC-10067-1.1	1	5.0	1.1	#2 - 2/0
HC-10067-1.1-7	1	7.0	1.1	#2 - 2/0
HC-10067-1.5	1	6.0	1.5	4/0
HC-10067-1.5-7	1	7.3	1.5	4/0
HC-10067-2.0	1	9.6	1.5	350 - 500 MCM

## Cable Termination Kits (per each extremity)

Each kit includes (1) ferrule, heat shrink tube, and sealing tape

Catalog Number	For Cable Size
KIT 01-M-038-35-2	#2 (1H)
KIT 01-M-038-50-1/0	1/0 (2H)
KIT 01-M-038-2/0	2/0 (3H)
KIT 01-M-038-4/0	4/0 (5H)
KIT 01-M-038-350-3/4	350 MCM (7H)
KIT 01-M-038-500	500 MCM

## Ferrules

### Features

- All ferrules are filled with inhibitive grease to prevent humidity infiltration
- Compression ferrules for 5/8 - 11 UNC threaded type terminal
- Stainless steel hardware (nut and lock washer) and grease cap included
- Tested and certified only with MPS components

### Materials

99.9% electrolytic tin-plated copper



Catalog Number	Cable Caliber	Compression Die		Dimensions		Capacity 15 Cycles	Capacity 30 Cycles	Weight
		Husky	Burndy	A	L			
01-M-038-35-2 (1H)	2 AWG	HT41CE	U-164*	0.625	3	15kA (ASTM) Peak 41kA	11.5kA (ASTM)	0.26
01-M-038-35-50-1/0 (2H)	1/0 AWG	HT41CF	U-166	0.690	3	25kA (ASTM) Peak 65kA	18.4kA (ASTM)	0.23
01-M-038-2/0 (3H)	2/0 AWG	HT41CF	U-166	0.750	3	22kA (IEC) 27kA (ASTM)	20kA (ASTM)	0.29
01-M-038-4/0 (5H)	4/0 AWG	HT41CJ	U-168	0.940	3	35kA (IEC) 47kA (ASTM)	30kA (ASTM)	0.37
01-M-038-350 (7H)	350 MCM	HT41BL	U34-RT	1.062	7	40kA (IEC) 75kA (ASTM)	53kA (ASTM)	1.05
01-M-038-500	500 MCM	HT41BP	U39-RT	1.300	7	55kA (IEC) 86.3kA (ASTM)	61kA (ASTM)	1.46

### Notes:

\* - For 2 AWG transparent silicone jacket cable and 2 AWG yellow jacket cable, use Die U-165



# Grounding Cable



Jacket                      Separator                      Strands

## Opaque Class "K" Yellow EPDM Jacket Cable

Catalog Number	Color	Caliber AWG	Conductor Diameter	Number of Strands	Cable Diameter	Capacity 15 Cycles	Capacity 30 Cycles	Temperature (°F)	Separator	Weight (lbs/500' reel)
MPSKY#2	Yellow	2	.32	661/30	.49	12kA (IEC) 15kA (ASTM)	11.5kA (ASTM)	-58 to 221	Paper	294
MPSKY1/0	Yellow	1/0	.42	1050/30	.59	20kA (IEC) 25kA (ASTM)	18.4kA (ASTM)	-58 to 221	Paper	455
MPSKY2/0	Yellow	2/0	.47	1323/30	.63	22kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	-58 to 221	Paper	539
MPSKY4/0	Yellow	4/0	.59	2107/30	.80	35kA (IEC) 47kA (ASTM)	29.4kA (ASTM)	-58 to 221	Paper	857

## Transparent Silicone Jacket Cable

Catalog Number	Color	Caliber AWG	Conductor Diameter	Number of Strands	Cable Diameter	Capacity 15 Cycles	Capacity 30 Cycles	Temperature (°F)	Separator	Weight (lbs/500' reel)
MPSS#2	Clear	2	.33	665/30	.53	12kA (IEC) 15 (ASTM)	11.5kA (ASTM)	-58 to 221	None	296
MPSS1/0	Clear	1/0	.44	1050/30	.65	20kA (IEC) 25kA (ASTM)	18.4kA (ASTM)	-58 to 221	None	455
MPSS2/0	Clear	2/0	.50	1323/30	.70	22kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	-58 to 221	None	565
MPSS4/0	Clear	4/0	.64	2107/30	.84	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	-58 to 221	None	871

## Opaque Class "K" Red EPDM Jacket Cable

Catalog Number	Color	Caliber AWG	Conductor Diameter	Number of Strands	Cable Diameter	Capacity 15 Cycles	Capacity 30 Cycles	Temperature (°F)	Separator	Weight (lbs/500' reel)
MPSKR#2	Red	2	.32	651/30	.49	12kA (IEC) 15 (ASTM)	11.5kA (ASTM)	-58 to 221	Paper	294
MPSKR1/0	Red	1/0	.42	1050/30	.59	20kA (IEC) 25kA (ASTM)	18.4kA (ASTM)	-58 to 221	Paper	455
MPSKR2/0	Red	2/0	.47	1323/30	.63	22kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	-58 to 221	Paper	539
MPSKR4/0	Red	4/0	.59	2107/30	.80	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	-58 to 221	Paper	857

## Opaque Class "M" EPDM Jacket Cable

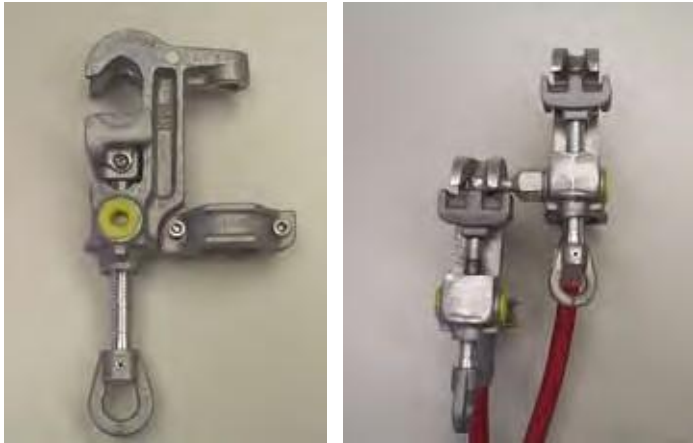
Catalog Number	Color	Caliber AWG	Conductor Diameter	Number of Strands	Cable Diameter	Capacity 15 Cycles	Capacity 30 Cycles	Temperature (°F)	Separator	Weight (lbs/500' reel)
MPSMO#2	Orange	2	.32	1650/34	.49	12kA (IEC) 15kA (ASTM)	11.5kA (ASTM)	-58 to 194	Paper	302
MPSMO1/0	Orange	1/0	.42	2640/34	.58	20kA (IEC) 25kA (ASTM)	18.4kA (ASTM)	-58 to 194	Paper	471
MPSMO2/0	Orange	2/0	.47	3300/34	.65	22kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	-58 to 194	Paper	549
MPSMO4/0	Orange	4/0	.59	5225/34	.83	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	-58 to 194	Paper	871

## Opaque Class "K" Black EPDM Jacket Cable

Catalog Number	Color	Caliber AWG	Conductor Diameter	Number of Strands	Cable Diameter	Capacity 15 Cycles	Capacity 30 Cycles	Temperature (°F)	Separator	Weight (lbs/500' reel)
MPSKB350	Black	350 MCM	.77	3432/30	1.06	40kA (IEC) 68kA (ASTM)	51.3kA (ASTM)	-58 to 194	Paper	1369
MPSKB500	Black	500 MCM	.95	5054/30	1.25	55kA (IEC) 86.3 (ASTM)	61kA (ASTM)	-58 to 194	Paper	1949



# Grounding Clamps



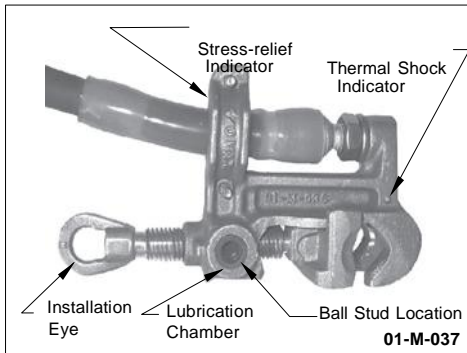
## C-Clamp, Distribution (5H)

### Features

- Can be installed on all electrical facilities, apparatus, tubes, and conductors as well as various equipments (trucks, pulling equipment, etc.)
- Installation on conductor, round bus bar and grounding ball stud of 20 mm and 25 mm
- Tested to ASTM F-855-2009, IEC 61230, CAN-ULC 61230
- Stress relief to reduce cable damage and serve as a shock damper if fault occurs, which protects cable strands
- Locations on each side of clamp for 20 mm or 25 mm grounding ball studs installation, which serve as support studs for either a grounding cluster or cascade assembly
- Fitted to receive a 5/8-11 UNC threaded stud ferrule
- Lubrication chamber for upkeep of threads
- Installation eye for installing clamp with shotgun stick
- Double internal threads for fast removal
- **Tested and certified only with MPS components**

### Material

Body and Eye Screw Aluminum A356T6



### T-Handle Option

Used to attach grounding clamp by hand. Fits all MPS grounding clamps and most industry grounding clamps

### Material

Aluminum

Catalog Number	Ground Stud	Jumper Cable		Main Conductor		Jaw Opening	Tested 15 Cycles	Maximum Peak	Last Cycle Peak	Weight	Std Pkg
		Min	Max	Min	Max						
01-M-034 (5H)	20 mm	2 AWG	4/0 AWG	#8 (.13)	556 (.86)	1 3/8	35kA (IEC) 47kA (ASTM)	126kA (ASTM)	70kA	1.3	20
01-M-037 (5H)	25 mm	2 AWG	4/0 AWG	#8 (.13)	795 (1.13)	1 3/8	46kA (IEC) 47kA (ASTM)	126kA (ASTM)	70kA	1.4	20

### Notes:

- 1) For "T" Handle screw, add suffix "-T" to catalog number
- 2) HC-30033 ball stud can be used as a Grounding Stud with 01-M-037



## Duck Bill Clamp, Distribution (5H)

### Features

- Tested on continuous current at 400A with 2/0 - 35kV jumper cable
- **Tested and certified only with MPS components**
- Stress relief to reduce cable damage and serve as a shock damper if fault occurs, which protects cable strands
- Lubrication chamber for upkeep of threads

### Materials

Body and Eye Screw: Aluminum A356T6

Catalog Number	Dimensions	Jumper Cable		Main Conductor		Tested 15 Cycles	Maximum / Last cycle Peak	Weight	Std Pkg
		Min	Max	Min	Max				
HCDB-117 (5H)	6.875 x 5.5 x 2.875	#2	4/0	6 AWG (.16)	900 MCM (1.162)	35kA (IEC) 47kA (ASTM)	126kA / 70kA	1.2	20
HCDB-117-S (5H)	6.875 x 5.5 x 2.875	#2	4/0	6 AWG (.16)	900 MCM (1.162)	35kA (IEC) 47kA (ASTM)	126kA / 70kA	1.2	20

### Notes:

- 1) For Parking Stud add suffix 'P' to catalog number
- 2) For 'T' Handle screw add suffix 'T' to catalog number



# Grounding Clamps



HC-10015A

## Ball Stud Clamp, Distribution (5H)

### Features

- Installation on 20 mm or 25 mm grounding ball stud
- Perfect for tight areas, switchgears, enclosures, etc.
- Fitted to receive a 5/8-11 UNC threaded stud ferrule
- Lubrication chamber for upkeep of threads
- **Tested and certified only with MPS components**

### Materials

HC-10015: Tin-plated copper/zinc alloy  
 HC-10015A: Bronze

Catalog Number	Dimensions	Grounding Stud	Jumper Cable		Tested 15 Cycles	Maximum / Last cycle Peak	Weight	Std Pkg
			Min	Max				
HC-10015 (1H)	6.25 x 3 .25 x 1.75"	20 mm	#2	1/0	20kA (IEC) 25kA (ASTM)	41kA / 23kA	1.55	1
HC-10015A (5H)	6.25 x 3.25 x 1.75"	25 mm	#2	4/0	35kA (IEC) 47kA (ASTM)	126kA / 70kA	1.75	1

1) For 'T' Handle screw add suffix 'T' to catalog number



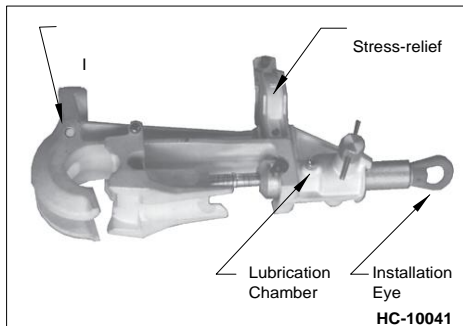
## Universal Clamp, Transmission (5H / 7H)

### Features

- Can be installed on all electrical facilities, apparatus, tubes, and conductors as well as various equipment (trucks, pulling equipment, etc.)
- Installation on conductor, round bus bar and grounding ball stud of 30 mm
- Tested to 5H (HC-10041) and 7H (HC-10041-A)
- **Tested and certified only with MPS components**
- Stress relief to reduce cable damage and serve as a shock damper if fault occurs, which protects cable strands
- Fitted to receive a 5/8-11 or 3/4-10 UNC threaded stud ferrule
- Lubrication chamber for upkeep of threads
- Double internal threads for fast installation and removal
- No exposed threads for minimal maintenance

### Materials

Body and Eye Screw: Aluminum A356T6



Catalog Number	Dimensions	Ground Stud	Jumper Cable		Main Conductor		Jaw Opening	Tested 15 Cycles	Maximum / Last cycle Peak	Weight	Std Pkg
			Min	Max	Min	Max					
HC-10041 (5H)	15.5 x 6.5 x 3.25	30 mm	#2	4/0	1/0 (.40)	1796 (1.60)	2"	55kA (IEC) 47kA (ASTM)	126kA / 70kA	3.9	6
HC-10041A (7H) *	15.5 x 6.5 x 3.25	30 mm	#2	350 MCM	1/0 (.40)	1796 (1.60)	2"	55kA (IEC) 68kA (ASTM)	183kA / 101kA	3.9	6

Notes: \* HC-10041-A is threaded to receive 3/4" ferrules only.  
 For 'T' Handle screw add suffix 'T' to catalog number



# Grounding Clamps



01-M-044

## Universal Grounding Clamp - 2" IPS 'C' Clamp (5H)

### Features

- Can be installed on all electrical facilities, apparatus, round bus bar and flat bus bar as well as various equipment (trucks, pulling equipment etc.).
- Installation eye for use with shotgun stick
- This universal clamp can also be used on a jumper cable
- 01-M-044 fitted to receive a 5/8-11 UNC threaded stud ferrule
- 01-M-044A will fit a 30mm ball stud
- Stress relief to reduce cable damage and serves as shock damper if fault occurs
- Lubrication chamber for upkeep of thread
- **Tested and certified only with MPS components**

### Benefits

- Lightweight and easy to use
- Compact design allows use in restrained areas
- Wide range taking allows for use in several grounding applications

### Material

Aluminum body, keeper and eye screw A356T6

Catalog / Number /	Ground stud	Jumper Cable		Jaw Opening (in).	Main Conductor (in)		Tested 15 Cycles	Maximum Peak	Last Cycle Peak	Weight (lbs)
		Min	Max		Min	Max				
01-M-044 (5H) /	25MM	#2	4/0	2 1/2	(0.13) 4 AWG	2 3/8	47kA	126kA	70 kA	2.6
01-M-044A (5H) /	30MM	350MCM	350MCM	2 1/2	(0.13) 4 AWG	2 3/8	47kA	126kA	70 kA	2.6

#### Notes:

- 1) For 'T' Handle screw add suffix 'T' to catalog number
- 2) 01-M-044 will fit 25 mm ball stud , 01-M-044A will fit 30 mm ball stud



01-M-048



01-M-046

## Grounding Connector for 1.5" to 4.5" Tubes or Bars (5H)

### Features

- Can be installed on tubes 1.5" to 4.5" O.D. and flat bars 1.5" to 4.5"
- Fitted to receive 25 mm Ball Stud, 03-M-015 Grounding Stud and 30 mm Ball Stud
- Lubrication chamber for upkeep of threads

### Benefits

- Unit is installed with hot stick without the weight of the grounding cable
- Allows use of grounding cable with smaller clamps to minimize weight

Catalog Number	Connection	Jaw Opening (in).	Main Conductor (in)		Tested 15 Cycles	Maximum Peak	Last Cycle Peak	Weight (lbs)
			Min	Max				
01-M-046 (5H)	03-M-015 Gr. Stud	4 1/2	1.5" round or flat	4.5" round or flat	47 kA	126kA	70 kA	4.9
01-M-047 (5H)	25 mm Ball Stud	4 1/2	1.5" round or flat	4.5" round or flat	47 kA ASTM	126kA	70 kA	4.9
01-M-048 (5H)	30 mm Ball Stud	4 1/2	1.5" round or flat	4.5" round or flat	47 ka ASTM	126kA	70 kA	5.2
01-M-061 (5H)	03-M-015 Gr. Stud	6 5/8	4.5" round or flat	6.625" round or flat	47 Ka ASTM	126kA	70 kA	4.9
01-M-062 (5H)	25 mm Ball Stud	6 5/8	4.5" round or flat	6.625" round or flat	47 ka ASTM	126kA	70 kA	4.9
01-M-063 (5H)	30 mm Ball Stud	6 5/8	4.5" round or flat	6.625" round or flat	47 ka ASTM	126kA	70 kA	5.2

Note: 01-M-046 was tested at 68 kA with a Peak Current of 183 kA and last cycle at 101 kA



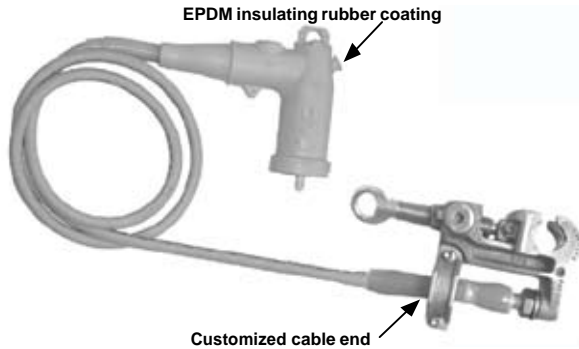


# Temporary Underground Elbow Assemblies

## Temporary Underground Elbow Assemblies

### Features

- Each custom grounding elbow assembly is supplied with 6 feet of cable



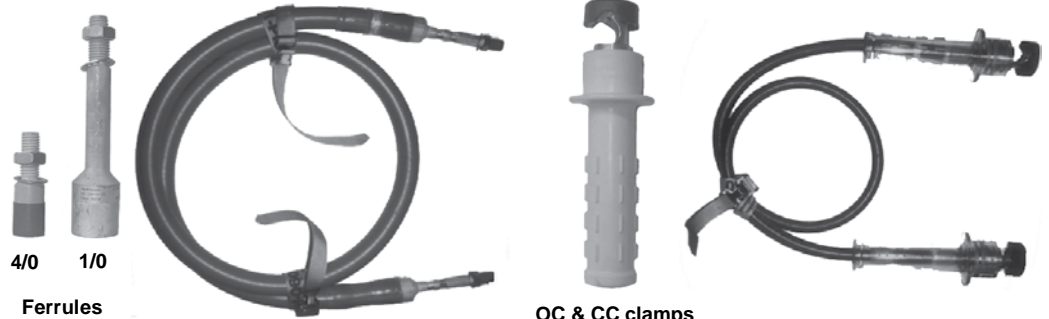
<b>Z15</b>	<b>B</b>	<b>2/0</b>	<b>Y</b>	<b>6</b>
<b>Voltage</b>		<b>Cable Size</b>		<b>Cable Length</b>
Z15	= 15kV Elbow	1/0	= 1/0 AWG (2H)	Cable length in feet
Z25	= 25kV Elbow	2/0	= 2/0 AWG (3H)	
Z35	= 35kV Elbow			
<b>Customized Cable End</b>				
B	= 25 mm Universal Grounding Clamp 01-M-037			
H	= 20 mm Universal Grounding Clamp 01-M-034			
D	= Duck Bill Clamp HCDB-117			
C	= 01-M-044 C Clamp			
M	= Cable with ferrule			
E	= Exception			
<b>Jacket Type</b>				
Y	= Grounding Cable - yellow opaque jacket			

## Jumpering Assemblies

### Jumpering Assemblies

#### Features

- All suggested clamps are rated 400 Amps continuous rating
- This rating depends on the jumper cable rating
- Pre-assembled with a 5/8 - 11 UNC ferrule at each end
- Ends sealed with sealing tapes and clear heat shrink tubes
- Storage straps included



<b>DP</b>	<b>D</b>	<b>15</b>	<b>1/0</b>	<b>6</b>			
<b>Cable End 1</b>		<b>Cable Length</b>					
D	= Duck Bill Clamp HCDB-117	Cable length in feet					
DP	= Duck Bill Clamp with parking stud HCDB-117P						
OC	= Yellow opaque #6 SOL-954 MCM clamp						
CC	= Clear #6 SOL-954 ACSR clamp						
S	= Cable with ferrules						
<b>Cable End 2</b>		<b>Cable Insulation and Size</b>					
D	= Duck Bill Clamp HCDB-117	<b>Cable Insulation (kV)</b>	<b>Size (AWG)</b>	<b>No of Strands</b>	<b>O.D. (In)</b>	<b>Current Rating</b>	<b>Jacket Color</b>
DP	= Duck Bill Clamp with parking stud HCDB-117P	2	4/0	551	0.841	400	Black
OC	= Yellow opaque #6 SOL-954 MCM clamp	15	#2	259	0.780	200	Red
CC	= Clear #6 SOL-954 ACSR clamp	15	1/0	259	0.865	250	Red
S	= Cable with ferrules	15	2/0	259	0.910	300	Red
		15	4/0	437	1.052	400	Red
		25	1/0	413	1.113	260	Red
		25	2/0	266	1.116	300	Red
		35	1/0	427	1.270	250	Red



Optional Jumper cable carriage bag





# Grounding Products Accessories



## Grounding Cluster Block

### Features

- For installation on a pole or structure. The 11.5" bar accepts up to four grounding clamps
- Block also has two threaded holes to accept 5/8 - 11 UNC ferrules
- Rating: 47kA ASTM F-855-2009

### Materials

Bar: 3/4" tinned copper

Catalog Number	Mounting	Weight (Lbs)	Std Pkg
HC-10111	Chain tightener	6.7	2



## Temporary Grounding Rod

### Features

- A time saving product for maintenance or testing where there is no permanent ground. It can also be used for applications where there is no system neutral
- T-Lug is provided for a maximum 2/0 ground cable
- If required, compression type threaded ferrules can also be used for ground cable connection

### Materials

Auger bit and handle: Bronze alloy  
Shaft: Copperweld

Catalog Number	Maximum Conductor Size	Overall Dimensions	Weight (Lbs)
133007	2/0 AWG class "K"	1/2" diameter x 6 feet	29.0

Grounding block



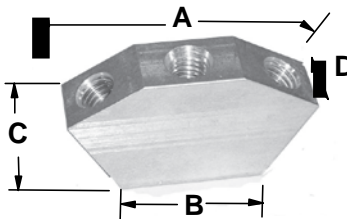
## Three Way Grounding Block (5H)

### Features

- Connection joint in a temporary grounding three phase assembly
- Tested up to 47kA (ASTM) and 35kA (IEC)
- **Tested and certified only with MPS components**

### Materials

Aluminum 6061-T6



Catalog Number	Jumper Cable		Dimension				Capacity 15 Cycles	Capacity 30 Cycles	Weight (Lbs)
	Min	Max	A	B	C	Thread			
HC-10093 (5H)	2 AWG	4/0 AWG	3 3/4	2 3/8	2	1	35 kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	0.3



# Grounding Ball Studs



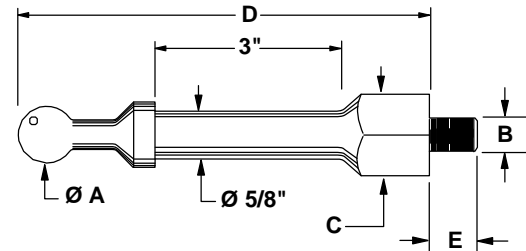
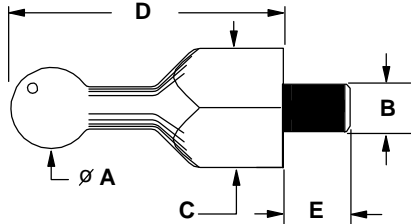
## Grounding Ball Studs (5H)

### Features

- Permanent grounding ball studs permit universal and ball stud clamps to be used for different electrical systems such as apparatus, bus bar, conductors, vehicles, reels, etc
- Spherical form of grounding ball stud permits installation of grounding clamp at various angles to reach the most inaccessible areas
- Meets ASTM and IEC standards
- Stainless steel hardware (washer, lock washer, and nut) included (if applicable)

### Materials

99.9% electrolytic tin-plated copper



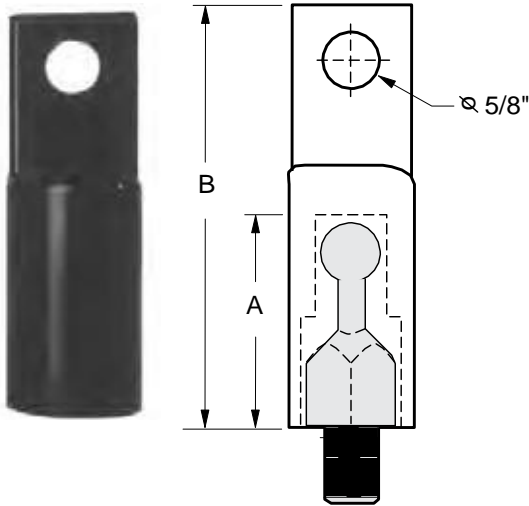
Catalog Number	Dimensions					Weight	Std Pkg
	A	B	C	D	E		
03-M-006	20 mm	1/2 - 13	7/8	2 15/16	no screw	0.2	25
03-M-006-0.5	20 mm	1/2 - 13	7/8	2 15/16	1/2	0.3	25
03-M-006-1*	20 mm	1/2 - 13	7/8	2 15/16	1	0.4	25
03-M-026	20 mm	1/2 - 13	7/8	4	no screw	0.6	25
03-M-026-0.5	20 mm	1/2 - 13	7/8	4	1/2	0.7	25
03-M-026-1*	20 mm	1/2 - 13	7/8	4	1	0.7	25
HC-30015	20 mm	1/2 - 13	7/8	6	no screw	0.8	25
HC-30015-0.5	20 mm	1/2 - 13	7/8	6	1/2	0.9	25
HC-30015-1*	20 mm	1/2 - 13	7/8	6	1	0.9	25
03-M-027	20 mm	5/8 - 11	1	4	no screw	0.8	25
03-M-027-0.5	20 mm	5/8 - 11	1	4	1/2	0.9	25
03-M-027-1*	20 mm	5/8 - 11	1	4	1	0.9	25
HC-30028	20 mm	5/8 - 11	1	2 5/8	no screw	0.7	25
HC-30028-0.5	20 mm	5/8 - 11	1	2 5/8	1/2	0.8	25
HC-30028-1*	20 mm	5/8 - 11	1	2 5/8	1	0.8	25
HC-30029	25 mm	1/2 - 13	1	3	no screw	0.5	25
HC-30029-0.5	25 mm	1/2 - 13	1	3	1/2	0.6	25
HC-30029-1*	25 mm	1/2 - 13	1	3	1	0.6	25
HC-30036	25 mm	1/2 - 13	1	6 1/4	no screw	1.1	25
HC-30036-0.5	25 mm	1/2 - 13	1	6 1/4	1/2	1.2	25
HC-30036-1*	25 mm	1/2 - 13	1	6 1/4	1	1.2	25
HC-30037	25 mm	5/8 - 11	1	3	no screw	0.4	25
HC-30033	25 mm	5/8 - 11	1	3	1/2	0.5	1
HC-30037-1*	25 mm	5/8 - 11	1	3	1	0.5	25
HC-30012	30 mm	5/8 - 11	1 1/2	4 3/8	no screw	1.8	25
HC-30012-0.5	30 mm	5/8 - 11	1 1/2	4 3/8	1/2	1.9	25
HC-30012-1*	30 mm	5/8 - 11	1 1/2	4 3/8	1	1.9	25

### Notes:

- 1) \* - hardware included
- 2) HC-30033 used as grounding ball stud on 01-M-037
- 3) Other length for "E" available upon request (e.g. HC-30029-3.5 for 3.5" length)
- 4) 20 mm and 25 mm grounding ball studs are rated for 35kA per IEC 61230 and 47kA per ASTM F 855
- 5) 30 mm grounding ball studs are rated for 60kA per IEC 61230 and 74kA per ASTM F 855



# Grounding Ball Studs



## Insulated Protective Cap

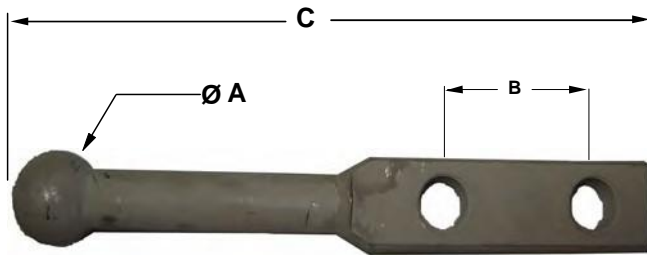
### Features

- Used to insulate 20 mm, 25 mm or 30 mm grounding ball studs and protects from contamination
- Handle for installation with a shotgun stick

### Materials

Polyurethane

Catalog Number	Dimensions		Ground Stud	Weight	Std Pkg
	A	B			
01-P-064	2 1/2	4 5/8	20 mm	0.20	1
01-P-064-25	3 1/4	5 7/8	25 mm	0.24	1
01-P-064-30	4 5/8	7 1/4	30 mm	0.46	1



## Grounding Ball Stud for NEMA Pad Connections (5H)

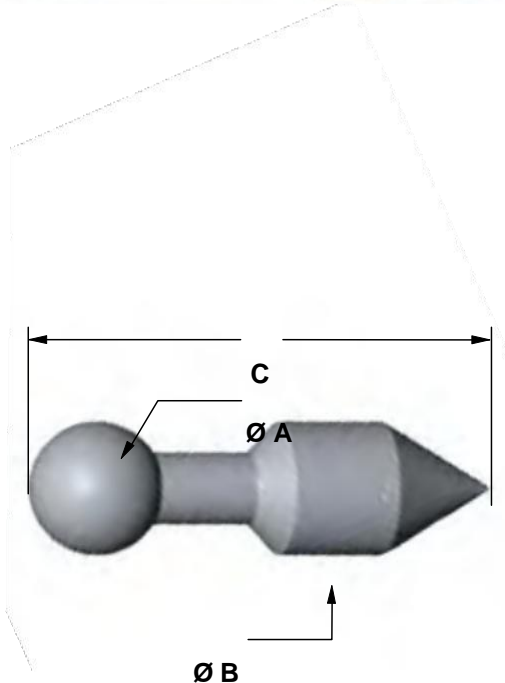
### Features

- Grounding ball stud allowing the installation on NEMA Pad

### Materials

99.9% electrolytic tin-plated copper

Catalog Number	Dimensions			Weight	Std Pkg
	A	B	C		
HC-30044	25 mm	1 3/4	7 1/4	0.3	1



## Grounding Ball Stud for CADWELD Connections

### Features

- Permanent welded grounding ball stud allowing the installation of either a universal or ball stud grounding clamp to a steel structure
- Grounding ball stud can be installed in most inaccessible areas

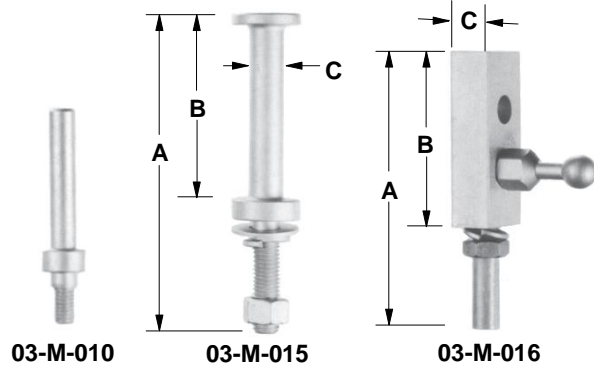
### Materials

99.9% electrolytic tin-plated copper

Catalog Number	Dimensions			Weight	Std Pkg
	A	B	C		
HC-30055-20	20 mm	5/8	2 25/32	0.2	1



# Grounding Products Accessories



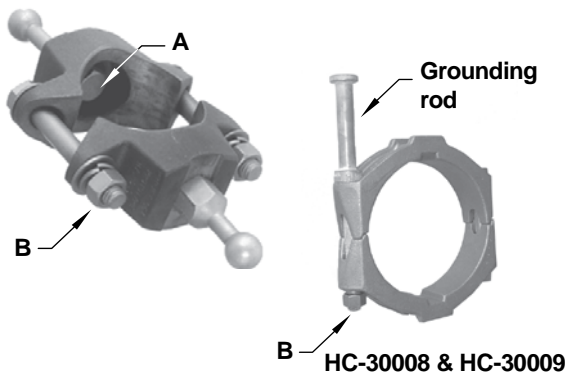
## Grounding Studs and Terminals

### Features

- Can be installed on all electrical facilities such as apparatus, tubes, conductors, tracks, pulling equipment, etc

Catalog Number	Description	Connector Material	Dimensions				Capacity 15 Cycles	Capacity 30 Cycles	Weight (Lbs)	Std Pkg
			A	B	C	Thread				
03-M-010	Grounding Stud	Tin-Plated Copper	3 5/8	2 23/64	7/16	3/8 - 16 UNC	12kA (IEC) 15kA (ASTM)	11.5kA (ASTM)	0.1	25
03-M-015	Grounding Stud	Tin-Plated Copper	7 1/8	4 1/8	3/4	5/8 - 11 UNC	55kA (IEC) 68kA (ASTM) Grade 7H	51.3kA (ASTM)	1.2	25
03-M-016	Grounding Terminal (1/0 ferrule; 20 mm ball stud)	Aluminum Block Tin-Plated ferrule and stud	6 1/2	3 1/4	1 1/2	-	12kA (IEC) 15kA (ASTM)	11.5kA (ASTM)	0.5	25

**Notes:**  
 1) 03-M-010, 03-M-016 includes stainless steel hardware (lock washers, flat washers, and nut)  
 2) 03-M-015 includes bronze hardware (lock washers, flat washers, and nut)  
 3) For 25 mm ball stud installed on 03-M-016, add suffix "-25" to catalog number



## Grounding Connector for Tube

### Features

- Permanent ball grounding connector to install on vertical riser tube, solid rod or connector for easy installation of temporary grounding sets
- Meets ASTM and IEC standards
- Stainless steel hardware included

### Materials

HC-30005/6/7

Connector: Bronze  
 Ball Stud: 99.9% electrolytic tin-plated copper

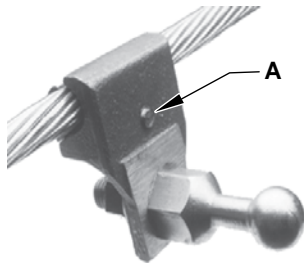
HC-30008/9

Connector: Aluminum  
 Ball Stud: 99.9% electrolytic tin-plated copper

Catalog Number	Tube (IPS)	External Diameter	Ball Stud Included (Catalog No.)	Bolt A	Bolt B	Capacity 15 Cycles	Capacity 30 Cycles	Weight (Lbs)	Std Pkg
HC-30005-1-25	1 1/2	1 7/8	1 X 25 mm (HC-30029)	1/2 - 13	3/8 - 16	35kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	4.5	10
HC-30005-2-25	1 1/2	1 7/8	2 x 25 mm (HC-30029)	1/2 - 13	3/8 - 16	35kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	5.0	10
HC-30006-1-25	2	2 3/8	1 x 25 mm (HC-30029)	1/2 - 13	1/2 - 13	35kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	4.5	10
HC-30006-2-25	2	2 3/8	2 x 25 mm (HC-30029)	1/2 - 13	1/2 - 13	35kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	5.1	10
HC-30007-1-25	2 1/2	2 7/8	1 x 25 mm (HC-30029)	1/2 - 13	1/2 - 13	35kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	4.5	10
HC-30007-2-25	2 1/2	2 7/8	2 x 25 mm (HC-30029)	1/2 - 13	1/2 - 13	35kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	5.0	10
HC-30008	3 1/2	4	1 x Ground Rod (03-M-014)	-	5/8 - 11	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	2.6	10
HC-30009	6	6 5/8	1 x Ground Rod (03-M-014)	-	5/8 - 11	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	2.7	10



# Grounding Connectors



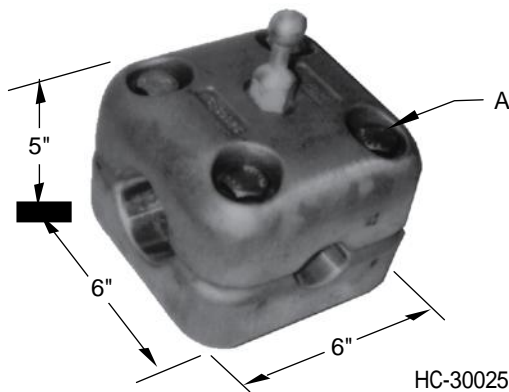
## Grounding Connector for Conductor or Tube Features

- Permanent ball stud grounding connector to install on vertical riser tube, solid rod, or conductor for easy installation of temporary grounding sets
- Meets ASTM and IEC standards
- Stainless steel hardware included

### Materials

Connector: Aluminum  
Ball Stud: 99.9% electrolytic tin-plated copper

Catalog Number	Conductor		Tube (O.D.)	Connector Material	Bolt A	Capacity 15 Cycles	Capacity 30 Cycles	Weight (Lbs)	Std Pkg
	Min	Max							
03-M-017-25	1/0 AWG	4/0 AWG	1/2	Aluminum	5/16	12kA (IEC) 25kA (ASTM)	18.4kA (ASTM)	0.9	10
03-M-018-25	4/0 AWG	350 MCM	5/8	Aluminum	3/8	12kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	1.1	10
03-M-019-25	350 MCM	500 MCM	3/4	Aluminum	3/8	12kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	1.2	10
03-M-020-25	1/0 AWG	2/0 AWG	3/8	Bronze	5/16	12kA (IEC) 15kA (ASTM)	11.5kA (ASTM)	0.9	10
03-M-021-25	2/0 AWG	4/0 AWG	1/2	Bronze	5/16	22kA (IEC) 25kA (ASTM)	18.4kA (ASTM)	1.1	10
03-M-022-25	4/0 AWG	350 MCM	5/8	Bronze	3/8	22kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	1.3	10
03-M-023-25	350 MCM	500 MCM	3/4	Bronze	3/8	22kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	1.5	10
HC-10019-25	500 MCM	750 MCM	7/8	Bronze	7/16	35kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	2.0	10
HC-10020-25	750 MCM	1000 MCM	1	Bronze	1/2	35kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	2.9	10
HC-10021-25	500 MCM	750 MCM	7/8	Aluminum	1/2	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	3.9	10
HC-30023-25	1750 MCM	2500 MCM	1 9/16	Aluminum	1/2	35kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	4.1	10
HC-30024-25	1000 MCM	1300 MCM	1 1/8	Bronze	1/2	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	2.1	10
HC-30024-25-T	1000 MCM	1300 MCM	1 1/8	Tinned Bronze	1/2	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	2.1	10
HC-30032-25	1500 MCM		1 1/4	Bronze	1/2	35kA (IEC) 31kA (ASTM)	23.6kA (ASTM)	2.5	10



## Ball Stud Grounding Connector (5H) Features

- Permanent ball grounding connector to install on conductor or tubes for easy installation of temporary ground sets
- Stainless steel hardware included

### Materials

Connector: Aluminum A356T6  
Ball Stud: 99.9% electrolytic tin-plated copper

Catalog Number	Conductor	Ball Stud Included (Catalog No.)	Bolt A	Capacity 15 Cycles	Capacity 30 Cycles	Weight (Lbs)	Std Pkg
HC-30025-20	1796 and 4000 MCM	20 mm (03-M-006)	5/8 - 11 UNC	35kA (IEC) 47kA (ASTM)	35kA (ASTM)	10.9	10
HC-30025-25	1796 and 4000 MCM	25 mm (HC-30029)	5/8 - 11 UNC	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	10.9	10
HC-30025-30	1796 and 4000 MCM	30 mm (HC-30012)	5/8 - 11UNC	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	10.9	10



# Grounding Products Accessories



## Ferrule Adapter

### Features

- Serves as an interface between a jumper cable equipped with a stud ferrule, a grounding clamp, or apparatus
- Fitted to receive a 5/8 - 11 UNC threaded stud ferrule
- Shock damper reduces stress to cable

### Materials

Bronze

Catalog Number	Jumper Cable		Capacity 15 Cycles	Capacity 30 Cycles	Weight (Lbs)
	Min	Max			
HC-10043	#2	4/0	35 kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	1.2



## Grounding Assembly Carrying Bag

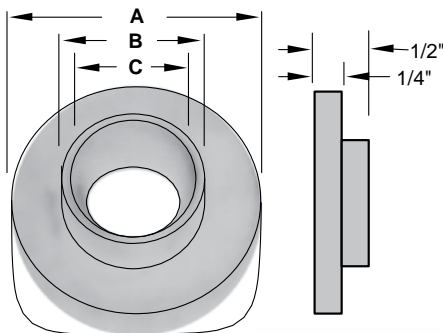
### Features

- Orange carrying bag to permit storage and handling of up to three grounding assemblies

### Material

Orange vinyl 19 oz

Catalog Number	Dimensions
01-C-025-25	25 x 25 x 2"



## Reducer Spacer

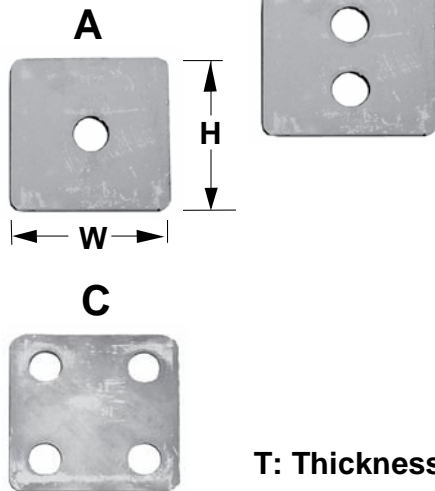
### Features

- Reduces a 5/8" diameter hole in a grounding plate to a 1/2" hole for a grounding ball stud installation

### Materials

99.9% electrolytic tin-plated copper

Catalog Number	Dimensions			Capacity 15 Cycles	Capacity 30 Cycles	Weight (Lbs)
	A	B	C			
HC-10016	1 1/4	5/8	17/32	35 kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	0.10



## Grounding Plates (5H)

### Features

- Permits installation of a grounding ball stud on a galvanized steel surface or any other surface to increase contact surface

### Materials

99.9% electrolytic tin-plated copper

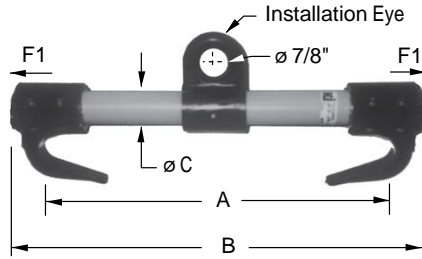
Catalog Number	Type	Dimensions			Capacity 15 Cycles	Capacity 30 Cycles	Weight (Lbs)
		T	W	H			
HC-30053	A	1/4	2.0	4.5	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	0.8
HC-30052	A	1/4	2.5	3.6	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	0.8
HC-30021	A	1/4	3.0	3.0	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	0.9
HC-30051	A	3/8	2.0	4.5	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	1.2
HC-30050	A	3/8	2.5	3.6	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	1.2
HC-30022	A	3/8	3.0	3.0	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	0.9
HC-30054	B	1/4	3.0	6.0	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	1.6
HC-30017	C	1/4	3.0	3.0	35kA (IEC) 47kA (ASTM)	35.4kA (ASTM)	0.4

### Notes:

1) To specify for 5/8" hardware, add suffix "-5/8". To specify for 1/2" hardware, add suffix "-1/2".



# Jumper Accessories



## Jumper Support

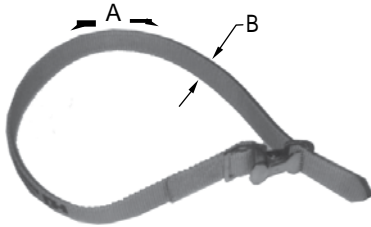
### Features

- Supports the weight of a jumper cable during installation
- Offers more working space at work site
- \* Installation with insulated gloves or with shotgun stick

### Materials

Tube: Fiberglass with polyurethane foam  
 Hooks and Installation Eye: Polyurethane

Catalog Number	Dimensions			Capacity (F1)	Weight (Lbs)
	A	B	C		
HC-10126	11	12	1	150	0.8



## Spring Buckle Strap

### Features

- Permits storage and handling of a jumper cable

### Materials

Strap: Nylon Buckle: Zinc plated  
 Spring: Stainless Steel

Catalog Number	Dimensions		Weight (Lbs)
	A	B	
01-PM-060	24	1	0.1



## Jumper Cable Carriage Bag

### Features

- Permits storage and handling of a jumper cable

### Materials

Orange canvas 19 oz.

Catalog Number	Dimensions
HC-10094N	4 x 21" diameter