Bonding, Grounding, and Locating Solutions





September 2021

BONDING, GROUNDING, AND LOCATING SOLUTIONS

EMC[®] Bonding and Grounding products were used to help connect homes in the mid to late 1970s when telephones were becoming common place across the country. Since then, communication networks, demands, and uses have evolved. Now as a part of Hubbell Utility Solutions we have similarly evolved our Bonding and Grounding portfolio to include Locating to keep up with our customers evolving needs. What's remained constant, are our facilities in NW Connecticut where we continue to produce product today.

Our focus over the years has been on servicing our customers with products and solutions that increase the reliability of their networks and simplify installation practices. As demands on networks have increased simultaneously with data usage growth, service providers must consider what solutions best meet their needs today and in the future.

When specifying products into your network, it's key to consider the labor, material cost, and reliability when deciding what and whose products to use. Considering only one or two of these variables opens the door to disgruntled customers or installation and repair inflationary labor costs.

Cutting out flooded cables, replacing bonds in splice cases, or re-bonding at the house increases operational expenses. Our bonding and grounding products are developed to diminish the number of truck rolls needed to maintain service to your customers, and our Locating products are developed to simplify the job of locating. These two themes are becoming more and more intertwined across our Bonding, Grounding, and Locating product line as we look to offer greater value and reliability to our customers. We are passionate about developing products that keep our communities safe and connected.



TABLE OF CONTENTS

Vault, Pedestal, Marker & Locate Post Products

Page

Swing Arms – Vaults	4
Multiport Service Terminal Plate - Vaults	4
Ground Blocks - Vaults	5
Isolation Ground Switch - Vaults, Pedestals, Marker & Locate Posts	6
Isolating Ground Switch - Test Station	7
Isolation Ground Puck - Vaults	8
Isolation Terminal Block – Vaults	9
Barb Series - Pedestals	9
8100 Series - Vaults & Pedestals	10
3956 Series – Pedestals	10

Aerial, Buried, & Drop Cable Products

Flat Drop Connector - Drop Cables	11
IDC Bond Clamp Series - Aerial & Buried	12

Fiber Optic Splice Closures

R88 Series	15
Waterproof Ground Straps	15

Clamps & Connectors

Meter Box Clamp	16
Ground Rod Clamp	17
Vise Connectors	18
I-Beam Clamp	18
KUL/Weaver & K1 Jumper Clamps	19
Universal Strand Clamp	19
Span Clamp	19
C- Connector	20
Universal Ground Clamp	20
Universal Mast Clamp	21
Self-Threaded Lugs	21

Ground Wire, Braid, & Ribbon

Bonding Braid	22
Ultrabond	22
Ultrabond II	22
Waterproof Ground Wire	23
Jumper Wire	23
Perforated Bond Bar	24
Bonding Ribbon	24



VAULT, PEDESTAL, & MARKER POST PRODUCTS

MST Swing Arms

Protect your network by getting your multiservice terminals (MSTs) off the ground. Reduce the probability of fiber interfaces becoming contaminated as a result of handling. Ease technician access, as it doesn't require them to get on their bellies or stand on their heads.

MST Swing Arms offer a secure space to mount MSTs. The swing arm plate offers multiple mounting arrangements compliant with most manufactures MSTs and room to mount up to two MSTs. When access is needed the swing arm pivots 90 degrees and extends so that technicians can engage the MST in an ergonomic manner.

Part Numbers	Stored Length	Engaged Length
EM-MST-SAT-S	16.4″	23.5″
EM-MST-SAT-M	19.9″	27.5″
EM-MST-SAT-L	25.5″	37"



Multi Service Terminal Plate (MSTP)

MSTP are mounted to the side wall of the vault/handhole and secure the Multi Service Terminal off the ground. The MSTP hangs from the side wall and has a handle that enables easy access for pulling the MST out of the vault to be accessed by a service technician. MSTP accommodate a variety of MSTs, are made from stainless steel, and come packaged with mounting hardware to attach to vault and MST. Consult customer service for confirmation MSTP can accommodate MST part number.

Part Number

• EM-BCA15007SS







Ground Blocks

An essential component for bonding and grounding vaults. Ground bars are manufactured from copper alloys, unless otherwise noted, and come with varying positions and set screws. All ground bars below are UL listed.

Vault/Handhole Series of Ground Blocks

Part Numbers	Position	Tin Plated	Dimensions	Mounting Holes	Set Screws
EM-4250-3SSO-THA	3	Yes	2.3"x.5"x.375"	0.22	1/4-28 UNF Allen Stainless Steel
EM-4203-MSK	4	Yes	2.531"x.5"x.375"	0.16	1/4-20x3/8" Slotted Screw Stainless Steel
EM-4201-5S	5	Yes	4"x.5"x.375"	0.219	1/4-20x7/16" Hex Screw Brass
EM-4250-5-BOH-NS	5	Yes	4"x.5"x.375"	0.219	1/4-20x3/8" Hex Screw Brass
EM-4251-7-BOH-NS	7	No	4.5".5"x.5"	0.25	1/4-20x3/8" Hex Screw Brass
EM-4250-8H	8	Yes	6.8".5"x.375"	0.15	1/4-20x7/16" Slotted Hex Head Screw Brass
EM-4250-10-B-C-MTS	10	Yes	4.8"x.5"x.375"	0.218	1/4-28 Slotted Screw Stainless Steel
EM-4250-14-BOH-NCH	14	Yes	9.625"x.5"x.375"	0.25	1/4-20x7/16" Slotted Hex Head Screw Brass





















VAULT, PEDESTAL, & MARKER POST PRODUCTS

Isolation Ground Switch

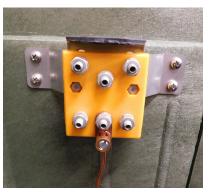
Developed to simplify locating jobs in the field. Provides a convenient and reliable means for bonding and un-bonding up to five #6 AWG - #24 AWG ground wires with 0.25" terminal and one position that accepts a #6 AWG ground wire. Switch functions in open and close positions. Open position, the system is unbonded and simplifies isolation for locating. Closed position, the system is bonded to ground. In Open position, locate technicians simply needs to clip onto the appropriate post to start the locating job. Stray voltage test port/cutout on top of handle enables testing for stray voltage. Made from engineering grade thermoplastic and tin-plated brass components.

Part Number

- EM-9125-OR comes with Marker Post mounting hardware
- EM-9125-OR-VB comes with Vault Bracket mounting hardware
- EM-9125-OR-PB comes with Pedestal Bracket mounting hardware



EM-9125-OR



EM-9125-OR-VB



Stray Voltage Test Port



Isolating Ground Switch - Test Station

For utility marker posts, pedestals, cabinets, handholes, vaults and enclosures

Designed with locating technicians in mind – easy access without the need to remove bonding and grounding harnesses. Manufactured with tin-plated brass components and engineering-grade thermoplastic materials. Accepts #6-#24 AWG wires.

Benefits

- Prevents unattached bonding and grounding harnesses, loose bonds, and lost nuts.
- Saves time for locating—no need to remove connections to isolate and reattach connections.

Part Number

- EM-91213-OR Thirteen-position isolating ground plate with ground lug
- EM-91213-OR-VB Includes Vault Bracket mounting hardware
- EM-91213-OR-PB Includes Pedestal Bracket mounting hardware





Isolation Ground Puck

Provides continuity through the connector for locating through vaults. Mountable to the sidewall of a vault. The Isolating Ground Puck Series of products accepts mule tape, locate wires, and toneable flat drop cable from #22 AWG - #24 AWG and copper clad wire from #10 AWG to #12 AWG. No stripping of the wire is required, simply insert the wires into the circular cut outs on the side of the Puck until the wire passes through the puck. Puck functions in open and close positions. Open position is unbonded and closed position is bonded. In the closed position or bonded position, simply slide up to open position for unbonding and retract a wire needed for locating. Constructed of engineering grade thermoplastic, tin-plated copper alloy components and filled with waterproofing gel.

Part Number

- **EM-9160:** 6 positions for #22 AWG #24 AWG and 1 grounding connection for #6 AWG #14 AWG, comes with screws to mount.
- **EM-9170:** 4 position for #12 AWG copper clad wire and 1 grounding connection for #6 AWG #14 AWG, comes with screw to mount.
- **EM-9178G-BKT:** 8 positions for #22 #24 AWG and 1 grounding connection for #6 AWG #14 AWG, comes with a bracket for handhole mounting.





VAULT, PEDESTAL, & MARKER POST PRODUCTS

Isolation Terminal Block

Saves technicians time by serving as a collection point for splice closure bonding harnesses when splice closures require intervention. Bonding harnesses from splice closure can be parked on the Isolation Terminal Block leaving the grounding harness undisturbed to the marker post or locate pedestal. Accepts and isolates locate wires. Can also act as a collection point for multiple bond wires. Enables isolation of specific cables from a nearby marker post or locate pedestal by easily disconnecting from the common ground. Polycarbonate block with four 0.5" long #10 post and nuts. Studs made of tin-plated brass to limit corrosion. Comes packaged with screws for mounting to side wall.



EM-ISTB4

Part Number

• EM-ISTB4

Barb Series

Used within the distribution pedestals where in an indirect or isolated connection is required for bonding and grounding. Encompasses a spark gap within the "U"-shaped shield connector with a spark gap to prevent the shield of the buried service wire from being a conductor of unwanted stray voltages, yet allowing higher voltages, such as lightning, to go safely to ground. Spark gap electrodes can be easily bypassed, if desired, by tightening side screw. This bridges across the electrodes, making a direct connection to ground. Minimum spark gap voltage is 1-3 kV. Available with 10" #10 AWG stranded, tin plated, insulated wire with a #10 hook terminal.



Part Number

• EM-3955-BARP(P)

EM-3955-BARP(P)





VAULT, PEDESTAL, & MARKER POST PRODUCTS

3956 Series

Used within the distribution pedestals for bonding and grounding a buried service wire(s). U shaped connector for stacking, connector screw end is removable allowing for installation onto installed service wires. Accommodates one wire. Available with a 6" #10 AWG stranded, tin plated, insulated wire with a #10 AWG hook terminal and pair protector, for a 2 to a 6 pair BSW.

EM-3956M-10SP

Part Number

• EM-3956M-10SP

8100 Series

Used for bonding and grounding in outside plant aerial and buried applications. Ground Straps are constructed of 427 individual tin-plated copper strands for flexibility and come terminated with ring, double ring, hook and slotted terminals ranging from 0.25" - 0.375" and #10 mounting holes. Available insulated and uninsulated, also available in 500 Feet rolls.

Part Number Matrix

• EM-8100-XX-YY

XX: Inches Long

YY: Terminal (25 for 0.25" mounting hole, DHDH for Double 0.25" mounting hole, 10 for # 10AWG mounting hole, and 375 for 0.375" mounting hole. Consult factory for additional terminal options.





Fiber Flat Drop Connectors

Flat Drop Connectors are used in vaults, pedestals, ONT's and ONU's. They help locate technicians simplify the process of locating buried plant by providing points of access to put a tone on locate wire embedded within the flat drop cable. Flat Drop Connectors work with most fiber flat drop cables with #24 AWG locate wire that can be separated from the flat drop cable. Simply separate a section of the #24 AWG locate wire from the flat drop cable, position the locate wire within the tin-plated copper groove and the flat drop cable within the larger groove and snap the assembly together. There is no need to strip the locate wire, snapping the connector together provides the pressure needed to pierce the jacket of the locate wire and make electrical continuity, while not damaging the locate wire. The connector houses waterproof gel protecting the connection and a #10 post and nut for attaching a bonding harness. Bonding harness assemblies are available in #14 AWG and #12 AWG stranded wire with green PVC insulated tin plated copper and accompanying #12/10 AWG and #14 AWG ring terminals.

Part Number

EM-9182B

Part Numbers with Bonding Harness Assembly Kit

- EM-9182B-1224-RR10 comes with 24" #12 AWG with two # 12/10 AWG ring terminals
- EM-9182B-1424-RR10 comes with 24" #14 AWG with two # 14 AWG ring terminals
- EM-9182B-1470-RR25 comes with 70" #14 AWG with two # 14 AWG ring terminals
- EM-9182B-1412-RR25 comes with 12" #14 AWG with two # 14 AWG ring terminals



EM-9128B

EM-9128B

EM-9182B-1224-RR10



AERIAL, BURIED, & DROP CABLE PRODUCTS

IDC Bond Clamp Series

The IDC Bond Clamp was developed to reduce the time required to install a bonding or grounding point on an armored fiber optic cable, improve the reliability of the bonding or grounding point, and the networks that house it. It does not require cutting into of the armored fiber cable jacket. It has "Vampire Teeth" which pierce the jacket of the cable allowing for electrical continuity to the cable armor. Underneath the teeth is a silicone pad that allows for expansion and contraction of the cables to prevent the teeth from piercing the armor. Waterproof gel is housed around the teeth to seal out water and moisture from getting underneath the jacket. A #10 post is used to connect a bonding harness to another bonding or grounding point. The product line encompasses a Large, Medium, and Small which covers armored fiber cables outside diameters from 0.25" up to 1.3" in both aerial, vault, and direct burial applications.

Part Number

- EM-80130-PS accommodates cable ODs 0.80" 1.3" (Large)
- EM-4879-ALT-PS accommodates cable ODs 0.48" 0.79" (Medium)
- EM-2546-PS accommodates cable ODs 0.25" 0.46" (Small)





AERIAL, BURIED, & DROP CABLE PRODUCTS

IDC Bond Clamp Closure

In vaults and direct burial applications it is recommended that a closure be used to house the IDC Bond Clamp, given the potential for water to collect in proximity to the IDC Bond Clamp. The closure houses waterproof gel that will encompass the IDC Bond Clamp and works as a secondary seal to the waterproof gel used around the "Vampire Teeth". There is a slot within the assembly for the bonding harness to travel through the closure parallel to the armored fiber cable. Large closure has an active hinge and Small/ Medium is a two-piece assembly.

Part Number

- EM-80130-C (Large)
- EM-4879-C (Small/Medium)



EM-80130-C



EM-4879-C





AERIAL, BURIED, & DROP CABLE PRODUCTS

IDC Bond Clamp and Closures Kits

Kit includes the IDC Bond Clamp and Closure.

Part Number

- EM-80130-PSC (Large)
- EM-4879-ALT-PSC (Medium)
- **EM-2546-PSC** (Small)



EM-80130-PSC

EM-4879-ALT-PSC



Vault

Direct Burial

Submergence Testing

IDC Bond Clamp - Medium Aerial Kit

Kit includes the IDC Bond Clamp – Medium, KUL/Weaver jumper clamp, 4 stackable spacers, 2 lashing straps, and an uninsulated solid copper strap 18" long with a terminated #10 AWG terminal on one end.

Part Number

• EM-4879-PSAGK



EM-4879-PSAGK



FIBER OPTIC SPLICE CLOSURE

Rocket 88 FO

Rocket 88 Fiber Series is used to bond armored fiber cables within a splice closure. Its small form factor is ideal for bonding within tight constraints. No punch or crimping tools are required. Installation consists of creating a relief slit within the jacket. Series covers a range of armored fiber cable outside diameters.

Part Number

- EM-R88B-350-FO accommodates cable OD of 0.350"
 Short Stud 0.625"
- EM-R88B-5-FO accommodates cable OD of 0.5"
 Long Stud 0.75'



Rocket 88 FO terminated in FOSC

Waterproof Flex Ground Straps

Developed to prevent water from migrating between the jacket of the ground strap and copper wire to the inside of a splice case. In vaults/handholes that flood, a ground strap that is not waterproof will transmit water into the splice case. Water and moisture in a splice case will over time degrade spliced fibers. This solution increases the reliability of splice cases in areas prone to flooding and high water tables by stopping water from entering the splice case.

Waterproof ground straps consist of a #6 AWG solid copper wire with a waterproofing agent between it and the jacket. It is butt spliced to a #6 AWG stranded copper wire with 0.25" ring terminals on either end. Adhesive lined heat shrink is applied to the butt splice and at terminal transitions. The solid copper end is used to enter the splice case to seal around. The stranded flexible end is used to bring it to a bonding or grounding point. For different configurations consult your customer service contact.



EM-3270-W





Meter Box Clamp

Meter Box Clamps are an integral component of proper bonding and grounding practices at the house. Installed on the utility firm's meter box, they connect ground wires to the ground field at the home. Bonding positions are available in single and three positions and accept #6 AWG - #14 solid or stranded ground wires. Making electrical contact underneath the meter box drip cap prevents wearing away external paint which will lead to corrosion. The sliding wedge tucks underneath the drip cap. Boots are available and protect the external finish of the meter box. The screw on the top pulls the wedge up underneath the drip cap to securely hug the meter box side lip.

Part Number	Grounding Positions	Mount	Boot	Listings
EM-132EH	One	Side Lip	Yes	UL
EM-MB5-3	Three	Side Lip	Yes	UL
EM-MB5-H-F	One	Side Lip	No	UL



EM-MB5-3



EM-MB5-H-F



EM-132EH-01



Ground Rod Clamps

Available in Acorn and Swivel design. The Swivel design enables placement underneath an existing ground rod clamp. Both designs are available with torque shear head, zinc breakaway, anti-loosening bolts, and standard bolts.

- Torque shear head will break off once proper inch-pounds are applied, un-removable.
- Zinc screw cap acts like torque shear head but is removable with an adjustable wrench.
- Anti-loosening is a coating making the bolts back-off resistant to vibration.
- EM-4DBV22, in addition to matrix detail, offers a position for grounding a #24 AWG locate wire.

Ground Rod Clamps	Ground Rod & Ground Wire	nd Rod & Ground Wire Features	
EM-2DB-BL-01	5/8" & #12-1/0 AWG	Anti-Loosening, Torque Shear Head	Yes
EM-4DB-01	5/8" and 1/2" & #12 - 6 AWG	Anti-Loosening, 7/16″ Torque Shear Head, Swivels	Yes
EM-4DB-02	5/8" and 1/2" & #12 - 6 AWG	Anti-Loosening, 1/2″ Torque Shear Head, Swivels	Yes
EM-4DBV22	5/8" and 1/2" & #10 - 6 AWG	Anti-Loosening, 7/16″ Torque Shear Head, Swivels	Yes
EM-58DBW	5/8″ & #1/0 - 8 AWG	Wide Flange Body	Yes
EM-6DB	5/8" and 1/2" & #12 - 2 AWG	Anti-Loosening, zinc breakaway cap	Yes
EM-6DB-01	5/8" and 1/2" & #12 - 2 AWG	Stainless Steel Hex Bolt	Yes



EM-6DB



EM-4DBV22



EM-58DBW



EM-2DB-BL-01



Vise Connector Clamp

Constructed from silicon bronze casting and feature an adjustable single hex head stainless screw bolt. They are used to connect various size grounding conductors. Installable with a standard can wrench.





EM-2371

EM-2372

Vise Connectors	Ground Wire	Listings
EM-2371	Same as EM2370	UL
EM-2372	#12 AWG - #4 solid, 6.6-10M strand	UL
EM-2374	#4 AWG - #8	
EM-2375	#2 AWG - #6	

I-Beam Clamp

Used to bond and ground metal buildings and structures. Constructed of a tin-plated bronze casting with teeth, which are needed to penetrate oxidation or undercoating to secure a positive ground. Brass hex thru-bolt with hole, brass set screw, and bronze lock washer. Accepts # 6 AWG - # 14 ground wire and is UL Listed.

Part Number

• EM-4015



EM-4015



KUL and K1 Jumper / Weaver Clamp

Used to bond ¼" – 7/16" strand and #8 AWG - #2/0 copper wire. Tin plated bronze casted clamp with interlocking jaws and a silicone bronze bolt. K1 has one bare groove.



Part Number

- EM-KUL14716 (KUL)
- EM- KUL14716BG (K1)

Universal Strand Clamp

Used to connect # 6 AWG ground wire to the strand and strand to strand. Bow design creates spring tension, oval styled bolt keeps plates aligned making handling and installation easier. Side legs provide guide for strand/ground wire. Uses standard ½" nut galvanized for corrosion resistance and compatibility with copper ground wire.

Part Number

• EM-9020

Span Clamp

Used to attach overhead service wire to the strand. Works on 6M – 25M strand. Short, shaped teeth give extraordinary gripping power to clamp without touching the web. Works with both self-support cable and bare strand.

Part Number

• EM-8011



EM9020



EM-8011



C Connector Clamp

Used to connect ground wire to the messenger. Accommodates messengers of 0.146" - 0.312" and ground conductors of 0.146" - 0.312". Pierces the messenger insulation of figure 8 cable.

Part Number

• EM-0167



EM-0167

Universal Ground Clamp 14"

Used to connect ground wires to water pipes, ground rods, and power masts of 0.375" – 4" diameter. Perforated copper strap with a threaded clip and bronze bolt assembly. Works with commonly used grounding electrodes, i.e., copper water pipes, galvanized pipes, copper clad ground rods, plain and steel ground rods. Installed and wire attachment is done on the same side making applying easier in confined space. Accepts # 6 AWG – 14 ground wires. UI Listed

Part Number

- EM-5914 (14" Long)
- EM-5912 (12" Long)
- EM-5907 (7" Long)



EM-5914



Universal Mast Clamps

Stainless-steel annealed strap-type mast clamp, with 5 movable hooks for anchoring aerial drop cable. Designed to secure drops from steel masts, wooden or concrete poles. Can accommodate round or square poles and masts. Each hook can accommodate up to three drop clamps. Hooks can be moved after installation.



Part Number

• EM-8484-TT

Self-Thread Lugs

Screw-on terminals are tin plated with internal self-cutting threads, for terminating solid wires at connection points. Can be applied with a can wrench. Cut their own threads on # 6 AWG and #10 copper ground wire.

Self-Thread Lugs	Wire	Hole Size
EM-2525	# 6 AWG	.25″
EM-2525-375	# 6 AWG	.375″
EM-2610	# 6 AWG or #10 AWG	.25″
EM-2610-3125	# 6 AWG or #10 AWG	.3125″
EM-2610BH	# 6 AWG or #10 AWG	Break away .25″ hook



BRUTO

EM-2620BH



EM-2610-3125



EM-2525

GROUND WIRE, BRAID, RIBBON

Bonding Braid with Eyelets

Used to rehab pedestals and aerial splice cases. 25 feet of #6 AWG braided tinned copper wire with factory installed eyelets, 3" spacing, hole diameter ¼". Coil can be cut to length.

Part Number

- EM-2025
- EM-2030 has blue webbed covering



EM-2025

Ultrabond

Used to rehab pedestals and aerial splice cases. 25 feet of #6 AWG braided tinned copper wire with factory installed gas tight eyelets and arms, 3" spacing, hole diameter 1/4".

Part Number

- EM-2050
- EM-2051 has blue webbed covering



EM-2050

Ultrabond II

Used in pedestals and aerial splice cases. 25 feet of #6 AWG braided tinned copper wire with factory installed eyelets with integral arms, solder connected, 3" spacing, hole diameter ¼". Eyelets are gas type crimped.

Part Number

- EM-2080
- EM-2081 has blue webbed covering



EM-2081

Integral arms eliminate rotation



GROUND WIRE, BRAID, RIBBON

Waterproof Ground Wire

Highly flexible #6 AWG stranded conductor bonded to polyethylene insulation. 100 feet.

Part Number

• EM-4600-100



EM-4600-100

Jumper Wire

#22 AWG tinned, solid copper conductor with a semi-rigid PVC insulation. Available in green and white (GW) and orange and white (OW) in 1000 feet and 3000 feet.

Part Number

• EM-0222-XX-YY

Cat-5 twist #24 AWG tinned, solid copper conductor with a semi-rigid PVC insulation. Available in green and white (GW) and orange and white (OW) in in 250 feet and 1000 feet.

Part Number

• EM-0224-XX-XX-CT5



EM-0222-GW-1000



EM-0224- OW-250



Perforated Bond Bar

Available in 1000 and 3000 feet, tinned copper strip perforated with alternating slots and holes. Equivalent to a #6 AWG conductor.

Part Number

• EM-4420





Plain Bonding Ribbon

Tin plated for solderability and corrosion

Part Number

- EM-6868: 0.375" wide and 0.051" thick, 5-lbs spool
- EM-6869: 0.375" wide and 0.0625 thick, 5-lbs spool
- EM-6850: 0.5" wide and 0.051" thick, 5-lbs spool



EM-6868

8100 Cable

500 Feet #6 AWG tinned copper wire. 427 strands, highly flexible.

Part Number

• EM-8100-500



EM-8100-500



Bonding, Grounding, and Locating Solutions

NOTE: Because Hubbell has a policy of continuous product improvement, we reserve the right to change design and specifications without notice.

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