

CONNECTORS



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INTRODUCTION

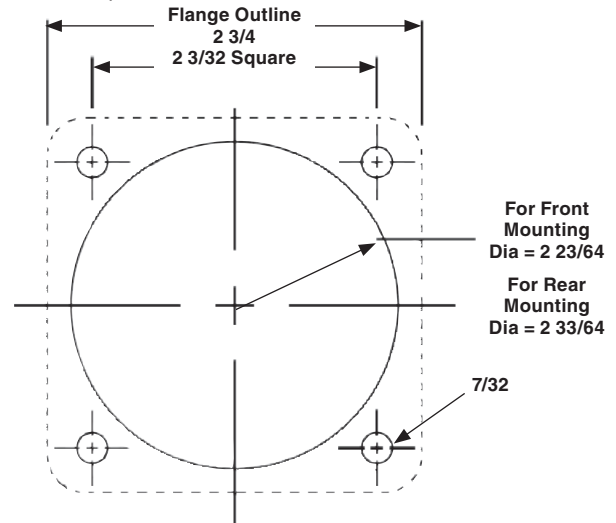
RigPower's mission is to create new industry standards in industrial electrical connectors by combining appropriate technological advances, quality production methods and dependable customer support.

Introduction

As each new drilling rig is designed, more and more equipment is added to allow deeper and faster drilling. However the size of the equipment that can be carried over the highways has a fixed limit. Thus the space that can be allowed for each component becomes smaller. RigPower's HP20 series connectors allow large cable sizes with smaller connector shells, providing tighter component spacing and maximizing the use of the available space.

The HP20 series is a new (patent pending) product exclusive to RigPower. It offers a small shell size 20 connector available in a full range of cable sizes from 4/0 to 777 DLO. This is the smallest connector on the market which will accept a 646 and 777 sized cable. It has a multilam contact system that is capable of carrying the full ampacity of 125 degree rated 777 cable. The HP20 series is available in a wide range of styles and is stocked in ten colors to provide correct phase identification.

CABLE AMPACITY RATINGS IN 40° AMBIENT		
CABLE SIZE	90° C	125° C
4/0 MCM	364 AMPS	451 AMPS
313 MCM	513 AMPS	636 AMPS
373 MCM	548 AMPS	669 AMPS
444 MCM	642 AMPS	796 AMPS
535 MCM	724 AMPS	898 AMPS
646 MCM	814 AMPS	1009 AMPS
777 MCM	916 AMPS	1135 AMPS



Each contact and buss bar has an O-Ring Seal designed into the body which offers improved mounting between the electrical component and the insulator. Additionally, the O-Ring provides a water tight seal so that the components won't have the propensity to short or burn out, even when the cap is not installed.

HP20™ Female Receptacle

Neoprene gasket provided on all receptacles.

- A robust Buss Bar style back provides for larger current loads.
- Installation and breakdown is quick and reliable
 - Double Hole Buss Bar with cut indicator in the event a single hole buss bar is required
 - Made from high conductivity copper, Sn coated

HP20™ Male Receptacle

Neoprene gasket provided on all receptacles.

Quick acting double lead ACME threads for rapid yet secure connections.

Made from Sn plated high conductivity copper. The male buss bars and contacts have a dead front end to protect operators from shock hazard.

The HP20 series female receptacles use the Multilam Contact System. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

Insulator includes internal O-ring seals to prevent moisture intrusion

Receptacle Cap

- Heavy duty stainless steel chain and clips to prevent loss of cap
- Powder Coated for easier phase identification at hook-up

The HP20 Series have a matching two key way to assist with the mounting of the mating component.

Receptacle Cap

- Heavy duty stainless steel chain and clips to prevent loss of cap
- Powder Coated for easier phase identification at hook-up

30° – 45° Reversible Locking Buss Bar Lug



CONNECTORS

HP20™ SERIES



INTERNAL FEATURES

Design & Performance Highlights

The advanced HP20 design techniques utilized by RigPower have allowed us to design in two O-Rings (Contact to Insulator and Insulator to Cable Adapter) at the optimum locations to create a water tight seal.

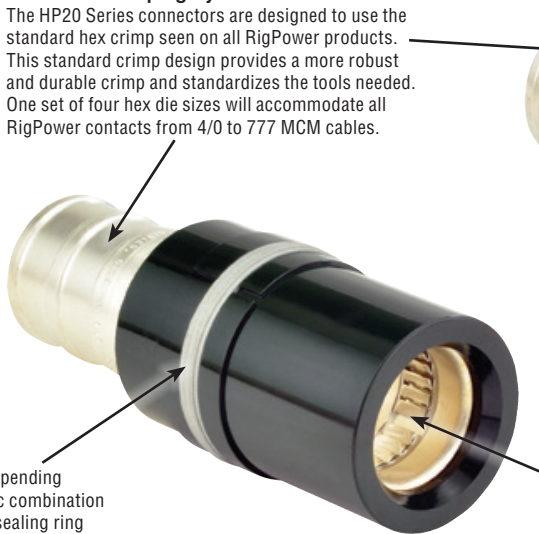
- Rated for 1135 Amps continuous at 1,000 volts, AC/DC
- Rugged machined aluminum shell with a hard anodized coating is resistant to salt corrosion, drilling mud, humidity, moisture, oil and dust
- Heavy-Duty ACME Threaded Coupling permits positive and quick engagement even under harsh conditions

- A dead front tip on the male contact improves operator safety by eliminating exposed, live surfaces
- Low Mating & Unmating Force permits ease of insertion and withdrawal. Available with an advanced "Multilam" insert
- Copper Alloy, Sn Plated Contacts and Buss Bars provide maximum conductivity
- All contacts use the same crimping die sets as the RigPower "RMP® II, Secure Mount®, Safe Stab®, VFD-1®, MCC-1™ and MC20™" series connectors
- Color Coding Option for positive phase identification

Advanced Crimping System

The HP20 Series connectors are designed to use the standard hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.

The patent pending elastomeric combination shear and sealing ring which reduces the radial clearance needed and allows for a full size 777 crimp well

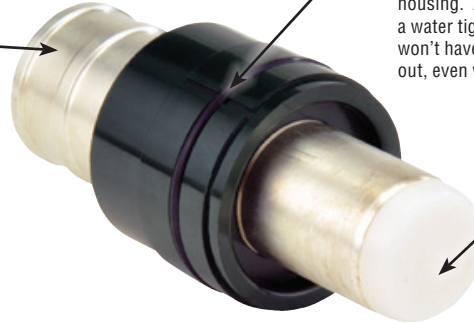


Industry Exclusive

Each contact and receptacle insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell and receptacle housing. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.

Male In-line Receptacle –

Sn plated high conductivity copper contact. All male plugs and receptacles have a dead front end to protect operators from shock hazard.



The HP20 Series connectors use the Multilam contact system. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

HP20™ Cable Adaptor w/
Internal Insulating SleeveHP20™ Internal Mylar
Insulating Sleeve

Industry Exclusive

The HP20 series is the smallest connector on the market that will accept 777 MCM cable. The (patent pending) combination shear and sealing elastomeric ring reduces the radial distance needed for the insulation between the OD of the copper contact and the ID of the connector body while providing safe operation at up to 1000 volts. This design allows for a size 20 shell to contain a full size contact capable of carrying the full amperage of 777 MCM cable. The 1100 amp rating of the contact assures complete reliability and full load rating.

Industry Exclusive

The extra-long barrel and the (patent pending) design of the internally insulated cable adaptor allows no "line of sight" between the copper contact and the internal of the metal shell. This allows a full sized 777 MCM crimp well to be safely contained in the smaller Size 20 connector shell.



INDUSTRY FEATURES AND BENEFITS

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

HP20™ Female Plug

Robust Hex grip for easy assembly and handling. Fully anodized to resist salt corrosion, drilling mud, humidity, moisture, oil and dust.

Coupling Nut

- Note the locking screw on the coupling nut provides for severe service environments
- Includes internal O-ring seals to prevent moisture

Advanced Crimping System

The HP20 Series connectors are designed to use the standard hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.

Plug Cap – Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

Industry Exclusive

Each contact and receptacle insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell and receptacle housing. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.

The patent pending elastomeric combination shear and sealing ring reduces the radial clearance needed and allows for a full size 777 crimp well

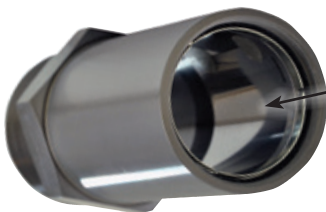
The HP20 Series connectors use the Multilam contact system. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

US Patent Pending

The small size of the HP20 connector is made possible by our exclusive shielded cable adaptor

HP20™ Cable Adaptor w/ Internal Insulating Sleeve



HP20™ Internal Mylar Insulating Sleeve



Industry Exclusive

Each contact and receptacle insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell and receptacle housing. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.

HP20™ Male Plug

Coupling Nut

- Note the locking screw on the coupling nut provides for severe service environments
- Includes internal O-ring seals to prevent moisture

Advanced Crimping System

The HP20 Series connectors are designed to use the standard hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.

Insulator includes internal O-ring seals to prevent moisture intrusion

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

Robust Hex grip for easy assembly and handling. Fully anodized to resist salt corrosion, drilling mud, humidity, moisture, oil and dust.

Quick acting double lead ACME threads for rapid, yet secure, connections.

Made from Sn plated high conductivity copper. The male contacts have a dead front end to protect operators from shock hazard.

Plug Cap – Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

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CONNECTORS

HP20™ SERIES



FIXED CABLE RECEPTACLE FEATURES AND BENEFITS

HP20™ Male Fixed Cable Receptacle

Fixed Cable Receptacle Cap
– Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

#20 Size Mounting Flange

Neoprene gasket provided.

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

Robust Hex grip for easy assembly and handling. Fully anodized to resist salt corrosion, drilling mud, humidity, moisture, oil and dust.

Quick acting double lead ACME threads for rapid yet secure connections.

Made from Sn plated high conductivity copper. The male contacts have a dead front end to protect operators from shock hazard.

US Patent Pending

The small size of the HP20 connector is made possible by our exclusive shielded cable adaptor

HP20™ Female Fixed Cable Receptacle

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

HP20™ Cable Adaptor w/ Internal Insulating Sleeve

HP20™ Internal Mylar Insulating Sleeve

Quick acting double lead ACME threads for rapid yet secure connections.

The HP20 series female receptacles use the Multilam Contact System. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

Robust Hex grip for easy assembly and handling. Fully anodized to resist salt corrosion, drilling mud, humidity, moisture, oil and dust.

#20 Size Mounting Flange

Neoprene gasket provided.

Fixed Cable Receptacle Cap – Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

HP20™ Fixed In-line Connection

HP20™ Plug

HP20™ Fixed Cable Receptacle





IN-LINE RECEPTACLE CONNECTIONS

HP20™ Female In-line Receptacle



Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

Robust Hex grip for easy assembly and handling. Fully anodized to resist salt corrosion, drilling mud, humidity, moisture, oil and dust.

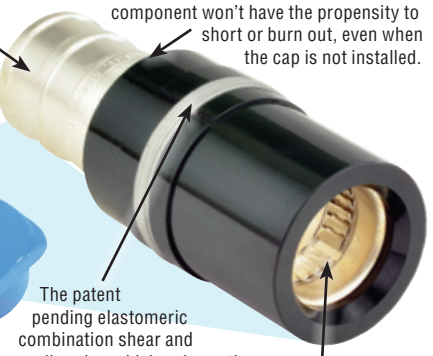
Advanced Crimping System

The HP20 Series connectors are designed to use the standard hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.

Plug Cap – Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

Industry Exclusive

Each contact and receptacle insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell and receptacle housing. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.



The patent pending elastomeric combination shear and sealing ring which reduces the radial clearance needed and allows for a full size 777 crimp well

The HP20 Series connectors use the Multilam contact system. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

HP20™ In-line Connection



HP20™ In-line Receptacle

HP20™ Plug

HP20™ Male In-line Receptacle



Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

Robust Hex grip for easy assembly and handling. Fully anodized to resist salt corrosion, drilling mud, humidity, moisture, oil and dust.

Quick acting double lead ACME threads for rapid, yet secure, connections.

Advanced Crimping System

The HP-0 Series connectors are designed to use the standard hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.

Industry Exclusive

Each contact and receptacle insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell and receptacle housing. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.



Insulator includes internal O-ring seals to prevent moisture intrusion

Made from Sn plated high conductivity copper. The male contacts have a dead front end to protect operators from shock hazard.

Plug Cap – Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.



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CONNECTORS



HP20™ SERIES

PARTS LIST

ORDERING TABLE FOR HP20 SINGLE POLE POWER CONNECTORS – (Rated for 1000 Volts / 1135 Amps)					
HP20 PANEL MOUNT RECEPTACLES – Ordering Format: HP20-(1)-(2)					
(1) RECEPTACLE GENDER		(2) COLOR			
MBR = Male Double Hole Buss Bar Panel Mount Receptacle		BK = Black	BL = Blue		
FBR = Female Double Hole Buss Bar Panel Mount Receptacle		BR = Brown	G = Green		
		GY = Gray	OR = Orange		
		P = Purple	R = Red		
		W = White	Y = Yellow		
HP20 PLUGS, IN-LINE RECEPTACLES & FIXED CABLE RECEPTACLES – Ordering Format: HP20-(1)-(2)-(3)-(4)-(5)					
(1) MALE & FEMALE CONTACT SIZE	(2) STYLE OF PLUG CASING	(3) GROMMET	(4) MECHANICAL CLAMP	(5) COLOR	
Male	P = Plug	16 = 0.870 - 1.000	M = Mechanical Clamp	BK = Black	
4/0M = 4/0 Male Contact		18 = 1.000 - 1.125		BL = Blue	
3M = 313 Male Contact		OR	20 = 1.125 - 1.250	OR	BR = Brown
4M = 444 Male Contact			22 = 1.250 - 1.375		G = Green
5M = 535 Male Contact	24 = 1.375 - 1.500		GY = Gray		
6M = 646 Male Contact	IR = In-Line Receptacle		Kellems Grip	OR = Orange	
7M = 777 Male Contact					
Female	OR		K16 = #16 (0.875 - 1.000)	P = Purple	
4/0F = 4/0 Female Contact				K18 = #18 (1.000 - 1.125)	R = Red
3F = 313 Female Contact	FCR = Fixed Cable Receptacle		K20 = #20 (1.125 - 1.250)	W = White	
4F = 444 Female Contact			K22 = #22 (1.250 - 1.375)	Y = Yellow	
5F = 535 Female Contact			K24 = #24 (1.375 - 1.500)		
6F = 646 Female Contact	Thank You for selecting RigPower connectors				
7F = 777 Female Contact					
RIGPOWER HP20 SERIES SINGLE POLE – SPARE PARTS					
PART NUMBER	PART DESCRIPTION	PART NUMBER	MALE PART DESCRIPTION		
G16-20	Grommet #16 (0.875 - 1.000)	HP20-4/0M	HP20 - 4/0 Male Contact w/Insulator		
G18-20	Grommet #18 (1.000 - 1.125)	HP20-2M	HP20 - 373 Male Contact w/Insulator		
G20-20	Grommet #20 (1.125 - 1.250)	HP20-3M	HP20 - 313 Male Contact w/Insulator		
G22-20	Grommet #22 (1.250 - 1.375)	HP20-4M	HP20 - 444 Male Contact w/Insulator		
G24-20	Grommet #24 (1.375 - 1.500)	HP20-5M	HP20 - 535 Male Contact w/Insulator		
GW24-20	Grommet Washer #24 (for #20 Shell)	HP20-6M	HP20 - 646 Male Contact w/Insulator		
K16-20	Kellems Grip #16 (0.875 - 1.000)	HP20-7M	HP20 - 777 Male Contact w/Insulator		
K18-20	Kellems Grip #18 (1.000 - 1.125)	HP20-MBB	HP20 - Male Buss Bar w/Insulator		
K20-20	Kellems Grip #20 (1.125 - 1.250)	PART NUMBER	FEMALE PART DESCRIPTION		
K22-20	Kellems Grip #22 (1.250 - 1.375)	HP20-4/0F	HP20 - 4/0 Female Contact w/Insulator		
K24-20	Kellems Grip #24 (1.375 - 1.500)	HP20-2F	HP20 - 373 Female Contact w/Insulator		
MC24-20	Mechanical Clamp #24 (for #20 Shell)	HP20-3F	HP20 - 313 Female Contact w/Insulator		
 <p>CABLE GROMMET Has a tapered fit to the cable adapter and is available in fourteen sizes to ensure a proper water tight seal to the cable.</p>		HP20-4F	HP20 - 444 Female Contact w/Insulator		
			HP20-5F	HP20 - 535 Female Contact w/Insulator	
			HP20-6F	HP20 - 646 Female Contact w/Insulator	
			HP20-7F	HP20 - 777 Female Contact w/Insulator	
			HP20-FBB	HP20 - Female Buss Bar w/Insulator	
PART NUMBER	THE 30°/45° REVERSIBLE LOCKING BUSS BAR LUG	PART NUMBER	DOUBLE HOLE LUGS		
SL-535-AL	535 MCM 30°/45° Reversible Locking Buss Bar Lug	QS-535-L	Quick/Quad Stab Double Hole 535 Lug		
SL-646-AL	646 MCM 30°/45° Reversible Locking Buss Bar Lug	QS-646-L	Quick/Quad Stab Double Hole 646 Lug		
SL-777-AL	777 MCM 30°/45° Reversible Locking Buss Bar Lug	QS-777-L	Quick/Quad Stab Double Hole 777 Lug		



Mechanical Clamp
Has a dual holding pattern. One size for larger cables, reverse it and it accommodates smaller cables more effectively.

Kellems® Grip
Also available for extra protection from high tensile loads on cables.



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30° - 45° Reversible Locking Buss Bar Lug
The small footprint of the HP20 panel mounted receptacles, combined with the RigPower exclusive locking lug allows the designed to combine a small foot print on the panel with short radius cable bends behind the panel while ensuring that shock or vibration loads will not loosen the plug to buss bar connection





INTRODUCTION

RigPower's mission is to create new industry standards in industrial electrical connectors by combining appropriate technological advances, quality production methods and dependable customer support.

Introduction

As each new drilling rig is designed, more and more equipment is added to allow deeper and faster drilling. However the size of the equipment that can be carried over the highways has a fixed limit. Thus the space that can be allowed for each component becomes smaller. RigPower's MC20 series and HP20 series connectors allow large cable sizes with smaller connector shells, providing tighter connector spacing and maximizing the use of the available space.

MC20™

The MC20 is RigPower's replacement for existing single pole size 20 shell connectors used on many top drives. The MC20 intermates with competitors top drive connectors, yet offers increased sealing over competitive products. MC20 crimp contacts can accept cables sizes from 4/0 to 444.

Available in ten color combinations to ensure correct phase identification

MC20™ Male Buss Bar Receptacle

Quick acting double lead ACME threads for rapid yet secure connections.



Made from Sn plated high conductivity copper. The male buss bars and contacts have a dead front end to protect operators from shock hazard.

Industry Exclusive

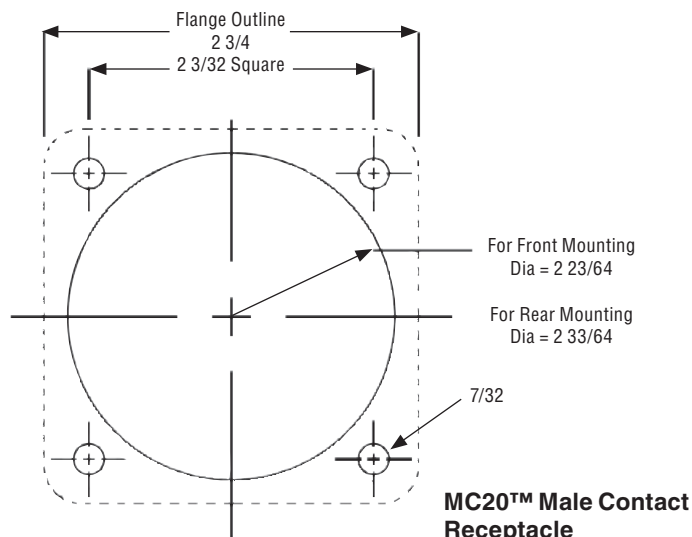
- A robust Buss Bar style back provides additional flexibility in selecting cable options
- Rated at 1,000 volts AC or DC up to 796 amps
- Available in Double Hole Buss Bar Style only
- Bar can be cut down to a Single Hole Buss at the cut indicator line
- Installation is quick and reliable
- Made from Duplex Sn lated high conductivity copper

MC20™ Female Buss Bar Receptacle



Neoprene gasket provided on all receptacles.

Note the yellow environmental sealing ring on the front of the female contact



MC20™ Male Contact Receptacle

Receptacle Cap

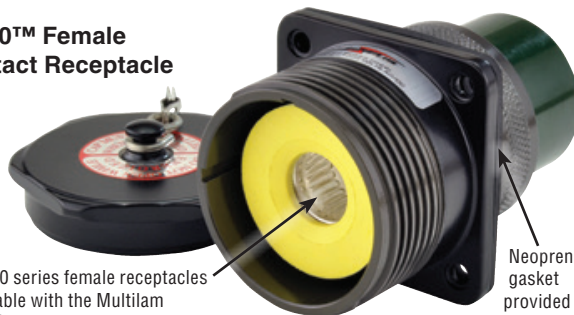
- Heavy duty stainless steel chain and clips to prevent loss of cap
- Powder Coated for easier phase identification at hook-up



The MC20 Series receptacles have two keyways to accept other manufacturer's standard two key plugs.

Quick acting double lead ACME threads for rapid yet secure connections.

MC20™ Female Contact Receptacle



The MC20 series female receptacles are available with the Multilam Contact System. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

Neoprene gasket provided on all receptacles.

AMPACITY RATINGS IN 40° AMBIENT

CABLE SIZE	90° C	125° C
4/0 MCM	364 AMPS	451 AMPS
313 MCM	513 AMPS	636 AMPS
373 MCM	548 AMPS	669 AMPS
444 MCM	642 AMPS	796 AMPS

CONNECTORS



MC20™ SERIES

INDUSTRY FEATURES AND BENEFITS

MC20™ Female Fixed Cable Receptacle

Plug Cap – Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

Note the yellow environmental sealing ring on the front of the female contact

Neoprene gasket provided.

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.*

Industry Exclusive
Robust grip with knurling for easy assembly and handling. Fully powder coated.

MC20™ Male In-line Receptacle

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

Industry Exclusive
Robust grip with knurling for easy assembly and handling. Fully powder coated.

Male In-line Receptacle – Sn plated high conductivity copper contact. All male plugs and receptacles have a dead front end to protect operators from shock hazard.

Quick acting double lead ACME threads for rapid yet secure connections.

In-line Receptacle Cap – Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

MC20™ Female Plug

The MC20 series female receptacles are available with the Multilam Contact System. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

Note the yellow environmental sealing ring on the front of the female contact

Industry Exclusive
Robust grip with knurling for easy assembly and handling. Fully powder coated.

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

Coupling Nut

- A locking screw is provided on the coupling nut for severe service environments
- Both the male and female plugs include an internal O-ring seal to prevent moisture

MC20 In-line Plug has two keyways to accept other manufacturer's standard two key plugs.

MC20™ Plug

MC20™ In-line Receptacle

MC20™ In-line Connection

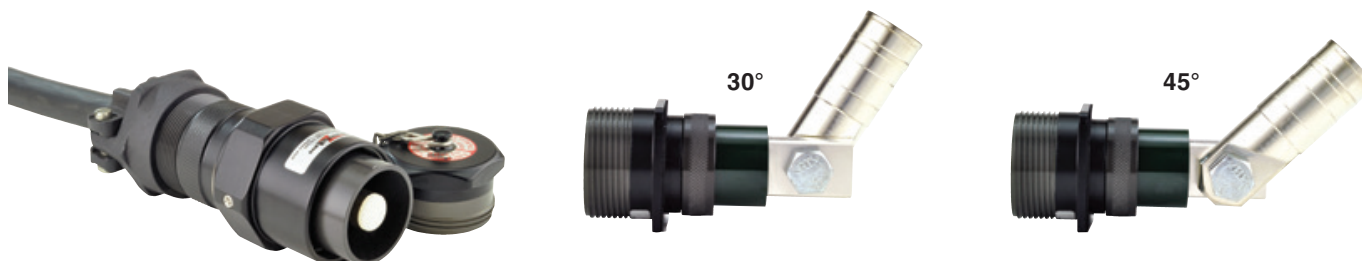
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ORDERING INFORMATION

ORDERING TABLE FOR MC20 SINGLE POLE POWER CONNECTORS (Rated for 1000 Volts / 796 Amps)				
MC20 PANEL MOUNT RECEPTACLES Ordering Format: MC20-(1)-(2)-(3)				
(1) RECEPTACLE GENDER & STYLE		(2) CONTACT SIZE	(3) COLOR	
MBR = Male Double Hole Buss Bar Panel Mount Receptacle - (SKIP #2)		4/0 = 4/0 MCM	BK = Black	BL = Blue
FBR = Female Double Hole Buss Bar Panel Mount Receptacle - (SKIP #2)		2 = 373 MCM	BR = Brown	G = Green
MCR = Male Contact Panel Mount Receptacle		3 = 313 MCM	GY = Gray	OR = Orange
FCR = Female Contact Panel Mount Receptacle		4 = 444 MCM	P = Purple	R = Red
			W = White	Y = Yellow
MC20 PLUGS, IN-LINE RECEPTACLES & FIXED CABLE RECEPTACLES Ordering Format: MC20-(1)-(2)-(3)-(4)-(5)				
(1) MALE & FEMALE CONTACT SIZE	(2) STYLE OF PLUG CASING	(3) GROMMET	(4) MECHANICAL CLAMP	(5) COLOR
MALE		16 = 0.875 - 1.000	M = Mechanical Clamp	BK = Black
4/0M = 4/0 Male Contact	P = Plug	18 = 1.000 - 1.125		BL = Blue
2M = 373 Male Contact		OR	20 = 1.125 - 1.250	BR = Brown
3M = 313 Male Contact	22 = 1.250 - 1.375		G = Green	
4M = 444 Male Contact	24 = 1.375 - 1.500		GY = Gray	
			Kellems Grip	OR = Orange
FEMALE			K16 = #16 (0.875 - 1.000)	P = Purple
4/0F = 4/0 Female Contact	OR		K18 = #18 (1.000 - 1.125)	R = Red
2F = 373 Female Contact		FCR = Fixed Cable Receptacle		K20 = #20 (1.125 - 1.250)
3F = 313 Female Contact			K22 = #22 (1.250 - 1.375)	Y = Yellow
4F = 444 Female Contact			K24 = #24 (1.375 - 1.500)	
RIGPOWER MC20 SERIES SINGLE POLE - SPARE PARTS				
PART NUMBER	PART DESCRIPTION	PART NUMBER	MALE PART DESCRIPTION	
G16-20	Grommet #16 (0.875 - 1.000)	MC20-4/0M	MC20 - 4/0 Male Contact w/Insulator (Recep or Plug)	
G18-20	Grommet #18 (1.000 - 1.125)	MC20-2M	MC20 - 373 Male Contact w/Insulator (Recep or Plug)	
G20-20	Grommet #20 (1.125 - 1.250)	MC20-3M	MC20 - 313 Male Contact w/Insulator (Recep or Plug)	
G22-20	Grommet #22 (1.250 - 1.375)	MC20-4M	MC20 - 444 Male Contact w/Insulator (Recep or Plug)	
G24-20	Grommet #24 (1.375 - 1.500)	MC20-MBB	MC20 - Male Buss Bar w/Insulator	
GW24-20	Grommet Washer #24 (for #20 Shell)	PART NUMBER	FEMALE PART DESCRIPTION	
K16-20	Kellems Grip #16 (0.875 - 1.000)	MC20-4/0F	MC20 - 4/0 Female Contact w/Insulator (Recep or Plug)	
K18-20	Kellems Grip #18 (1.000 - 1.125)	MC20-2F	MC20 - 373 Female Contact w/Insulator (Recep or Plug)	
K20-20	Kellems Grip #20 (1.125 - 1.250)	MC20-3F	MC20 - 313 Female Contact w/Insulator (Recep or Plug)	
K22-20	Kellems Grip #22 (1.250 - 1.375)	MC20-4F	MC20 - 444 Female Contact w/Insulator (Recep or Plug)	
K24-20	Kellems Grip #24 (1.375 - 1.500)	MC20-FBB	MC20 - Female Buss Bar w/Insulator	
MC24-20	Mechanical Clamp #24 (for #20 Shell)			
PART NUMBER	THE 30°/45° REVERSIBLE LOCKING BUSS BAR LUG	PART NUMBER	DOUBLE HOLE LUGS	
SL-535-AL	535 MCM 30°/45° Reversible Locking Buss Bar Lug	QS-535-L	Quick/Quad Stab Double Hole 535 Lug	
SL-646-AL	646 MCM 30°/45° Reversible Locking Buss Bar Lug	QS-646-L	Quick/Quad Stab Double Hole 646 Lug	
SL-777-AL	777 MCM 30°/45° Reversible Locking Buss Bar Lug	QS-777-L	Quick/Quad Stab Double Hole 7	

*Kellems®, is a Registered Trademark of Hubbell Inc.



CONNECTORS

MCC-1™ SL SERIES



DESCRIPTION AND DESIGN FEATURES

RigPower's mission is to create new industry standards in industrial electrical connectors by combining appropriate technological advances, quality production methods and dependable customer support.

Applications

RigPower's MCC-1™ Series Single Pole High Amperage Connectors are designed specifically with the requirements of the drilling industry in mind. These products are designed to deliver up to 1,000 Volts, AC or DC, and up to 1,135 Amps of continuous power in the most extreme conditions. Typical applications are: connection of power from generator sets to Switchgear or SCR (silicon controlled rectifiers) controls, or from the control house to traction motors, mud pumps, draw-works, rotary tables, cement pumps and top drives.

AMPACITY RATINGS IN 40° AMBIENT		
CABLE SIZE	90° C	125° C
4/0 MCM	364 AMPS	451 AMPS
313 MCM	513 AMPS	636 AMPS
373 MCM	548 AMPS	669 AMPS
444 MCM	642 AMPS	796 AMPS
535 MCM	724 AMPS	898 AMPS
646 MCM	814 AMPS	1009 AMPS
777 MCM	916 AMPS	1135 AMPS

Type P Cables

The MCC-1 Series connectors are designed to work in conjunction with the latest generation of Type P drilling cables, per IEEE 45. Cable accommodations are from 4/0 MCM to 777 MCM. Metric cable sized contacts are available on request.

Sealing

MCC-1 Series plugs and connectors have internal seals which prevent water intrusion even if the caps are left off. Competitor's plugs and receptacles allow easy ingress of moisture, causing shorting of the connector to the case. This destroys the connector and presents a dangerous safety hazard.

Design & Performance Highlights

The advanced design techniques utilized by RigPower have allowed us to design in two O-Rings (Contact to Insulator and Insulator to Cable Adapter) at the optimum locations to create a water tight seal.

- Rated for 1,135 Amps continuous at 1,000 volts, AC/DC
- Rugged machined aluminum shell with a hard anodized coating is resistant to salt corrosion, drilling mud, humidity, moisture, oil and dust
- Heavy-Duty ACME Threaded Coupling permits positive and quick engagement even under harsh conditions
- Totally shrouded contact design and a dead front tip on both the male and female contact improves operator safety by eliminating exposed, live surfaces
- Low Mating & Unmating Force permits ease of insertion and withdrawal. Available with the customer's choice of female contact with the standard "C" spring design or RigPower's advanced "Multilam" design
- Copper Alloy, Sn Plated Contacts and Buss Bars provide maximum conductivity
- All contacts use the same crimping die sets as the RigPower "RMP®II, Secure Mount®, Safe Stab®, VFD-1®, HP20 and MC20" series connectors
- Color Coding Option for positive phase identification

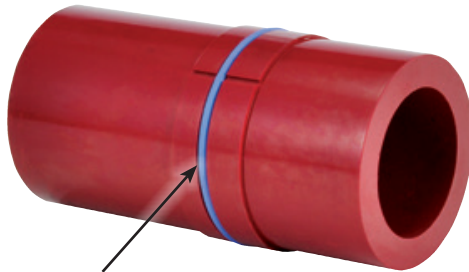
Special Product Note:

The MCC-1 series advanced design allows for the REMOVAL OF THE KEY on all RigPower plugs. This eliminates the required twisting of heavy cable to align the key before mating the plug to the corresponding component. With the MCC-1 series just push the plug into any existing competitive receptacle or In-line receptacle, screw the coupling nut down, and you're ready to go. The MCC-1 is 100% intermateable with existing brands. We improved the products, made them easier to work with, and increased the safety factor.



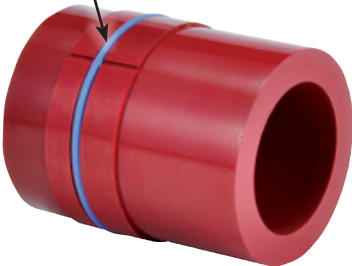


Male Contact Insulator



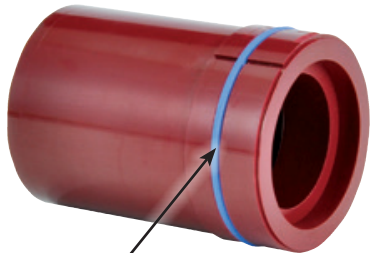
Industry Exclusive

Each contact and receptacle insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell and receptacle housing. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.



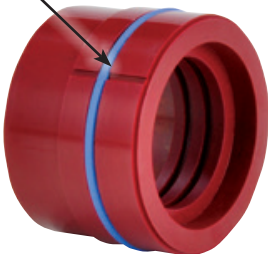
Male Buss Bar Insulator

Female Contact Insulator



Industry Exclusive

Each contact and receptacle insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell and receptacle housing. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.



Female Buss Bar and 4/0 Contact Insulator

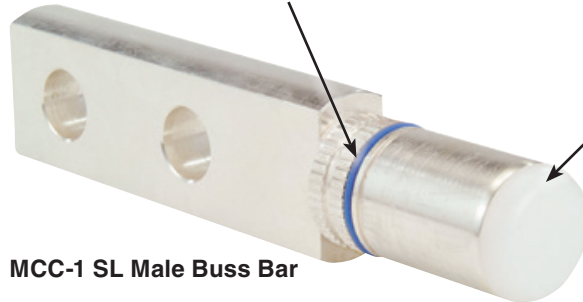
INSULATORS & BUSS BARS

Advanced Crimping System

The MCC-1 Series connectors are designed to use the standard hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.

Industry Exclusive

Each contact and buss bar has an O-Ring Seal designed into the body which offers improved mounting between the electrical component and the insulator. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.



MCC-1 SL Male Buss Bar

Advanced Crimping System

The MCC-1 Series connectors are designed to use the standard hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.

MCC-1 SL Female Buss Bar



Industry Exclusive

Each contact and buss bar has an O-Ring Seal designed into the body which offers improved mounting between the electrical component and the insulator. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.

MCC-1 SL Male Contact

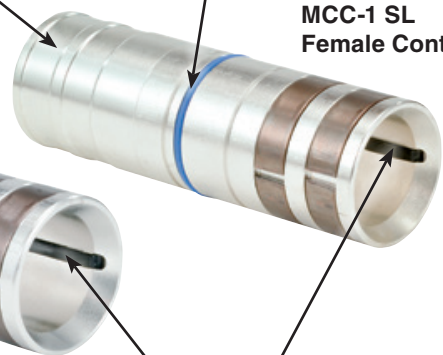


The Contacts and Buss Bars are Sn plated high conductivity copper. Both the male components have a dead front end to protect operators from shock hazard. Connectors are rated for 1,135 amps at 1,000 volts, AC or DC, with the ability to withstand intermittent surges up to 1,300 amps.

Industry Exclusive

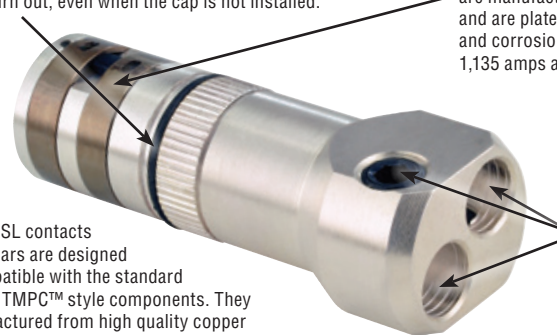
Each contact and buss bar has an O-Ring Seal designed into the body which offers improved mounting between the electrical component and the insulator. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.

MCC-1 SL Female Contact



Female Buss Bar and contact connectors are designed to be compatible with standard Star-Line™ TMPC™ style contacts. They are manufactured from high quality copper and are plated for maximum conductivity and corrosion resistance. Rated for 1,135 amps at 1,000 volts AC/DC.

MCC-1 SL Female Double Hole Set Screw 4/0 Contact



Specially built contact accommodates two 4/0 cables that are locked in place with pressure set screws. A large rubber grommet at the rear of the adapter has two holes sized for 4/0 cables and is held in place with a #28 washer and cable clamp.

NOTE: The SL contacts and buss bars are designed to be compatible with the standard Star-Line™ TMPC™ style components. They are manufactured from high quality copper and are Sn plated for maximum conductivity and corrosion resistance. Rated for 1,135 amps at 1,000 volts AC/DC.

*Star-Line® and TMPC™ are Registered Trademarks of Amphenol Corporation

CONNECTORS

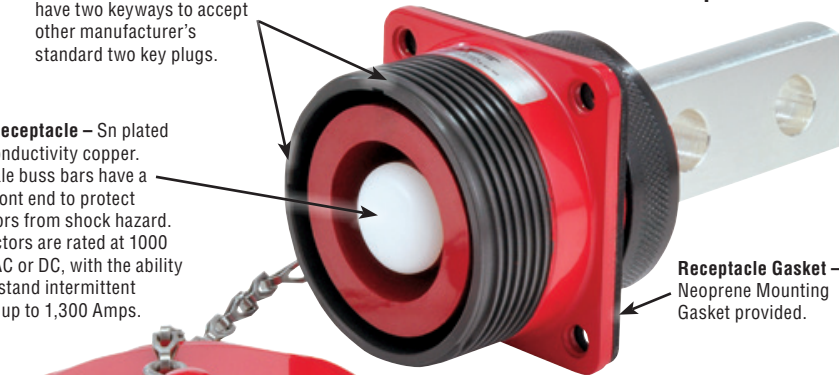


MCC-1™ SL SERIES

INDUSTRY FEATURES AND BENEFITS

The MCC-1 Series receptacles have two keyways to accept other manufacturer's standard two key plugs.

Male Receptacle – Sn plated high conductivity copper. The male buss bars have a dead front end to protect operators from shock hazard. Connectors are rated at 1000 volts, AC or DC, with the ability to withstand intermittent surges up to 1,300 Amps.



30° – 45° Reversible Locking Buss Bar Lug

Industry Exclusive

Locks in position at 30° or 45°



MCC-1 SL Female Receptacle

Receptacle Cap

- Heavy duty stainless steel chain and clips to prevent loss of cap
- Powder Coated for easier phase identification at hook-up



The MCC-1 Series receptacles have two keyways to accept other manufacturer's standard two key plugs.



The Female buss bar connectors are designed to be compatible with standard Star-Line™ TMPCT™ style contacts. They are manufactured from high quality copper and are Sn plated for maximum conductivity and corrosion resistance. Rated for 1,135 amps at 1,000 volts AC/DC.



MCC-1 Series connectors are available in eight standard colors with durable powder coating.

* Purple and Gray available upon special request.

If additional colors are desired, the option is provided from RigPower to powder coat two color bands on each connector. This allows over forty unique color combinations to ensure proper connections to multiple pieces of equipment.

Receptacle Cap

- Heavy duty stainless steel chain and clips to prevent loss of cap
- Powder Coated for easier phase identification at hook-up



MCC-1 SL Female Double Hole Set Screw 4/0 Contact

Specially built contact accommodates two 4/0 cables that are locked in place with pressure set screws. A large rubber grommet at the rear of the adapter has two holes sized for 4/0 cables and is held in place with a #28 washer and cable clamp.

#28 Shell & Cable Clamp

MCC-1 SL Female Receptacle Cable Adapter with Double Hole 4/0 Contact

Standard SL #24 Front End

Special #24 Flange with #28 thread in back to accommodate large shell and double hole contact.





INDUSTRY FEATURES AND BENEFITS

Industry Exclusive Plug Cap – Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

MCC-1 SL Female In-line Receptacle

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

Industry Exclusive Cable Adapter – Robust grip with knurling for easy assembly and handling. Fully powder coated.

MCC-1 In-line Plug has two keyways to accept other manufacturer's standard two key plugs.

Female In-line Receptacles. Connectors are rated for 1,135 amps at 1000 volts, AC or DC, with the ability to withstand intermittent surges up to 1,300 amps.

Industry Exclusive Cable Adapter – Robust grip with knurling for easy assembly and handling. Fully powder coated.

Industry Exclusive Coupling Nut – The Coupling Nut also has a robust hex design at the rear for easier cable-to-receptacle connections or cable-to-cable connection.

MCC-1 SL Male Plug

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

MCC-1 Series Plug connectors have no keyway. This allows MCC-1 plugs to be inserted into any competitor's receptacle without trying to rotate stiff DLO sized cables.

Male Plug – Sn plated high conductivity copper contact. All male plugs and receptacles have a dead front end to protect operators from shock hazard. Connectors are rated for 1,135 amps at 1,000 volts AC or DC with the ability to withstand intermittent surges up to 1,300 Amps.

MCC-1 SL In-line Connection

Industry Exclusive Plug Cap – Fully powder coated, helps protect operators by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

MCC-1 SL Fixed Cable Receptacle

MCC-1 SL Plug

* Star-Line®, TMPC™ and Radsok® are Registered Trademarks of Amphenol Corporation
* Kellems®, is a Registered Trademark of Hubbell Inc.

CONNECTORS

MCC-1™ RS SERIES



DESCRIPTION AND DESIGN FEATURES

Applications

RigPower's MCC-1 RS Series Single Pole High Amperage Connectors are designed specifically with the requirements of the drilling industry in mind. These products are designed to deliver up to 1,000 Volts, AC or DC, and up to 1,135 Amps of continuous power in the most extreme conditions. Typical applications are: connection of power from generator sets to Switchgear or SCR (silicon controlled rectifiers) controls, or from the control house to traction motors, mud pumps, draw-works, rotary tables, cement pumps and top drives.

AMPACITY RATINGS IN 40° AMBIENT		
CABLE SIZE	90° C	125° C
4/0 MCM	364 AMPS	451 AMPS
313 MCM	513 AMPS	636 AMPS
373 MCM	548 AMPS	669 AMPS
444 MCM	642 AMPS	796 AMPS
535 MCM	724 AMPS	898 AMPS
646 MCM	814 AMPS	1009 AMPS
777 MCM	916 AMPS	1135 AMPS

Type P Cables

The MCC-1 RS Series connectors are designed to work in conjunction with the latest generation of Type P drilling cables, per IEEE 45. Cable accommodations are from 4/0 MCM to 777 MCM. Metric cable sized contacts are available on request.

Installation

The simple design of the MCC-1 RS Series allows the connectors to be mated and unmated without the use of tools.

Sealing

MCC-1 RS Series plugs and connectors have internal seals which prevent water intrusion even if the caps are left off. Competitor's plugs and receptacles allow easy ingress of moisture, causing shorting of the connector to the case. This destroys the connector and presents a dangerous safety hazard.

Design & Performance Highlights

The advanced design techniques utilized by RigPower have allowed us to design in two O-Rings (Contact to Insulator and Insulator to Cable Adapter) at the optimum locations to create a water tight seal.

- Rated for 1135 Amps continuous at 1000 volts, AC/DC
- Rugged machined aluminum shell with a hard anodized coating is resistant to salt corrosion, drilling mud, humidity, moisture, oil and dust
- Heavy-Duty ACME Threaded Coupling permits positive and quick engagement even under harsh conditions
- Totally shrouded contact design and a dead front tip on both the male and female contact improves operator safety by eliminating exposed live surfaces
- Low Mating & Unmating Force permits ease of insertion and withdrawal. Available with the RigPower's advanced "Multilam" design

- Copper Alloy, Sn Plated Contacts and Buss Bars provide maximum conductivity
- Ingress Protection IP68 in mated condition or with protective cover in place
- Color Coding Option for positive phase identification

Special Product Note:

The MCC-1 RS series advanced design allows for the removal of the KEY on all plugs. This eliminates the required twisting of heavy cable to align the key before mating the plug to the receptacle. With the MCC-1 RS series just push the plug into any existing competitive receptacle, screw the coupling nut down, and you're ready to go. The MCC-1 RS product is 100% intermateable with existing brands. We improved the products, made them easier to work with, and increased the safety factor! The MCC-1 RS system can intermate with Amphenol Star-Line® Radsok® plugs and receptacles.

INDUSTRY EXCLUSIVE –

The patented (U.S. Patent No. 7,442,096) Female Contact and Female Receptacle buss bar have a dead front Delrin® Ring which provides increased safety by helping to prevent accidental contact. BOTH the male and female components have this added feature. Connectors are rated for 1,135 amps at 1,000 Volts, AC or DC, with the ability to withstand intermittent surges up to 1,300 amps.

INDUSTRY EXCLUSIVE –

All RigPower Contacts have a Double Crimp Style base that is longer than other manufacturer's, which provides a more complete and secure connection between the cable and contact.

- Termination method is double crimp style for cable mounted plug and receptacles
- Crimping locators are designed into the base for ease of installation
- Made from Sn plated high conductivity copper
- Uses the same crimping die sets as the RigPower "RMP®II", "Secure Mount®", "Safe Stab®", "VFD-1®", "HP20™" and "MC20™" series connectors

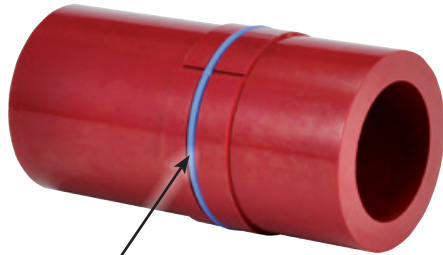
*Star-Line® and Radsok® are Registered Trademarks of Amphenol Corporation





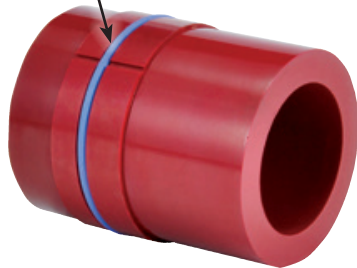
INSULATORS & CONTACTS

Male Contact Insulator



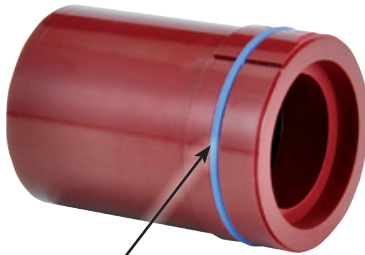
Industry Exclusive

Each insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.



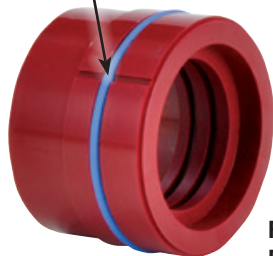
Male Buss Bar Insulator

Female Contact Insulator



Industry Exclusive

Each contact and receptacle insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell and receptacle housing. Additionally, the O-Ring provides a water proof seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.



Female Buss Bar Insulator

Advanced Crimping System

The MCC-1 RS Series connectors are designed to use the standard hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes on the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.

Industry Exclusive

Each contact and receptacle buss bar has an O-Ring Seal designed into the body which offers improved mounting between the insulator and contact or buss bar. Additionally, the O-Ring provides a water tight seal so that the connector won't have the propensity to short or burn out, even when the cap is not installed.

MCC-1 RS Male Buss Bar

Advanced Crimping System

The MCC-1 RS Series connectors are designed to use the recommended hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM.

Industry Exclusive

Each contact and receptacle insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell and receptacle housing. Additionally, the O-Ring provides a water proof seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.

MCC-1 RS Female Buss Bar

Industry Exclusive

Each buss bar and contact insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and cable adapter shell and receptacle housing. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.

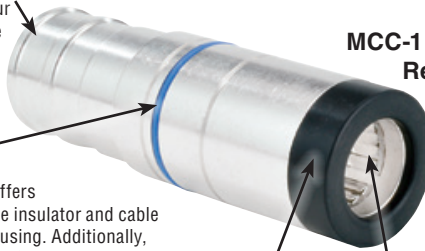
MCC-1 RS Male Contact



The Male RS Contacts and Buss Bars are Sn plated high conductivity copper. BOTH have a dead front end to protect operators from shock hazard. Connectors are rated for 1,135 amps at 1,000 volts, AC or DC, with the ability to withstand intermittent surges up to 1,300 amps.



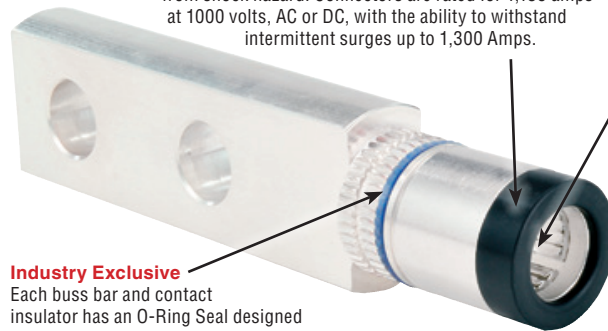
MCC-1 RS Female Contact Receptacle



NOTE: The Female RS Contacts and Buss Bars are designed to be compatible with the standard Star-Line® Radsok® style components. They are manufactured from high quality copper and are Sn plated for maximum conductivity and corrosion resistance. Rated for 1,135 amps at 1,000 volts AC/DC.

Industry Exclusive

Female Receptacle – The RS Female Contact Receptacle comes with the patented (U.S. Patent No. 7,442,096) Dead Front Delrin® Ring which provides increased safety by helping to prevent accidental contact. BOTH the RS male and female parts have this feature to protect operators from shock hazard. Connectors are rated for 1,135 amps at 1000 volts, AC or DC, with the ability to withstand intermittent surges up to 1,300 Amps.



The MCC-1 RS Series connectors come standard with the Multilam contact system. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

NOTE: The MCC-1 RS system can intermate with Amphenol Star-Line® Radsok® plugs and receptacles.

*Star-Line® and Radsok® are Registered Trademarks of Amphenol Corporation

CONNECTORS



MCC-1™ RS SERIES

INDUSTRY FEATURES AND BENEFITS

MCC-1 RS Male Buss Bar Receptacle

The MCC-1 RS Series receptacles have two keyways to accept other manufacturer's standard two key plugs.

Male Buss Bar Receptacle – Sn plated high conductivity copper. BOTH the Male and Female RS Contacts and Buss Bars have a dead front end to protect operators from shock hazard. Connectors are rated for 1,135 amps at 1000 volts AC or DC with the ability to withstand intermittent surges up to 1,300 Amps.

Receptacle Cap

- Heavy duty stainless steel chain and clips to prevent loss of cap
- Powder Coated for easier phase identification at hook-up



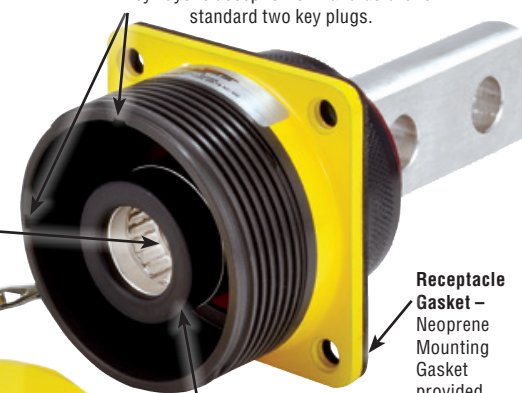
Receptacle Gasket – Neoprene Mounting Gasket provided.

MCC-1 RS Female Buss Bar Receptacle

The MCC-1 RS Series receptacles have two keyways to accept other manufacturer's standard two key plugs.

The MCC-1 RS Series connectors are available with the Multilam contact system. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life



Receptacle Gasket – Neoprene Mounting Gasket provided.



MCC-1 RS Series connectors are available in eight standard colors with durable powder coating.

* Purple and Gray available upon special request.

If additional colors are desired, the option is provided from RigPower to powder coat two color bands on each connector. This allows over forty unique color combinations to ensure proper connections to multiple pieces of equipment.

Receptacle Cap

- Heavy duty stainless steel chain and clips to prevent loss of cap
- Powder Coated for easier phase identification at hook-up



Industry Exclusive

Female Receptacle – The RS Female Buss Bar Receptacle comes with the patented (U.S. Patent No. 7,442,096) Dead Front Delrin® Ring which provides increased safety by helping to prevent accidental contact. BOTH the RS male and female parts have this feature to protect operators from shock hazard. Connectors are rated for 1,135 amps at 1000 volts, AC or DC, with the ability to withstand intermittent surges up to 1,300 Amps.

The MCC-1 RS Series receptacles have two keyways to accept other manufacturer's standard two key plugs.

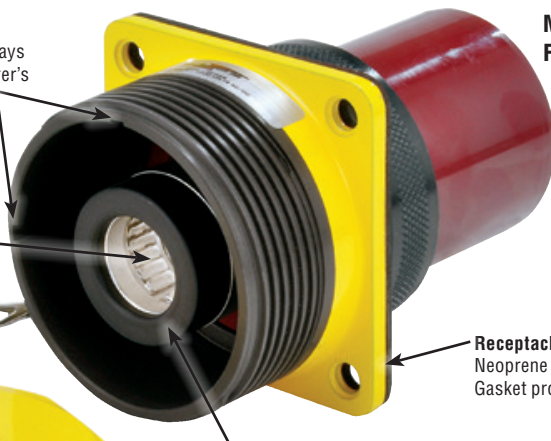
MCC-1 RS Female Contact Receptacle

The MCC-1 RS Series connectors are available with the Multilam contact system. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

Receptacle Cap

- Heavy duty stainless steel chain and clips to prevent loss of cap
- Powder Coated for easier phase identification at hook-up



Receptacle Gasket – Neoprene Mounting Gasket provided.

Industry Exclusive

Female Receptacle – The RS Female Contact Receptacle comes with the patented (U.S. Patent No. 7,442,096) Dead Front Delrin® Ring which provides increased safety by helping to prevent accidental contact. BOTH the RS male and female parts have this feature to protect operators from shock hazard. Connectors are rated for 1,135 amps at 1000 volts, AC or DC, with the ability to withstand intermittent surges up to 1,300 Amps.

NOTE: The MCC-1 RS system can intermate with Amphenol Star-Line® Radsok® plugs and receptacles.



INDUSTRY FEATURES AND BENEFITS

Industry Exclusive

Cable Adapter – Robust grip with knurling for easy assembly and handling. Fully powder coated.

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip (shown).

Male Plug Contact – Sn plated high conductivity copper. BOTH the Male and Female have a dead front end to protect operators from shock hazard. Connectors are rated at 1000 volts, AC or DC, with the ability to withstand intermittent surges up to 1,300 Amps.

MCC-1 Series Plug connectors have no keyway. This allows MCC-1 plugs to be inserted into any receptacle without trying to rotate stiff DLO sized cables.

MCC-1 RS Male Plug

Industry Exclusive

Coupling Nut – The Coupling Nut also has a robust hex design at the rear for easier cable-to-receptacle connections or cable-to-cable connection.

Industry Exclusive

Plug Cap – Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

MCC-1 RS Series In-line Receptacle has two keyways to accept other manufacturer's keyed plugs.

MCC-1 RS In-line Female Receptacle

The MCC-1 RS Series connectors are available with the Multilam contact system. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

Cable Plugs can accommodate either a Mechanical Cable Clamp or Kellems® Grip.

Industry Exclusive

Cable Adapter – Robust grip with knurling for easy assembly and handling. Fully powder coated.

Industry Exclusive

Plug Cap – Fully powder coated, helps protect roughnecks by identifying proper phase color easily, up close or from a distance. Heavy duty stainless steel chain and clips to prevent loss of cap.

Industry Exclusive

The Female Contact has a patented (U.S. Patent No. 7,442,096) Dead Front Delrin® Ring which provides increased safety by helping to prevent accidental contact. BOTH the RS Male and Female Contacts have a dead front end to protect operators from shock hazard. Connectors are rated at 1000 volts, AC or DC, with the ability to withstand intermittent surges up to 1,300 amps.

NOTE: The MCC-1 RS system can intermate with Amphenol Star-Line® and Radsok® plugs and receptacles.

MCC-1 RS In-line Connection

MCC-1 RS Plug

MCC-1 RS In-line Receptacle

* Star-Line® and Radsok® are Registered Trademarks of Amphenol Corporation

* Kellems®, is a Registered Trademark of Hubbell Inc.

CONNECTORS



MCC-1™ RS SERIES

PARTS LIST

ORDERING TABLE FOR MCC-1 SL SINGLE POLE POWER CONNECTORS — (Rated for 1000 Volts / 1135 Amps)		
MCC-1 SL PANEL MOUNT RECEPTACLES — Ordering Format: MCC1-(1)-(2)-(3)		
(1) RECEPTACLE GENDER & STYLE CONNECTION	(2) CRIMP CONTACT SIZES	(3) COLOR
MALE RECEPTACLE CHOICES	4/0 = 313 MCM w/4/0 Insert 2 = 444 MCM w/373 Insert	BK = Black BL = Blue
17PR = SL Male Buss Bar Panel Mount Receptacle	3 = 313 MCM	BR = Brown
17PN = SL Male Contact Panel Mount Receptacle	4 = 444 MCM	G = Green
Z10PR = SL Male Buss Bar Panel Mount Receptacle w/Coupling Nut	5 = 535 MCM	GY = Gray
Z10PN = SL Male Contact Panel Mount Receptacle w/Coupling Nut	6 = 646 MCM	OR = Orange
FEMALE RECEPTACLE CHOICES	7 = 777 MCM	P = Purple R = Red
17SR = SL Female Buss Bar Panel Mount Receptacle	Note: Skip this section if you ordered the following receptacles: 17PR, Z10PR, 17SR, or Z10SR	W = White
17SN = SL Female Contact Panel Mount Receptacle		Y = Yellow
Z10SR = SL Female Buss Bar Panel Mount Receptacle w/Coupling Nut		
Z10SN = SL Female Contact Panel Mount Receptacle w/Coupling Nut		
The MCC-1 RS Receptacles and Contacts are 100% intermateable with all current <i>*Radsok®</i> style products currently in use		

MCC-1 SL PLUGS, IN-LINE RECEPTACLES & FIXED CABLE RECEPTACLES — Ordering Format: MCC1-(1+2)-(3)-(4)-(5)				
(1) STYLE OF PLUG CASING	(2) MALE & FEMALE CONTACT SIZE	(3) GROMMET	(4) MECHANICAL CLAMP	(5) COLOR
10 = SL Plug	P4/0 = SL 313 Male Contact w/4/0 Insert	14 = 0.750 - 0.875	M = Mechanical Clamp	BK = Black
	P2 = SL 444 Male Contact w/373 Insert	16 = 0.875 - 1.000		BL = Blue
OR	P3 = SL 313 Male Contact	18 = 1.000 - 1.125	OR	BR = Brown
	P4 = SL 444 Male Contact	20 = 1.125 - 1.250		G = Green
15 = SL In-Line Receptacle	P5 = SL 535 Male Contact	22 = 1.250 - 1.375	Kellems Grip	GY = Gray
	P6 = SL 646 Male Contact	24 = 1.375 - 1.500		OR = Orange
	P7 = SL 777 Male Contact	26 = 1.500 - 1.625		P = Purple
OR	S4/0 = SL 313 Female Contact w/4/0 Insert	38 = 1.625 - 1.750	K16 = 16 (0.875 - 1.000)	R = Red
	S2 = SL 444 Female Contact w/373 Insert	30 = 1.750 - 1.875	K20 = 20 (1.000 - 1.250)	W = White
17 = SL Fixed Cable Receptacle	S3 = SL 313 Female Contact	32 = 1.875 - 2.000	K24 = 24 (1.250 - 1.500)	Y = Yellow
	S4 = SL 444 Female Contact	34 = 2.000 - 2.125	K28 = 28 (1.500 - 1.750)	
	S5 = SL 535 Female Contact	36 = 2.125 - 2.250	K32 = 32 (1.750 - 2.000)	
	S6 = SL 646 Female Contact	38 = 2.250 - 2.375	K36 = 36 (2.000 - 2.250)	
	S7 = SL 777 Female Contact	39 = 2.375 - 2.437	K39 = 36 (2.250 - 2.437)	
The staff at RigPower, LLC would like to thank you for allowing us to support your electrical connectors needs!		2-4/0-F = SL 4/0 Female Contact (For Two Cables)	Note: Skip sections 3 & 4 if you ordered the 2-4/0-F	

ORDERING TABLE FOR MCC-1 RS SINGLE POLE POWER CONNECTORS — (Rated for 1000 Volts/1135 AMPS)		
MCC-1 RS PANEL MOUNT RECEPTACLES — Ordering Format: MCC1-(1)-(2)-(3)		
(1) RECEPTACLE GENDER AND STYLE CONNECTION	(2) CRIMP CONTACT SIZES	(3) COLOR
MALE RECEPTACLE CHOICES	4/0 = 313 MCM w/4/0 Insert 2 = 444 MCM w/373 Insert	BK = Black BL = Blue
R17PR = RS Male Buss Bar Panel Mount Receptacle	3 = 313 MCM	BR = Brown
R17PN = RS Male Contact Panel Mount Receptacle	4 = 444 MCM	G = Green
ZR10PR = RS Male Buss Bar Panel Mount Receptacle w/Coupling Nut	5 = 535 MCM	GY = Gray
ZR10PN = RS Male Contact Panel Mount Receptacle w/Coupling Nut	6 = 646 MCM	OR = Orange
FEMALE RECEPTACLE CHOICES	7 = 777 MCM	P = Purple R = Red
R17SR = RS Female Buss Bar Panel Mount Receptacle	Note: Skip this section if you ordered R17PR, ZR10SR, R17SR or ZR17SR Receptacles	W = White
R17SN = RS Female Contact Panel Mount Receptacle		Y = Yellow
ZR10SR = RS Female Buss Bar Panel Mount Receptacle w/Coupling Nut		
ZR10SN = RS Female Contact Panel Mount Receptacle w/Coupling Nut		
The MCC-1 RS Receptacles and Contacts are 100% intermateable with all current <i>*Radsok®</i> style products currently in use		



Mechanical Clamp
Has a dual holding pattern. One size for larger cables, reverse it and it accommodates smaller cables more effectively.



Cable Grommet
Has a tapered fit to the cable adapter and is available in fourteen sizes to ensure a proper water tight seal to the cable.



Retaining Rings
Heavy duty design to hold contacts and receptacles securely in place.

*Radsok®, Star-line are a Registered Trademark of Amphenol Corporation
*Kellems®, is a Registered Trademark of Hubbell Inc.



MCC-1™ SERIES

RIGPOWER



PARTS LIST & ACCESSORIES

MCC-1 RS PLUGS, IN-LINE RECEPTACLES & FIXED CABLE RECEPTACLES — Ordering Format: MCC1-(1+2)-(3)-(4)-(5)				
(1) STYLE OF PLUG CASING	(2) MALE & FEMALE CONTACT SIZE	(3) GROMMET	(4) CABLE CLAMP STYLE	(5) COLOR
R10 = RS Plug	P4/0 = RS 313 Male Contact w/4/0 Insert	14 = 0.750 - 0.875	M = Mechanical Clamp	BK = Black
	P2 = RS 444 Male Contact w/373 Insert	16 = 0.870 - 1.000		BL = Blue
OR	P3 = RS 313 Male Contact	18 = 1.000 - 1.125	OR	BR = Brown
	P4 = RS 444 Male Contact	20 = 1.125 - 1.250		G = Green
R15= RS In-Line Receptacle	P5 = RS 535 Male Contact	22 = 1.250 - 1.375	Kellems Grip	GY = Gray
	P6 = RS 646 Male Contact	24 = 1.375 - 1.500		OR = Orange
OR	P7 = RS 777 Male Contact	26 = 1.500 - 1.625	K16 = 16 (0.875 - 1.000)	P = Purple
	S4/0 = RS 313 Female Contact w/4/0 Insert	28 = 1.625 - 1.750		K20 = 20 (1.000 - 1.250)
R17 = RS Fixed Cable Receptacle	S2 = RS 444 Female Contact w/373 Insert	30 = 1.750 - 1.875	K24 = 24 (1.250 - 1.500)	W = White
	S3 = RS 313 Female Contact	32 = 1.875 - 2.000	K28 = 28 (1.500 - 1.750)	Y = Yellow
NOTE: Combine group 1 with group 2. Example: 10P3	S4 = RS 444 Female Contact	34 = 2.000 - 2.125	K32 = 32 (1.750 - 2.000)	
	S5 = RS 535 Female Contact	36 = 2.125 - 2.250	K36 = 36 (2.000 - 2.250)	
	S6 = RS 646 Female Contact	38 = 2.250 - 2.373	K39 = 39 (2.250 - 2.437)	
	S7 = RS 777 Female Contact	39 = 2.375 - 2.437		

MCC-1 SINGLE POLE POWER SPARE PARTS			
RigPower's MCC-1 Parts are 100% Interchangeable with ALL Existing Parts Currently in Use			
MCC-1 RECEPTACLE & PLUG PARTS		MCC-1 CONTACTS & BUSS BAR PARTS	
PART NUMBER	PART DESCRIPTION	PART NUMBER	MALE PART DESCRIPTION
G14	Grommet 14 (0.750 - 0.875)	MCC1-SLM4/0	MCC1 - SL 313 Male Contact w/4/0 Insert
G16	Grommet 16 (0.875 - 1.000)	MCC1-SLM2	MCC1 - SL 444 Male Contact w/373 Insert
G18	Grommet 18 (1.000 - 1.125)	MCC1-SLM3	MCC1 - SL 313 Male Contact
G20	Grommet 20 (1.125 - 1.250)	MCC1-SLM4	MCC1 - SL 444 Male Contact
G22	Grommet 22 (1.250 - 1.375)	MCC1-SLM5	MCC1 - SL 535 Male Contact
G24	Grommet 24 (1.375 - 1.500)	MCC1-SLM6	MCC1 - SL 646 Male Contact
G26	Grommet 26 (1.500 - 1.625)	MCC1-SLM7	MCC1 - SL 777 Male Contact
G28	Grommet 28 (1.625 - 1.750)	MCC1-RSM4/0	MCC1 - RS 313 Male Contact w/4/0 Insert
G30	Grommet 30 (1.750 - 1.875)	MCC1-RSM2	MCC1 - RS 444 Male Contact w/373 Insert
G32	Grommet 30 (1.875 - 2.000)	MCC1-RSM3	MCC1 - RS 313 Male Contact
G34	Grommet 34 (2.000 - 2.125)	MCC1-RSM4	MCC1 - RS 444 Male Contact
G36	Grommet 36 (2.125 - 2.250)	MCC1-RSM5	MCC1 - RS 535 Male Contact
G38	Grommet 38 (2.250 - 2.273)	MCC1-RSM6	MCC1 - RS 646 Male Contact
G39	Grommet 39 (2.273 - 2.437)	MCC1-RSM7	MCC1 - RS 777 Male Contact
GW16	Grommet Washer 16 (0.870 - 1.125)	MCC1-SLMBB	MCC1 - SL Male Buss Bar
GW20	Grommet Washer 20 (1.125 - 1.375)	MCC1-RSMBB	MCC1 - RS Male Buss Bar
GW24	Grommet Washer 24 (1.375 - 1.625)	MCC1-MCI	MCC1 - Male Contact Insulator (Receptacle or Plug)
GW28	Grommet Washer 28 (1.625 - 1.875)	MCC1-MBI	MCC1 - Male Buss Bar Insulator (Receptacle Only)
GW32	Grommet Washer 32 (1.875 - 2.125)	MRC	Male Retaining Ring
GW36	Grommet Washer 32 (2.125 - 2.273)	MRCW	Male Retaining Ring Washer
GW39	Grommet Washer 39 (2.273 - 2.437)	PART NUMBER	FEMALE PART DESCRIPTION
K16	Kellems Grip 16 (0.875 - 1.000)	MCC1-SLF4/0	MCC1 - SL 313 Female Contact w/4/0 Insert
K20	Kellems Grip 20 (1.000 - 1.250 Cable)	MCC1-SLF2	MCC1 - SL 444 Female Contact w/373 Insert
K24	Kellems Grip 24 (1.250 - 1.500 Cable)	MCC1-SLF3	MCC1 - SL 313 Female Contact
K28	Kellems Grip 28 (1.500 - 1.750 Cable)	MCC1-SLF4	MCC1 - SL 444 Female Contact
K32	Kellems Grip 32 (1.750 - 2.000 Cable)	MCC1-SLF5	MCC1 - SL 535 Female Contact
K36	Kellems Grip 36 (2.000 - 2.250 Cable)	MCC1-SLF6	MCC1 - SL 646 Female Contact
K39	Kellems Grip 39 (2.250 - 2.437 Cable)	MCC1-SLF7	MCC1 - SL 777 Female Contact
KN24	Kellems Grip Nut #24	MCC1-RSF4/0	MCC1 - RS 313 Female Contact w/4/0 Insert
MC24	Mechanical Clamp #24	MCC1-RSF2	MCC1 - RS 444 Female Contact w/373 Insert
G	Receptacle Gasket	MCC1-MF3	MCC1 - RS 313 Female Contact
MCC1-IRC-XX	MCC1 - In-Line Receptacle Cap w/Chain - Select Color	MCC1-MF4	MCC1 - RS 444 Female Contact
MCC1-PC	MCC1 - Plug Cap w/Chain - Select Color	MCC1-MF5	MCC1 - RS 535 Female Contact
MCC1-CA-XX	MCC1 - Cable Adapter - Select Color	MCC1-MF6	MCC1 - RS 646 Female Contact
MCC1-CN	MCC1 - Coupling Nut for Plug	MCC1-MF7	MCC1 - RS 777 Female Contact
MCC1-Z-PMCN-XX	MCC1 - Panel Mount Coupling Nut - Select Color	MCC1-SLFB	MCC1 - SL Female Buss Bar
MCC1-RGN	MCC1 - Receptacle Gland Nut	MCC1-SRFB	MCC1 - RS Female Buss Bar
MCC1-RH-XX	MCC1 - Receptacle Housing - Select Color	MCC1-FCI	MCC1 - Female Contact Insulator (Receptacle or Plug)
MCC1-Z-PMA-XX	MCC1 - Panel Mount Adapter - Select Color	MCC1-FBI	MCC1 - Female Buss Bar Insulator (Receptacle Only)
MCC1-RC-XX	MCC1 - Receptacle Cap w/Chain - Select Color	FRC	Female Retaining Ring
		FRCW	Female Retaining Ring Washer
ADDITIONAL MCC-1 SUPPORT ITEMS		XX: Black = BK, Blue = BL, Brown = BR, Green = G, Orange = OR, Red = R, White = W, Yellow = Y. By request: Gray = GY, Purple = P	
30°-45° REVERSIBLE LOCKING BUSS BAR LUGS		DOUBLE HOLE LUGS	
SL-535-AL	535 MCM 30°/45° Angled Lug for Buss Bar Connections	QS-535-L	535 MCM Double Hole Lug
SL-646-AL	646 MCM 30°/45° Angled Lug for Buss Bar Connections	QS-646-L	646 MCM Double Hole Lug
SL-777-AL	777 MCM 30°/45° Angled Lug for Buss Bar Connections	QS-777-L	777 MCM Double Hole Lug



30°-45° Reversible Locking Buss Bar Lug

The 30° or 45° Reversible Buss Bar Lug was created by RigPower to help eliminate the long bend radius that is inherent when using standard single or double hole crimp lugs. Compared to current single hole lugs, the Reversible Buss Bar Lug gives you mounting options no one else can. The lug's shoulder rests securely on the buss bar, preventing any rotation that may be caused from the weight of the cable tension or from equipment vibration. Reducing the bend radius provides for additional work space behind the SCR house panel and other panel mounted areas.

- Termination method is double crimp style
- Crimping locators are designed into the base for ease of installation
- Uses the same crimping die sets as the RigPower RMP[®]II, Secure Mount[®], Safe Stab[®], VFD-1[®], HP20[™] and MC20[™] series connectors
- Made from Duplex Sn plated high conductivity copper



Double Hole Lug

The industry's most robust Lug. Machined from solid copper bar stock, not stamped.

- Termination method is double crimp style
- Crimping locators are designed into the base for ease of installation
- Uses the same crimping die sets as the RigPower RMP[®]II, Secure Mount[®], Safe Stab[®], VFD-1[®], HP20[™] and MC20[™] series connectors

SPECIAL NOTE: THE MCC-1 SERIES IS ALSO AVAILABLE IN A #20 SIZE SHELL, THE MC-20 SERIES

CONNECTORS

RMP® II SERIES



DESCRIPTION AND DESIGN FEATURES



RMP® II Series
Female Panel Mounted
Receptacle



RMP® II Series
Male Panel Mounted
Receptacle

RigPower's mission is to create new industry standards in industrial electrical connectors by combining appropriate technological advances, quality production methods and dependable customer support.

Applications

RigPower's RMP® II Series (single pole) connectors are designed specifically with the requirements of the drilling industry in mind. These products are designed to deliver up to 1,000 Volts AC or DC and up to 1,135 Amps of continuous power in the most extreme conditions. Typical applications are: the connection of power from generator sets to Switchgear or SCR (silicon-controlled rectifiers) controls, from the control house to traction motors, mud pumps, draw-works, rotary tables, cement pumps and top drives.

AMPACITY RATINGS IN 40° AMBIENT		
CABLE SIZE	90°	125°
4/0 MCM	364 AMPS	451 AMPS
262 MCM	428 AMPS	566 AMPS
313 MCM	513 AMPS	636 AMPS
373 MCM	548 AMPS	669 AMPS
444 MCM	642 AMPS	796 AMPS
535 MCM	724 AMPS	898 AMPS
646 MCM	814 AMPS	1009 AMPS
777 MCM	916 AMPS	1135 AMPS

Configurations

The RMP® II Series connectors are available in all configurations of male and female connectors. Typical configurations are shown below.

POWER SIDE	EQUIPMENT	USE
Male Panel Mount Receptacle	Female Plug	AC or DC output side of panel
Male Plug	Female Plug	In-line cable to cable connection
Male Plug	Female Panel Mount Receptacle	AC Power to switch-gear

Type P Cables

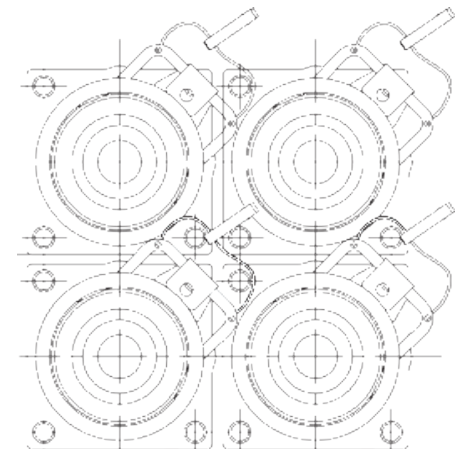
The RMP® II Series connectors are designed to work in conjunction with the latest generation of Type P drilling cables, per IEEE 45. Cable accommodations are 4/0 MCM to 777 MCM.

Installation

The simple design of the RMP® II Series allows the connectors to be mated and unmated without the use of tools.

Warning: Due to potential high temperature spikes and the presence of drilling mud polymers, we do not recommend mating inexpensive Thermoplastic materials with RigPower premium parts.

Qualifications



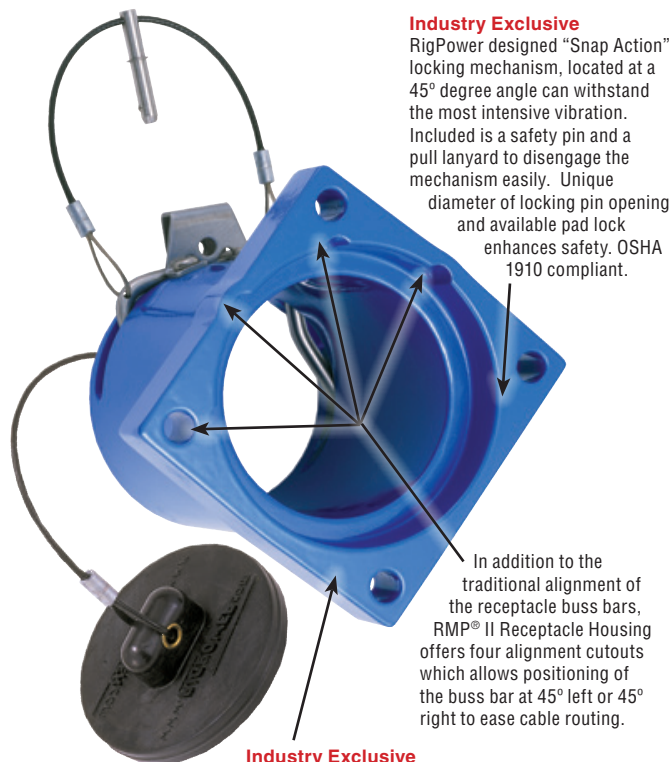
Available Colors





INDUSTRY FEATURES AND BENEFITS

RMP® II Panel Mount Housings



Industry Exclusive
RigPower designed “Snap Action” locking mechanism, located at a 45° degree angle can withstand the most intensive vibration. Included is a safety pin and a pull lanyard to disengage the mechanism easily. Unique diameter of locking pin opening and available pad lock enhances safety. OSHA 1910 compliant.

In addition to the traditional alignment of the receptacle buss bars, RMP® II Receptacle Housing offers four alignment cutouts which allows positioning of the buss bar at 45° left or 45° right to ease cable routing.

Industry Exclusive
Panel Mount Housing – Epoxy coated copper-free aluminum alloy, color coded for quick phase identification. Color coding prevents reverse phasing or cross polarization which could result in personnel injury and equipment damage.

Flange Mounted Grounding Receptacle & Plug



- Santoprene™ TPV Insulator offers superior UV resistance to fading and cracking
- Solid brass construction for highest conductivity
- Double cam design for vibration-proof connection
- Spring action slot that compensates for wear and extends service life

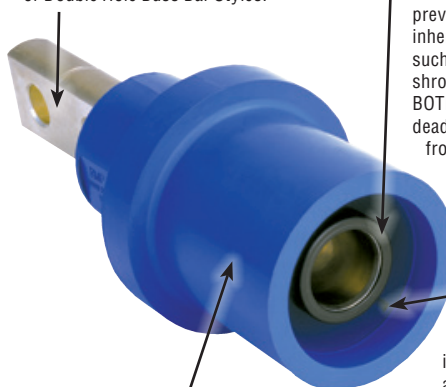


5/8 Stud & Pin Grounding Connection

RMP® II Female Receptacles

Temperature Ratings – RigPower’s RMP® II receptacles are designed to operate in extreme temperatures, from low Arctic conditions to the high temperatures of the Middle East deserts. Even under these conditions, RigPower’s products will be able to operate at full rated load (-40°C to +55°C ambient).

Buss Bar termination is provided on all panel mounted receptacles. Receptacles are available with Single or Double Hole Buss Bar Styles.



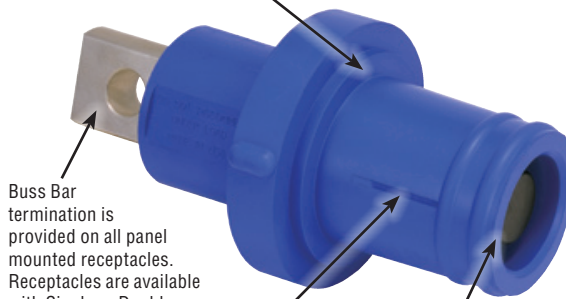
Industry Exclusive
Female Receptacle – Female Contact (U.S. Patent No. 7,442,096) with Dead Front Delrin® Ring, provides increased safety by helping to prevent accidental contact. The inherent design of the connectors is such that the electrical contacts are shrouded by the rubber insulators. BOTH the male and female have a dead front end to protect operators from shock hazard. Connectors are rated at 1000 volts AC or DC with the ability to withstand intermittent surges up to 1,300 Amps.

Industry Exclusive
Molded vacuum release groove designed into all insulators which aids in assembly and disassembly of connectors while allowing NEMA 3R rated seal.

Industry Exclusive
Rubber – Made with a Proprietary Synthetic Thermoset Rubber (not inexpensive Thermoplastic) with “Self-Lubricating” technology. The receptacles are resistant to oil, mud, sea water and petroleum products. Material is designed to provide weatherproof service in a variety of demanding environments.

RMP® II Male Receptacles

Temperature Ratings – RigPower’s RMP® II receptacles are designed to operate in extreme temperatures, from low Arctic conditions to the high temperatures of the Middle East deserts. Even under these conditions, RigPower’s products will be able to operate at full rated load (-40°C to +55°C ambient).



Buss Bar termination is provided on all panel mounted receptacles. Receptacles are available with Single or Double Hole Buss Bar Styles.

Industry Exclusive
Molded vacuum release groove designed into all insulators which aid in assembly and disassembly of connectors while allowing NEMA 3R rated seal.

Industry Exclusive
Male Receptacle – Duplex Sn plated high conductivity copper (U.S. Patent No. 7,442,096) with self adjusting contact force. Allows increased contact surface area and prevents collection of debris. The inherent design of the connectors is such that the electrical contacts are shrouded by the rubber insulators. BOTH the male and female have a dead front end to protect operators from shock hazard. Connectors are rated at 1000 volts AC or DC with the ability to withstand intermittent surges up to 1,300 Amps.

CONNECTORS



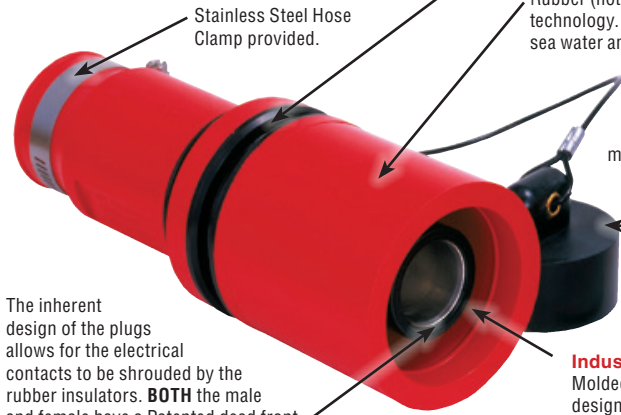
RMP® II SERIES

INDUSTRY FEATURES AND BENEFITS

Insulators

The rubber insulators can be bonded to the cables by vulcanization.

RMP® II Female Plugs



The inherent design of the plugs allows for the electrical contacts to be shrouded by the rubber insulators. BOTH the male and female have a Patented dead front end to help protect operators from shock hazard. The plugs are rated at 1000 volts AC or DC with the ability to withstand intermittent surges up to 1,300 Amps.

Industry Exclusive

Locking ring is powder coated black to prevent unnecessary corrosion thus enhancing the life of the product.

Industry Exclusive

Rubber – Made with a Proprietary Synthetic Thermoset Rubber (not Thermoplastic) with “Self-Lubricating” technology. The insulators are resistant to oil, mud, sea water and petroleum products and are designed to provide weatherproof service in a variety of demanding environments. Correctly assembled, the connectors provide safe trouble-free operation in the most extreme working conditions.

Industry Exclusive

Molded vacuum release groove designed into all insulators which aids in assembly and disassembly of connectors while allowing NEMA 3R rated seal.

RMP® II Male Plugs

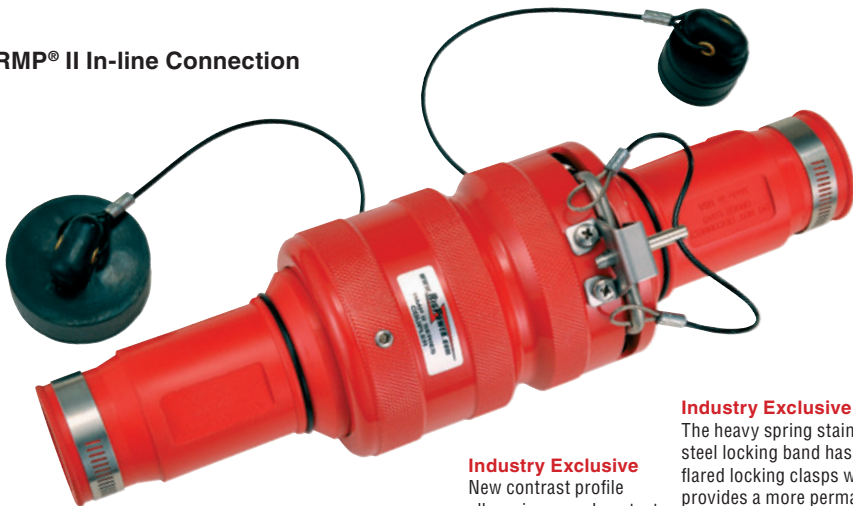


The inherent design of the plugs allows for the electrical contacts to be shrouded by the rubber insulators. BOTH the male and female have a Patented dead front end to help protect operators from shock hazard. The plugs are rated at 1000 volts AC or DC with the ability to withstand intermittent surges up to 1,300 Amps.

DT-002 RMP® II Plug Disassembly Tool

- The only tool which allows easy field disassembly of male or female plugs.
- Allows field inspection of completed plugs for troubleshooting or for Quality Assurance inspections.
- Prevents damage to rubber insulator and injury to personnel.
- When tool is used properly, rubber insulator can be recovered for reuse.

RMP® II In-line Connection



Industry Exclusive

The heavy spring stainless steel locking band has SIX flared locking clasps which provides a more permanent mounting connection. Competitive brands only provide four locking clasps.

RMP® II Female Contacts



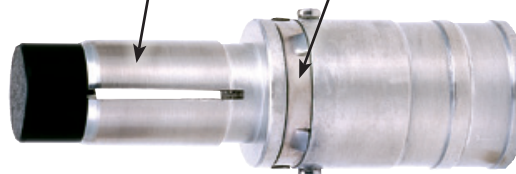
Industry Exclusive

Female Contact – Duplex Sn plated high conductivity copper with (U.S. Patent No. 7,442,096) Dead Front Delrin® Ring. Provides increased safety by helping to prevent accidental contact.

- Termination method is double crimp style for cable mounted plug.

Delrin® is a registered trademark of DuPont.

RMP® II Male Contacts



Industry Exclusive
New contrast profile allows increased contact pressure with reduced insertion force (U.S. patent pending).

Industry Exclusive

Male Contact – Duplex Sn plated high conductivity copper with (U.S. Patent No. 7,442,096) self adjusting contact force. Allows increased contact pressure and prevents collection of debris.

- Termination method is double crimp style for cable mounted plug.



INDUSTRY FEATURES AND BENEFITS

RMP® II Bulkhead Mounted Coupler

The bulkhead Mounted Coupler is designed for locations where a closed back is desired on a panel mounted receptacle. When the inside of an enclosure is either exposed to high moisture or dirt levels, or where safe personnel access is required, the BMC provides the Bulkhead mounting of a standard RMP® II receptacle with the environmental sealing of an RMP® II series plug.



Four hex screws securely hold plug in place

Gasket and Safety Cap Provided

Industry Exclusive

RigPower designed “Snap Action” locking mechanism (located on each coupler) can withstand the most intensive vibration. Includes a safety pin and has a pull lanyard to disengage the mechanism easily.

Industry Exclusive

Powder Color Coated bulkhead mounted coupler for rapid phase identification and increased personnel safety.

RMP® II Couplers

Machined copper-free aluminum alloy. Required when making In-line cable connections. Securely holds male and female plugs together when the mounting screws and “Snap Action” locking mechanism are engaged.



Industry Exclusive

Powdered Coated Color Coded In-line couplers for rapid phase identification and increased personnel safety.

Industry Exclusive

Channel Groove allows for permanent mounting of coupler to structure using a U-clamp. Deep groove prevents coupler from vibrating out of location.

Industry Exclusive

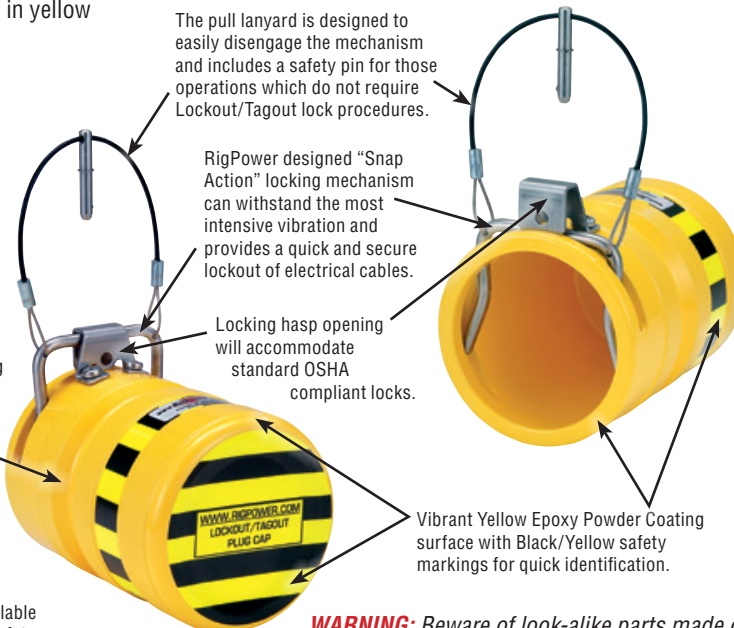
The RigPower RMP® II Coupler is more robust than other manufacturers’ designs. The coupler has deeply knurled bands which allow for easy handling when mating plugs.

Available Colors



RMP® II Series Lockout/Tagout Plug Cap

- Complies with NFPA 70 and OSHA 1910 lockout requirements
- Provides quick and secure lockout of electrical cables
- The Safety Cap allows for the use of installed RMP® II insulator caps for a dust free and water tight closure when encased
- Available only in yellow



The pull lanyard is designed to easily disengage the mechanism and includes a safety pin for those operations which do not require Lockout/Tagout lock procedures.

RigPower designed “Snap Action” locking mechanism can withstand the most intensive vibration and provides a quick and secure lockout of electrical cables.

Locking hasp opening will accommodate standard OSHA compliant locks.

Vibrant Yellow Epoxy Powder Coating surface with Black/Yellow safety markings for quick identification.

Industry Exclusive

Strategically positioned Channel Groove allows for permanent mounting of Lockout/Tagout Plug Cap to structure using a U-clamp. The deep Channel Groove prevents Lockout/Tagout Plug Cap from vibrating out of position when mounted. Unique diameter of locking pin opening and available pad lock enhances safety. OSHA 1910 compliant.

Pad Lock

- OSHA compliant locks available. Allows safe lock and tagout of receptacles and equipment. Individual and master key sets available. Sold in sets of five
- Can be used on Receptacles, In-line Couplers or Lockout/Tagout Plug Caps
- Available in ten (10) colors



LOS-X Five lock set - Individual Keys
LOM-X Five lock set - Individual Keys plus Master Key

WARNING: Beware of look-alike parts made of Thermoplastic. We do not recommend the use of these components or intermating them with the RMP® II product line. Look for the “RMP® II series” seal molded on all rubber products to ensure you received Genuine RigPower, parts.



INDUSTRY FEATURES AND BENEFITS

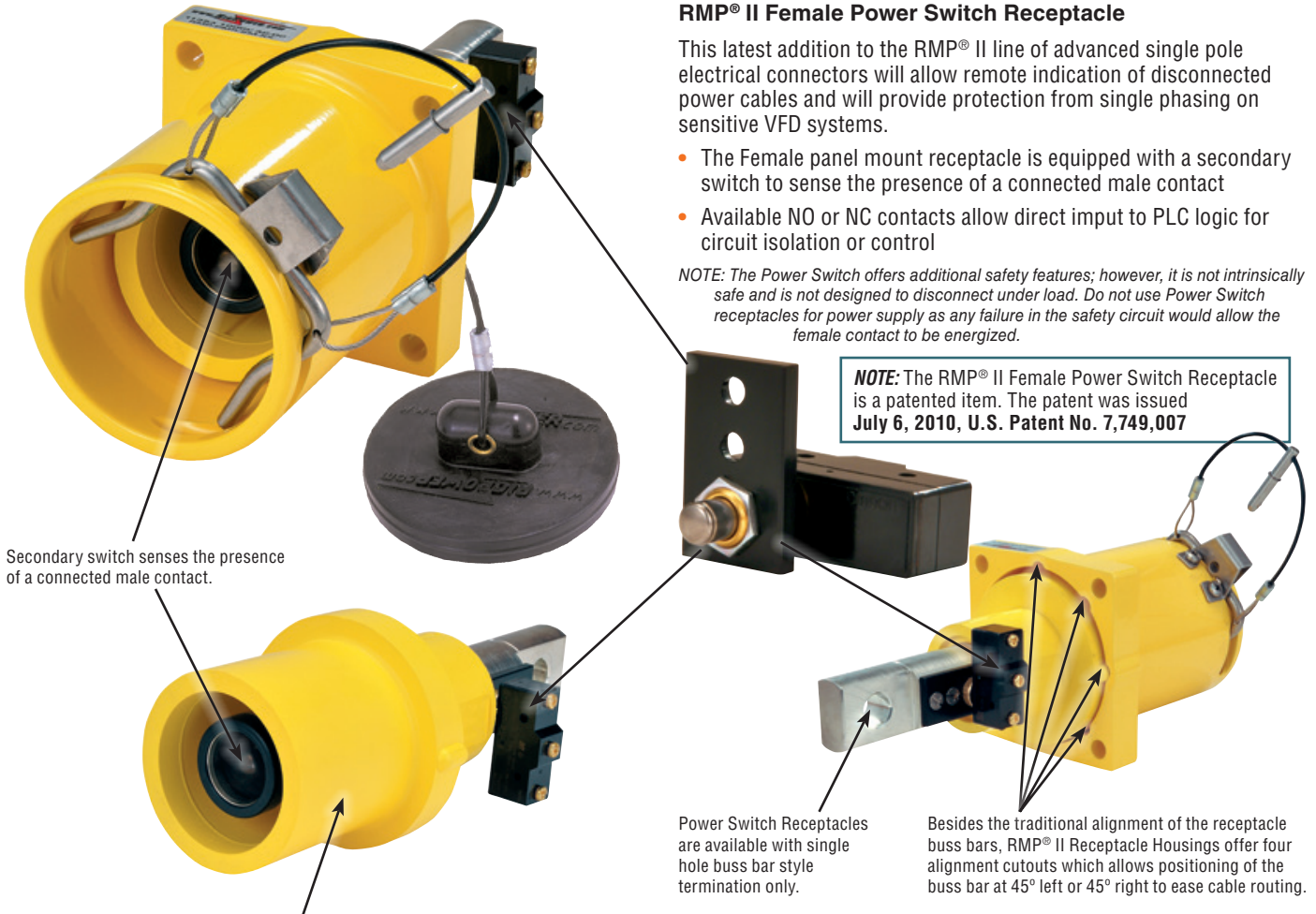
RMP® II Female Power Switch Receptacle

This latest addition to the RMP® II line of advanced single pole electrical connectors will allow remote indication of disconnected power cables and will provide protection from single phasing on sensitive VFD systems.

- The Female panel mount receptacle is equipped with a secondary switch to sense the presence of a connected male contact
- Available NO or NC contacts allow direct input to PLC logic for circuit isolation or control

NOTE: The Power Switch offers additional safety features; however, it is not intrinsically safe and is not designed to disconnect under load. Do not use Power Switch receptacles for power supply as any failure in the safety circuit would allow the female contact to be energized.

NOTE: The RMP® II Female Power Switch Receptacle is a patented item. The patent was issued **July 6, 2010, U.S. Patent No. 7,749,007**



Secondary switch senses the presence of a connected male contact.

Power Switch Receptacles are available with single hole buss bar style termination only.

Besides the traditional alignment of the receptacle buss bars, RMP® II Receptacle Housings offer four alignment cutouts which allows positioning of the buss bar at 45° left or 45° right to ease cable routing.

RMP® II Female Power Switch Internal

- The unit mounts in a standard RMP® II series housing and intermates with standard RMP® II series male cable ends
- The Power Switch connector is rated 900 amps at 1000 volts

Available Colors



30° – 45° Reversible Locking Buss Bar Lug

The 30° or 45° Reversible Buss Bar Lug was created by RigPower to help eliminate the long bend radius that is inherent when using standard single or double hole crimp lugs. Compared to current single hole lugs, the Reversible Buss Bar Lug gives you mounting options no one else can. The lug's shoulder rests securely on the buss bar, preventing any rotation that may be caused from the weight of the cable tension or from equipment vibration. Reducing the bend radius provides for additional work space behind the SCR house panel and other panel mounted areas.

- Termination method is double crimp style
- Crimping locators are designed into the base for ease of installation
- Uses the same crimping die sets as the RigPower "RMP® II, Secure Mount®, Safe Stab®, MCC-1™, VFD-1®, HP20™ and MC20™" series connectors
- Made from Duplex Sn plated high conductivity copper





RMP® II SERIES PARTS LIST

RMP® II PANEL MOUNT RECEPTACLES					POWER SWITCH	RECEPTACLE HOUSINGS	BULKHEAD MOUNTED COUPLER
COLOR	SINGLE HOLE MALE	DOUBLE HOLE MALE	SINGLE HOLE FEMALE	DOUBLE HOLE FEMALE	FEMALE POWER SWITCH	PART #	PART #
Black	RMP-PMR-1M-BK	RMP-PMR-2M-BK	RMP-PMR-1F-BK	RMP-PMR-2F-BK	RMP-PMR-FPS-BK	RMP-PMR-BK	RMP-BMC-BK
Blue	RMP-PMR-1M-BL	RMP-PMR-2M-BL	RMP-PMR-1F-BL	RMP-PMR-2F-BL	RMP-PMR-FPS-BL	RMP-PMR-BL	RMP-BMC-BL
Brown	RMP-PMR-1M-BR	RMP-PMR-2M-BR	RMP-PMR-1F-BR	RMP-PMR-2F-BR	RMP-PMR-FPS-BR	RMP-PMR-BR	RMP-BMC-BR
Green	RMP-PMR-1M-G	RMP-PMR-2M-G	RMP-PMR-1F-G	RMP-PMR-2F-G	RMP-PMR-FPS-G	RMP-PMR-G	RMP-BMC-G
Gray	RMP-PMR-1M-GY	RMP-PMR-2M-GY	RMP-PMR-1F-GY	RMP-PMR-2F-GY	RMP-PMR-FPS-GY	RMP-PMR-GY	RMP-BMC-GY
Orange	RMP-PMR-1M-OR	RMP-PMR-2M-OR	RMP-PMR-1F-OR	RMP-PMR-2F-OR	RMP-PMR-FPS-OR	RMP-PMR-OR	RMP-BMC-OR
Purple	RMP-PMR-1M-P	RMP-PMR-2M-P	RMP-PMR-1F-P	RMP-PMR-2F-P	RMP-PMR-FPS-P	RMP-PMR-P	RMP-BMC-P
Red	RMP-PMR-1M-R	RMP-PMR-2M-R	RMP-PMR-1F-R	RMP-PMR-2F-R	RMP-PMR-FPS-R	RMP-PMR-R	RMP-BMC-R
White	RMP-PMR-1M-W	RMP-PMR-2M-W	RMP-PMR-1F-W	RMP-PMR-2F-W	RMP-PMR-FPS-W	RMP-PMR-W	RMP-BMC-W
Yellow	RMP-PMR-1M-Y	RMP-PMR-2M-Y	RMP-PMR-1F-Y	RMP-PMR-2F-Y	RMP-PMR-FPS-Y	RMP-PMR-Y	RMP-BMC-Y

RMP® II CABLE END ASSEMBLIES - MALE PLUGS								
COLOR	4/0 CONTACT	262 CONTACT	313 CONTACT	373 CONTACT	444 CONTACT	535 CONTACT	646 CONTACT	777 CONTACT
Black	RMP-CMP-4/0M-BK	RMP-CMP-262M-BK	RMP-CMP-3M-BK	RMP-CMP-373M-BK	RMP-CMP-4M-BK	RMP-CMP-5M-BK	RMP-CMP-6M-BK	RMP-CMP-7M-BK
Blue	RMP-CMP-4/0M-BL	RMP-CMP-262M-BL	RMP-CMP-3M-BL	RMP-CMP-373M-BL	RMP-CMP-4M-BL	RMP-CMP-5M-BL	RMP-CMP-6M-BL	RMP-CMP-7M-BL
Brown	RMP-CMP-4/0M-BR	RMP-CMP-262M-BR	RMP-CMP-3M-BR	RMP-CMP-373M-BR	RMP-CMP-4M-BR	RMP-CMP-5M-BR	RMP-CMP-6M-BR	RMP-CMP-7M-BR
Green	RMP-CMP-4/0M-G	RMP-CMP-262M-G	RMP-CMP-3M-G	RMP-CMP-373M-G	RMP-CMP-4M-G	RMP-CMP-5M-G	RMP-CMP-6M-G	RMP-CMP-7M-G
Gray	RMP-CMP-4/0M-GY	RMP-CMP-262M-GY	RMP-CMP-3M-GY	RMP-CMP-373M-GY	RMP-CMP-4M-GY	RMP-CMP-5M-GY	RMP-CMP-6M-GY	RMP-CMP-7M-GY
Orange	RMP-CMP-4/0M-OR	RMP-CMP-262M-OR	RMP-CMP-3M-OR	RMP-CMP-373M-OR	RMP-CMP-4M-OR	RMP-CMP-5M-OR	RMP-CMP-6M-OR	RMP-CMP-7M-OR
Purple	RMP-CMP-4/0M-P	RMP-CMP-262M-P	RMP-CMP-3M-P	RMP-CMP-373M-P	RMP-CMP-4M-P	RMP-CMP-5M-P	RMP-CMP-6M-P	RMP-CMP-7M-P
Red	RMP-CMP-4/0M-R	RMP-CMP-262M-R	RMP-CMP-3M-R	RMP-CMP-373M-R	RMP-CMP-4M-R	RMP-CMP-5M-R	RMP-CMP-6M-R	RMP-CMP-7M-R
White	RMP-CMP-4/0M-W	RMP-CMP-262M-W	RMP-CMP-3M-W	RMP-CMP-373M-W	RMP-CMP-4M-W	RMP-CMP-5M-W	RMP-CMP-6M-W	RMP-CMP-7M-W
Yellow	RMP-CMP-4/0M-Y	RMP-CMP-262M-Y	RMP-CMP-3M-Y	RMP-CMP-373M-Y	RMP-CMP-4M-Y	RMP-CMP-5M-Y	RMP-CMP-6M-Y	RMP-CMP-7M-Y

RMP® II CABLE END ASSEMBLIES - FEMALE PLUGS								
COLOR	4/0 CONTACT	262 CONTACT	313 CONTACT	373 CONTACT	444 CONTACT	535 CONTACT	646 CONTACT	777 CONTACT
Black	RMP-CMP-4/0F-BK	RMP-CMP-262F-BK	RMP-CMP-3F-BK	RMP-CMP-373F-BK	RMP-CMP-4F-BK	RMP-CMP-5F-BK	RMP-CMP-6F-BK	RMP-CMP-7F-BK
Blue	RMP-CMP-4/0F-BL	RMP-CMP-262F-BL	RMP-CMP-3F-BL	RMP-CMP-373F-BL	RMP-CMP-4F-BL	RMP-CMP-5F-BL	RMP-CMP-6F-BL	RMP-CMP-7F-BL
Brown	RMP-CMP-4/0F-BR	RMP-CMP-262F-BR	RMP-CMP-3F-BR	RMP-CMP-373F-BR	RMP-CMP-4F-BR	RMP-CMP-5F-BR	RMP-CMP-6F-BR	RMP-CMP-7F-BR
Green	RMP-CMP-4/0F-G	RMP-CMP-262F-G	RMP-CMP-3F-G	RMP-CMP-373F-G	RMP-CMP-4F-G	RMP-CMP-5F-G	RMP-CMP-6F-G	RMP-CMP-7F-G
Gray	RMP-CMP-4/0F-GY	RMP-CMP-262F-GY	RMP-CMP-3F-GY	RMP-CMP-373F-GY	RMP-CMP-4F-GY	RMP-CMP-5F-GY	RMP-CMP-6F-GY	RMP-CMP-7F-GY
Orange	RMP-CMP-4/0F-OR	RMP-CMP-262F-OR	RMP-CMP-3F-OR	RMP-CMP-373F-OR	RMP-CMP-4F-OR	RMP-CMP-5F-OR	RMP-CMP-6F-OR	RMP-CMP-7F-OR
Purple	RMP-CMP-4/0F-P	RMP-CMP-262F-P	RMP-CMP-3F-P	RMP-CMP-373F-P	RMP-CMP-4F-P	RMP-CMP-5F-P	RMP-CMP-6F-P	RMP-CMP-7F-P
Red	RMP-CMP-4/0F-R	RMP-CMP-262F-R	RMP-CMP-3F-R	RMP-CMP-373F-R	RMP-CMP-4F-R	RMP-CMP-5F-R	RMP-CMP-6F-R	RMP-CMP-7F-R
White	RMP-CMP-4/0F-W	RMP-CMP-262F-W	RMP-CMP-3F-W	RMP-CMP-373F-W	RMP-CMP-4F-W	RMP-CMP-5F-W	RMP-CMP-6F-W	RMP-CMP-7F-W
Yellow	RMP-CMP-4/0F-Y	RMP-CMP-262F-Y	RMP-CMP-3F-Y	RMP-CMP-373F-Y	RMP-CMP-4F-Y	RMP-CMP-5F-Y	RMP-CMP-6F-Y	RMP-CMP-7F-Y

RMP® II INSULATORS		
COLOR	MALE INSULATORS	FEMALE INSULATORS
Black	RMP-CMP-M-BK	RMP-CMP-F-BK
Blue	RMP-CMP-M-BL	RMP-CMP-F-BL
Brown	RMP-CMP-M-BR	RMP-CMP-F-BR
Green	RMP-CMP-M-G	RMP-CMP-F-G
Gray	RMP-CMP-M-GY	RMP-CMP-F-GY
Orange	RMP-CMP-M-OR	RMP-CMP-F-OR
Purple	RMP-CMP-M-P	RMP-CMP-F-P
Red	RMP-CMP-M-R	RMP-CMP-F-R
White	RMP-CMP-M-W	RMP-CMP-F-W
Yellow	RMP-CMP-M-Y	RMP-CMP-F-Y

30°-45° REVERSIBLE LOCKING BUSS BAR LUGS		
PART #	PART DESCRIPTION	
SL-535-AL	535 MCM 30°/45° Reversible Locking Buss Bar Lug	
SL-646-AL	646 MCM 30°/45° Reversible Locking Buss Bar Lug	
SL-777-AL	777 MCM 30°/45° Reversible Locking Buss Bar Lug	

DOUBLE HOLE LUGS		
PART #	PART DESCRIPTION	
QS-535-L	535 MCM Double Hole Lug	
QS-646-L	646 MCM Double Hole Lug	
QS-777-L	777 MCM Double Hole Lug	

GROUNDING RECEPTACLES AND PLUGS		
PART #	PART DESCRIPTION	
RMP-FGP-4	Female Flange Mounted Grounding Plug	
RMP-MGR	Male Flange Mounted Grounding Receptacle	
RMP-FGR	Female Grounding Receptacle for 5/8 Stud	
RMP-MGP-4	Male Grounding Pin for 5/8 Stud	

RMP® II COUPLERS		
PART #		
RMP-CMR-BK		
RMP-CMR-BL		
RMP-CMR-BR		
RMP-CMR-G		
RMP-CMR-GY		
RMP-CMR-OR		
RMP-CMR-P		
RMP-CMR-R		
RMP-CMR-W		
RMP-CMR-Y		
RMP-CMR-AL		

RMP® II CONTACTS		
	MALE CONTACTS PART #	FEMALE CONTACTS PART #
Cable Size 4/0 MCM Through 777 MCM	RMP-C-4/0M	RMP-C-4/0F
	RMP-C-262M	RMP-C-262F
	RMP-C-3M	RMP-C-3F
	RMP-C-373M	RMP-C-373F
	RMP-C-4M	RMP-C-4F
	RMP-C-5M	RMP-C-5F
	RMP-C-6M	RMP-C-6F
RMP-C-7M	RMP-C-7F	

RMP® II ACCESSORIES		
COLOR	PART #	PART DESCRIPTION
Yellow Only	RMP-LOC-Y	Lockout/Tagout Plug Cap
X = Color	RMP-LOS-X	Single Pad Lock
X = Color	RMP-LOM-X	Master Pad Lock
	DT-002	Insulator Disassemble Tool

X = Black-BK, Blue-BL, Brown-BR, Green-G, Gray-GY, Orange-OR, Purple-P, Red-R, White-W, Yellow-Y

Double Hole Lug

The industry's most robust Lug.

Machined from solid copper bar stock.

- Termination method is double crimp style
- Crimping locators are designed into the base for ease of installation
- Uses the same crimping die sets as the RigPower RMP®II, Secure Mount®, Safe Stab®, MCC-1 and VFD-1® series connectors



For the crimping compression tool contact Burndy at www.burndy.com
Recommended Burndy Crimping Tool Part Number - Y750BH

RMP® II CRIMPING TOOLS/DIES		
CABLE SIZE	HEAD DIE CODE CRIMPING DIE PART NUMBER	NUMBER OF CRIMPS
4/0	RP76	1
313 MCM	RP76	1
373 MCM	RP99H	2
444 MCM	RP99H	2
535 MCM	RP106H	2
646 MCM	RP115H	2
777 MCM	RP115H	2

CONNECTORS

SECURE MOUNT® SERIES



INTRODUCTION

RigPower's mission is to create new industry standards in industrial electrical connectors by combining appropriate technological advances, quality production methods and dependable customer support.

The Secure Mount® series was designed using the latest technological advances in materials and designs to help protect roughnecks and equipment while providing ease of installation and superior electrical connections. Drilling industry tested for added safety, function, and durability.

Applications

The Secure Mount® series (U.S. Patent 7,399,194) provides economical yet secure connection of 1,000 volts AC or DC loads up to 1,135 amps. The Secure Mount® is compatible with existing socket and pin style connectors, but offers increased withdrawal protection, easier phase identification, simplified mounting, improved electrical connection and improved working environment for all area workers.

Background

Existing board socket and pin connectors are mounted into a large expensive piece of insulating board, usually fiberglass or melamine, and requires a precision mounting hole. Small knurls on the shaft of the connectors are pressed into the mounting hole to prevent rotation. Over-tightening of the connector can easily strip the knurls out of the mounting hole, rendering the connector inoperable. Additionally, the design of the rear of the existing connector does not allow for direct attachment of a standard electrical lug and can not carry higher amp loads offered by the Secure Mount® receptacle.

Secure Mount® Receptacle With Mated Plug



Back Design of Single Hole Receptacle

Phase Identification

The Secure Mount® connectors are color coded to provide easy circuit identification. The receptacle flanges and mating boots are color coded to provide positive phase identification before and after connection. Color coding prevents reverse phasing or cross polarization of DC circuits. Colors are available for both AC and DC circuits.

AMPACITY RATINGS IN 40° AMBIENT		
CABLE SIZE	90°	125°
313 MCM	513 AMPS	636 AMPS
444 MCM	642 AMPS	796 AMPS
535 MCM	724 AMPS	898 AMPS
646 MCM	814 AMPS	1009 AMPS
777 MCM	916 AMPS	1135 AMPS

Type P Cables

RigPower's Secure Mount® series connectors are designed to work in conjunction with the latest generation of Type P drilling cables, per IEEE 45. Cable accommodations are 313 MCM through 777 MCM.

Available Colors



Secure Mount® Field Installation/Repair Kit

APPLICATIONS

This kit is designed to allow quick and easy field replacement of a PD-501 style connector with a Secure Mount® connector. The Kit contains enough supplies to field mount five Secure Mounts® in an existing panel.

FEATURES

- No replacement of insulating board is required, even damaged boards can be saved
- No need to remove adjacent undamaged connectors from insulation board
- Save cost, labor and downtime when field repairs are necessary

KIT CONTENTS

Parts to field mount five Secure Mount® Receptacles.

1. Five Tapered wooden plugs
2. One 3 and 3/4 inch diameter carbide tipped hole saw
3. Twenty sets of mounting bolts
4. Five adhesive drilling templates
5. Complete instructions

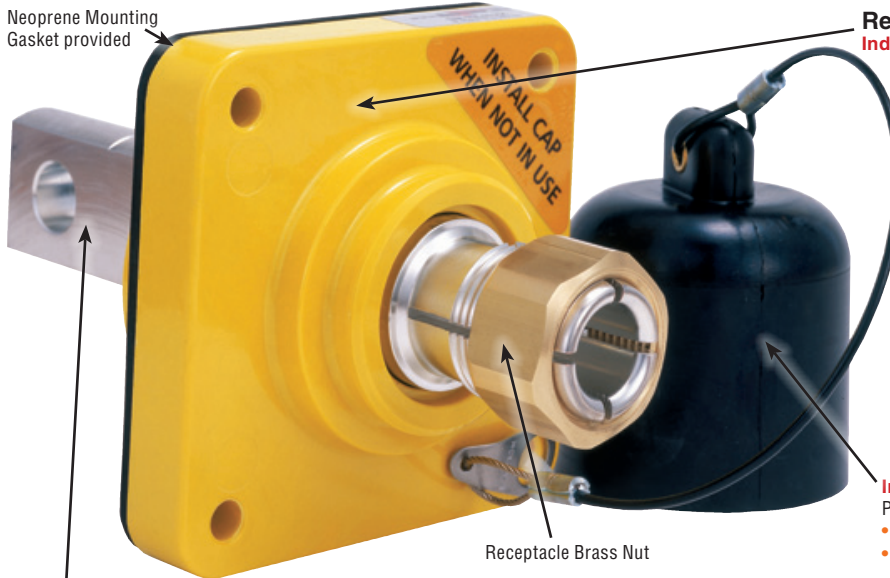




INDUSTRY FEATURES AND BENEFITS

Application Information

The Secure Mount® Series connectors have been designed to safely distribute 1,135 Amps @ 1,000 volts, AC or DC, continuously. **For personnel protection, the Panel Mounted Receptacle should always be covered by the provided safety cap when a cable is not connected.** Contacts may be attached to cables by soldering or by crimping with the appropriate dies and equipment.



Neoprene Mounting Gasket provided

INSTALL CAP WHEN NOT IN USE

Receptacle Brass Nut

Receptacle

Industry Exclusive –

Panel Mounting Base (U.S. Patent 7,399,194) designed specifically with the requirements of the drilling industry in mind.

- Mounts directly into any stainless or aluminum panel which eliminates the need for expensive melamine or fiberglass board
- Uses four 5/16 bolts and nuts
- Design supports quick, easy installation and replacement, if required
- Allows operators to accurately space each receptacle on switchgear and SCR drives
- Large Color Coded Mounting Base is made from an Advanced Thermoset Glass filled Polymer
 - » UV resistant
 - » High temperature performance
 - » Provides easy phase identification before and after the cable is connected
 - » Available in ten colors

Industry Exclusive

Panel Mounted Receptacle Protective Cap

- Securely attached to Mounting Base for quick and easy use
- Protects roughnecks from accidentally coming into contact with receptacle tip when not in use
- Material: Black Neoprene

A robust Buss Bar style back provides for greater amperage rating.

- Rated at 1,000 volts AC or DC up to 1,135 amps
- Single or Double Hole Buss Bar
- Buss Bar back eliminates the need for copper flags
- Installation is quick, reliable and safer than jam nut style connectors
- Receptacle will not strip out like other board sockets
- Made from Duplex Sn plated high conductivity copper

Dust Cap

Industry Exclusive

Designed to securely connect to the rubber boot and provides protection to the cable end when not in use.

- Material: Black Neoprene



RUBBER BOOT

Industry Exclusive

Boots are made from a Proprietary Synthetic Thermoset Rubber (not Thermoplastic) with "Self-Lubricating" technology. The boots are resistant to oil, mud, sea water and petroleum products found in the drilling industry and are designed to provide weatherproof service in a variety of demanding environments. Correctly assembled, the connectors provide safe trouble-free operation in the most extreme working conditions.

Molded ring indicators on the cable end of the boot are designed to be cut down to accommodate cable sizes ranging from 313 MCM to 777 MCM.

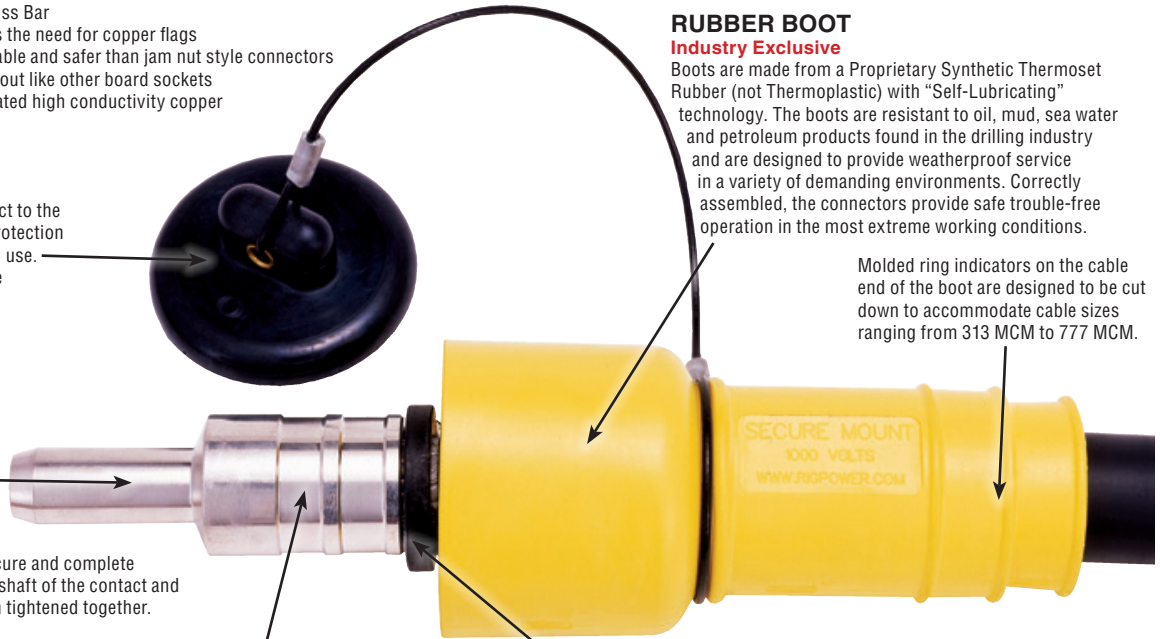
Contact

Industry Exclusive

Advanced design "Hammer Head" Contact (U.S. Patent 7,399,194)

U.S. Patent 7,399,194

- Designed to ensure a secure and complete connection between the shaft of the contact and receptacle opening when tightened together.



Double Crimp Style base is longer than other manufacturers, which provides a more complete and secure connection between the cable and contact.

- Crimping locators are designed into the base for ease of installation
- Uses the same crimping die sets as the RigPower "RMP® II" series
- Made from Duplex Sn plated high conductivity copper

Retention Ring

Industry Exclusive

- Helps prevent the loss of rubber boot when cable is not connected
- Made from Delrin® which is resistant to high temperatures

WARNING: The RigPower Secure Mount® series 646 and 777 contacts are designed for higher amperage loads than other panel board sockets can handle. Use these two contact sizes only with Secure Mount® Receptacles (only in red).

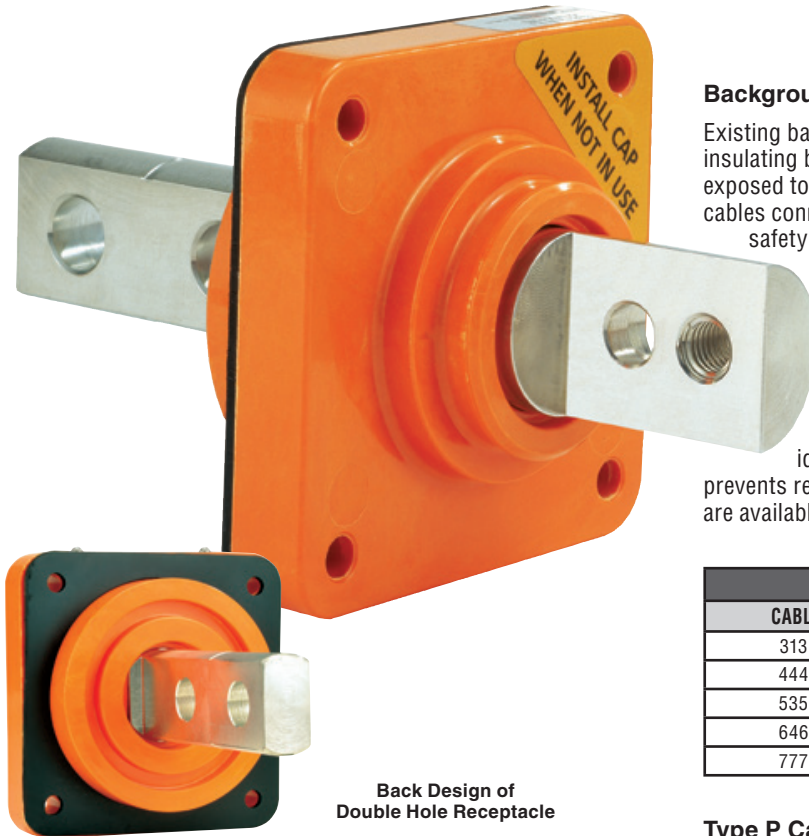


CONNECTORS

SAFE STAB® SERIES



INTRODUCTION



Back Design of
Double Hole Receptacle

RigPower's mission is to create new industry standards in industrial electrical connectors by combining appropriate technological advances, quality production methods and dependable customer support.

The Safe Stab® series was designed using the latest technological advances in materials and designs to help protect roughnecks and equipment while providing ease of installation and superior electrical connections. Drilling industry tested for added safety, function, and durability.

Applications

The Safe Stab® series (**U.S. Patent 7,854,636**) is a unique design providing economical yet secure connection of 1,000 volts AC or DC loads up to 1,135 amps. Until now there has never been an alternative to the bar stabs used on most SCR houses. The Safe Stab® offers increased protection, easier phase identification, simplified mounting, improved electrical connection and an improved working environment for all area workers. The Safe Stab® series was designed to eliminate large exposed stabs, and unlike existing bar stabs, the Safe Stab® Flange base does not require the use of expensive fiberglass or melamine boards. Additionally, the Safe Stab® features a color coded flange for quick identification, a protective stab cap when not connected, and a protective color coded boot for when the stab lug is connected.

Background

Existing bar stabs are mounted into a large expensive piece of insulating board, usually fiberglass or melamine, and are always exposed to the elements. There are usually one or two electrical cables connected to each bar stab using lugs that offer no personnel safety after being connected. While electrical tape may be used to cover these connections, this is time consuming and does not allow for easy access.

Phase Identification

The Safe Stab® connectors are color coded to provide easy circuit identification. The receptacle flanges and mating boots are color coded to provide positive phase identification before and after connection. Color coding prevents reverse phasing or cross polarization of DC circuits. Colors are available for both AC and DC circuits.

AMPACITY RATINGS IN 40° AMBIENT

CABLE SIZE	90°	125°
313 MCM	513 AMPS	636 AMPS
444 MCM	642 AMPS	796 AMPS
535 MCM	724 AMPS	898 AMPS
646 MCM	814 AMPS	1009 AMPS
777 MCM	916 AMPS	1135 AMPS

Type P Cables

RigPower's Safe Stab® series connectors are designed to work in conjunction with the latest generation of Type P drilling cables, per IEEE 45. Accommodates cable sizes 313 MCM through 777 MCM.

Available Colors



See Page CN35-CN36 for Ordering Codes



INDUSTRY FEATURES AND BENEFITS

Receptacle

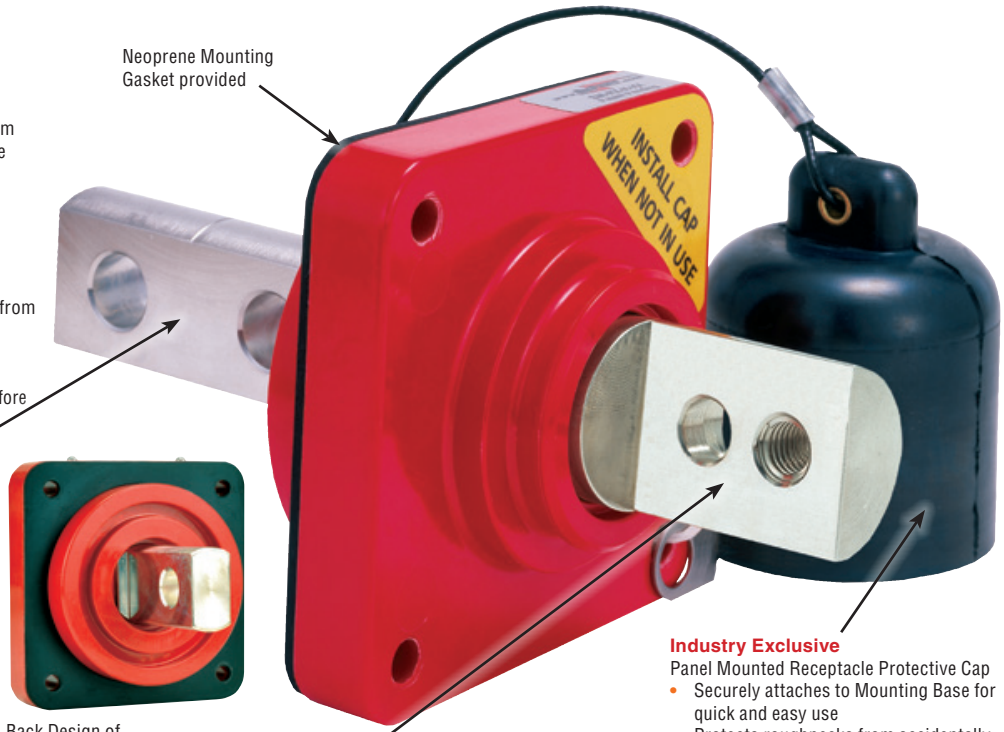
Industry Exclusive

The Receptacle Flange (U.S. Patent 7,854,636) was designed specifically with the requirements of the drilling industry in mind.

- Mounts directly into any stainless or aluminum panel which eliminates the need for expensive melamine or fiberglass board.
- Uses four 5/16 bolts and nuts
- Design supports quick, easy installation and replacement, if needed
- Product allows accurate spacing of each receptacle on switch gear and SCR drives
- Large Color Coded Mounting Flange is made from an Advanced Thermoset Glass filled Polymer
 - » UV resistant
 - » High temperature performance
 - » Provides easy phase identification before and after the cable is connected
 - » Available in ten colors

A robust Buss Bar style back provides for larger current loads.

- Rated at 1,000 volts AC or DC up to 1,135 amps
- Installation and breakdown is quick and reliable
- Single or Double Hole Buss Bar
- Made from Duplex Sn plated high conductivity copper



Back Design of Single Hole Receptacle

Industry Exclusive

- Panel Mounted Receptacle Protective Cap
- Securely attaches to Mounting Base for quick and easy use
 - Protects roughnecks from accidentally coming into contact with receptacle tip when not in use
 - Material: Black Neoprene

RUBBER BOOT

Industry Exclusive

Boots are made from a Proprietary Synthetic Thermoset Rubber (not Thermoplastic) with "Self-Lubricating" technology. The boots are resistant to oil, mud, sea water and petroleum products found in the drilling industry and are designed to provide weather proof service in a variety of demanding environments.

Correctly assembled, the connectors provide safe trouble-free operation in the most extreme working conditions.

Molded ring indicators on the cable end of the boot are designed to be cut down to accommodate cable sizes ranging from 313 MCM to 777 MCM.

Safe Stab® Lug

Industry Exclusive

Advanced "half lap" design (U.S. Patent 7,854,636) contact surface.

- Designed to ensure a secure and vibration immune connection between the cable lug and the panel mounted stab
- Made from Duplex Sn plated high conductivity copper
- Connects using two stainless steel locking screws (provided) with Helicoil inserts
- Ease of installation – no man-hours wasted on taping over lug connections and no exposed energized parts



Retention Ring

Industry Exclusive

- Helps prevent the loss of rubber boot when cable is not connected
- Made from Delrin® which is resistant to high temperatures

Dust Cap

Industry Exclusive

Designed to securely connect to the rubber boot and provides protection to the cable end when not in use.

- Material: Black Neoprene

Application Information

The Safe Stab® Series connectors have been designed to safely distribute 1,135 Amps @ 1,000 Volts AC or DC power continuously. Lugs may be attached to cable by soldering or by crimping with the appropriate dies and equipment.

FOR PERSONNEL PROTECTION: THE PANEL MOUNTED "SAFE STAB"® RECEPTACLE SHOULD ALWAYS BE COVERED BY THE PROVIDED SAFETY CAP WHEN A CABLE IS NOT CONNECTED.

CONNECTORS



QUICK STAB® SERIES

CONNECTOR

The Quick Stab® was developed out of the necessity to provide the drilling industry with a generator input/output connector rated for up to 2,000 amps. Color coding was demanded as well as eliminating the use of fiberglass and melamine panel boards. Thus the Quick Stab® was designed, utilizing the same technological advances as the earlier Secure Mount® and Safe Stab® product lines. Drilling industry tested for added safety, function and durability.

Applications

The Quick Stab® (U.S. Patent 7,854,636) was designed to eliminate large exposed copper stabs. Offering convenience, gasket seal protection and simplified lug-up mounting. The Quick Stab® is reliable for use up to 1,000 volts AC or DC loads and up to 2,000 amps. These color-coded stabs work in all environments and help protect workers and equipment.

Receptacle

Industry Exclusive – Panel Mounting Base is designed specifically with the requirements of the drilling industry in mind.

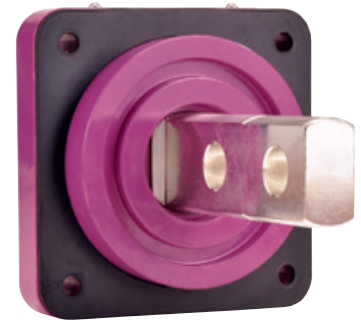
- Mounts directly into any stainless or aluminum panel which eliminates the need for expensive melamine or fiberglass board
- Uses four 5/8 bolts and nuts
- Design supports quick, easy installation and replacement, if needed

2,000 Amp rated “Quick Stab®” Connector**Ideal for generator inputs and ground lug-up**

- Tired of trying to bend and fit 2,000 amps buss bar into your control house?
- Tired of trying to fit and seal melamine board around your buss bars?
- Need a quick and safe way to color code your buss inputs?

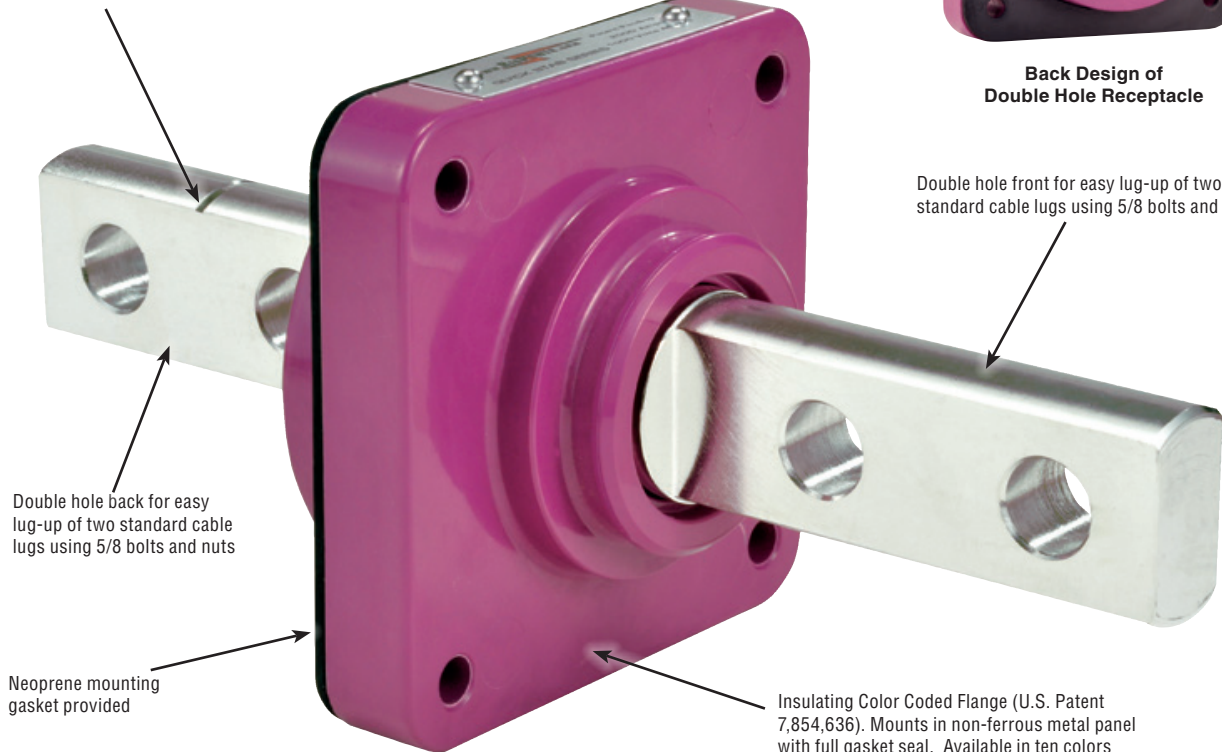
Then you need the RigPower “Quick Stab®” connector.

- The Quick Stab® allows connection of two 313-777 MCM cables on either side of a sealed bulkhead or panel
- The mounting base is available in ten colors to allow rapid phase identification of each connection
- Melamine insulator board is not required for mounting of the Quick Stab®
- Rated for 2,000 amps, 1,000 volts
- Front and back buss bar design fits standard two hole lugs
- Made from Sn plated high conductivity copper
- Easy to install



Back Design of
Double Hole Receptacle

Single hole cut locator to
reduce bar size if needed



Double hole front for easy lug-up of two
standard cable lugs using 5/8 bolts and nuts

Double hole back for easy
lug-up of two standard cable
lugs using 5/8 bolts and nuts

Neoprene mounting
gasket provided

Insulating Color Coded Flange (U.S. Patent
7,854,636). Mounts in non-ferrous metal panel
with full gasket seal. Available in ten colors



CABLE REPAIR SPLICE KITS

CS DOUBLE LAP STYLE SPLICE KIT

The CS Double Lap Style splice kits are designed for repair of a damaged or cut cable or for extending the length of a cable in the field. They are available for 535, 646 and 777 MCM wire. These splice connectors have been designed to operate safely at 1,000 volts AC or DC. The resulting splice will be no larger in diameter than a 777 cable.

Different size cables may be joined by using mismatched splice kit ends. This feature is useful where existing cable must be extended or long section needs to be replaced. A section of larger cable can be added to provide adequate protection from voltage drop or used to reduce the cable inventory carried for repairs. Note that the current rating will be controlled by the smaller cable size.

The individual splice halves may be crimped on to the cable at ground level then assembled high in a cable tray or passed through a cable gland and assembled inside a junction box.

Applications

- For making permanent or semi-permanent field connections of cable ends
- Small enough to pass through cable glands
- Excellent for making secure connections inside explosion proof junction boxes
- Allows easy access to cable ends for secure crimp connections
- Safe and quick joining of splice ends in restricted spaces
- Safe for direct burial applications
- Can be used to join different sizes of cable for emergency field repairs

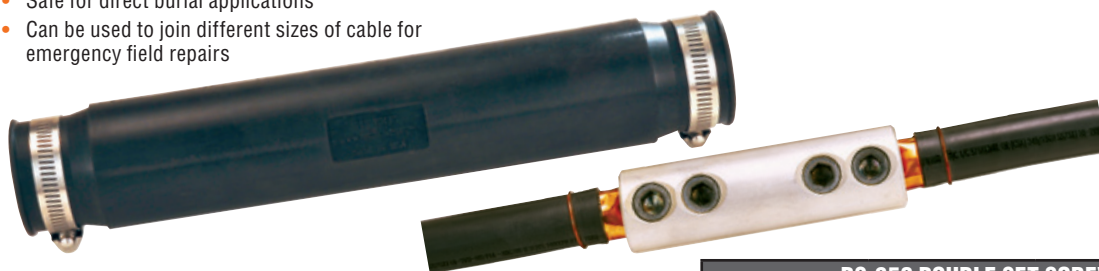


Materials

- Splice Bodies
- Sn Plated Copper with Stainless Steel Helicoil Threaded Inserts
- Removable Boot Insulator is held in place by two stainless hose clamps and provides moisture resistance protection (Pictured)

CS DOUBLE LAP STYLE SPLICE KIT			
CONTACT SIZE	REMOVABLE BOOT	HEAT SHRINK	COLD SHRINK
444	CS-444-B	CS-444-H	CS-444-C
535	CS-535-B	CS-535-H	CS-535-C
646	CS-646-B	CS-646-H	CS-646-C
777	CS-777-B	CS-777-H	CS-777-C

NOTE: Different size cables may be joined by using mismatched splice kit ends; however the current rating will be controlled by the smaller cable size.



DS-350 DOUBLE SET SCREW SPLICE KIT

The DS-350 Double Set Screw splice kits are designed for repair of a damaged or cut cable or for extending the length of a cable in the field. They fit 350 to 500 MCM wire. These splice connectors have been designed to operate safely at 1,000 volts AC or DC.

Different size cables may be joined by using the DS-350 splice kit. This feature is useful where existing cable must be extended or long sections need to be replaced. A section of larger cable can be added to provide adequate protection from voltage drop or used to reduce the cable inventory carried for repairs. The current rating will be controlled by the smaller cable size.

The splices can be assembled with simple hand tools and hydraulic crimping equipment is not needed. Insulation retention feature prevents the insulation from slipping down the conductor when under strain and the pull-out strength exceeds the breaking strength of the cable.

Applications

For making permanent or semi-permanent field connections of cable ends. The DS-350 allows easy, yet secure, connection of cable ends with only hand tools. Excellent when crimping tools are not available. Safe for direct burial applications. Insulation retention ties prevent slippage of insulation on cable. Can be used to join different sizes of cable for emergency field repairs.

Materials

- Splice Body
- Sn Plated Brass with Stainless Steel Locking Screws
- Removable Boot insulator is held in place by two stainless hose clamps which provides moisture resistance protection (Pictured)
- 545 amps maximum continuous 1,000 volts AC or DC (as limited by cable)

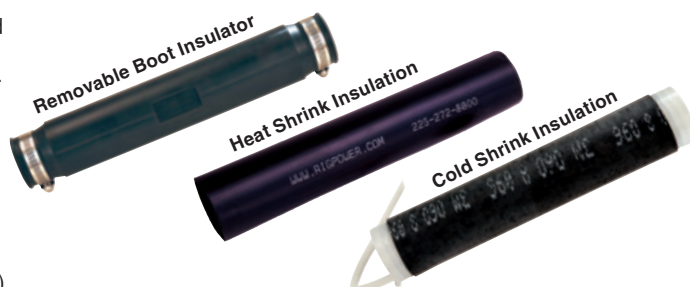
DS-350 DOUBLE SET SCREW SPLICE KIT			
CABLE SIZE	REMOVABLE BOOT	HEAT SHRINK	COLD SHRINK
313 - 500	DS-350-B	DS-350-H	DS-350-C

INSULATOR OPTIONS

The insulation is available in three styles: Heat Shrink, Cold Shrink, or a Removable Boot. The heat shrink provides the best sealing and allows direct underground burial. The cold shrink and removable boot provide NEMA 3 sealing.

3M™ Cold Shrink Connector Insulation is an open-ended, tubular, rubber sleeve which is factory expanded and assembled onto a removable core. The core is removed after the tube has been positioned for installation over an In-line connection, terminal lugs, etc., allowing the tube to shrink and form a water-resistant seal. The insulation tube is made of EPDM rubber which contains no chlorides or sulfur.

Flame retardant heavy wall tubing meets MIL Spec 23053/15 Class I requirements for flame retardancy. UL listed 486 D Standard and CSA certified for direct burial applications.



CONNECTORS

QUAD STAB™ SERIES



CONNECTOR

The Quad Stab™ Series uses the same technological advances in materials and design as the Secure Mount®, Safe Stab® and Quick Stab®. RigPower's directive is to protect roughnecks and equipment while providing ease of installation and superior electrical connections in the field or during build-out. Drilling industry tested for added safety, function, and durability.

Applications

The Quad Stab™ (U.S. Patent 7,854,636) was designed to eliminate large exposed copper stabs. Unlike existing bar stabs, the Quad Stab Flange base does not require the use of expensive fiberglass or melamine boards and provides gasket sealed protection. Additionally, the Quad Stab™ offers easy color phase identification, simplified lug-up mounting, improved electrical connection and improved working environment for all area workers. Provides economical yet secure connection of 1,000 volts AC or DC loads, up to an incredible 4,000 amps.

Receptacle

Industry Exclusive – Panel Mounting Base is designed specifically with the requirements of the drilling industry in mind.

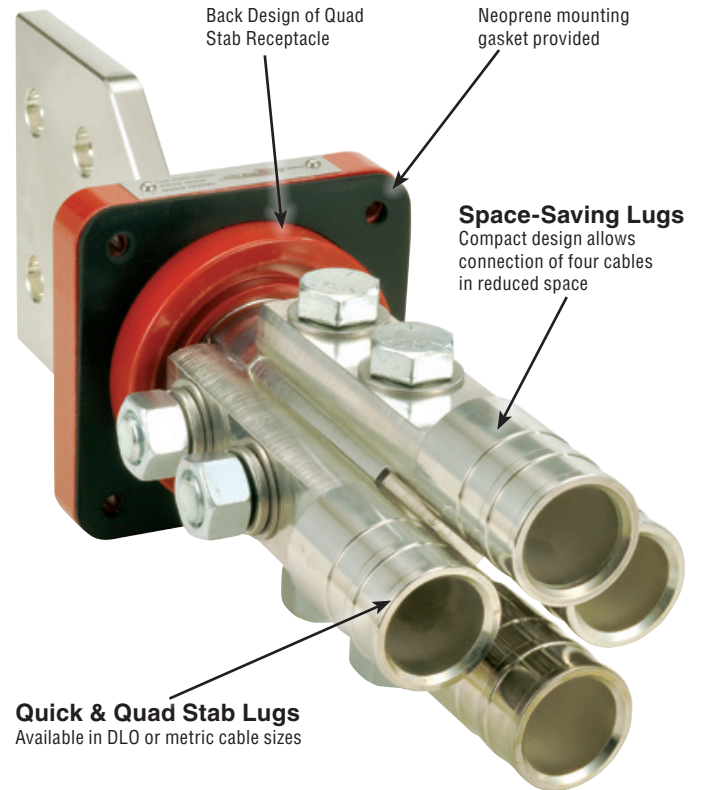
- Mounts directly into any stainless or aluminum panel which eliminates the need for expensive melamine or fiberglass board
- Uses four 5/16 bolts and nuts
- Design supports quick, easy installation and replacement, if needed
- Allows operators to accurately space each receptacle on switchgear and SCR drives
- Large Color Coded Mounting Base is made from an Advanced Thermoset Glass filled Polymer
- UV resistant
- High temperature performance
- Available in black, red and white.
- Provides easy phase identification before and after the cable is connected

A robust four hole Buss Bar style back provides for greater amperage rating.

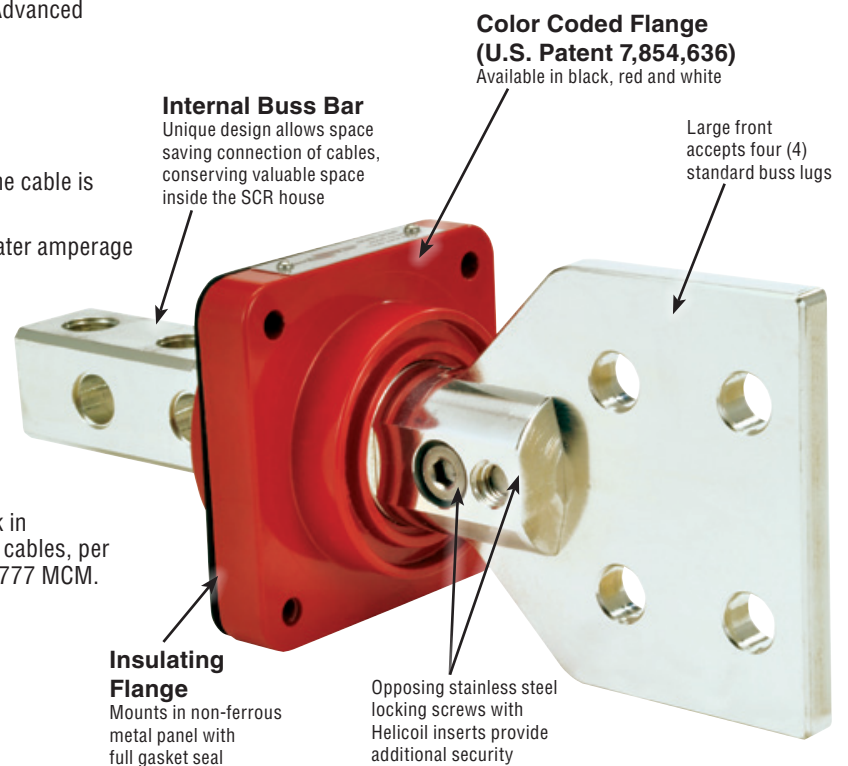
- Rated at 1,000 volts AC or DC up to 4,000 amps
- Installation is quick, reliable and safer than copper stabs and provides gasket sealing
- The Sn plated high conductivity copper stab is designed for use with standard double hole lugs

Type P Cables

RigPower's Quad Stab connectors are designed to work in conjunction with the latest generation of Type P drilling cables, per IEEE 45. Accommodates cable sizes 313 MCM through 777 MCM.



Quick & Quad Stab Lugs
Available in DLO or metric cable sizes



Rated 1,000 volts
AC/DC 4,000 amps at 125° C



CONNECTOR

Applications

The Quad Stab™ Series (**U.S. Patent 7,854,636**) horizontal and vertical options were designed to eliminate large exposed copper stabs. Unlike existing bar stabs, the Quad Stab Flange base does not require the use of expensive fiberglass or melamine boards and provides gasket sealed protection. Additionally, the Quad Stab™ offers easy color phase identification, simplified lug-up mounting, improved electrical connection and improved working environment for all area workers. Provides economical yet secure connection of 1,000 volts AC or DC loads and up to an incredible 4,000 amps.

Receptacle

Industry Exclusive – Panel Mounting Base is designed specifically with the requirements of the drilling industry in mind.

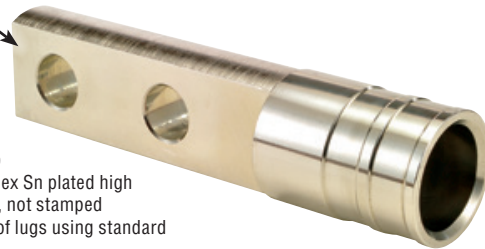
- Mounts directly into any stainless or aluminum panel which eliminates the need for expensive melamine or fiberglass board
- Uses four 5/16 bolts and nuts
- Design supports quick, easy installation and replacement, if needed

INSULATING COLOR CODED FLANGE (U.S. Patent 7,854,636)
Mounts in non-ferrous metal panel with full gasket seal. Available in black, red and white only

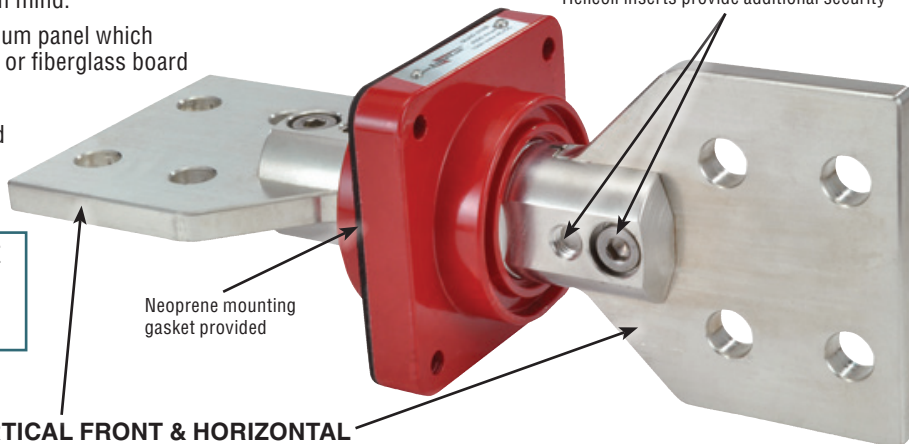
Quick & Quad Stab Lug

Advanced Designed to ensure a secure and vibration immune connection between the cable lug and the panel mounted stab

- Machined from Duplex Sn plated high conductivity copper, not stamped
- Ease of installation of lugs using standard 5/8 bolts
- Available in sizes 535, 646 & 777



Opposing stainless steel locking screws with Helicoil inserts provide additional security



VERTICAL FRONT & HORIZONTAL BACK BUSS PLATES

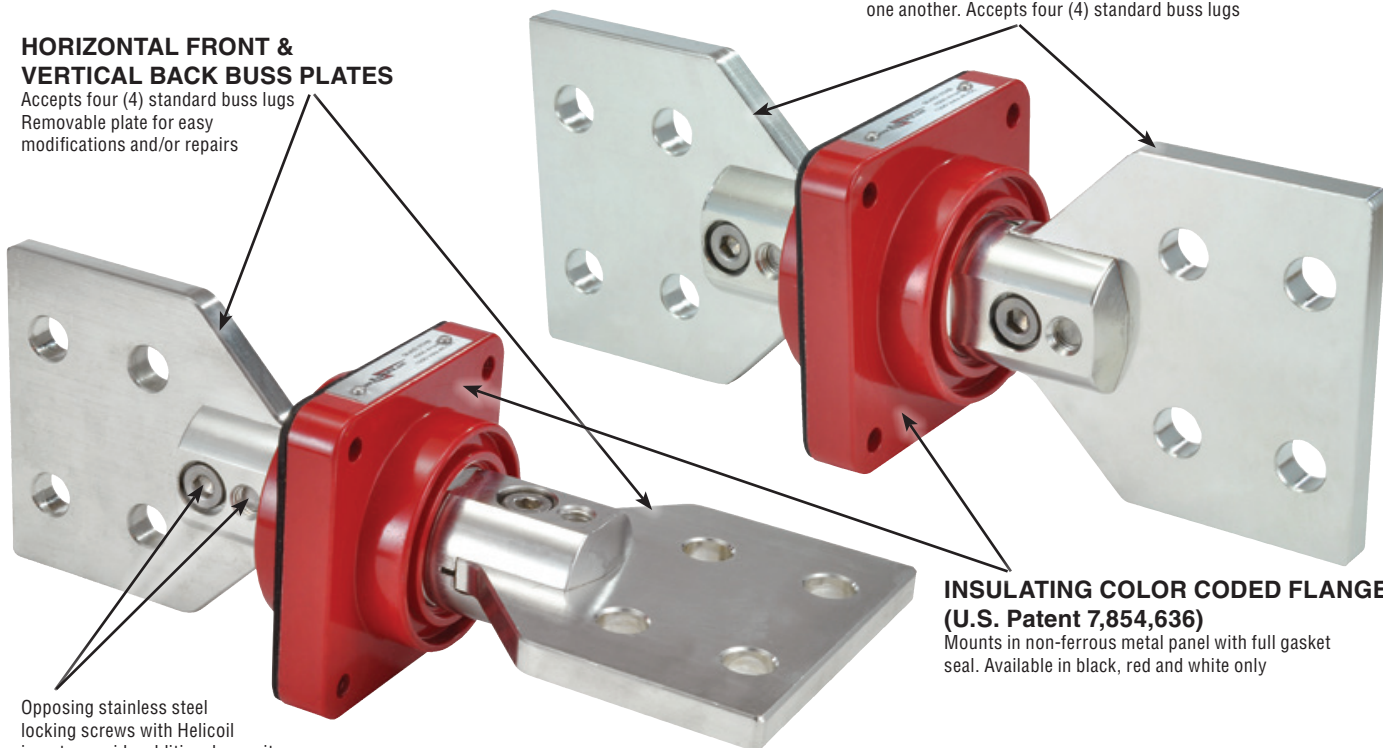
Accepts four (4) standard buss lugs

HORIZONTAL FRONT & BACK BUSS PLATES

Large front & back buss plates in a parallel position to one another. Accepts four (4) standard buss lugs

HORIZONTAL FRONT & VERTICAL BACK BUSS PLATES

Accepts four (4) standard buss lugs
Removable plate for easy modifications and/or repairs



INSULATING COLOR CODED FLANGE (U.S. Patent 7,854,636)

Mounts in non-ferrous metal panel with full gasket seal. Available in black, red and white only

Opposing stainless steel locking screws with Helicoil inserts provide additional security

CONNECTORS

SECURE MOUNT® & STAB SERIES



PARTS LIST

SECURE MOUNT®

SECURE MOUNT® COMPLETE SET – SINGLE HOLE RECEPTACLE & CABLE END ASSEMBLIES

A Complete Set includes: (1) Single Hole Receptacle w/Gasket, Protective Cap and Brass Nut, (1) Contact - Size of your choice, (1) Insulating Boot w/Cap and Boot Retention Ring

COLOR	313 CONTACT	444 CONTACT	535 CONTACT	646 CONTACT	777 CONTACT
Black	SM-R1-N3-BK	SM-R1-N4-BK	SM-R1-N5-BK	SM-R1-N6-BK	SM-R1-N7-BK
Blue	SM-R1-N3-BL	SM-R1-N4-BL	SM-R1-N5-BL	SM-R1-N6-BL	SM-R1-N7-BL
Brown	SM-R1-N3-BR	SM-R1-N4-BR	SM-R1-N5-BR	SM-R1-N6-BR	SM-R1-N7-BR
Green	SM-R1-N3-G	SM-R1-N4-G	SM-R1-N5-G	SM-R1-N6-G	SM-R1-N7-G
Gray	SM-R1-N3-GY	SM-R1-N4-GY	SM-R1-N5-GY	SM-R1-N6-GY	SM-R1-N7-GY
Orange	SM-R1-N3-OR	SM-R1-N4-OR	SM-R1-N5-OR	SM-R1-N6-OR	SM-R1-N7-OR
Purple	SM-R1-N3-P	SM-R1-N4-P	SM-R1-N5-P	SM-R1-N6-P	SM-R1-N7-P
Red	SM-R1-N3-R	SM-R1-N4-R	SM-R1-N5-R	SM-R1-N6-R	SM-R1-N7-R
White	SM-R1-N3-W	SM-R1-N4-W	SM-R1-N5-W	SM-R1-N6-W	SM-R1-N7-W
Yellow	SM-R1-N3-Y	SM-R1-N4-Y	SM-R1-N5-Y	SM-R1-N6-Y	SM-R1-N7-Y

SECURE MOUNT® COMPLETE SET – DOUBLE HOLE RECEPTACLE & CABLE END ASSEMBLIES

A Complete Set includes: (1) Double Hole Receptacle w/Gasket, Protective Cap, and Brass Nut, (1) Contact - Size of your choice, (1) Insulating Boot w/Cap and Boot Retention Ring

COLOR	313 CONTACT	444 CONTACT	535 CONTACT	646 CONTACT	777 CONTACT
Black	SM-R2-N3-BK	SM-R2-N4-BK	SM-R2-N5-BK	SM-R2-N6-BK	SM-R2-N7-BK
Blue	SM-R2-N3-BL	SM-R2-N4-BL	SM-R2-N5-BL	SM-R2-N6-BL	SM-R2-N7-BL
Brown	SM-R2-N3-BR	SM-R2-N4-BR	SM-R2-N5-BR	SM-R2-N6-BR	SM-R2-N7-BR
Green	SM-R2-N3-G	SM-R2-N4-G	SM-R2-N5-G	SM-R2-N6-G	SM-R2-N7-G
Gray	SM-R2-N3-GY	SM-R2-N4-GY	SM-R2-N5-GY	SM-R2-N6-GY	SM-R2-N7-GY
Orange	SM-R2-N3-OR	SM-R2-N4-OR	SM-R2-N5-OR	SM-R2-N6-OR	SM-R2-N7-OR
Purple	SM-R2-N3-P	SM-R2-N4-P	SM-R2-N5-P	SM-R2-N6-P	SM-R2-N7-P
Red	SM-R2-N3-R	SM-R2-N4-R	SM-R2-N5-R	SM-R2-N6-R	SM-R2-N7-R
White	SM-R2-N3-W	SM-R2-N4-W	SM-R2-N5-W	SM-R2-N6-W	SM-R2-N7-W
Yellow	SM-R2-N3-Y	SM-R2-N4-Y	SM-R2-N5-Y	SM-R2-N6-Y	SM-R2-N7-Y

SECURE MOUNT® RECEPTACLE

Each Single and Double Hole Receptacle includes:
(1) Receptacle w/Protective Cap, (1) Gasket, (1) Brass Nut

SINGLE HOLE	COLOR	DOUBLE HOLE
SM-R1-N-BK	Black	SM-R2-N-BK
SM-R1-N-BL	Blue	SM-R2-N-BL
SM-R1-N-BR	Brown	SM-R2-N-BR
SM-R1-N-G	Green	SM-R2-N-G
SM-R1-N-GY	Gray	SM-R2-N-GY
SM-R1-N-OR	Orange	SM-R2-N-OR
SM-R1-N-P	Purple	SM-R2-N-P
SM-R1-N-R	Red	SM-R2-N-R
SM-R1-N-W	White	SM-R2-N-W
SM-R1-N-Y	Yellow	SM-R2-N-Y

SECURE MOUNT® CABLE END ASSEMBLIES

A Cable End Assembly includes: (1) Contact - Size of Your Choice, (1) Insulating Boot, (1) Boot Cap and (1) Boot Retention Ring

COLOR	313 CONTACT	444 CONTACT	535 CONTACT	646 CONTACT	777 CONTACT
Black	SM-SBA-3-BK	SM-SBA-4-BK	SM-SBA-5-BK	SM-SBA-6-BK	SM-SBA-7-BK
Blue	SM-SBA-3-BL	SM-SBA-4-BL	SM-SBA-5-BL	SM-SBA-6-BL	SM-SBA-7-BL
Brown	SM-SBA-3-BR	SM-SBA-4-BR	SM-SBA-5-BR	SM-SBA-6-BR	SM-SBA-7-BR
Green	SM-SBA-3-G	SM-SBA-4-G	SM-SBA-5-G	SM-SBA-6-G	SM-SBA-7-G
Gray	SM-SBA-3-GY	SM-SBA-4-GY	SM-SBA-5-GY	SM-SBA-6-GY	SM-SBA-7-GY
Orange	SM-SBA-3-OR	SM-SBA-4-OR	SM-SBA-5-OR	SM-SBA-6-OR	SM-SBA-7-OR
Purple	SM-SBA-3-P	SM-SBA-4-P	SM-SBA-5-P	SM-SBA-6-P	SM-SBA-7-P
Red	SM-SBA-3-R	SM-SBA-4-R	SM-SBA-5-R	SM-SBA-6-R	SM-SBA-7-R
White	SM-SBA-3-W	SM-SBA-4-W	SM-SBA-5-W	SM-SBA-6-W	SM-SBA-7-W
Yellow	SM-SBA-3-Y	SM-SBA-4-Y	SM-SBA-5-Y	SM-SBA-6-Y	SM-SBA-7-Y

SAFE STAB®

SAFE STAB® COMPLETE SET – SINGLE HOLE RECEPTACLE & CABLE END ASSEMBLIES

A Complete Set includes: (1) Single Hole Receptacle w/Gasket, Protective Cap and (2) Stainless Screws, (1) Lug - Size of your choice, (1) Insulating Boot w/Cap and Boot Retention Ring

COLOR	444 LUG	535 LUG	646 LUG	777 LUG
Black	SS-R1-4-BK	SS-R1-5-BK	SS-R1-6-BK	SS-R1-7-BK
Blue	SS-R1-4-BL	SS-R1-5-BL	SS-R1-6-BL	SS-R1-7-BL
Brown	SS-R1-4-BR	SS-R1-5-BR	SS-R1-6-BR	SS-R1-7-BR
Green	SS-R1-4-G	SS-R1-5-G	SS-R1-6-G	SS-R1-7-G
Gray	SS-R1-4-GY	SS-R1-5-GY	SS-R1-6-GY	SS-R1-7-GY
Orange	SS-R1-4-OR	SS-R1-5-OR	SS-R1-6-OR	SS-R1-7-OR
Purple	SS-R1-4-P	SS-R1-5-P	SS-R1-6-P	SS-R1-7-P
Red	SS-R1-4-R	SS-R1-5-R	SS-R1-6-R	SS-R1-7-R
White	SS-R1-4-W	SS-R1-5-W	SS-R1-6-W	SS-R1-7-W
Yellow	SS-R1-4-Y	SS-R1-5-Y	SS-R1-6-Y	SS-R1-7-Y

SAFE STAB® COMPLETE SET – DOUBLE HOLE RECEPTACLE & CABLE END ASSEMBLIES

A Complete Set includes: (1) Double Hole Receptacle w/Gasket, Protective Cap and (2) Stainless Screws, (1) Lug - Size of your choice, (1) Insulating Boot w/Cap and Boot Retention Ring

COLOR	444 LUG	535 LUG	646 LUG	777 LUG
Black	SS-R2-4-BK	SS-R2-5-BK	SS-R2-6-BK	SS-R2-7-BK
Blue	SS-R2-4-BL	SS-R2-5-BL	SS-R2-6-BL	SS-R2-7-BL
Brown	SS-R2-4-BR	SS-R2-5-BR	SS-R2-6-BR	SS-R2-7-BR
Green	SS-R2-4-G	SS-R2-5-G	SS-R2-6-G	SS-R2-7-G
Gray	SS-R2-4-GY	SS-R2-5-GY	SS-R2-6-GY	SS-R2-7-GY
Orange	SS-R2-4-OR	SS-R2-5-OR	SS-R2-6-OR	SS-R2-7-OR
Purple	SS-R2-4-P	SS-R2-5-P	SS-R2-6-P	SS-R2-7-P
Red	SS-R2-4-R	SS-R2-5-R	SS-R2-6-R	SS-R2-7-R
White	SS-R2-4-W	SS-R2-5-W	SS-R2-6-W	SS-R2-7-W
Yellow	SS-R2-4-Y	SS-R2-5-Y	SS-R2-6-Y	SS-R2-7-Y

SAFE STAB® RECEPTACLE

Each Single and Double Hole Receptacle includes:
(1) Safe Stab® Receptacle w/Gasket and Protective Cap

SINGLE HOLE	COLOR	DOUBLE HOLE
SS-R1-BK	Black	SS-R2-BK
SS-R1-BL	Blue	SS-R2-BL
SS-R1-BR	Brown	SS-R2-BR
SS-R1-G	Green	SS-R2-G
SS-R1-GY	Gray	SS-R2-GY
SS-R1-OR	Orange	SS-R2-OR
SS-R1-P	Purple	SS-R2-P
SS-R1-R	Red	SS-R2-R
SS-R1-W	White	SS-R2-W
SS-R1-Y	Yellow	SS-R2-Y

SAFE STAB® CABLE END ASSEMBLIES

A Cable End Assembly includes: (1) Lug - Size of your choice, (2) Stainless Screws, (1) Insulating Boot, (1) Boot Cap and (1) Boot Retention Ring

COLOR	444 LUG	535 LUG	646 LUG	777 LUG
Black	SS-SBA-4-BK	SS-SBA-5-BK	SS-SBA-6-BK	SS-SBA-7-BK
Blue	SS-SBA-4-BL	SS-SBA-5-BL	SS-SBA-6-BL	SS-SBA-7-BL
Brown	SS-SBA-4-BR	SS-SBA-5-BR	SS-SBA-6-BR	SS-SBA-7-BR
Green	SS-SBA-4-G	SS-SBA-5-G	SS-SBA-6-G	SS-SBA-7-G
Gray	SS-SBA-4-GY	SS-SBA-5-GY	SS-SBA-6-GY	SS-SBA-7-GY
Orange	SS-SBA-4-OR	SS-SBA-5-OR	SS-SBA-6-OR	SS-SBA-7-OR
Purple	SS-SBA-4-P	SS-SBA-5-P	SS-SBA-6-P	SS-SBA-7-P
Red	SS-SBA-4-R	SS-SBA-5-R	SS-SBA-6-R	SS-SBA-7-R
White	SS-SBA-4-W	SS-SBA-5-W	SS-SBA-6-W	SS-SBA-7-W
Yellow	SS-SBA-4-Y	SS-SBA-5-Y	SS-SBA-6-Y	SS-SBA-7-Y



ACCESSORIES

QUICK STAB® RECEPTACLES		
PART NO.	DESCRIPTION	COLOR
QS-R2-BK	Quick Stab® Receptacle w/Gasket	Black
QS-R2-BL	Quick Stab® Receptacle w/Gasket	Blue
QS-R2-BR	Quick Stab® Receptacle w/Gasket	Brown
QS-R2-G	Quick Stab® Receptacle w/Gasket	Green
QS-R2-GY	Quick Stab® Receptacle w/Gasket	Gray
QS-R2-OR	Quick Stab® Receptacle w/Gasket	Orange
QS-R2-P	Quick Stab® Receptacle w/Gasket	Purple
QS-R2-R	Quick Stab® Receptacle w/Gasket	Red
QS-R2-W	Quick Stab® Receptacle w/Gasket	White
QS-R2-Y	Quick Stab® Receptacle w/Gasket	Yellow

QUAD STAB RECEPTACLES		
PART NO.	DESCRIPTION	COLOR
QS-R4-BK	Quad Stab Buss Bar Receptacle	Black
QS-R4-R	Quad Stab Buss Bar Receptacle	Red
QS-R4-W	Quad Stab Buss Bar Receptacle	White
QS-R4-PFB-BK	Quad Stab Parallel Front/Back Receptacle	Black
QS-R4-PFB-R	Quad Stab Parallel Front/Back Receptacle	Red
QS-R4-PFB-W	Quad Stab Parallel Front/Back Receptacle	White
QS-R4-HF-VB-BK	Quad Stab Horizontal Front/Vertical Back Receptacle	Black
QS-R4-HF-VB-R	Quad Stab Horizontal Front/Vertical Back Receptacle	Red
QS-R4-HF-VB-W	Quad Stab Horizontal Front/Vertical Back Receptacle	White
QS-R4-VF-HB-BK	Quad Stab Vertical Front/Horizontal Back Receptacle	Black
QS-R4-VF-HB-R	Quad Stab Vertical Front/Horizontal Back Receptacle	Red
QS-R4-VF-HB-W	Quad Stab Vertical Front/Horizontal Back Receptacle	White

Note: mounting gasket included.

SECURE MOUNT® & SAFE STAB® INSULATING BOOTS		
COLOR	INSULATING BOOT WITH BOOT CAP	INSULATING BOOT WITHOUT BOOT CAP
Black	SM-B-BK	SM-BNC-BK
Blue	SM-B-BL	SM-BNC-BL
Brown	SM-B-BR	SM-BNC-BR
Green	SM-B-G	SM-BNC-G
Gray	SM-B-GY	SM-BNC-GY
Orange	SM-B-OR	SM-BNC-OR
Purple	SM-B-P	SM-BNC-P
Red	SM-B-R	SM-BNC-R
White	SM-B-W	SM-BNC-W
Yellow	SM-B-Y	SM-BNC-Y

Secure Mount® Field Installation/Repair Kit

Applications

This kit is designed to allow quick and easy field replacement of a PD-501 style connector with a Secure Mount® connector. The Kit contains enough supplies to field mount five Secure Mounts in an existing panel. The kit can also be used for field mounting of the Safe Stab®, Quick Stab® and Quad Stab receptacles.

Features

- No replacement of insulating board is required, even damaged boards can be saved
- No need to remove adjacent undamaged connectors from insulation board
- Save cost, labor and downtime when field repairs are necessary

KIT CONTENTS

Kit contains parts to field mount five Secure Mount® Receptacles.

1. Five Tapered wooden plugs
2. One 3 and 3/4 inch diameter carbide tipped hole saw
3. Twenty sets of mounting bolts
4. Five adhesive drilling templates
5. Complete instructions



PART #	PART DESCRIPTION	PACK SIZE
SM-FRK	Secure Mount® Field Installation/Repair Kit	1

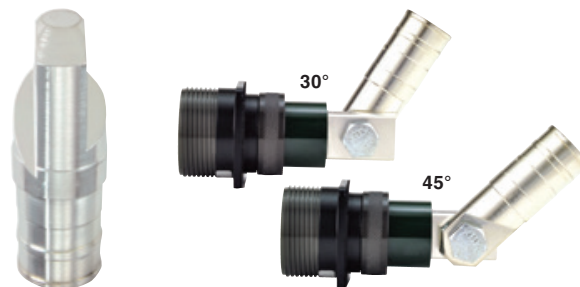


CABLE SIZE	SAFE STAB® LUGS W/ STAINLESS SCREWS	
	LUGS WITHOUT BOOT RETENTION RING	LUGS WITH BOOT RETENTION RING
	PART #	PART #
535 MCM Through	SS-SC-535	SS-SC-535-R
777 MCM	SS-SC-646	SS-SC-646-R
	SS-SC-777	SS-SC-777-R

SECURE MOUNT® CONTACTS		
CABLE SIZE	CONTACTS WITHOUT BOOT RETENTION RING	CONTACT WITH BOOT RETENTION RING
	PART #	PART #
313 MCM Through 777 MCM	SM-SC-313	SM-SC-313-R
	SM-SC-444	SM-SC-444-R
	SM-SC-535	SM-SC-535-R
	SM-SC-646	SM-SC-646-R
	SM-SC-777	SM-SC-777-R



QUICK STAB® & QUAD STAB DOUBLE HOLE LUGS	
PART NO.	DESCRIPTION
QS-535-L	Quick Stab® & Quad Stab 535 Lug
QS-646-L	Quick Stab® & Quad Stab 646 Lug
QS-777-L	Quick Stab® & Quad Stab 777 Lug



30° – 45° Reversible Locking Buss Bar Lug

The 30° or 45° Reversible Buss Bar Lug was created by RigPower to help eliminate the long bend radius that is inherent when using standard single or double hole crimp lugs. Compared to current single hole lugs, the Reversible Buss Bar Lug gives you mounting options no one else can. The lug's shoulder rests securely on the buss bar, preventing any rotation that may be caused from the weight of the cable tension or from equipment vibration. Reducing the bend radius provides for additional work space behind the SCR house panel and other panel mounted areas.

- Termination method is double crimp style
- Crimping locators are designed into the base for ease of installation
- Uses the same crimping die sets as the RigPower RMP®II, Secure Mount®, Safe Stab®, MCC-1, VFD-1®, HP20 and MC20 series connectors
- Made from Duplex Sn plated high conductivity copper

30°—45° REVERSIBLE LOCKING BUSS BAR LUG

PART NO.	DESCRIPTION
SL-535-AL	535 MCM 30°/45° Angled Lug for Buss Bar Connections
SL-646-AL	646 MCM 30°/45° Angled Lug for Buss Bar Connections
SL-777-AL	777 MCM 30°/45° Angled Lug for Buss Bar Connections

CONNECTORS

VFD-1® SERIES



INDUSTRY FEATURES AND BENEFITS

RigPower's mission is to create new industry standards in industrial electrical connectors by combining appropriate technological advances, quality production methods and dependable customer support.

Background

Previous onshore drilling rig designs used DC motors and control systems, mostly derived from 1940-1950 era technology originally developed for diesel-electric locomotives. While these systems have proven to be reliable, many operators desire the benefits available only with Variable Frequency Drive (VFDs) systems. As these drive systems are rapidly being applied to land based drilling rigs, the unique needs of a VFD equipped mobile land rig cannot be met with standard connectors.

Variable Frequency Drives require special considerations for the proper installation and operation of the drive system as well as the proper operation of nearby or adjacent systems. The VFD-1® is the only connector both designed for the unique requirements of single conductor shielded VFD cables and rugged enough to survive in the harsh conditions of the drilling industry.

VFD Cable

Land rig VFD installations require the use of shielded single conductor cable rather than the shielded three conductor cable normally sold for VFD applications. The use of single conductor cable allows for two major advantages:

- The first advantage is the ease of manually installing and removing the cable. Each single conductor cable will obviously be lighter than a three conductor cable and, when handled individually, will be much easier to install and remove.
- The second advantage of using single conductor cables is that they only require single pole connectors. No, this isn't trivial. The VFD-1® is commercially available, rated for 1135 amps at 2000 volts, maintains the integrity of the cable shield, is field repairable, and is safe and reliable to connect in the field. There is NO three pole connector available for shielded VFD cable.

Any multi-pole connector developed for shielded high power systems will have several intrinsic weaknesses as compared to the VFD-1® single pole connector.

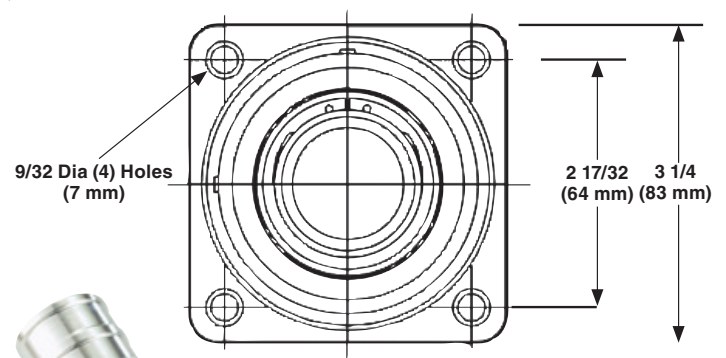
- **SIZE** – The space necessary inside a conductor for three separate power connections, plus ground connections, makes for an extremely large connector. The VFD-1® connector, even with 777 cable, fits into a standard size 24 shell.
- **SAFETY** – Should a three conductor connector be accidentally disconnected under load, there will be severe phase to phase arcing. Unfortunately the arc path will have enough resistance that the breaker may not rapidly recognize the fault and current will continue to flow for several seconds, producing a spectacular fireball.
- **EMI PROTECTION** – A multi-conductor cable has only one braid shield enclosing all three phase leads and the ground(s). Often connections are made by breaking out short sections of the individual phase leads. These short segments of unshielded cable serve as almost perfect antennas for the EM noise inherent in the waveforms produced by VFD systems.

RigPower has solved these problems with the VFD-1® Series:

- **Service Ratings: 1135 Amps, 2000 Volts**
- **Small #24 Shell Size Footprint**
- **Contact Technology provides self-adjusting (Multilam) contact force for resistance to the severe load variations and vibration encountered in drilling service**
- **The conductivity of the cable shield braid is carried completely through the connector to ensure uninterrupted 360 degree protection of EMI radiation**
- **Cable-Receptacle mating pairs**
- **Available in nine colors for easy equipment/phase identification**

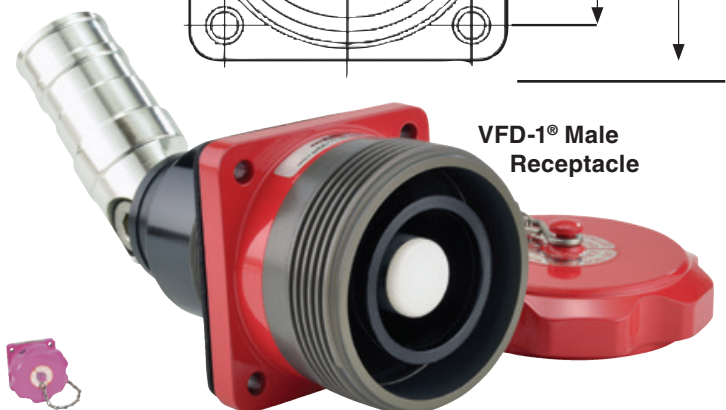


VFD-1® Female Receptacle



9/32 Dia (4) Holes
(7 mm)

2 17/32 3 1/4
(64 mm) (83 mm)



VFD-1® Male Receptacle



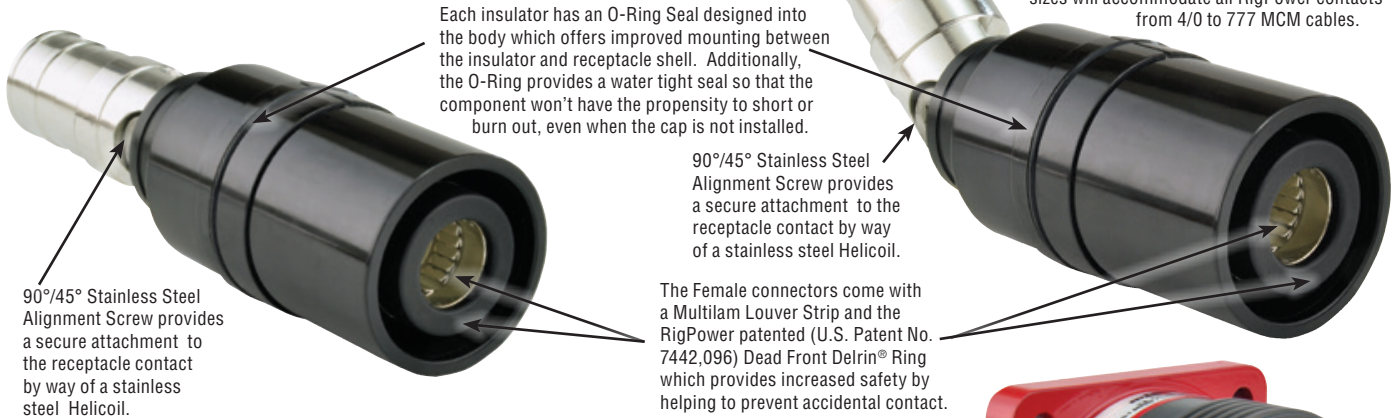


DESCRIPTION AND DESIGN FEATURES

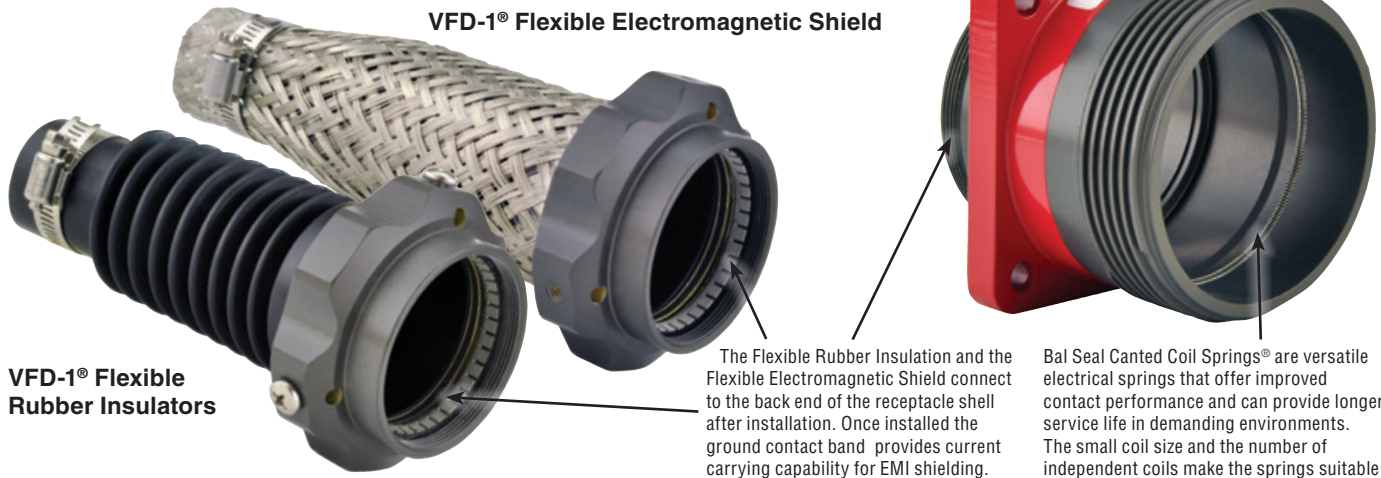
All electrical carrying components on the VFD-1® series are made from Sn plated high conductivity copper. The receptacle lugs and plug contacts are designed to use the standard Hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes on the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.

VFD-1® 90°/45° Female Receptacle Internal

All electrical carrying components on the VFD-1® series are made from Sn plated high conductivity copper. The receptacle lugs and plug contacts are designed to use the standard Hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes on the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.



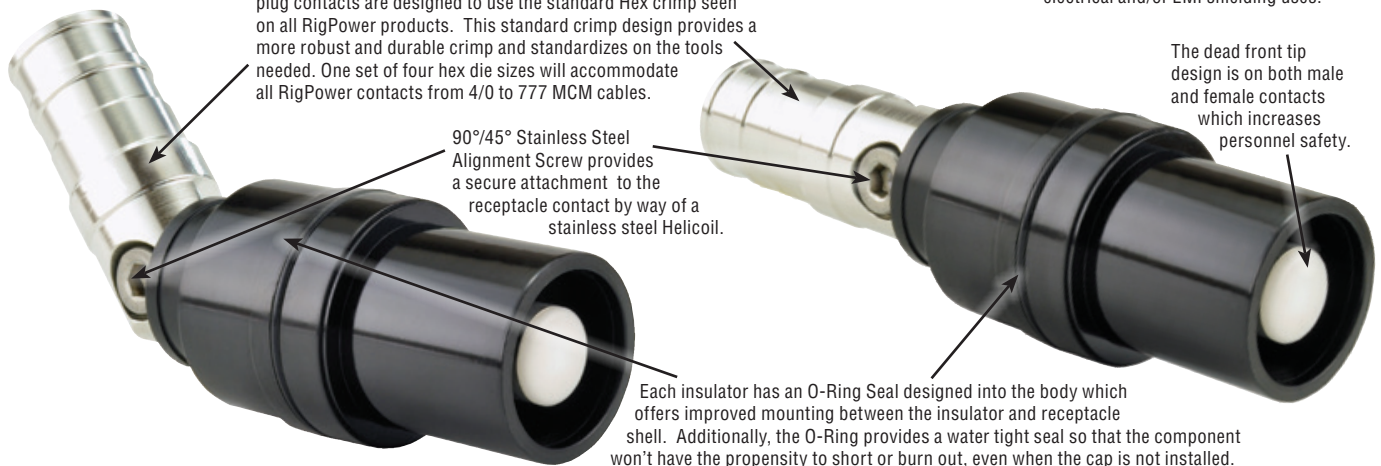
VFD-1® Flexible Electromagnetic Shield



VFD-1® Flexible Rubber Insulators

VFD-1® 90°/45° Male Receptacle Internal

All electrical carrying components on the VFD-1® series are made from Sn plated high conductivity copper. The receptacle lugs and plug contacts are designed to use the standard Hex crimp seen on all RigPower products. This standard crimp design provides a more robust and durable crimp and standardizes on the tools needed. One set of four hex die sizes will accommodate all RigPower contacts from 4/0 to 777 MCM cables.



CONNECTORS



VFD-1® SERIES

DESCRIPTION AND DESIGN BENEFITS

Patent Pending self-aligning 90/45 degree style lug reduces cable bend radius and saves valuable space behind panel wall. Self-aligning lugs standard in 4/0, 313, 444, 535, 646 and 777 cable sizes. Metric sizes available on special order.

VFD-1® Male Receptacle

Male Receptacle Insulator is designed to insert into the female plug providing a double insulator layer thus allowing for increased voltage

Large robust safety cap allows easy operation by personnel wearing work gloves.

Quick acting double lead ACME threads for rapid yet secure connections.

Dead front tip design on both male and female contacts increases personnel safety.

Bal Seal Canted Coil Springs® are versatile electrical springs that offer improved contact performance, and can provide longer service life in demanding environments. The small coil size and the number of independent coils make the springs suitable for a wide variety of electrical connector designs, with maximum contact points for optimal current-carrying capability in electrical and/or EMI shielding uses.

VFD-1® Female Receptacle

Neoprene gasket is provided.

Large robust safety cap allows easy operation by personnel wearing work gloves.

The VFD-1® series female receptacles are available with the Multilam Contact System. The Multilam Louver Strip allows electrical contact to be made via a large number of defined, current carrying contact points.

- High resistance to heat
- High electrical and thermal conductivity
- Sufficiently high contact forces
- High number of contact cycles
- Excellent resistance to corrosion
- Resistance to vibration
- Long product life

Female Receptacle Insulator is designed to overlap the insulator of the male plug providing a double insulator layer thus allowing for increased voltage

The dead front tip design is on both male and female contacts which increases personnel safety.

VFD-1® Flexible Electromagnetic Shield

Large robust Gland Nut provides for an easy and safe connection to the receptacle.

Large robust Gland Nut provides for an easy and safe connection to the receptacle.

Rear Mounting Screws provide for quick and reliable attachment of bonding wires

VFD-1® Flexible Rubber Insulator

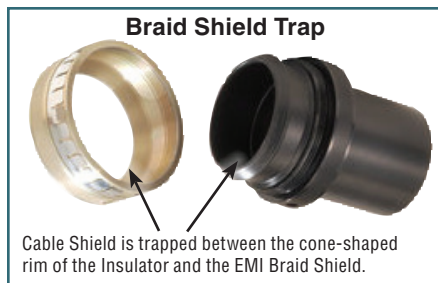
Patent Pending flexible rubber boot for using non-shielded cable inside enclosure. Flexes to accommodate 45 degree design lug.

Patent Pending flexible EMI shield at rear of panel mounted receptacle allows quick connection of cable shield braid to body of connector while maintaining complete EMI protection. Flexes to accommodate 45 degree style lug.

Ground Contact System provides the required grounding connection to/from the receptacle housing



DESCRIPTION AND DESIGN BENEFITS



Braid Shield Trap

Cable Shield is trapped between the cone-shaped rim of the Insulator and the EMI Braid Shield.

VFD-1® Male Contact w/Braid Shield Trap

Patent Pending EMI Braid/Shield trap allows quick connection on cable shield braid to body of connector while maintaining complete EMI protection.

Braid Shield Trap Insulator

Both the Male and Female contacts have an O-Ring Seal designed into the body which provides a water tight seal with the plug insulator so that the component won't have the propensity to short or burn out, even when the cap is not installed.

VFD-1® Female Contact w/Braid Shield Trap

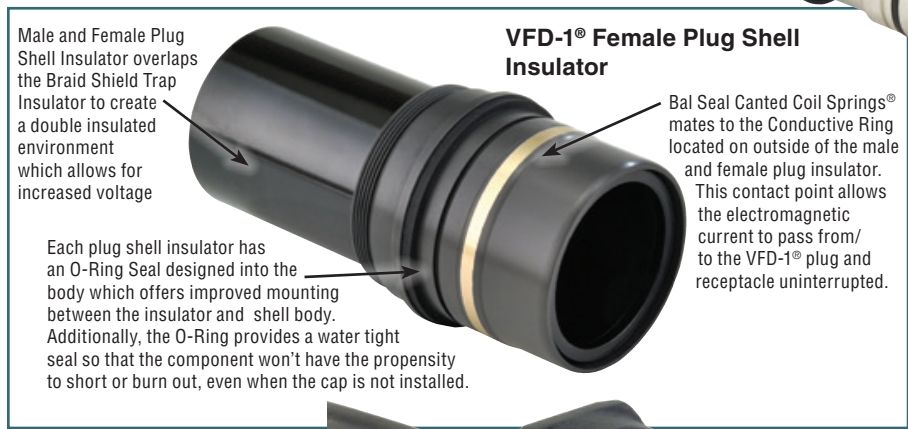
Patent Pending EMI Braid/Shield trap allows quick connection on cable shield braid to body of connector while maintaining complete EMI protection.

Female contacts standard in 4/0, 313, 444, 535, 646 and 777 cable sizes.

Braid Shield Trap Insulator

Male contacts standard in 4/0, 313, 444, 535, 646 and 777 cable sizes.

The dead front tip design is on both male and female contacts which increases personnel safety.



VFD-1® Female Plug Shell Insulator

Male and Female Plug Shell Insulator overlaps the Braid Shield Trap Insulator to create a double insulated environment which allows for increased voltage

Each plug shell insulator has an O-Ring Seal designed into the body which offers improved mounting between the insulator and shell body. Additionally, the O-Ring provides a water tight seal so that the component won't have the propensity to short or burn out, even when the cap is not installed.

Bal Seal Canted Coil Springs® mates to the Conductive Ring located on outside of the male and female plug insulator. This contact point allows the electromagnetic current to pass from/ to the VFD-1® plug and receptacle uninterrupted.

The patented (U.S. Patent No. 7442,096) Dead Front Delrin® Ring provides increased safety by helping to prevent accidental contact.



VFD-1® Female Plug w/Cable Clamp – Black



VFD-1® Male Plug w/Kellems Grip – Red

Industry Exclusive

All RigPower Contacts have a Double Crimp Style base that is longer than other manufacturers, which provides a more complete and secure connection between the cable and contact.

- Termination method is double crimp style for cable mounted plug and receptacles
- Crimping locators are designed into the base for ease of installation
- Made from Sn plated high conductivity copper
- Uses the same crimping die sets as the RigPower "RMP®II, Secure Mount®, Safe Stab®, MCC-1™, HP20™ and MC20™" series connectors

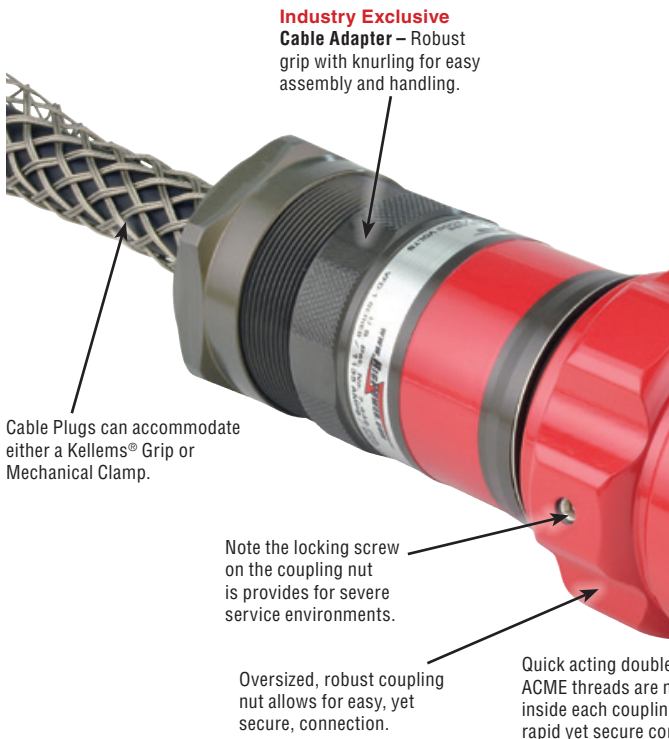
CONNECTORS



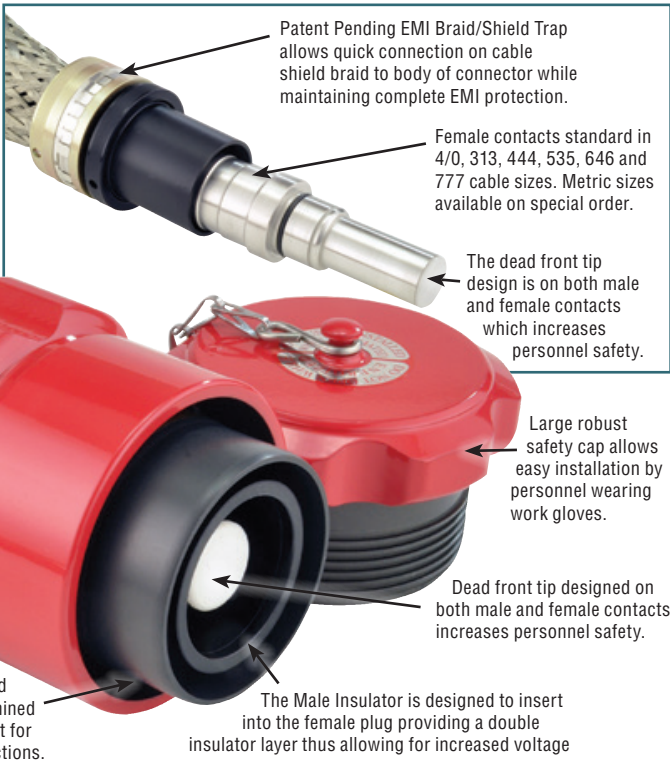
VFD-1® SERIES

PLUG FEATURES

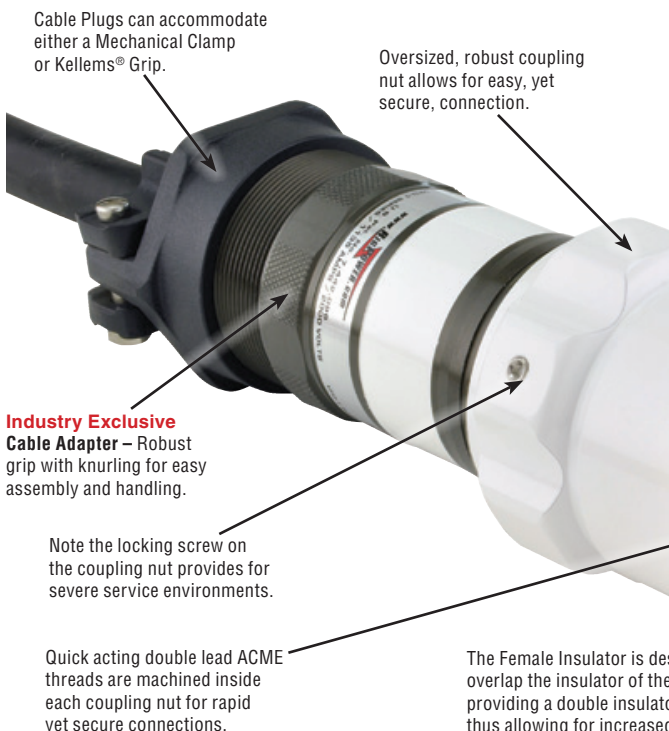
VFD-1® Male Plug w/Kellems® Grip



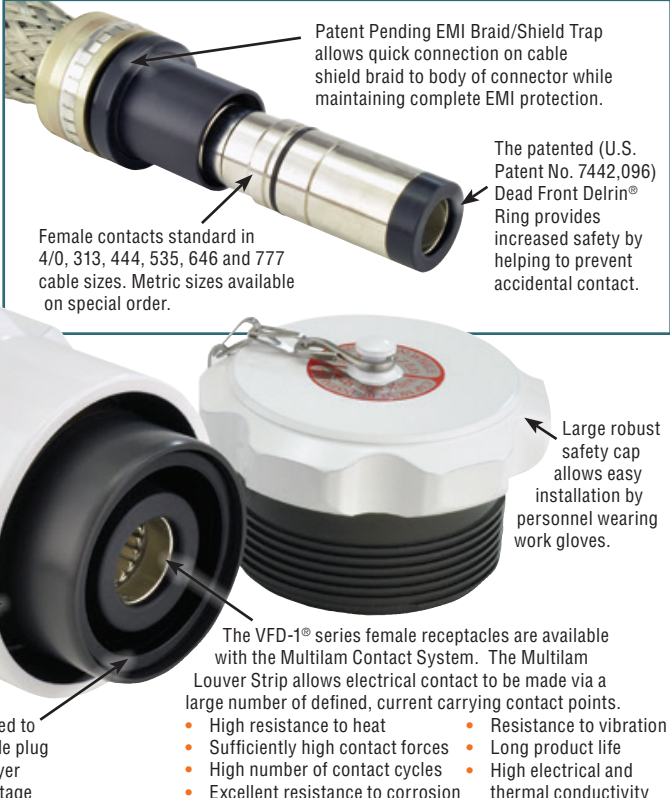
VFD-1® Male Contact w/Braid Shield Tap



VFD-1® Female Plug w/Mechanical Clamp



VFD-1® Female Contact w/Braid Shield Tap





PARTS LIST AND ACCESSORIES

ORDERING TABLE FOR VFD-1® CONNECTORS AND SPARE PARTS – (Rated for 2000 Volts / 1135 Amps)

VFD-1® PANEL MOUNT RECEPTACLES – Ordering Format: VFD1-(1)-(2)-(3)		
(1) RECEPTACLE GENDER & REAR INSULATOR STYLE	(2) 45° CABLE LUG SELECT SIZE	(3) COLOR
MALE RECEPTACLES		
M1 = Male Bar w/45° Lug and Rear Flexible Braided Shield	4/OL = 4/0 MCM	BK = Black
M2 = Male Bar w/45° Lug and Rear Flexible Shield	3L = 313 MCM	BL = Blue
	4L = 444 MCM	BR = Brown
	5L = 535 MCM	GY = Gray
	6L = 646 MCM	OR = Orange
	7L = 777 MCM	P = Purple
		R = Red
		W = White
		Y = Yellow

VFD-1® MALE OR FEMALE PLUGS – Ordering Format: VFD1-(1)-(2)-(3)-(4)			
(1) CONTACT SIZE & GENDER	(2) CABLE OD FOR GROMMET	(3) STYLE OF CABLE RETENTION	(4) COLOR
FEMALE			
	14 = 0.750 - 0.875	M = Mechanical Clamp	BK = Black
4/0F = 4/0 Female Contact	16 = 0.870 - 1.000		BL = Blue
3F = 313 Female Contact	18 = 1.000 - 1.125	OR	BR = Brown
4F = 444 Female Contact	20 = 1.125 - 1.250		GY = Gray
5F = 535 Female Contact	22 = 1.250 - 1.375	K16 = #16 (0.875 - 1.000)	OR = Orange
6F = 646 Female Contact	24 = 1.375 - 1.500	K20 = #20 (1.000 - 1.250)	P = Purple
7F = 777 Female Contact	26 = 1.500 - 1.625	K24 = #24 (1.250 - 1.500)	R = Red
MALE			
4/0M = 4/0 Male Contact	28 = 1.625 - 1.750	K28 = #28 (1.500 - 1.750)	W = White
3M = 313 Male Contact	30 = 1.750 - 1.875	K32 = #32 (1.750 - 2.000)	Y = Yellow
4M = 444 Male Contact	32 = 1.875 - 2.000	K36 = #36 (2.000 - 2.250)	
5M = 535 Male Contact	34 = 2.000 - 2.125	K39 = #39 (2.250 - 2.437)	
6M = 646 Male Contact	36 = 2.125 - 2.250		
7M = 777 Male Contact	38 = 2.250 - 2.373		
	39 = 2.375 - 2.437		

VFD-1® SPARE PART DESCRIPTIONS AND PART NUMBERS

VFD-1® PLUGS CONTACTS AND RETENTION CLIPS		VFD-1® PLUGS & IN-LINE RECEPTACLE SPARE PARTS	
PART NUMBER	PART DESCRIPTION	PART NUMBER	PART DESCRIPTION
FEMALE			
		G14	Grommet 14 (0.750 - 0.875)
VFD1-4/0F	4/0 Female Contact	G16	Grommet 16 (0.870 - 1.000)
VFD1-3F	313 Female Contact	G18	Grommet 18 (1.000 - 1.125)
VFD1-4F	444 Female Contact	G20	Grommet 20 (1.125 - 1.250)
VFD1-5F	535 Female Contact	G22	Grommet 22 (1.250 - 1.375)
VFD1-6F	646 Female Contact	G24	Grommet 24 (1.375 - 1.500)
VFD1-7F	777 Female Contact	G26	Grommet 26 (1.500 - 1.625)
FRC	Female Retaining Ring	G28	Grommet 28 (1.625 - 1.750)
FRCW	Female Retaining Ring Washer	G30	Grommet 30 (1.750 - 1.875)
MALE			
VFD1-4/0M	4/0 Male Contact	G32	Grommet 30 (1.875 - 2.000)
VFD1-3M	313 Male Contact	G34	Grommet 34 (2.000 - 2.125)
VFD1-4M	444 Male Contact	G36	Grommet 36 (2.125 - 2.250)
VFD1-5M	535 Male Contact	G38	Grommet 38 (2.250 - 2.273)
VFD1-6M	646 Male Contact	G39	Grommet 39 (2.273 - 2.437)
VFD1-7M	777 Male Contact	GW16	Grommet Washer 16 (0.870 - 1.125)
MRC	Male Retaining Ring	GW20	Grommet Washer 20 (1.125 - 1.375)
MRCW	Male Retaining Ring Washer	GW24	Grommet Washer 24 (1.375 - 1.625)
		GW28	Grommet Washer 28 (1.625 - 1.875)
		GW32	Grommet Washer 32 (1.875 - 2.125)
		GW36	Grommet Washer 32 (2.125 - 2.273)
		GW39	Grommet Washer 39 (2.273 - 2.437)
VFD PANEL MOUNT RECEPTACLE SPARE PARTS			
PART NUMBER	PART DESCRIPTION		
VFD1-4/OL	4/0 - 45° Cable Lug	K16	Kellems Grip 16 (0.875 - 1.000)
VFD1-3L	313 - 45° Cable Lug	K20	Kellems Grip 20 (1.000 - 1.250)
VFD1-4L	444 - 45° Cable Lug	K24	Kellems Grip 24 (1.250 - 1.500)
VFD1-5L	535 - 45° Cable Lug	K28	Kellems Grip 28 (1.500 - 1.750)
VFD1-6L	646 - 45° Cable Lug	K32	Kellems Grip 32 (1.750 - 2.000)
VFD1-7L	777 - 45° Cable Lug	K36	Kellems Grip 36 (2.000 - 2.250)
VFD1-RI	VFD Receptacle Flexible Insulator	K39	Kellems Grip 39 (2.250 - 2.437)
VFD1-RS	VFD Receptacle Flexible Braided Shield	KN24	Kellems Grip Nut #24
VFD1-RC-XX	VFD Receptacle Cap w/Chain	MC24	Mechanical Clamp #24
HC	Hose Clamp	VFD1-MPI	VFD1 Male Plug Insulator
		VD1-FPI	VFD1 Female Plug Insulator
		VFD1-BT	VFD1 Braid Trap
VFD1-FT	Female Plug Assembly Tool Set (3 piece)	VFD1-PC-XX	VFD1 Plug Cap w/Chain
VFD1-MT	Male Plug Assembly Tool Set (2 piece)	VFD1-CA-XX	VFD1 Cable Adapter
		VFD1-CN-XX	VFD1 Coupling Nut

VFD-1® Female Assembly Tool

- Complete Three Piece Set
- Allows quick and easy installation of both front and rear retaining rings.
- Made of 316 Stainless Steel for Durability
- Allows field repair of VFD cables



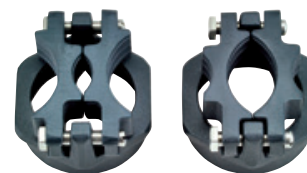
VFD-1® Male Assembly Tool

- Complete Two Piece Set
- Allows quick and easy installation of retaining rings.
- Made of 316 Stainless Steel for Durability
- Allows field repair of VFD cables



Mechanical Clamp

Has a dual holding pattern. One size for larger cables, reverse it and it accommodates smaller cables more effectively.



Kellems® Grip

Provides extra protection from high tensile loads on cables.



*Kellems®, is a Registered Trademark of Hubbell Inc.

CONNECTORS



NOTES

Lined area for taking notes, consisting of multiple horizontal lines.



VANTAGE

PRODUCT OVERVIEWS

XP STAR★LINE
Aluminum Victory 'GD'
Series Power Connectors
Quick Disconnect

2 Pole, 3 Wire; 3 Pole, 4 Wire
 3 Pole, 4 Wire + 2 Relays; 4 Pole, 5 Wire

Class I, Div. 1, Groups B, C & D
 30, 60, 100 and 200 AMPS
 600 VAC, 60/400 Hz
 Standard and Reverse Service
 Circuit Breaking

II 2 G D, Ex d IIC
 -20°C ≤ Ta ≤ +50°C
 IP 66/67 T70°C.
 32, 63, 125 and 260 AMPS
 1000 Vac / 500 Vdc; 50/60/400 Hz

XP STAR★LINE
Aluminum Victory 'AF'
Series Control Connectors

10 thru 100 Contacts
 18-12 AWG
 Silver or Gold Plated Contacts
 Standard and Reverse Service
 Quick Disconnect

Class I, Div. 1, Groups B, C & D
 250 VAC Circuit Breaking
 480 VAC Non-Circuit Breaking
 60/400 Hz

II 2 G D, Ex d IIC
 -20°C ≤ Ta ≤ +50°C
 IP 66/67 T70°C.
 10, 15, 20, and 30 AMPS
 250 VAC / 125 VDC; 50/60/400 Hz

XP STAR★LINE
Stainless Steel Millennium Series
'SD' Power & 'SF' Control Connectors
Quick Disconnect

Power & Control in Corrosion Resistant
 Stainless Steel
 Standard and Reverse Service

Class I, Div. 1, Groups B, C & D
 30, 60, 100 and 200 AMPS
 600 VAC, 60/400 Hz
 Circuit Breaking

II 2 G D, Ex d IIC
 -20°C ≤ Ta ≤ +50°C
 IP 66/67 T70°C.
 32, 63, 125 and 260 AMPS
 1000 VAC / 500 VDC; 50/60/400 Hz

Aircraft and Ground Power
Quick Disconnect

Single and Duplex
 2 Pole, 3 Wire
 3 Pole, 4 Wire
 4 Pole, 5 Wire
 3 Pole, 4 Wire + 2 Relays

30, 60, 100 & 200 AMPS
 600 VAC, 60/400 Hz
 Class I, Div. 1, Groups B, C & D
 Circuit Breaking

II 2 G D, Ex d IIB + H2
 -20°C ≤ Ta ≤ +50°C
 IP 66/67 T70°C.
 32, 63, 125 and 260 AMPS
 1000 VAC / 500 VDC; 50/60/400 Hz

STRATE LINE®
Delayed Action

Circuit Breaking Delayed Action
 Class I, Division 1, Group C & D

2 Pole, 3 Wire
 3 Pole, 4 Wire

20 Amperes, 120 or 240 VAC
 60 Hz

30 Amperes, 120 or 240 VAC;
 7 Amperes, 480 VAC
 60 Hz

STRATE LINE®
Interlocked

Interlocked Tumbler Switch
 Explosionproof and Dust-tight

Class I, Division 1, Group D;
 Class II, Division 1, Groups F and G:

2 Pole, 3 Wire
 30 Amp, 250 VAC
 1 HP, 460 VAC
 2 HP, 240 VAC

3 pole, 4 Wire
 20 Amp, 460 VAC
 30 Amp, 250 VAC
 2 HP, 240 VAC or 480 VAC

CONNECTORS

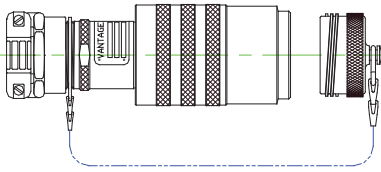
EXPLOSIONPROOF STARLINE



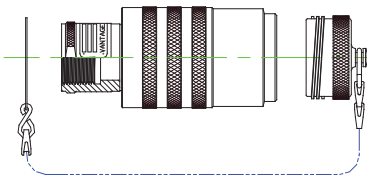
XP STARLINE FEATURES

The **Vantage** Star-Line Series of explosionproof connectors is offered in a variety of materials and configurations. Product options and an array of third party listings mean we have a solution for your application. Note, options and features may vary based on third party listing.

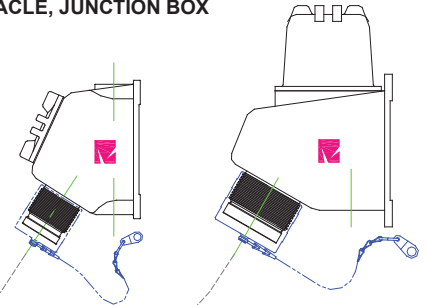
PLUG, ATTACHMENT



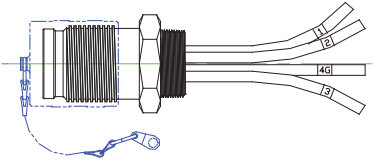
PLUG, TAPPED NPT



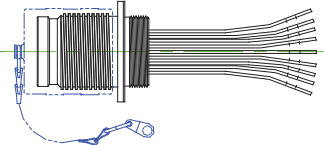
RECEPTACLE, JUNCTION BOX



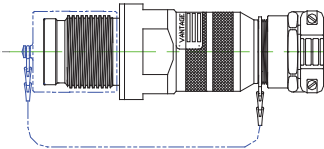
RECEPTACLE, NPT



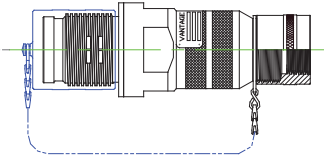
RECEPTACLE, PANEL MOUNT



RECEPTACLE, ATTACHMENT



RECEPTACLE, TAPPED NPT



Features

- **Sealing.** All junction box, NPT and panel mount receptacles are pre-wired and factory sealed eliminating the need for external seals.
- **Purged / Pressurized Systems.** Factory sealing makes our receptacles ideal for use with these technologies.

Options

- **Covers.** Environmental threaded covers are standard with all connectors.
- **Pigtails.** Receptacle leads may be ordered in any length.
- **Gender.** Connectors can be supplied with reverse service inserts when lineside power is carried in the plug to the receptacle.
- **Keying.** Inserts can be keyed for phase and voltage separation.
- **Color Coding.** Connectors may be ordered in a range of colors and combinations of color.
- **Custom Assemblies.** Are available to user's specifications.

VICTORY SERIES MACHINED, HARD ANODIZED ALUMINUM			
GD POWER PAGE CN46	II 2 GD EEx d IIC T6 IP 66/67 T 70°C	Class I, Division 1, Groups B, C & D	Class I, Division 1, Groups C & D
AF CONTROL PAGE CN48		Class II, Division 1, Groups F & G	
MILLENNIUM SERIES STAINLESS STEEL, ALLOY 316			
SD POWER PAGE CN51	II 2 GD EEx d IIC T6 IP 66/67 T 70°C	Class I, Division 1, Groups B, C & D Class II, Division 1, Groups F & G	
SF CONTROL PAGE CN51		Class I, Division 1, Groups B, C & D Class II, Division 1, Groups F & G	



FEATURES • ALUMINUM VICTORY GD SERIES POWER

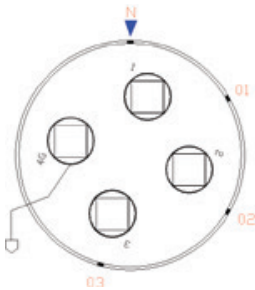


Ratings & Certifications:

- Class I, Div. 1 & 2, Groups C & D at 480VAC; 60/400 Hz, Circuit-Breaking
- US Class I, Div 1 & 2, Groups B, C & D Class II, Div.1, Groups F & G at 600VAC, 60/400 Hz, Circuit-Breaking. AEx d IIC T6
- II 2 GD Ex d IIC IP 66/67 T 70°C 1000VAC, 500VDC

PRODUCT FEATURES

- **Power Inserts:** 30 to 260 amp rated for service through 600VAC
- **Circuit-Breaking:** UL and CSA Listed to make/break at full rated load, these connectors were required to pass an overload test of 50 cycles at 150% of their ampere rating in a chamber filled with a test mixture of hazardous vapors.
- **Corrosion Resistance** Designed for corrosive environments, junction boxes are sand cast, copper-free aluminum, protected by our VanGuard baked polymer finish system. Plug and receptacle shells are machined from 6061-T6 aluminum (0.15 to 0.40% copper by weight) and finished by hard anodizing to exceed corrosion resistance requirements per MIL-STD 202, Method 101, Condition D.
- **Alternate Keyed Inserts** For added safety, inserts can be keyed in alternate positions to prevent mating of differing voltages, frequencies or services.
- **Factory Sealing** Junction box, NPT and panel-mounted receptacles are pre-wired and factory sealed. No external seals are required.
- **Insert Patterns** Grounding inserts with 3, 4, 5, and 6 contacts are described as 2 Pole 3 Wire, 3 Pole 4 Wire, 4 Pole 5 Wire, and 3 Pole 4 Wire plus 2 relay length contacts. The ground pin is longer and will make first - break last, an important safety feature.
- **Reverse Service** GD connectors were the first explosionproof connectors to secure both UL and CSA listing with reverse service inserts. Their ATEX listing also supports reverse service. This feature provides electrical safety where lineside power is carried from the plug to a receptacle.
- **Color Coding** Plugs and receptacles are available with color coding variations for specific application identification. This coding could include the plug coupling nut and cover with matching colors on various receptacle components.



INSERT GDU-28-31

KEY NUMBER	KEY POSITION
N	0°
01	60°
02	120°
03	195°

PIN NUMBER 4 IS POLARIZED



RECEPTACLE STYLES				
JUNCTION BOX	ATTACHMENT	PANEL MOUNT	NPT MOUNT	TAPPED FLEXIBLE CONDUIT

CONNECTORS

EXPLOSIONPROOF STARLINE



GD PART NUMBERS

	AMPERES		2 POLE, 3 WIRE	3 POLE, 4 WIRE	3 POLE, 4 WIRE + 2 RELAY	4 POLE, 5 WIRE
	UL	Ex				
PLUG, ATTACHMENT 	30 / 32		GD-D1016-51PL-XX	GD-D1016-23PL-XX		GD-D1020-36PL-XX
	60 / 63		GD-D1020-61PL-XX	GD-D1020-40PL-XX	GD-D1020-56PL-XX	GD-D1024-29PL-XX
	100 / 125		GD-D1024-60PL-XX	GD-D1024-39PL-XX	GD-D1024-32PL-XX	GD-D1028-23PL-XX
	200 / 260		GDU-D1028-30PL-XX	GDU-D1028-31PL-XX	GDT-D1028-42PL-XX	
PLUG, TAPPED NPT 	30 / 32		GD-D1016-51PL-TC	GD-D1016-23PL-TC		GD-D1020-36PL-TC
	60 / 63		GD-D1020-61PL-TC	GD-D1020-40PL-TC	GD-D1020-56PL-TC	GD-D1024-29PL-TC
	100 / 125		GD-D1024-60PL-TC	GD-D1024-39PL-TC	GD-D1024-32PL-TC	GD-D1028-23PL-TC
	200 / 260		GDU-D1028-30PL-TC	GDU-D1028-31PL-TC	GDT-D1028-42PL-TC	
RECEPTACLE, JUNCTION BOX 	30 / 32		GD-B1716-51SL-FH	GD-B1716-23SL-FH		GD-B1720-36SL-FH
	60 / 63		GD-B1720-61SL-FH	GD-B1720-40SL-FH	GD-B1720-56SL-FH	GD-B1724-29SL-BK
	100 / 125		GD-B1724-60SL-BK	GD-B1724-39SL-BK	GD-B1724-32SL-BK	GD-B1728-23SL-BL
	200 / 260		GDU-B1728-30SL-BL	GDU-B1728-31SL-BL	GDT-B1728-42SL-BL	
RECEPTACLE, NPT 	30 / 32		GD-B1916-51SL-L48	GD-B1916-23SL-L48		GD-B1920-36SL-L48
	60 / 63		GD-B1920-61SL-L48	GD-B1920-40SL-L48	GD-B1920-56SL-L48	GD-B1924-29SL-L48
	100 / 125		GD-B1924-60SL-L48	GD-B1924-39SL-L48	GD-B1924-32SL-L48	GD-B1928-23SL-L48
	200 / 260		GDU-B1928-30SL-L48	GDU-B1928-31SL-L48	GDT-B1928-42SL-L48	
RECEPTACLE, PANEL MOUNT 	30 / 32		GD-B1716-51SL-L36	GD-B1716-23SL-L36		GD-B1720-36SL-L36
	60 / 63		GD-B1720-61SL-L36	GD-B1720-40SL-L36	GD-B1720-56SL-L36	GD-B1724-29SL-L36
	100 / 125		GD-B1724-60SL-L36	GD-B1724-39SL-L36	GD-B1724-32SL-L36	GD-B1728-23SL-L36
	200 / 260		GDU-B1728-30SL-L36	GDU-B1728-31SL-L36	GDT-B1728-42SL-L36	
RECEPTACLE, ATTACHMENT 	30 / 32		GD-B1516-51SL-XX	GD-B1516-23SL-XX		GD-B1520-36SL-XX
	60 / 63		GD-B1520-61SL-XX	GD-B1520-40SL-XX	GD-B1520-56SL-XX	GD-B1524-29SL-XX
	100 / 125		GD-B1524-60SL-XX	GD-B1524-39SL-XX	GD-B1524-32SL-XX	GD-B1528-23SL-XX
	200 / 260		GDU-B1528-30SL-XX	GDU-B1528-31SL-XX	GDT-B1528-42SL-XX	
RECEPTACLE, TAPPED NPT 	30 / 32		GD-B1516-51SL-TC	GD-B1516-23SL-TC		GD-B1520-36SL-TC
	60 / 63		GD-B1520-61SL-TC	GD-B1520-40SL-TC	GD-B1520-56SL-TC	GD-B1524-29SL-TC
	100 / 125		GD-B1524-60SL-TC	GD-B1524-39SL-TC	GD-B1524-32SL-TC	GD-B1528-23SL-TC
	200 / 260		GDU-B1528-30SL-TC	GDU-B1528-31SL-TC	GDT-B1528-42SL-TC	

Replace 'XX' with cable diameter code number from Page CN66
 Pre-wired lead length can be specified to suit application. Consult factory
 See pages CN71 and CN77 for Part Number Code Logic



FEATURES • ALUMINUM VICTORY AF SERIES CONTROL



Ratings & Certifications:

US Class I, Div 1 & 2, Groups B, C & D
Class II, Div.1, Groups F & G
at 250VAC, 60/400 Hz, Circuit-Breaking.
Select inserts 480VAC non-circuit breaking.
AEx d IIC T6
II 2 GD Ex d IIC
IP 66/67 T 70°C.
KEMA 04ATEX2179X
250VAC, 125VDC

PRODUCT FEATURES

Control Inserts

Multi-pin inserts can be specified for either crimp or solder termination with contacts whose size and amp ratings are as follows:

PIN - SOCKET	AMPS	
	US	
#12 AWG / 4.0 mm ²	10	20
#16 AWG / 1.5 mm ²	6.5	15
#18 AWG / 1.5 mm ²	3.5	10

Circuit Breaking

AF StarLine CSA listed connectors are circuit breaking, designed and tested to make/break at full rated load – an added safety feature.

Voltage

AF Explosionproof StarLine has been tested for service through 250 VAC / 125 VDC circuit breaking; select inserts are rated 480 VAC non-circuit breaking.

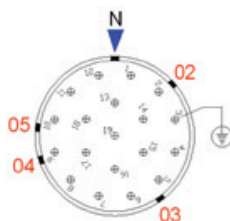
Corrosion Resistance

Designed for corrosive environments, junction boxes are sand cast, copper-free aluminum, protected by our VanGuard baked polymer finish system. Plug and receptacle shells are machined from 6061T6 aluminum and finished by hard anodizing to exceed corrosion resistance requirements per MIL-STD 202, Method 101, Condition D.

Alternate Keying

For added safety, inserts can be keyed in alternate positions to prevent mating of different voltages, frequencies or services.

KEY	POSITION
N	0°
02	48°
03	144°
04	252°
05	276°



Factory Sealing

Junction box, NPT and panel-mounted receptacles are pre-wired and factory sealed. No external seals are required.



Insert Patterns

With 15 plus inserts having 10 thru 100 contacts the AF Explosionproof StarLine stands alone as a Class I, Division 1 control connector. Inserts with the highest contact density per shell size are:

Shell 16	61 - #18 AWG contacts
Shell 20	90 - #18 AWG contacts
Shell 24	100 - #16 AWG contacts

Reverse Service

Available with all Victory and Millennium series connectors, reverse service provides electrical safety where lineside power is carried from the plug to a receptacle.

Color Coding

Plugs and receptacles are available with color coding variations for specific application identification. This coding could include the plug coupling nut and cover with matching colors on various receptacle components.

Purged / Pressurized Systems

Victory and Millennium series NPT / panel mount receptacles, with factory sealing and flat gaskets are ideal for this technology.

RECEPTACLE STYLES

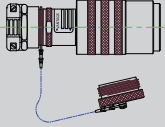
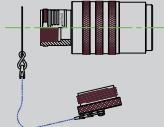



JUNCTION BOX	ATTACHMENT	PANEL MOUNT	NPT MOUNT	TAPPED FLEXIBLE CONDUIT

CONNECTORS

EXPLOSIONPROOF STARLINE





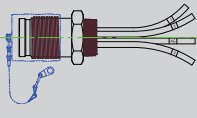
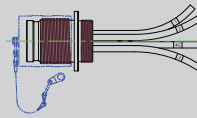
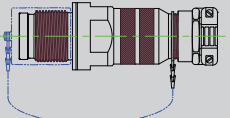
AF PART NUMBERS

PIN QUANTITY	PIN SIZE AWG (MM ²) 'G' = WITH GROUND PIN	AMPS @ 250 VAC ¹		PLUG, ATTACHMENT 	PLUG, TAPPED CONDUIT 	RECEPTACLE, JUNCTION BOX 
						
10	#12 (4.0)	10.0	20	AF-D1016-681PL-XX	AF-D1016-681PL-TC	AF-B1716-681SL-FH
10	#12 G (4.0)	10.0	20	AF-D1016-676PL-XX	AF-D1016-676PL-TC	AF-B1716-676SL-FH
19	#12 G (4.0)	10.0	20	AF-D1016-612PL-XX	AF-D1016-612PL-TC	AF-B1716-612SL-FH
19	#12 (4.0)	10.0	20	AF-D1016-677PL-XX	AF-D1016-677PL-TC	AF-B1716-677SL-FH
19	#12 (4.0)	10.0 ¹	20	AF-D1020-676PL-XX	AF-D1020-676PL-TC	AF-B1720-676SL-FH
19	#12 G (4.0)	10.0 ¹	20	AF-D1020-688PL-XX	AF-D1020-688PL-TC	AF-B1720-688SL-FH
19	#16 (1.5)	6.5	15	AF-D1016-655PL-XX	AF-D1016-655PL-TC	AF-B1716-655SL-FH
20	#12 (4.0)	10.0	20	AF-D1020-632PL-XX	AF-D1020-632PL-TC	AF-B1720-632SL-FH
20	#12 G (4.0)	10.0	20	AF-D1020-687PL-XX	AF-D1020-687PL-TC	AF-B1720-687SL-FH
37	#12 (4.0)	10.0	20	AF-D1020-686PL-XX	AF-D1020-686PL-TC	AF-B1720-686SL-FH
37	#12 G (4.0)	10.0	20	AF-D1020-650PL-XX	AF-D1020-650PL-TC	AF-B1720-650SL-FH
37	#16 (1.5)	6.5	15	AF-D1016-621PL-XX	AF-D1016-621PL-TC	AF-B1716-621SL-FH
55	#18 (.75)	3.5	10	AF-D1016-640PL-XX	AF-D1016-640PL-TC	AF-B1716-640SL-FH
61	#18 (.75)	3.5	10	AF-D1016-633PL-XX	AF-D1016-633PL-TC	AF-B1716-633SL-FH
68	#16 (1.5)	6.5	15	AF-D1020-613PL-XX	AF-D1020-613PL-TC	AF-B1720-613SL-FH
100	#16 (1.5)	5.0	15	AF-D1024-613PL-XX	AF-D1024-613PL-TC	AF-B1724-613SL-BK

Replace 'XX' with cable diameter code number from Page CN66
 Pre-wired lead length can be specified to suit application. Consult factory
 See pages CN73 and CN74 for Part Number Code Logic
¹ = Insert is also rated 480 VAC non-circuit breaking.



AF PART NUMBERS

PIN QUANTITY	PIN SIZE AWG (MM ²) 'G' = WITH GROUND PIN	AMPS @ 250 VAC ¹		RECEPTACLE, NPT	RECEPTACLE, PANEL MOUNT	RECEPTACLE, ATTACHMENT
						
10	#12 (4.0)	10.0	20	AF-B1916-681SL-L48	AF-B1716-681SL-L36	AF-B1516-681SL-XX
10	#12 G (4.0)	10.0	20	AF-B1916-676SL-L48	AF-B1716-676SL-L36	AF-B1516-676SL-XX
19	#12 G (4.0)	10.0	20	AF-B1916-612SL-L48	AF-B1716-612SL-L36	AF-B1516-612SL-XX
19	#12 (4.0)	10.0	20	AF-B1916-677SL-L48	AF-B1716-677SL-L36	AF-B1516-677SL-XX
19	#12 (4.0)	10.0 ¹	20	AF-B1920-676SL-L48	AF-B1720-676SL-L36	AF-B1520-676SL-XX
19	#12 G (4.0)	10.0 ¹	20	AF-B1920-688SL-L48	AF-B1720-688SL-L36	AF-B1520-688SL-XX
19	#16 (1.5)	6.5	15	AF-B1916-655SL-L48	AF-B1716-655SL-L36	AF-B1516-655SL-XX
20	#12 (4.0)	10.0	20	AF-B1920-632SL-L48	AF-B1720-632SL-L36	AF-B1520-632SL-XX
20	#12 G (4.0)	10.0	20	AF-B1920-687SL-L48	AF-B1720-687SL-L36	AF-B1520-687SL-XX
37	#12 (4.0)	10.0	20	AF-B1920-686SL-L48	AF-B1720-686SL-L36	AF-B1520-686SL-XX
37	#12 G (4.0)	10.0	20	AF-B1920-650SL-L48	AF-B1720-650SL-L36	AF-B1520-650SL-XX
37	#16 (1.5)	6.5	15	AF-B1916-621SL-L48	AF-B1716-621SL-L36	AF-B1516-621SL-XX
55	#18 (.75)	3.5	10	AF-B1916-640SL-L48	AF-B1716-640SL-L36	AF-B1516-640SL-XX
61	#18 (.75)	3.5	10	AF-B1916-633SL-L48	AF-B1716-633SL-L36	AF-B1516-633SL-XX
68	#16 (1.5)	6.5	15	AF-B1920-613SL-L48	AF-B1720-613SL-L36	AF-B1520-613SL-XX
100	#16 (1.5)	5.0	15	AF-B1924-613SL-L48	AF-B1724-613SL-L36	AF-B1524-613SL-XX

Replace 'XX' with cable diameter code number from Page CN66
 Pre-wired lead length can be specified to suit application. Consult factory
 See pages CN73 and CN74 for Part Number Code Logic
¹ = Insert is also rated 480 VAC non-circuit breaking.

CONNECTORS

EXPLOSIONPROOF STARLINE




FEATURES • STAINLESS STEEL MILLENNIUM SD POWER & SF CONTROL SERIES



Ratings & Certifications:

 **Class I, Div 1 & 2, Groups B, C & D**
Class II, Div.1, Groups F & G, 60/400 Hz,
Circuit-Breaking.
Power: 1000VAC, 500VDC
Control: 250VAC, 125VDC
Select inserts 480VAC non-circuit breaking.
AEx d IIC T6
  **II 2 GD Ex d IIC T6 IP 66/67 70°C.**
KEMA 04ATEX2179X 50/60/400 Hz

PRODUCT FEATURES

Corrosion Resistance

Designed for corrosive environments, junction boxes are sand cast, copper-free aluminum, protected by our VanGuard baked polymer finish system. Plug and receptacle shells are machined from stainless steel, alloy 316.



Control Inserts

There are over 15 - with as few as 10 and as many as 100 contacts. Grounding and non-grounding types are available. Multi-pin inserts can be crimp or solder terminated. Inserts with the highest contact density per shell size are:

Shell 16	61 - #18 AWG contacts
Shell 20	90 - #18 AWG contacts
Shell 24	100 - #16 AWG contacts

Circuit-Breaking

CSA lists the Millennium Series to make/break at full rated load. These connectors were required to pass an overload test of 50 cycles at 150% of their ampere rating in a chamber filled with a mixture of hazardous vapors. ATEX listings certify a higher amperage rating because in the CENELEC scheme circuits are not to be made or broken under load.

PIN - SOCKET WIRE SIZE	AMPS	
		
18 AWG (.75 mm ²)	3.5	10
16 AWG (1.5 mm ²)	6.5	15
12 AWG (4.0 mm ²)	10	20
8 AWG / (10 mm ²)	30	32
4 AWG / (25 mm ²)	60	63
1/0 AWG / (55 mm ²)	100	125
4/0 (120 mm ²)	200	260

Contact Plating Options

Control contact plating options include: silver, gold over silver and gold over nickel. Thermocouple contacts are also available.

Color Coding

Plugs and receptacles are available with color coding variations for specific application identification. This coding could include the plug coupling nut and cover with matching colors on various receptacle components.

Power Inserts

30/32, 60/63, 100/125 and 200/260 amp rated for service through 1000 VAC and designed for Class I and II Areas, per the U.S. and Canadian electrical codes and Zone 1 Areas per the ATEX Directive.

Voltage

Control connectors tested for service through 250 VAC / 125 VDC, select inserts through 480 VAC non-circuit breaking. Power connectors have been tested for service through 600 VAC (CSA) & 1000 VAC / 500 VDC (KEMA)

Frequency

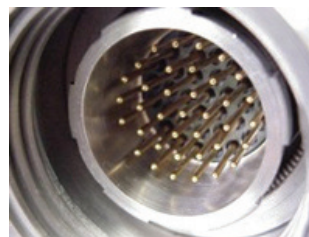
Tested at both 60 and 400 Hz. This feature is of paramount importance at airports and aircraft maintenance facilities around the world. Users include Boeing, Lockheed Martin, McDonnell Douglas, United, TWA, Delta, Air Canada, El Al and the C5A Military Program.

Factory Sealing

Junction box, NPT and panel-mounted receptacles are pre-wired and factory sealed. No external seals are required.

Reverse Service

This feature, available with all connectors, ensures electrical safety where lineside power is carried from the plug to a receptacle.





SD PART NUMBERS

	AMPERES		2 POLE, 3 WIRE	3 POLE, 4 WIRE	3 POLE, 4 WIRE + 2 RELAY	4 POLE, 5 WIRE
PLUG, ATTACHMENT 	30 / 32		SD-D1016-51PL-XX	SD-D1016-23PL-XX		SD-D1020-36PL-XX
	60 / 63		SD-D1020-61PL-XX	SD-D1020-40PL-XX	SD-D1020-56PL-XX	SD-D1024-29PL-XX
	100 / 125		SD-D1024-60PL-XX	SD-D1024-39PL-XX	SD-D1024-32PL-XX	SD-D1028-23PL-XX
	200 / 260		SDU-D1028-30PL-XX	SDU-D1028-31PL-XX	SDT-D1028-42PL-XX	
PLUG, TAPPED NPT 	30 / 32		SD-D1016-51PL-TC	SD-D1016-23PL-TC		SD-D1020-36PL-TC
	60 / 63		SD-D1020-61PL-TC	SD-D1020-40PL-TC	SD-D1020-56PL-TC	SD-D1024-29PL-TC
	100 / 125		SD-D1024-60PL-TC	SD-D1024-39PL-TC	SD-D1024-32PL-TC	SD-D1028-23PL-TC
	200 / 260		SDU-D1028-30PL-TC	SDU-D1028-31PL-TC	SDT-D1028-42PL-TC	
RECEPTACLE, JUNCTION BOX 	30 / 32		SD-B1716-51SL-FH	SD-B1716-23SL-FH		SD-B1720-36SL-FH
	60 / 63		SD-B1720-61SL-FH	SD-B1720-40SL-FH	SD-B1720-56SL-FH	SD-B1724-29SL-BK
	100 / 125		SD-B1724-60SL-BK	SD-B1724-39SL-BK	SD-B1724-32SL-BK	SD-B1728-23SL-BL
	200 / 260		SDU-B1728-30SL-BL	SDU-B1728-31SL-BL	SDT-B1728-42SL-BL	
RECEPTACLE, NPT 	30 / 32		SD-B1916-51SL-L48	SD-B1916-23SL-L48		SD-B1920-36SL-L48
	60 / 63		SD-B1920-61SL-L48	SD-B1920-40SL-L48	SD-B1920-56SL-L48	SD-B1924-29SL-L48
	100 / 125		SD-B1924-60SL-L48	SD-B1924-39SL-L48	SD-B1924-32SL-L48	SD-B1928-23SL-L48
	200 / 260		SDU-B1928-30SL-L48	SDU-B1928-31SL-L48	SDT-B1928-42SL-L48	
RECEPTACLE, PANEL MOUNT 	30 / 32		SD-B1716-51SL-L36	SD-B1716-23SL-L36		SD-B1720-36SL-L36
	60 / 63		SD-B1720-61SL-L36	SD-B1720-40SL-L36	SD-B1720-56SL-L36	SD-B1724-29SL-L36
	100 / 125		SD-B1724-60SL-L36	SD-B1724-39SL-L36	SD-B1724-32SL-L36	SD-B1728-23SL-L36
	200 / 260		SDU-B1728-30SL-L36	SDU-B1728-31SL-L36	SDT-B1728-42SL-L36	
RECEPTACLE, ATTACHMENT 	30 / 32		SD-B1516-51SL-XX	SD-B1516-23SL-XX		SD-B1520-36SL-XX
	60 / 63		SD-B1520-61SL-XX	SD-B1520-40SL-XX	SD-B1520-56SL-XX	SD-B1524-29SL-XX
	100 / 125		SD-B1524-60SL-XX	SD-B1524-39SL-XX	SD-B1524-32SL-XX	SD-B1528-23SL-XX
	200 / 260		SDU-B1528-30SL-XX	SDU-B1528-31SL-XX	SDT-B1528-42SL-XX	
RECEPTACLE, TAPPED NPT 	30 / 32		SD-B1516-51SL-TC	SD-B1516-23SL-TC		SD-B1520-36SL-TC
	60 / 63		SD-B1520-61SL-TC	SD-B1520-40SL-TC	SD-B1520-56SL-TC	SD-B1524-29SL-TC
	100 / 125		SD-B1524-60SL-TC	SD-B1524-39SL-TC	SD-B1524-32SL-TC	SD-B1528-23SL-TC
	200 / 260		SDU-B1528-30SL-TC	SDU-B1528-31SL-TC	SDT-B1528-42SL-TC	

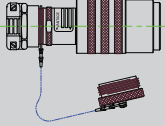
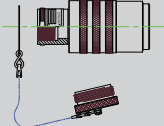
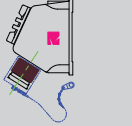


Replace 'XX' with cable diameter code number from Page CN66
 Pre-wired lead length can be specified to suit application. Consult factory
 See pages CN71 and CN72 for Part Number Code Logic

CONNECTORS

EXPLOSIONPROOF STARLINE





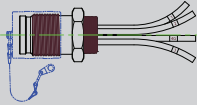
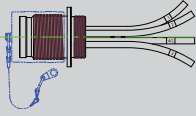
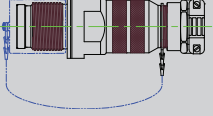
SF PART NUMBERS

PIN QUANTITY	PIN SIZE AWG (MM ²) 'G' = WITH GROUND PIN	AMPS @ 250 VAC ¹		PLUG, ATTACHMENT 	PLUG, TAPPED CONDUIT 	RECEPTACLE, JUNCTION BOX 
						
10	#12 (4.0)	10.0	20	SF-D1016-681PL-XX	SF-D1016-681PL-TC	SF-B1716-681SL-FH
10	#12 G (4.0)	10.0	20	SF-D1016-676PL-XX	SF-D1016-676PL-TC	SF-B1716-676SL-FH
19	#12 G (4.0)	10.0	20	SF-D1016-612PL-XX	SF-D1016-612PL-TC	SF-B1716-612SL-FH
19	#12 (4.0)	10.0	20	SF-D1016-677PL-XX	SF-D1016-677PL-TC	SF-B1716-677SL-FH
19	#12 (4.0)	10.0 ¹	20	SF-D1020-676PL-XX	SF-D1020-676PL-TC	SF-B1720-676SL-FH
19	#12 G (4.0)	10.0 ¹	20	SF-D1020-688PL-XX	SF-D1020-688PL-TC	SF-B1720-688SL-FH
19	#16 (1.5)	6.5	15	SF-D1016-655PL-XX	SF-D1016-655PL-TC	SF-B1716-655SL-FH
20	#12 (4.0)	10.0	20	SF-D1020-632PL-XX	SF-D1020-632PL-TC	SF-B1720-632SL-FH
20	#12 G (4.0)	10.0	20	SF-D1020-687PL-XX	SF-D1020-687PL-TC	SF-B1720-687SL-FH
37	#12 (4.0)	10.0	20	SF-D1020-686PL-XX	SF-D1020-686PL-TC	SF-B1720-686SL-FH
37	#12 G (4.0)	10.0	20	SF-D1020-650PL-XX	SF-D1020-650PL-TC	SF-B1720-650SL-FH
37	#16 (1.5)	6.5	15	SF-D1016-621PL-XX	SF-D1016-621PL-TC	SF-B1716-621SL-FH
55	#18 (.75)	3.5	10	SF-D1016-640PL-XX	SF-D1016-640PL-TC	SF-B1716-640SL-FH
61	#18 (.75)	3.5	10	SF-D1016-633PL-XX	SF-D1016-633PL-TC	SF-B1716-633SL-FH
68	#16 (1.5)	6.5	15	SF-D1020-613PL-XX	SF-D1020-613PL-TC	SF-B1720-613SL-FH
100	#16 (1.5)	5.0	15	SF-D1024-613PL-XX	SF-D1024-613PL-TC	SF-B1724-613SL-BK

Replace 'XX' with cable diameter code number from Page CN66
 Pre-wired lead length can be specified to suit application. Consult factory
 See pages CN73 and CN74 for Part Number Code Logic
¹ = Insert is also rated 480 VAC non-circuit breaking.



SF PART NUMBERS CONTINUED

PIN QUANTITY	PIN SIZE AWG (MM ²) 'G' = WITH GROUND PIN	AMPS @ 250 VAC ¹		RECEPTACLE, NPT	RECEPTACLE, PANEL MOUNT	RECEPTACLE, ATTACHMENT
						
10	#12 (4.0)	10.0	20	SF-B1916-681SL-L48	SF-B1716-681SL-L36	SF-B1516-681SL-XX
10	#12 G (4.0)	10.0	20	SF-B1916-676SL-L48	SF-B1716-676SL-L36	SF-B1516-676SL-XX
19	#12 G (4.0)	10.0	20	SF-B1916-612SL-L48	SF-B1716-612SL-L36	SF-B1516-612SL-XX
19	#12 (4.0)	10.0	20	SF-B1916-677SL-L48	SF-B1716-677SL-L36	SF-B1516-677SL-XX
19	#12 (4.0)	10.0 ¹	20	SF-B1920-676SL-L48	SF-B1720-676SL-L36	SF-B1520-676SL-XX
19	#12 G (4.0)	10.0 ¹	20	SF-B1920-688SL-L48	SF-B1720-688SL-L36	SF-B1520-688SL-XX
19	#16 (1.5)	6.5	15	SF-B1916-655SL-L48	SF-B1716-655SL-L36	SF-B1516-655SL-XX
20	#12 (4.0)	10.0	20	SF-B1920-632SL-L48	SF-B1720-632SL-L36	SF-B1520-632SL-XX
20	#12 G (4.0)	10.0	20	SF-B1920-687SL-L48	SF-B1720-687SL-L36	SF-B1520-687SL-XX
37	#12 (4.0)	10.0	20	SF-B1920-686SL-L48	SF-B1720-686SL-L36	SF-B1520-686SL-XX
37	#12 G (4.0)	10.0	20	SF-B1920-650SL-L48	SF-B1720-650SL-L36	SF-B1520-650SL-XX
37	#16 (1.5)	6.5	15	SF-B1916-621SL-L48	SF-B1716-621SL-L36	SF-B1516-621SL-XX
55	#18 (.75)	3.5	10	SF-B1916-640SL-L48	SF-B1716-640SL-L36	SF-B1516-640SL-XX
61	#18 (.75)	3.5	10	SF-B1916-633SL-L48	SF-B1716-633SL-L36	SF-B1516-633SL-XX
68	#16 (1.5)	6.5	15	SF-B1920-613SL-L48	SF-B1720-613SL-L36	SF-B1520-613SL-XX
100	#16 (1.5)	5.0	15	SF-B1924-613SL-L48	SF-B1724-613SL-L36	SF-B1524-613SL-XX

Replace 'XX' with cable diameter code number from Page CN66
 Pre-wired lead length can be specified to suit application. Consult factory
 See pages CN73 and CN74 for Part Number Code Logic
¹ = Insert is also rated 480 VAC non-circuit breaking.

CONNECTORS

EXPLOSIONPROOF STARLINE



FEATURES • GROUND POWER & AIRCRAFT CONNECTORS



Ratings & Certifications:

- Class I, Groups C & D. 480VAC, 60/400 Hz, Circuit-Breaking.**
- US Class I, Groups B, C & D and Class II, Groups F & G 600VAC, 60/400 Hz, Circuit-Breaking.**
- II 2 G D , Ex d IIB + H2 IP66/67 T70 KEMA04ATEX2179X 50/60/400 Hz; 1000VAC, 500VDC**

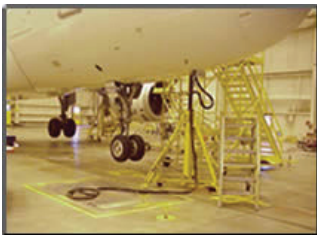
Hangar Ground Power Receptacle

Vantage Ground Power receptacles mount flush into the concrete deck of an aircraft hangar or service apron. Cast from nodular iron for increased strength and durability, each unit is available with one or two power receptacles mounted in the intermediate cover. Power receptacles are rated at 30, 60, 100 or 200 amps at 50/60/400 Hz.

- Single or duplex receptacle combinations available
- Explosionproof pushbuttons and pilot lights for point-of-use control.
- Color coded covers and conduit entries to customer specifications.
- Unique drainage system prevents pooling around the receptacle.



ADDITIONAL CONNECTORS FOR THE AIRCRAFT INDUSTRY



Receptacles for Hangar Service Pits

Hangar pits and service outlets allow military and commercial airline operators to position electrical power in the hangar floor convenient to aircraft scheduled for maintenance. Equipped with power and/or control circuits, maintenance crews can easily use the pit receptacle to hook up portable equipment or bring power directly to the aircraft.

Receptacles for Aircraft Test Stands:

Test stands for the 767 and C5A airplanes require 30 amp, 480 VAC, 4 pole 5 wire explosion proof connectors. Panel Mount style receptacles are used to safely bring power to and from various test stand enclosures. Supplied with a flat gasket to maintain the purge within the enclosure, Panel Mount receptacles are also pre-wired and factory sealed, requiring no external seal fittings. Optional color coding and alternate keyed inserts ensure proper mating.



Receptacles for Hangar Bulkhead Mounting & Aircraft Cable Assemblies

Vantage connectors safely make and break under full rated load in the presence of jet fuel vapor and other hazardous gases. GDT connectors come complete with E & F relay pins for electrical interlock and are ideal for high ampere hangar applications rated Class I, Division 1. We combine Vantage explosionproof connectors and MS rubber-molded connectors to fabricate 400Hz Ground Support assemblies. Utilizing the E and F relay pins to create an electrical interlock, these flexible assemblies supply power directly to aircraft, mobile carts and frequency converters.



PART NUMBERS GROUND POWER

SINGLE RECEPTACLE GDS - D5L1 - 92ANMEQP

Of the many available variations we selected above example:

- GD = Class I, Division 1, Groups C-D;
- S = Red/Amber pilot lights and on/off switches;
- D5L1 = 200/260 amp, 5P 6W, 60/400 hertz keyed in the 01 position;
- 92 = single;
- ANM = Side A - 3.0" and 2.5";
- EQP = Side E - 4.0" and 3.5".

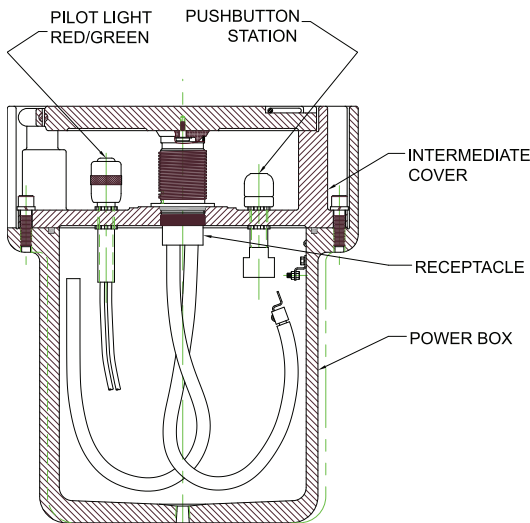
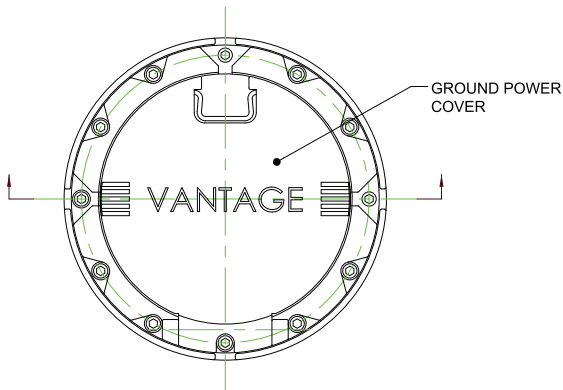
For additional part numbers see Single code logic on page CN75.
Mating plugs are listed on page CN47.

DUPLEX RECEPTACLE GD - A1B3 - 93B68DMN

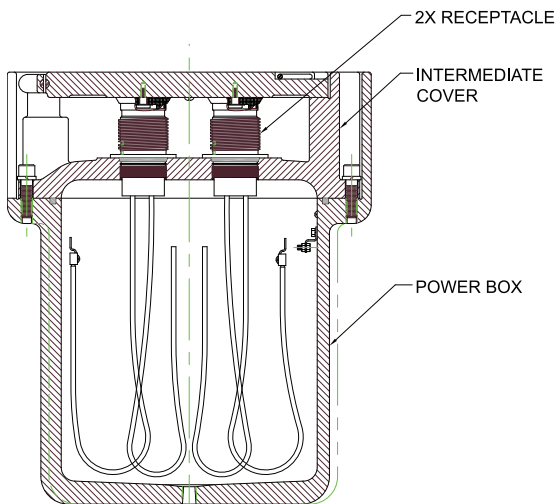
There are hundreds of variations and we selected the above example:

- GD = Class I, Division 1, Groups C-D;
- A1 = 30/32 amp, 2P 3W, 60/400 hertz;
- B3 = 60/63 amp, 3P 4W, 60/400 hertz;
- 93 = duplex;
- B68 = Side B - 1.0" and 1.5";
- DMN = Side D - 2.5" and 3.0".

For additional part numbers see Duplex code logic on page CN76.
Mating plugs are listed on page CN47.

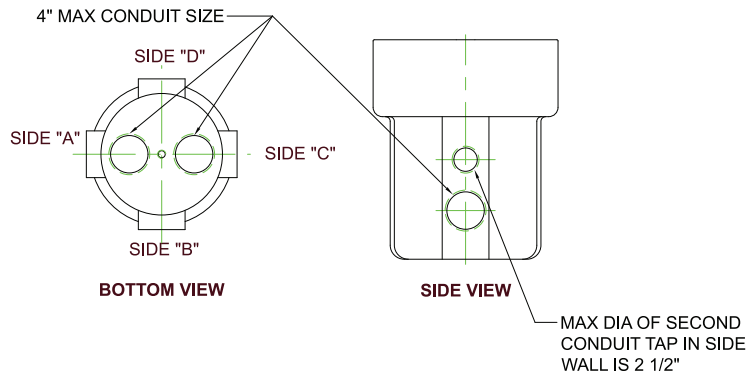


SINGLE



DUPLEX

AMPS		INSERT 600/1000 VAC, 60/400 HZ	INSERT SYMBOL	RECEPTACLE ASSEMBLY
UL	SP US			
30	32	32	2 Pole 3 Wire	GD-1716-51SL-L36
			3 Pole 4 Wire	GD-1716-23SL-L36
			4 Pole 5 Wire	GD-1720-36SL-L36
60	63	63	2 Pole 3 Wire	GD-1720-61SL-L36
			3 Pole 4 Wire	GD-1720-40SL-L36
			4 Pole 5 Wire	GD-1724-29SL-L36
100	125	125	2 Pole 3 Wire	GD-1724-60SL-L36
			3 Pole 4 Wire	GD-1724-39SL-L36
			4 Pole 5 Wire	GD-1728-23SL-L36
200	260	260	2 Pole 3 Wire	GD-1728-30SL-L36
			3 Pole 4 Wire	GDU-1728-31SL-L36
			5 Pole 6 Wire	GDT-1728-42SL-L36



CONNECTORS

EXPLOSIONPROOF STARLINE



XP STARLINE INSERT AND CONTACT FEATURES

Inserts

Vantage inserts come in power (30 thru 260 AMP) and control (10 thru 100 contacts) versions. Within these power and control versions many options are available. See depictions of inserts for electrical ratings, certifications and available key positions. Inserts are designed for simplified field termination. Power inserts feature captive contacts that utilize pressure termination. Control inserts utilize crimp contacts that are rear insertable, rear removable. Consult factory for replacements.

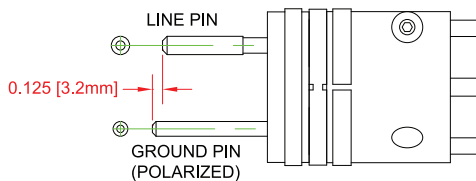
Grounding

Power inserts feature ground contacts which provide shell grounding, polarization, and make-first, break last function. Many control inserts feature ground contacts which provide shell grounding and make-first, break last function.

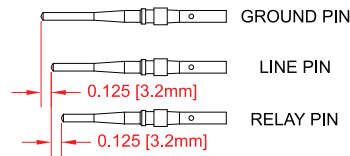
Relay Circuits

Some inserts are available with a pair of relay contacts that are shorter than all other contacts to provide a time delay during breaking and making.

POWER CONTACTS
PRESSURE TERMINATION, NON-REMOVABLE



CONTROL CONTACTS
CRIMP TERMINATION, REAR INSERTABLE - REAR REMOVABLE



Plating Options

Control contacts come standard with silver plating. Gold plating is available for added corrosion resistance. The following plating options are available.

SYMBOL	FINISH
L	Silver
K	Gold over Silver
D	Gold over Nickel

Ferrules

Ferrules are designed to serve as a compression supporting member when an undersized wire is crimp terminated into a larger contact. Ferrules are gold plated.



PART NUMBER	CONTACT SIZE AWG (MM ²) PIN OR SOCKET		
	10 (6)	12 (4)	16 (1.5)
FERRULE SIZE			
VT-70065-1012K	12		
VT-70065-1014K	14		
VT-70065-1016K	16		
VT-70065-1216K		16	
VT-70065-1218K		18	
VT-70065-1220K		20	
VT-70065-1620K			20
VT-70065-1622K			22

Example: To transition From #12 contact to #20 wire, use V-70065-1220K.

Thermocouple Contacts

AF / SF inserts with 16 AWG contacts can be ordered with thermocouple contacts.

PART NUMBER/GENDER	ISA SYMBOL	THERMOCOUPLE MATERIAL	ISA COLOR CODING			TEMPERATURE RANGE	
			(+)	(-)	JACKET	DEGREES CONTINUOUS	SHORT TIME
VT-4016-50MF / Pin	J	Iron	White	Red	Black	0-1100° C	to 1100° C
VT-4116-50MF / Socket	J						
VT-4016-50NF / Pin	J	Constantan	White	Red	Black	0-1100° C	to 1100° C
VT-4116-50NF / Socket	J						
VT-4016-50PO / Pin	K	Chromel	Yellow	Red	Yellow	0-1100° C	to 1350° C
VT-4116-50PO / Socket	K						
VT-4016-50RO / Pin	K	Alumel	Yellow	Red	Yellow	0-1100° C	to 1350° C
VT-4116-50RO / Socket	K						

Note: Iron and Alumel contacts are magnetic. Constantan and Chromel contacts are non-magnetic.

Termination Information

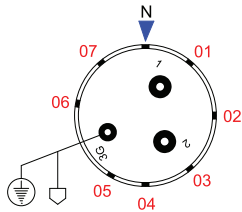
All inserts are designed for simplified field termination. Control inserts require the use of Vantage crimp tools for safe and reliable circuits. See page CN67 for more information.



XP STARLINE INSERT CONFIGURATIONS

The **Vantage Inserts** presented in this section illustrate the contact configurations available in the Star-Line series. Most inserts are available in alternate key positions to prevent the inter-mating of like configurations in your system. Power inserts (GD/SD) are designed with oversized contacts to maximize cooling. Wire size indicates maximize wire gauge that can be terminated to contact.

3 Contacts



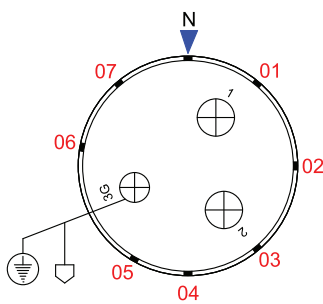
Insert Reference
 Pins: GD-16-51PL
 Sockets: GD-16-51SL

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
3	4 (25)	8 (10)	16

KEY	POSITION
N	0°
01	40°
02	90°
03	140°
04	180°
05	210°
06	280°
07	320°

	1000 VAC 50/60/400Hz Non-Circuit Breaking	32 AMP
	600 VAC 60/400Hz Circuit Breaking	30 AMP
	480 VAC 60/400Hz Circuit Breaking	30 AMP

3 Contacts



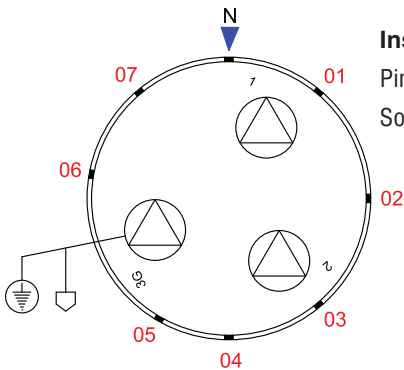
Insert Reference
 Pins: GD-20-61PL
 Sockets: GD-20-61SL

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
3	1/0 (55)	4 (25)	20

KEY	POSITION
N	0°
01	40°
02	90°
03	140°
04	180°
05	210°
06	280°
07	320°

	1000 VAC 50/60/400Hz Non-Circuit Breaking	63 AMP
	600 VAC 60/400Hz Circuit Breaking	60 AMP
	480 VAC 60/400Hz Circuit Breaking	60 AMP

3 Contacts



Insert Reference
 Pins: GD-24-60PL
 Sockets: GD-24-60SL

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
3	4/0 (120)	1/0 (55)	24

KEY	POSITION
N	0°
01	40°
02	90°
03	140°
04	180°
05	210°
06	280°
07	320°

	1000 VAC 50/60/400Hz Non-Circuit Breaking	125 AMP
	600 VAC 60/400Hz Circuit Breaking	100 AMP
	480 VAC 60/400Hz Circuit Breaking	100 AMP

View Shown: Male insert (pins) from front of connector. The female insert (sockets) view is mirrored.

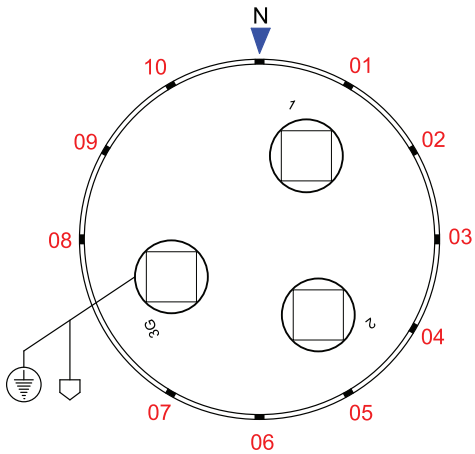
Symbol: Contact grounded to connector shell. Ground pins are longer to make first - break last.	CONTACT SYMBOLS	CONTACT SYMBOLS									
		 PRESSURE CRIMP	 	○	●	⊕	○	⦿	⦿	⊕	⊕
CONTACT SIZE	AWG	18	16	12	10	8	4	1/0	4/0	350 MCM	
	mm ²	0.75	1.5	4	6	10	25	55	120	185	
WIRE SIZE	AWG	18	16	12	10	8	8	4	1/0	4/0	
	mm ²	0.75	1.5	4	6	10	10	25	55	120	

CONNECTORS

EXPLOSIONPROOF STARLINE



XP STARLINE INSERT CONFIGURATIONS



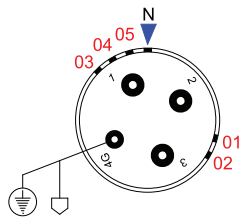
Insert Reference
 Pins: GD-28-30PL
 Sockets: GD-28-30SL

3 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
3	350 MCM (185)	4/0 (120)	28

	1000 VAC 50/60/400Hz Non-Circuit Breaking	260 AMP
	600 VAC 60/400Hz Circuit Breaking	200 AMP
	480 VAC 60/400Hz Circuit Breaking	200 AMP

KEY	POSITION
N	0°
01	40°
02	90°
03	140°
04	180°
05	210°
06	280°
07	320°
08	270°
09	300°
10	330°



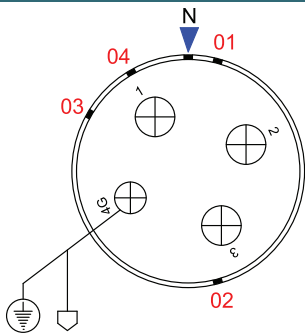
Insert Reference
 Pins: GD-16-23PL
 Sockets: GD-16-23SL

4 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
4	4 (25)	8 (10)	16

	1000 VAC 50/60/400Hz Non-Circuit Breaking	32 AMP
	600 VAC 60/400Hz Circuit Breaking	30 AMP
	480 VAC 60/400Hz Circuit Breaking	30 AMP

KEY	POSITION
N	0°
01	105°
02	120°
03	315°
04	330°
05	345°



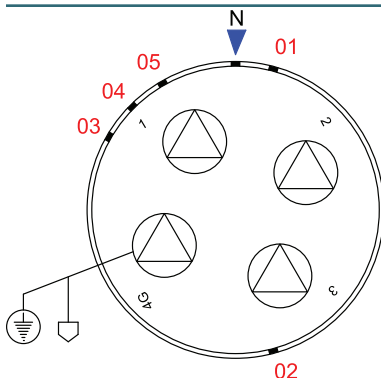
Insert Reference
 Pins: GD-20-40PL
 Sockets: GD-20-40SL

4 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
4	1/0 (55)	4 (25)	20

	1000 VAC 50/60/400Hz Non-Circuit Breaking	63 AMP
	600 VAC 60/400Hz Circuit Breaking	60 AMP
	480 VAC 60/400Hz Circuit Breaking	60 AMP

KEY	POSITION
N	0°
01	15°
02	165°
03	300°
04	330°



Insert Reference
 Pins: GD-24-39PL
 Sockets: GD-24-39SL

4 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
4	4/0 (120)	1/0 (55)	24

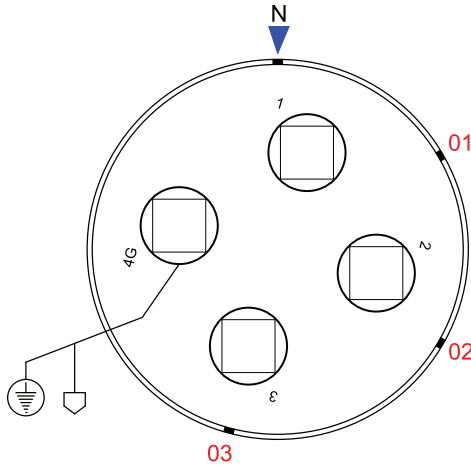
	1000 VAC 50/60/400Hz Non-Circuit Breaking	125 AMP
	600 VAC 60/400Hz Circuit Breaking	100 AMP
	480 VAC 60/400Hz Circuit Breaking	100 AMP

KEY	POSITION
N	0°
01	15°
02	165°
03	300°
04	315°
05	330°



XP STARLINE INSERT CONFIGURATIONS

4 Contacts



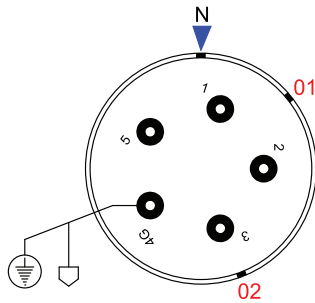
Insert Reference
 Pins: GDU-28-31PL
 Sockets: GDU-28-31SL

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
4	350 MCM (185)	4/0 (120)	28

KEY	POSITION
N	0°
01	60°
02	120°
03	195°

	1000 VAC 50/60/400Hz Non-Circuit Breaking	260 AMP
	600 VAC 60/400Hz Circuit Breaking	200 AMP
	480 VAC 60/400Hz Circuit Breaking	200 AMP

5 Contacts



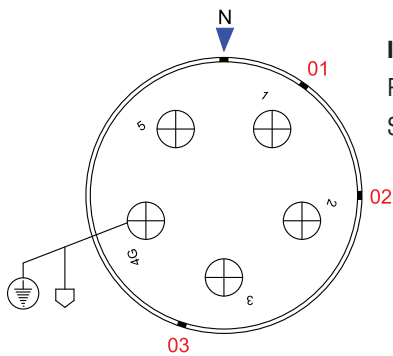
Insert Reference
 Pins: GD-20-36PL
 Sockets: GD-20-36SL

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
5	4 (25)	8 (10)	20

KEY	POSITION
N	0°
01	51°
02	159°

	1000 VAC 50/60/400Hz Non-Circuit Breaking	32 AMP
	600 VAC 60/400Hz Circuit Breaking	30 AMP
	480 VAC 60/400Hz Circuit Breaking	30 AMP

5 Contacts



Insert Reference
 Pins: GD-24-29PL
 Sockets: GD-24-29SL

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
5	1/0 (55)	4 (25)	24

KEY	POSITION
N	0°
01	36°
02	90°
03	198°

	1000 VAC 50/60/400Hz Non-Circuit Breaking	63 AMP
	600 VAC 60/400Hz Circuit Breaking	60 AMP
	480 VAC 60/400Hz Circuit Breaking	60 AMP

View Shown: Male insert (pins) from front of connector. The female insert (sockets) view is mirrored.

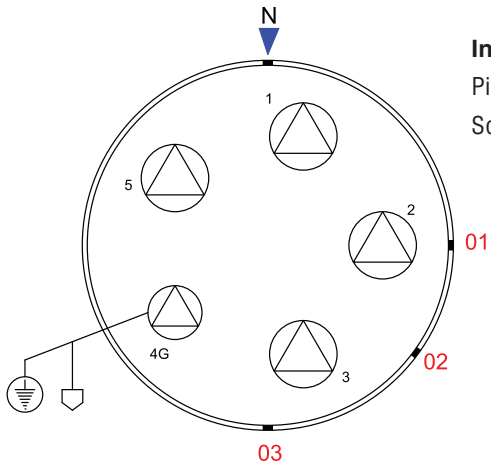
Symbol: Contact grounded to connector shell. Ground pins are longer to make first - break last.	PRESSURE CRIMP 	CONTACT SYMBOLS		○	●	⊕	○	⦿	⦿	⊕	△	□
		CONTACT SIZE	AWG	18	16	12	10	8	4	1/0	4/0	350 MCM
		mm ²		0.75	1.5	4	6	10	25	55	120	185
		WIRE SIZE	AWG	18	16	12	10	8	8	4	1/0	4/0
		mm ²		0.75	1.5	4	6	10	10	25	55	120

CONNECTORS

EXPLOSIONPROOF STARLINE



XP STARLINE INSERT CONFIGURATIONS



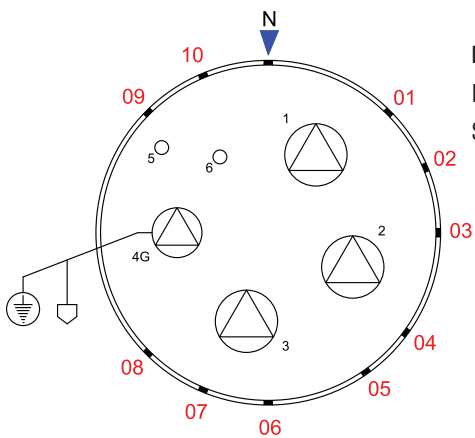
Insert Reference
 Pins: GD-28-23PL
 Sockets: GD-28-23SL

5 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
5	4/0 (120)	1/0 (55)	28

	1000 VAC 50/60/400Hz Non-Circuit Breaking	125 AMP
	600 VAC 60/400Hz Circuit Breaking	100 AMP
	480 VAC 60/400Hz Circuit Breaking	100 AMP

KEY	POSITION
N	0°
01	90°
02	126°
03	180°



Insert Reference
 Pins: GD-28-42PL
 Sockets: GD-28-42SL

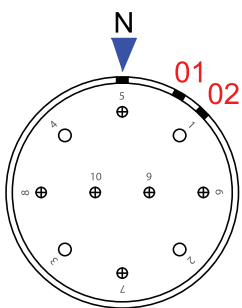
6 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	WIRE AWG (MM ²)	SHELL SIZE
4	4/0 (120)	4/0 (120)	28
2	10 (6)	10 (6)	

	1000 VAC 50/60/400Hz Non-Circuit Breaking	260 AMP
	600 VAC 60/400Hz Circuit Breaking	200 AMP
	480 VAC 60/400Hz Circuit Breaking	200 AMP

KEY	POSITION
N	0°
01	45°
02	67.5°
03	90°
04	126°
05	145°
06	180°
07	202.5°
08	225°
09	315°
10	337.5°

NOTE: Relay pins 5 & 6 are shorter to make last / break first



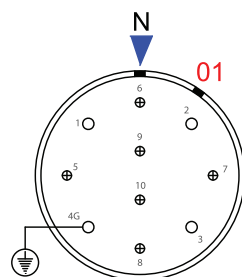
Insert Reference
 Pins: VT-16-681PL
 Sockets: VT-16-681SL

10 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	SHELL SIZE
6	12 (4.0)	16
4	10 (6.0)	

	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	63 AMP
	250 VAC 60Hz Circuit Breaking	60 AMP

KEY	POSITION
N	0°
01	30°
02	45°



Insert Reference
 Pins: VT-16-676PL
 Sockets: VT-16-676SL

10 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	SHELL SIZE
6	12 (4.0)	16
4	10 (6.0)	

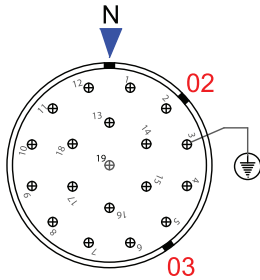
	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	20/30 AMP
	250 VAC 60Hz Circuit Breaking	10 AMP

KEY	POSITION
N	0°
01	30°



XP STARLINE INSERT CONFIGURATIONS

19 Contacts



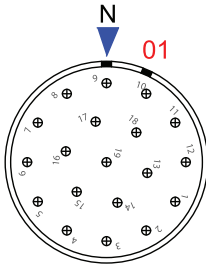
Insert Reference

Pins: VT-16-612PL

Sockets: VT-16-612SL

CONTACT QUANTITY		CONTACT AWG (MM ²)		SHELL SIZE	
19		12 (4)		16	
	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	20 AMP		KEY	POSITION
					250 VAC 60Hz Circuit Breaking
				N	0°
				02	48°
				03	144°

19 Contacts



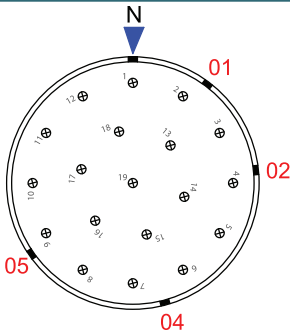
Insert Reference

Pins: VT-16-677PL

Sockets: VT-16-677SL

CONTACT QUANTITY		CONTACT AWG (MM ²)		SHELL SIZE	
19		12 (4)		16	
	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	20 AMP		KEY	POSITION
					250 VAC 60Hz Circuit Breaking
				N	0°
				01	24°

19 Contacts



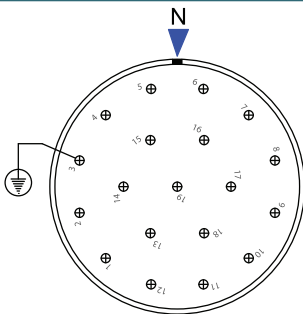
Insert Reference

Pins: VT-20-676PL

Sockets: VT-20-676SL

CONTACT QUANTITY		CONTACT AWG (MM ²)		SHELL SIZE	
19		12 (4)		20	
	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	20 AMP		KEY	POSITION
					480 VAC Non-Circuit Breaking 250 VAC Circuit Breaking 60Hz
				N	0°
				01	37°
				02	84°
				04	165°
				05	235°
				02	45°

19 Contacts



Insert Reference

Pins: VT-20-688PL

Sockets: VT-20-688SL

CONTACT QUANTITY		CONTACT AWG (MM ²)		SHELL SIZE	
19		12 (4)		20	
	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	20 AMP		KEY	POSITION
					480 VAC Non-Circuit Breaking 250 VAC Circuit Breaking 60Hz
				N	0°

View Shown: Male insert (pins) from front of connector. The female insert (sockets) view is mirrored.

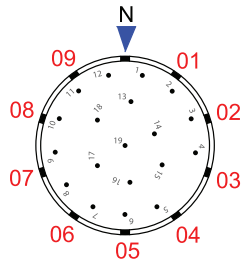
Symbol: Contact grounded to connector shell. Ground pins are longer to make first - break last.	PRESSURE CRIMP 	CONTACT SYMBOLS		○	●	⊕	○	⦿	⦿	⊕	△	□
		CONTACT SIZE	AWG	18	16	12	10	8	4	1/0	4/0	350 MCM
		mm ²	0.75	1.5	4	6	10	25	55	120	185	
		WIRE SIZE	AWG	18	16	12	10	8	8	4	1/0	4/0
		mm ²	0.75	1.5	4	6	10	10	25	55	120	

CONNECTORS

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XP STARLINE INSERT CONFIGURATIONS



Insert Reference

Pins: VT-16-655PL

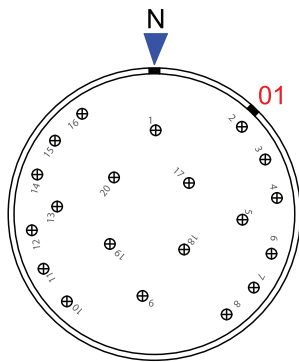
Sockets: VT-16-655SL

19 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	SHELL SIZE
19	16 (1.5)	16

	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	15 AMP
		250 VAC 60Hz Circuit Breaking

KEY	POSITION
N	0°
01	36°
02	72°
03	108°
04	144°
05	180°
06	216°
07	252°
08	288°
09	324°



Insert Reference

Pins: VT-20-632PL

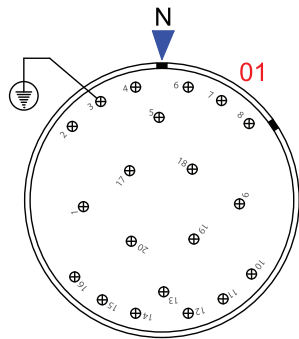
Sockets: VT-16-632SL

20 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	SHELL SIZE
20	12 (4)	20

	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	20 AMP
		250 VAC 60Hz Circuit Breaking

KEY	POSITION
N	0°
01	42.5°



Insert Reference

Pins: VT-20-687PL

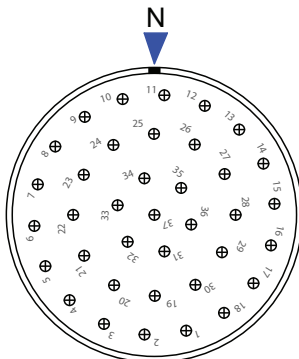
Sockets: VT-20-687SL

20 Contacts

CONTACT QUANTITY	CONTACT AWG (MM ²)	SHELL SIZE
19	12 (4)	20

	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	20 AMP
		250 VAC 60Hz Circuit Breaking

KEY	POSITION
N	0°
01	56°



Insert Reference

Pins: VT-20-686PL

Sockets: VT-20-686SL

37 Contacts

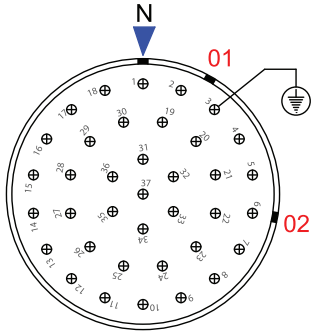
CONTACT QUANTITY	CONTACT AWG (MM ²)	SHELL SIZE
37	12 (4)	20

	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	20 AMP
		250 VAC 60Hz Circuit Breaking

KEY	POSITION
N	0°



XP STARLINE INSERT CONFIGURATIONS

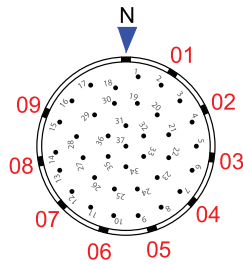


Insert Reference

Pins: VT-20-650PL
Sockets: VT-20-650SL

37 Contacts

CONTACT QUANTITY		CONTACT AWG (MM ²)		SHELL SIZE	
37		12 (4)		20	
	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	20 AMP		KEY	POSITION
		250 VAC 60Hz Circuit Breaking	10 AMP		N
				01	30°
				02	100°

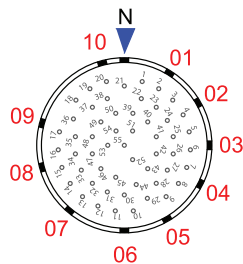


Insert Reference

Pins: VT-16-621PL
Sockets: VT-16-621SL

37 Contacts

CONTACT QUANTITY		CONTACT AWG (MM ²)		SHELL SIZE	
37		16 (1.5)		16	
	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	15 AMP		KEY	POSITION
		250 VAC 60Hz Circuit Breaking	6.5 AMP		N
				01	32.5°
				02	65°
				03	97.5°
				04	130°
				05	162.5°
				06	195°
				07	227.5°
				08	260°
				09	292.5°



Insert Reference

Pins: VT-16-640PL
Sockets: VT-16-640SL

55 Contacts

CONTACT QUANTITY		CONTACT AWG (MM ²)		SHELL SIZE	
55		18 (0.75)		16	
	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	15 AMP		KEY	POSITION
		250 VAC 60Hz Circuit Breaking	6.5 AMP		N
				01	32°
				02	60°
				03	90°
				04	117°
				05	150°
				06	180°
				07	220°
				08	255°
				09	285°
				10	345°

View Shown: Male insert (pins) from front of connector. The female insert (sockets) view is mirrored.

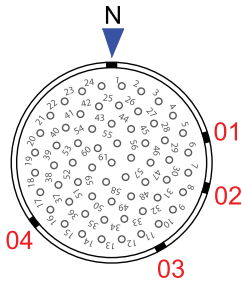
Symbol: Contact grounded to connector shell. Ground pins are longer to make first - break last.	PRESSURE CRIMP 	CONTACT SYMBOLS		○	●	⊕	○	⦿	⦿	⊕	△	□
		CONTACT SIZE	AWG	18	16	12	10	8	4	1/0	4/0	350 MCM
			mm ²	0.75	1.5	4	6	10	25	55	120	185
		WIRE SIZE	AWG	18	16	12	10	8	8	4	1/0	4/0
			mm ²	0.75	1.5	4	6	10	10	25	55	120

CONNECTORS

EXPLOSIONPROOF STARLINE



XP STARLINE INSERT CONFIGURATIONS

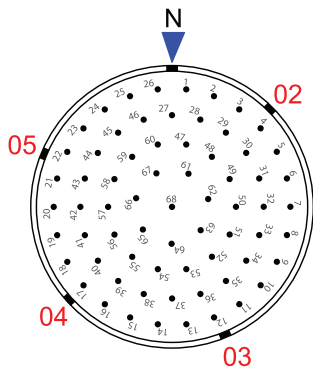


Insert Reference
 Pins: VT-16-633PL
 Sockets: VT-16-633SL

61 Contacts

CONTACT QUANTITY		CONTACT AWG (MM ²)	SHELL SIZE
61		18 (0.75)	16

	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	10 AMP	KEY	POSITION
		250 VAC 60Hz Circuit Breaking	3.5 AMP	N
				01
			02	105°
			03	150°
			04	232.5°

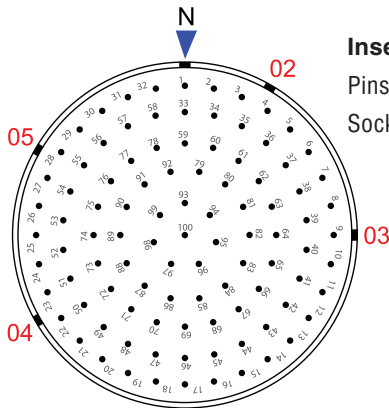


Insert Reference
 Pins: VT-20-613PL
 Sockets: VT-20-613SL

68 Contacts

CONTACT QUANTITY		CONTACT AWG (MM ²)	SHELL SIZE
68		16 (1.5)	20

	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	15 AMP	KEY	POSITION
		250 VAC 60Hz Circuit Breaking	6.5 AMP	N
				02
			03	157.5°
			04	228°
			05	292.5°



Insert Reference
 Pins: VT-24-613PL
 Sockets: VT-24-613SL

100 Contacts

CONTACT QUANTITY		CONTACT AWG (MM ²)	SHELL SIZE
100		16 (1.5)	24

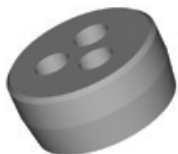
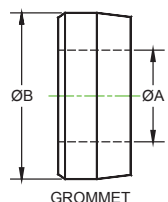
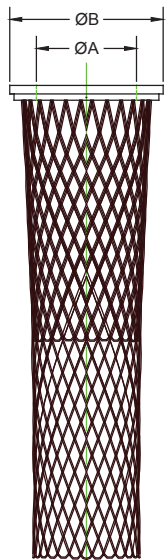
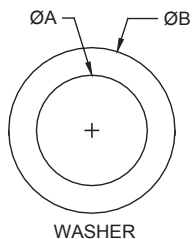
	250 VAC 50/60/400Hz 125 VDC Non-Circuit Breaking	15 AMP	KEY	POSITION
		250 VAC 60Hz Circuit Breaking	5.0 AMP	N
				02
			03	90°
			04	240°
			05	300°

View Shown: Male insert (pins) from front of connector. The female insert (sockets) view is mirrored.

Symbol: Contact grounded to connector shell. Ground pins are longer to make first - break last.	PRESSURE CRIMP	CONTACT SYMBOLS		○	●	⊕	○	⦿	⦿	⊕	△	□
		CONTACT SIZE	AWG	18	16	12	10	8	4	1/0	4/0	350 MCM
WIRE SIZE	mm ²	0.75	1.5	4	6	10	25	55	120	185		
CONTACT SIZE	AWG	18	16	12	10	8	8	4	1/0	4/0		
WIRE SIZE	mm ²	0.75	1.5	4	6	10	10	25	55	120		



XP STARLINE ENVIRONMENTAL SEALING



Specialty grommets are available for multi-hole and flat cable systems. Consult factory.



SHELL SIZE DIM B INCHES (MM)	CABLE DIAMETER DIMENSION A INCHES (MM)		CABLE DIAMETER CODE NUMBER*	GROMMET PART NUMBER	WASHER PART NUMBER	BASKET WEAVE GRIP PART NUMBER
	MIN.	MAX.				
16 1 23/32 (43.7)	.250 (6.35)	.375 (9.53)	06	VT-6316-6C	VT-8016-8E	VT-5016-6E
	.375 (9.53)	.500 (12.7)	08	VT-6316-8C		VT-5016-8E
	.500 (12.7)	.625 (15.9)	10	VT-6316-10C	VT-8016-12E	VT-5016-10E
	.625 (15.9)	.750 (19.1)	12	VT-6316-12C		VT-5016-12E
	.750 (19.1)	.875 (22.2)	14	VT-6316-14C	VT-8016-16E	VT-5016-14E
	.875 (22.2)	1.000 (25.4)	16	VT-6316-16C		VT-5016-16E
	1.000 (25.4)	1.125 (28.6)	18	VT-6316-18C	VT-8016-20E	VT-5016-18E
	1.125 (28.6)	1.250 (31.8)	20	VT-6316-20C		VT-5016-20E
	1.250 (31.8)	1.375 (34.9)	22	VT-6316-22C	VT-8016-23E	VT-5016-22E
	1.375 (34.9)	1.437 (36.5)	23	VT-6316-23C		VT-5016-23E
20 2 7/32 (56.4)	.500 (12.7)	.625 (15.9)	10	VT-6320-10C	VT-8020-12E	VT-5020-10E
	.625 (15.9)	.750 (19.1)	12	VT-6320-12C		VT-5020-12E
	.750 (19.1)	.875 (22.2)	14	VT-6320-14C	VT-8020-16E	VT-5020-14E
	.875 (22.2)	1.000 (25.4)	16	VT-6320-16C		VT-5020-16E
	1.000 (25.4)	1.125 (28.6)	18	VT-6320-18C	VT-8020-20E	VT-5020-18E
	1.125 (28.6)	1.250 (31.8)	20	VT-6320-20C		VT-5020-20E
	1.250 (31.8)	1.375 (34.9)	22	VT-6320-22C	VT-8020-24E	VT-5020-22E
	1.375 (34.9)	1.500 (38.1)	24	VT-6320-24C		VT-5020-24E
	1.500 (38.1)	1.625 (41.3)	26	VT-6320-26C	VT-8020-28E	VT-5020-26E
	1.625 (41.3)	1.750 (44.5)	28	VT-6320-28C		VT-5020-28E
24 2 23/32 (69.1)	1.750 (44.5)	1.875 (47.6)	30	VT-6320-30C	VT-8020-31E	VT-5020-30E
	1.875 (47.6)	1.937 (49.2)	31	VT-6320-31C		VT-5020-31E
	.875 (22.2)	1.000 (25.4)	16	VT-6324-16C	VT-8024-16E	VT-5024-16E
	1.000 (25.4)	1.125 (28.6)	18	VT-6324-18C		VT-5024-18E
	1.125 (28.6)	1.250 (31.8)	20	VT-6324-20C	VT-8024-20E	VT-5024-20E
	1.250 (31.8)	1.375 (34.9)	22	VT-6324-22C		VT-5024-22E
	1.375 (34.9)	1.500 (38.1)	24	VT-6324-24C	VT-8024-24E	VT-5024-24E
	1.500 (38.1)	1.625 (41.3)	26	VT-6324-26C		VT-5024-26E
	1.625 (41.3)	1.750 (44.5)	28	VT-6324-28C	VT-8024-28E	VT-5024-28E
	1.750 (44.5)	1.875 (47.6)	30	VT-6324-30C		VT-5024-30E
28 3 5/32 (80.2)	1.875 (47.6)	2.000 (50.8)	32	VT-6324-32C	VT-8024-32E	VT-5024-32E
	2.000 (50.8)	2.125 (54.0)	34	VT-6324-34C		VT-5024-34E
	2.125 (54.0)	2.250 (57.2)	36	VT-6324-36C	VT-8024-36E	VT-5024-36E
	2.250 (57.2)	2.375 (60.3)	38	VT-6324-38C		VT-5024-38E
	2.375 (60.3)	2.437 (61.9)	39	VT-6324-39C	VT-8024-39E	VT-5024-39E
	1.375 (34.9)	1.500 (38.1)	24	VT-6328-24C		VT-8028-24E
	1.500 (38.1)	1.625 (41.3)	26	VT-6328-26C	VT-5028-26E	
	1.625 (41.3)	1.750 (44.5)	28	VT-6328-28C	VT-8028-28E	VT-5028-28E
	1.750 (44.5)	1.875 (47.6)	30	VT-6328-30C		VT-5028-30E
	1.875 (47.6)	2.000 (50.8)	32	VT-6328-32C	VT-8028-32E	VT-5028-32E
2.000 (50.8)	2.125 (54.0)	34	VT-6328-34C	VT-5028-34E		
2.125 (54.0)	2.250 (57.2)	36	VT-6328-36C	VT-8028-36E	VT-5028-36E	
2.250 (57.2)	2.375 (60.3)	38	VT-6328-38C		VT-5028-38E	
2.375 (60.3)	2.500 (63.5)	40	VT-6328-40C	VT-8028-40E	VT-5028-40E	
2.500 (63.5)	2.625 (66.7)	42	VT-6328-42C		VT-5028-42E	
2.625 (66.7)	2.750 (68.9)	44	VT-6328-44C	VT-8028-44E	VT-5028-44E	
2.750 (68.9)	2.875 (73.0)	46	VT-6328-46C		VT-5028-46E	

*The cable diameter code is used to define the grommet size in the connector part number. For example, connector AF-B1516-621SL-18 comes with a size "18" grommet, for use with a cable whose diameter range is 1.000 - 1.125 inches (25.4 - 28.6mm).

CONNECTORS

EXPLOSIONPROOF STARLINE



TOOLING



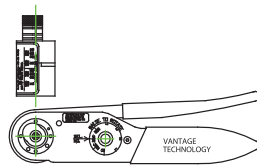
Pressure Termination for safe and reliable assembly in the field.

Vantage offers a full line of tooling to assist in the termination and assembly of our attachment plugs and receptacles. Star-Line, GD/SD Series and Strate-Line power connectors, feature pressure termination and come with all required tooling. For Star-Line control connectors, the AF/SF Series, Vantage requires using a full-cycle eight indent crimp tool. Please contact us for assistance in specifying your tooling needs.

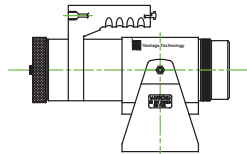
Crimp Tools



T-104-CT-K Crimp Tool Kit. Hand tool with accessories for contacts #18 through #10 (carrying case and tool inspection gage not shown).

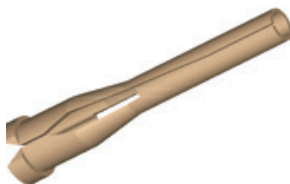


T-103-CT-K Crimp Tool Kit. Hand tool with accessories for contacts #18 through #10, shown with turret head detached (carrying case and tool inspection gage not shown).



T-105-HE, Pneumatic Crimp Tool. Available with dies, locators and inspection gages for #18 through #4/0 contacts. A foot control is also available. Operates on shop air and inert gas cylinders at 100 PSI.

Contact Extraction Tool



Pin and socket contact extraction tool for AF and SF control connectors.

CONTACT SIZE	EXTRACTION TOOL PART NUMBER
18	T-106-18
16	T-106-16
12	T-106-12
10	T-106-10

Assembly Tools

Plug Assembly Tool Furnished with plug.



SHELL SIZE	PART NUMBER	
	PLUG ASSEMBLY TOOL	PLUG DISASSEMBLY TOOL
16	T-101-16A	T-102-16R
20	T-101-20A	T-102-20R
24	T-101-24A	T-102-24R
28	T-101-28A	T-102-28R

Plug Disassembly Tool Ordered separately.



Cable Assemblies



Complete cable assemblies and receptacle distribution boxes are available incorporating Vantage Technology connectors. Please contact us regarding specification options.

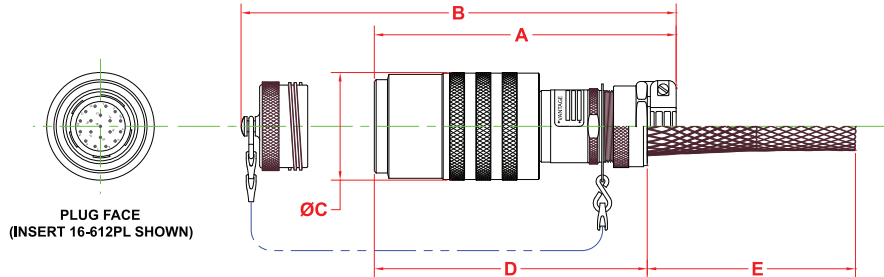


XP STARLINE DIMENSIONS

	SHELL SIZE	A INCHES ±0.3 (MM ±8)	B INCHES ±0.3 (MM ±8)	C INCHES (MM)	D INCHES ±0.3 (MM ±8)	E INCHES (MM)	WEIGHT ¹ LBS (KG)
AF/SF GD/SD BM Stainless Steel Weight Factor 2.0	16	9.3 (236)	10.3 (262)	2.977 (75.6)	8.4 (213)	3.75 - 10.25 (95 - 260)	4.0 (1.8)
	20	10.0 (254)	11.0 (279)	3.577 (90.9)	9.0 (229)	5.75 - 14.25 (146 - 362)	5.2 (2.4)
	24	10.4 (264)	11.4 (290)	4.182 (106.2)	9.4 (239)	8.25 - 17.25 (210 - 438)	7.2 (3.3)
	28	10.9 (277)	11.9 (302)	4.814 (122.3)	9.8 (249)	13.75 - 19.75 (349 - 502)	9.1 (4.1)
GB/SB GDU/SDU Stainless Steel Weight Factor 2.0	16	10.3 (262)	11.3 (287)	2.977 (75.6)	9.4 (238)	3.75 - 10.25 (95 - 260)	3.9 (1.8)
	20	11.0 (279)	12.0 (305)	3.577 (90.9)	10.0 (254)	5.75 - 14.25 (146 - 362)	6.0 (2.7)
	24	11.4 (290)	12.4 (315)	4.182 (106.2)	10.4 (264)	8.25 - 17.25 (210 - 438)	8.4 (3.8)
	28	11.9 (302)	12.9 (328)	4.814 (122.3)	10.8 (274)	13.75 - 19.75 (349 - 502)	12.1 (5.5)

Attachment Plug

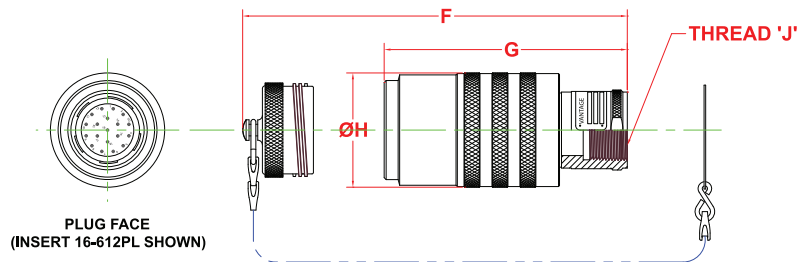
1. Weights provided for Victory Series (aluminum) with mechanical clamp configuration. Multiply by "Stainless Steel Weight Factor" to determine weight for Millennium Series (stainless steel).



	SHELL SIZE	F INCHES (MM)	G INCHES (MM)	H INCHES (MM)	NPT THREAD 'J'	WEIGHT ¹ LBS (KG)	WEIGHT ¹ LBS (KG)
AF/SF GD/SD BM Stainless Steel Weight Factor 2.4	16	7.9 (200)	6.9 (175)	2.977 (75.6)	1 ¼ - 11 ½	2.9 (1.3)	4.0 (1.8)
	20	8.2 (208)	7.2 (183)	3.577 (90.9)	1 ½ - 11 ½	4.0 (1.8)	5.2 (2.4)
	24	8.4 (213)	7.4 (188)	4.182 (106.2)	2 - 11 ½	5.4 (2.5)	7.2 (3.3)
	28	8.8 (224)	7.8 (198)	4.814 (122.3)	2 ½ - 8	7.2 (3.3)	9.1 (4.1)
GB/SB GDU/SDU Stainless Steel Weight Factor 2.4	16	8.9 (226)	7.9 (201)	2.977 (75.6)	1 ¼ - 11 ½	3.4 (1.5)	3.9 (1.8)
	20	9.2 (234)	8.2 (208)	3.577 (90.9)	1 ½ - 11 ½	5.0 (2.3)	6.0 (2.7)
	24	9.4 (239)	8.4 (213)	4.182 (106.2)	2 - 11 ½	7.4 (3.4)	8.4 (3.8)
	28	9.8 (249)	8.8 (224)	4.814 (122.3)	2 ½ - 8	9.5 (4.3)	12.1 (5.5)

NPT Tapped Plug

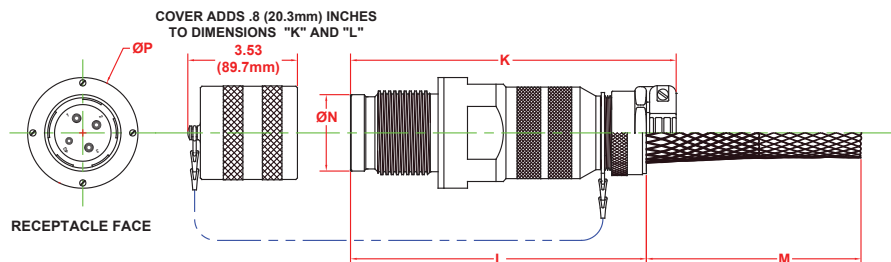
1. Weights provided for Victory Series (aluminum). Multiply by "Stainless Steel Weight Factor" to determine weight for Millennium Series (stainless steel).



	SHELL SIZE	K INCHES ±0.3 (MM ±8)	L INCHES ±0.3 (MM ±8)	M INCHES (MM)	N INCHES (MM)	P INCHES (MM)	WEIGHT ¹ LBS (KG)
AF/SF GD/SD BM Stainless Steel Weight Factor 2.0	16	10.0 (254)	9.1 (231)	3.75 - 10.25 (95 - 260)	1.969 (50.1)	3.063 (77.8)	3.4 (1.5)
	20	10.7 (272)	9.7 (246)	5.75 - 14.25 (146 - 362)	2.469 (62.7)	3.563 (90.5)	4.7 (2.1)
	24	11.1 (282)	10.1 (257)	8.25 - 17.25 (210 - 438)	2.969 (75.4)	4.188 (106.4)	6.4 (2.9)
	28	11.4 (290)	10.3 (262)	13.75 - 19.75 (349 - 502)	3.469 (88.1)	4.688 (119.1)	8.1 (3.7)
GB/SB GDU/SDU Stainless Steel Weight Factor 2.0	16	11.0 (279)	10.1 (257)	3.75 - 10.25 (95 - 260)	1.969 (50.1)	3.063 (77.8)	3.6 (1.6)
	20	11.7 (297)	10.7 (272)	5.75 - 14.25 (146 - 362)	2.469 (62.7)	3.563 (90.5)	4.9 (2.2)
	24	12.1 (307)	11.1 (282)	8.25 - 17.25 (210 - 438)	2.969 (75.4)	4.188 (106.4)	6.7 (3.0)
	28	12.4 (315)	11.3 (287)	13.75 - 19.75 (349 - 502)	3.469 (88.1)	4.688 (119.1)	8.6 (3.9)

Attachment Receptacle

1. Weights provided for Victory Series (aluminum) with mechanical clamp configuration. Multiply by "Stainless Steel Weight Factor" to determine weight for Millennium Series (stainless steel).



CONNECTORS

EXPLOSIONPROOF STARLINE



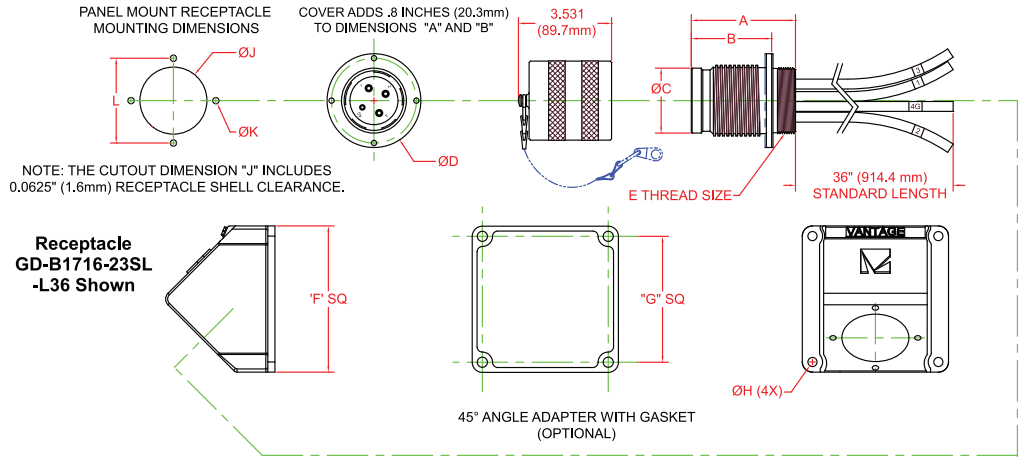
XP STARLINE DIMENSIONS

	SHELL SIZE	A INCHES' (MM)	B INCHES' (MM)	C INCHES (MM)	D INCHES (MM)	THREAD 'E' G-16UN	WEIGHT ² LBS (KG)
AF/SF GD/SD BM Stainless Steel Weight Factor 2.0	16	4.063 (103.2)	3.063 (77.8)	1.969 (50.0)	3.063 (77.8)	2	3 (1.4)
	20	4.063 (103.2)	3.063 (77.8)	2.469 (62.7)	3.563 (90.5)	2 1/2	4 (1.8)
	24	4.063 (103.2)	3.063 (77.8)	2.969 (75.4)	4.188 (106.4)	3 1/8	8 (3.6)
	28	4.063 (103.2)	3.063 (77.8)	3.469 (88.1)	4.688 (119.1)	3 5/8	13 (5.9)
GB/SB GDU/SDU Stainless Steel Weight Factor 2.0	16	5.063 (128.6)	4.063 (103.2)	1.969 (50.0)	3.063 (77.8)	2	3 (1.4)
	20	5.063 (128.6)	4.063 (103.2)	2.469 (62.7)	3.563 (90.5)	2 1/2	5 (2.3)
	24	5.063 (128.6)	4.063 (103.2)	2.969 (75.4)	4.188 (106.4)	3 1/8	8 (3.6)
	28	5.063 (128.6)	4.063 (103.2)	3.469 (88.1)	4.688 (119.1)	3 5/8	14 (6.4)

Panel Mount Receptacle

1. Subtract 0.5 inches (12.7mm) from dimensions A and B for AF/SF style.

2. Weights provided for Victory Series (aluminum). Multiply by "Stainless Steel Weight Factor" to determine weight for Millennium Series (stainless steel).



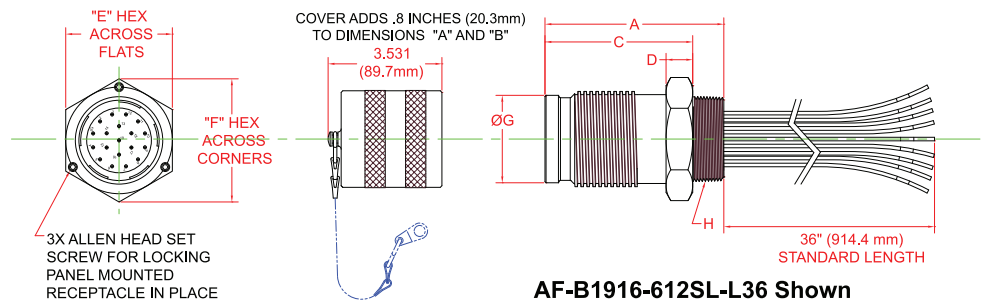
MOUNTING DIMENSIONS						
SHELL SIZE	F INCHES (MM)	G INCHES (MM)	H INCHES (MM)	J INCHES (MM)	K INCHES (MM)	L INCHES (MM)
16	4.5 (114.3)	3.875 (98.4)	0.284 (7.2)	2.063 (52.4)	0.195 (5.0)	2.610 (66.3)
20	4.5 (114.3)	3.875 (98.4)	0.284 (7.2)	2.563 (65.1)	0.195 (5.0)	3.110 (79.0)
24	8 (203.2)	7 (177.8)	0.534 (13.6)	3.063 (77.8)	0.195 (5.0)	3.735 (94.9)
28	8 (203.2)	7 (177.8)	0.534 (13.6)	3.563 (90.5)	0.195 (5.0)	4.235 (107.6)

	SHELL SIZE	M INCHES (MM)	N INCHES (MM)	P INCHES' (MM)	Q INCHES' (MM)	NPT THREAD 'R'	S INCHES (MM)	WEIGHT LBS ² (KG)
AF/SF GD/SD BM Stainless Steel Weight Factor 2.0	16	2.5 (63.5)	2.875 (73.0)	4.5 (114.3)	3.656 (92.9)	1 1/2 - 11 1/2	1.969 (50.0)	3 (1.4)
	20	3 (76.2)	3.469 (88.1)	4.531 (115.1)	3.656 (92.9)	2 - 11 1/2	2.469 (62.7)	5 (2.3)
	24	3.5 (88.9)	4.031 (102.4)	4.906 (124.6)	3.656 (92.9)	2 1/2 - 8	2.969 (75.4)	8 (3.6)
	28	4 (101.6)	4.625 (117.5)	4.969 (126.2)	3.656 (92.9)	3 - 8	3.469 (88.1)	13 (5.9)
GB/SB GDU/SDU Stainless Steel Weight Factor 2.0	16	2.5 (63.5)	2.875 (73.0)	5 (127.0)	4.156 (105.6)	1 1/2 - 11 1/2	1.969 (50.0)	3 (1.4)
	20	3 (76.2)	3.469 (88.1)	5.031 (127.8)	4.156 (105.6)	2 - 11 1/2	2.469 (62.7)	5 (2.3)
	24	3.5 (88.9)	4.031 (102.4)	5.406 (137.3)	4.156 (105.6)	2 1/2 - 8	2.969 (75.4)	9 (4.1)
	28	4 (101.6)	4.625 (117.5)	5.469 (138.9)	4.156 (105.6)	3 - 8	3.469 (88.1)	14 (6.4)

NPT Mount Receptacle

1. Subtract 0.5 inches (12.7mm) from dimensions P and Q for AF/SF style.

2. Weights provided for Victory Series (aluminum). Multiply by "Stainless Steel Weight Factor" to determine weight for Millennium Series (stainless steel).

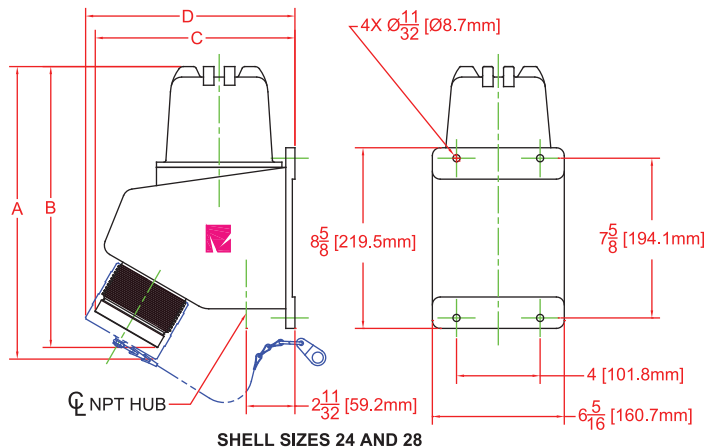
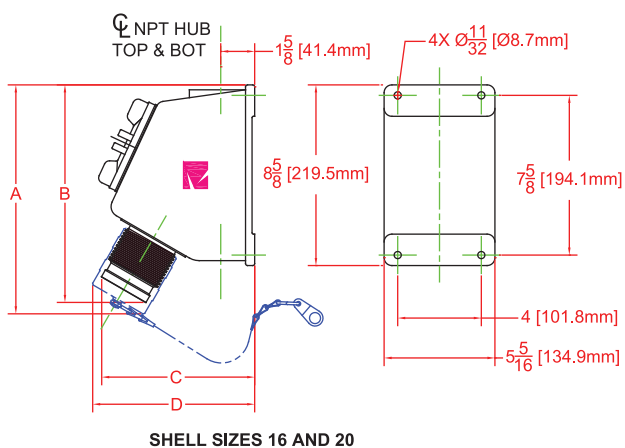




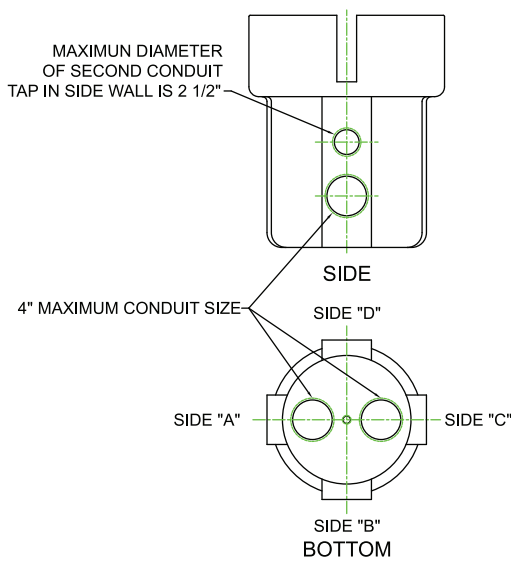
XP STARLINE DIMENSIONS

	SHELL SIZE	A INCHES (MM)	B INCHES (MM)	C INCHES (MM)	D INCHES (MM)	WEIGHT LBS! (KG)
AF/SF GD/SD BM Stainless Steel Weight Factor 2.0	16	10.063 (255.6)	10.25 (260.4)	7.375 (187.3)	7.75 (196.9)	12.9 (5.9)
	20	10.063 (255.6)	10.25 (260.4)	7.375 (187.3)	7.75 (196.9)	13.7 (6.2)
	24	14.563 (370.0)	14 (355.6)	9.688 (246.1)	10.125 (257.2)	21.9 (9.9)
	28	14.563 (370.0)	14 (355.6)	9.688 (246.1)	10.125 (257.2)	22.8 (10.3)
GB/SB GDU/SBU Stainless Steel Weight Factor 2.0	16	11.563 (293.7)	11.125 (282.6)	7.875 (200.0)	8.25 (209.6)	13.0 (5.9)
	20	11.563 (293.7)	11.125 (282.6)	7.875 (200.0)	8.25 (209.6)	13.9 (6.3)
	24	15.438 (392.1)	14.875 (377.8)	10.188 (258.8)	10.625 (269.9)	22.5 (10.2)
	28	15.438 (392.1)	14.875 (377.8)	10.188 (258.8)	10.625 (269.9)	23.2 (10.5)

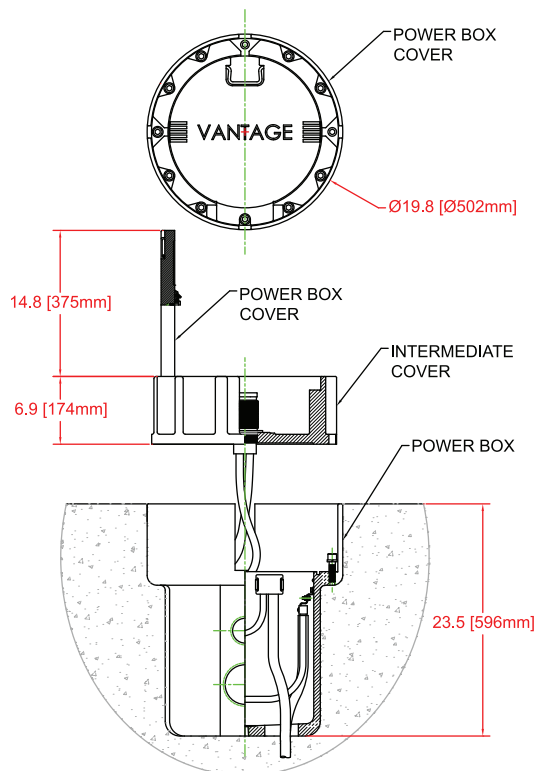
1. Weights provided for Victory Series (aluminum). Multiply by "Stainless Steel Weight Factor" to determine weight for Millennium Series (stainless steel).



Receptacle, Ground Power



WEIGHT LBS (kg)	
POWER BOX COVER	65 (29.5)
INTERMEDIATE COVER	191 (86.6)
POWER BOX	409 (185.5)
COMPLETE ASSEMBLY	665 (301.6)



CONNECTORS

EXPLOSIONPROOF STARLINE

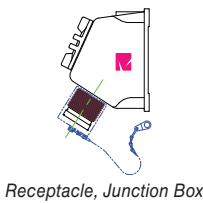


CODE LOGIC • GD & SD RECEPTACLES

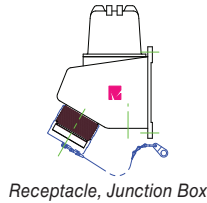
GD	-	B	17	16	-	23	S	L	01	-	FH	-	XX
1		2	3	4		5	6	7	8		9		10

- 1. Classification** GD / SD = Groups B-C-D areas & Ex d IIC T6 IP 66/67 T70°
 GDU / SDU = Groups B-C-D areas & Ex d IIC T6 IP 66/67 T70°
 GDT / SDT = Groups B-C-D areas & Ex d IIC T6 IP 66/67 T70°
- 2. Cover** B = Cover
- 3. Shell Style** 17 = Receptacle for Junction Box or Panel-mount
 19 = Receptacle for NPT-mount
- 4. Shell Size** 16 = Shell Size 16
 20 = Shell Size 20
 24 = Shell Size 24
 28 = Shell Size 28
- 5. Insert** 30 through 260 amps – through 1000 VAC. See Insert Code column in Insert Table below.
- 6. Gender** S = Female (Socket) Insert P = Male (Pin) Insert
- 7. Contact Plating** L = Silver Plate (Standard). Ground contacts are gold over silver.
- 8. Insert Keying** Blank = Normal Key Alternate = See Key Positions column in Insert Table.
- 9. Hub Accessory** See Junction Box Table Blank = Panel / 17 Style or NPT / 19 Style
- 10. Wire Lead Variation** See Wire Length Table Per customer requirements.

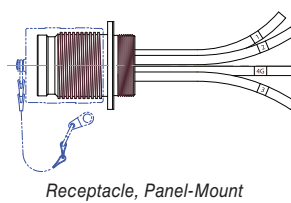
Shell Size 16 = 1 1/2" NPT
 Shell Size 20 = 2" NPT
 Shell Size 24 = 2 1/2" NPT
 Shell Size 28 = 3" NPT



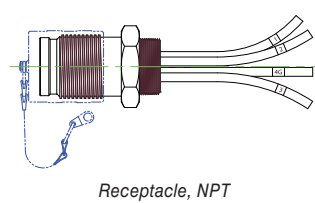
Receptacle, Junction Box



Receptacle, Junction Box



Receptacle, Panel-Mount



Receptacle, NPT

INSERT TABLE						
AMPERES			INSERT	SHELL SIZE	INSERT CODE	KEY POSITIONS ¹
UL	CS	EX				
30	c	32	2 POLE, 3 WIRE	16	51	N + 5
			3 POLE, 4 WIRE	16	23	N + 5
			4 POLE, 5 WIRE	20	36	N + 2
60	c	63	2 POLE, 3 WIRE	20	61	N + 7
			3 POLE, 4 WIRE	20	40	N + 4
			4 POLE, 5 WIRE	24	29	N + 3
100	c	125	2 POLE, 3 WIRE	24	60	N + 7
			3 POLE, 4 WIRE	24	39	N + 5
			4 POLE, 5 WIRE	28	23	N + 3
200	c	260	2 POLE, 3 WIRE	28	30	N + 9
			3 POLE, 4 WIRE	28	31	N + 10
			5 POLE 6 WIRE (3 POLE 4 WIRE and 2 relay contacts)	28	42	N + 3

1. NORMAL KEY POSITION = N; ALTERNATE KEYS = 01, 02, ETC.

WIRE LENGTH		
CODE	LENGTH	
	INCHES	METERS
L12	12	0.31
L24	24	0.61
L36	36	0.91
Etc	Etc	

JUNCTION BOX		
SHELL SIZE	CONDUIT HUB LOCATION	CONDUIT HUB SIZE (INCHES)
16 & 20	'F' TOP & BOTTOM	'H' 1 1/2" - 1 1/2" NPT
24	'B' BOTTOM	'K' 2 1/2" - 8 NPT
28	'B' BOTTOM	'L' 3" - 8 NPT

Example: Suffix "-FH" denotes thru feed with a 1 1/2 inch hub

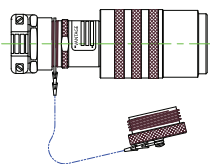
Note: Code logic is provided to identify features called out by standard part numbers. Not all component codes are compatible with all others. Reference part number tables under appropriate product sections of this catalog or consult Vantage Technology.



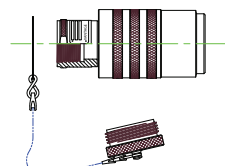
CODE LOGIC • GD & SD ATTACHMENT CONNECTORS

GD	-	D	10	16	-	51	P	L	01	-	XX	-	XX
1		2	3	4		5	6	7	8		9		10

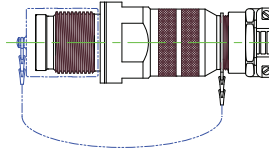
- 1. Classification**
 - GD / SD = Groups B-C-D areas & Ex d IIC T6 IP 66/67 T70°
 - GDU / SDU = Groups B-C-D areas & Ex d IIC T6 IP 66/67 T70°
 - GDT / SDT = Groups B-C-D areas & Ex d IIC T6 IP 66/67 T70°
- 2. Cover**
 - Blank = No Cover
 - B = Cover / Receptacle
 - D = Cover / Plug
- 3. Shell Style**
 - 10 = Plug, Attachment Style
 - 15 = Receptacle, Attachment Style
- 4. Shell Size**
 - 16 = Shell Size 16
 - 20 = Shell Size 20
 - 24 = Shell Size 24
 - 28 = Shell Size 28
- 5. Insert**
 - 30 through 260 amps – through 1000 VAC. See Insert Code column in Insert Table below.
- 6. Gender**
 - S = Female (Socket) Insert P = Male (Pin) Insert
- 7. Contact Plating**
 - L = Silver Plate (Standard). Ground contacts are gold over silver.
- 8. Insert Keying**
 - Blank = Normal Key Alternate = See Key Positions column in Insert Table.
- 9. Grommet**
 - Replace XX with cable diameter code number from Page CN66
 - TC = Tapped Conduit



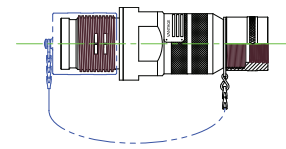
Plug, Attachment



Plug, Conduit Tapped



Receptacle, Attachment



Receptacle, Conduit Tapped

AMPERES		INSERT TABLE				
UL	CSA US	Ex	INSERT	SHELL SIZE	INSERT CODE	KEY POSITIONS ¹
30	32		2 POLE, 3 WIRE	16	51	N + 5
			3 POLE, 4 WIRE	16	23	N + 5
			4 POLE, 5 WIRE	20	36	N + 2
60	63		2 POLE, 3 WIRE	20	61	N + 7
			3 POLE, 4 WIRE	20	40	N + 4
			4 POLE, 5 WIRE	24	29	N + 3
100	125		2 POLE, 3 WIRE	24	60	N + 7
			3 POLE, 4 WIRE	24	39	N + 5
			4 POLE, 5 WIRE	28	23	N + 3
200	260		2 POLE, 3 WIRE	28	30	N + 9
			3 POLE, 4 WIRE	28	31	N + 10
			5 POLE 6 WIRE (3 POLE 4 WIRE and 2 relay contacts)	28	42	N + 3

Note: Code logic is provided to identify features called out by standard part numbers. Not all component codes are compatible with all others. Reference part number tables under appropriate product sections of this catalog or consult Vantage Technology

1. NORMAL KEY POSITION = N; ALTERNATE KEYS = 01, 02, ETC.

CONNECTORS

EXPLOSIONPROOF STARLINE

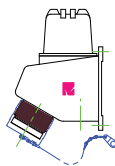


CODE LOGIC • AF & SF RECEPTACLES

AF	-	B	17	16	-	655	S	L	K	01	-	FH	-	XXX
1		2	3	4		5	6	7	8	9		10		11

- 1. Classification** AF = Groups B-C-D areas & Ex d IIC T6 IP 66/67 T70°
SF = Groups B-C-D areas & Ex d IIC T6 IP 66/67 T70°
- 2. Cover** B = Cover
- 3. Shell Style** 17 = Receptacle for Box or Panel-mount
19 = Receptacle for NPT-mount
- 4. Shell Size** 16 = Shell Size 16
20 = Shell Size 20
24 = Shell Size 24
28 = Shell Size 28
- 5. Insert** 10 through 100 contacts; See Insert Code column in Insert Table below.
- 6. Gender** S = Female (Socket) Insert P = Male (Pin) Insert
- 7. Contact Type** L = Crimp Contacts
- 8. Contact Plating** Blank = Standard Silver K = Gold over silver D = Gold over nickel
- 9. Insert Keying** Blank = Normal Key Alternate = See Key Positions column in Insert Table
- 10. Hub Accessory** See Junction Box Table Blank = Panel / 17 Style or NPT / 19 Style

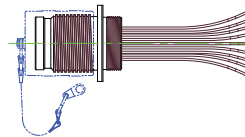
Shell Size 16 = 1 1/2" NPT
Shell Size 20 = 2" NPT
Shell Size 24 = 2 1/2" NPT
Shell Size 28 = 3" NPT



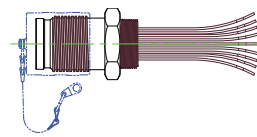
Receptacle, Junction Box



Receptacle, Junction Box



Receptacle, Panel-Mount



Receptacle, NPT

INSERT TABLE				
CONTACT QUANTITY	PIN SIZE AWG (MM ²)	SHELL SIZE	INSERT CODE	KEY POSITIONS ¹
10	#12 (4.0)	16	681	N + 4
10	#12 / G (4.0)	16	676	N + 1
19	#12 / G (4.0)	16	612	N + 4
19	#12 (4.0)	16	677	N + 1
19	#12 (4.0)	20	676	N + 5
19	#12 / G (4.0)	20	688	N
19	#16 (1.5)	16	655	N + 9
20	#12 (4.0)	20	632	N + 3
20	#12 / G (4.0)	20	687	N + 1
37	#12 (4.0)	20	686	N
37	#12 / G (4.0)	20	650	N + 3
37	#16 (1.5)	16	621	N + 9
55	#18 (.75)	16	640	N + 10
61	#18 (.75)	16	633	N + 4
68	#16 (1.5)	20	613	N + 4
100	#16 (1.5)	24	613	N + 4

1. NORMAL KEY POSITION = N; ALTERNATE KEYS = 01, 02, ETC.

CODE	LENGTH	
	INCHES	METERS
L12	12	0.31
L24	24	0.61
L36	36	0.91
Etc	Etc	

JUNCTION BOX		
SHELL SIZE	CONDUIT HUB LOCATION	CONDUIT HUB SIZE (INCHES)
16 & 20	'F' TOP & BOTTOM	'H' 1 1/2 - 11 1/2 NPT
24	'B' BOTTOM	'K' 2 1/2 - 8 NPT
28	'B' BOTTOM	'L' 3 - 8 NPT

Example: Suffix "-FH" denotes thru feed with a 1/2 inch hub

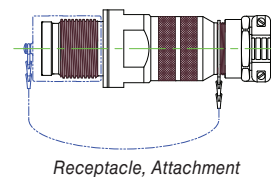
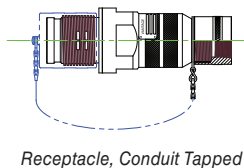
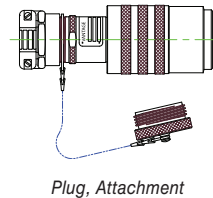
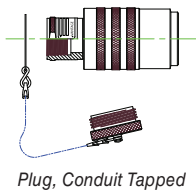


CODE LOGIC • AF & SF ATTACHMENT CONNECTORS

AF	-	D	10	16	-	621	P	L	K	01	-	XX	-	XXX
1		2	3	4		5	6	7	8	9		10		11

- Classification**
 AF = Groups B-C-D areas & Ex d IIC T6 IP 66/67 T70°
 SF = Groups B-C-D areas & Ex d IIC T6 IP 66/67 T70°
- Cover**
 Blank = Cover
 B = Cover / Receptacle
 D = Cover / Plug
- Shell Style**
 10 = Plug, Attachment
 15 = Receptacle, Attachment
- Shell Size**
 16 = Shell Size 16
 20 = Shell Size 20
 24 = Shell Size 24
 28 = Shell Size 28
- Insert**
 10 through 100 contacts; See Insert Code column in Insert Table below.
- Gender**
 S = Female (Socket) Insert P = Male (Pin) Insert
- Contact Plating**
 L = Standard Silver K = Gold over silver D = Gold over nickel
- Insert Keying**
 Blank = Normal Key Alternate = See Key Positions column in Insert Table
- Grommet**
 Replace XX with cable diameter code number from Page CN66
 TC = Tapped Conduit
 B = Basket Weave
- Wire Lead Variation** See Wire Length Table. Per customer requirements.

INSERT TABLE				
CONTACT QUANTITY	PIN SIZE AWG (MM ²)	SHELL SIZE	INSERT CODE	KEY POSITIONS ¹
10	#12 (4.0)	16	681	N + 4
10	#12 / G (4.0)	16	676	N + 1
19	#12 / G (4.0)	16	612	N + 4
19	#12 (4.0)	16	677	N + 1
19	#12 (4.0)	20	676	N + 5
19	#12 / G (4.0)	20	688	N
19	#16 (1.5)	16	655	N + 9
20	#12 (4.0)	20	632	N + 3
20	#12 / G (4.0)	20	687	N + 1
37	#12 (4.0)	20	686	N
37	#12 / G (4.0)	20	650	N + 3
37	#16 (1.5)	16	621	N + 9
55	#18 (.75)	16	640	N + 10
61	#18 (.75)	16	633	N + 4
68	#16 (1.5)	20	613	N + 4
100	#16 (1.5)	24	613	N + 4



1. NORMAL KEY POSITION = N; ALTERNATE KEYS = 01, 02, ETC.

Note: Code logic is provided to identify features called out by standard part numbers. Not all component codes are compatible with all others. Reference part number tables under appropriate product sections of this catalog or consult Vantage Technology.

CONNECTORS

EXPLOSIONPROOF STARLINE

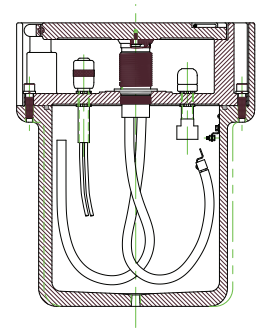


CODE LOGIC – GROUND POWER, SINGLE

SINGLE

GD	S	-	D5	L	1	-	92	A	N	M	E	Q	P
1	2		3	4	5		6	7	8	9	10	11	12

- 1. Classification** GD = Class I, Groups B-C-D, 600 VAC, 60/400 Hz Ex d IIC T6 IP 66/67 T70°, 1000 VAC / 500 VDC
- 2. Controls** Omit if Not Required
R = 1 red pilot + 1 push button switch
S = 1 red and 1 amber pilot light + 2 push button switches
P = red and 1 green pilot light + 2 push button switches
- 3. Receptacle** D5 = See Receptacle Table
- 4. Contact** L = Crimp Type, Silver-plated / Standard
- 5. Insert Keying** Omit for normal (N) key - See Receptacle Table
- 6. Box Style** 92 = Single Receptacle
- 7. NPT Location** Side A, B, C, D or E - See Conduit Location Drawing
- 8. NPT Size #1** Select from Code Symbol Table
- 9. NPT Size #2** Select from Code Symbol Table - Omit if Not Required
- 10. (11 and 12)** Same as 7, 8, and 9 - If Required

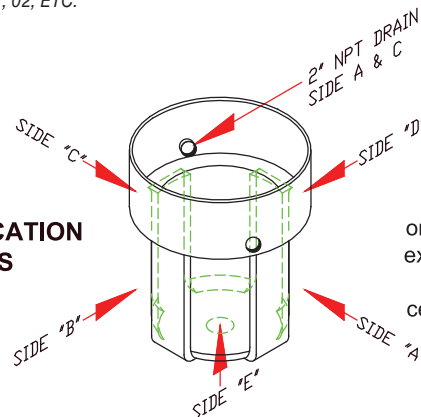


RECEPTACLE TABLE					
AMPS		INSERT	INSERT SYMBOL	RECEPTACLE ASSEMBLY	KEY POSITIONS ¹
UL	CS				
30	32	2 POLE, 3 WIRE	A1	GD-1716-51SL-L36	N + 5
		3 POLE, 4 WIRE	A2	GD-1716-23SL-L36	N + 5
		4 POLE, 5 WIRE	B1	GD-1720-36SL-L36	N + 2
60	63	2 POLE, 3 WIRE	B2	GD-1720-61SL-L36	N + 7
		3 POLE, 4 WIRE	B3	GD-1720-40SL-L36	N + 4
		4 POLE, 5 WIRE	C1	GD-1724-29SL-L36	N + 3
100	125	2 POLE, 3 WIRE	C2	GD-1724-60SL-L36	N + 7
		3 POLE, 4 WIRE	C3	GD-1724-39SL-L36	N + 5
		4 POLE, 5 WIRE	D1	GD-1728-23SL-L36	N + 3
200	260	2 POLE, 3 WIRE	D3	GD-1728-30SL-L36	N + 9
		3 POLE, 4 WIRE	D4	GDU-1728-31SL-L36	N + 3
		5 POLE, 6 WIRE (3P, 4W, 2 #10 relay contacts)	D5	GDT-1728-42SL-L36	N + 10

1. NORMAL KEY POSITION = N; ALTERNATE KEYS = 01, 02, ETC.

CODE SYMBOLS – NPT	
SYMBOL	NPT SIZE
4	½"
5	¾"
6	1"
7	1 ¼"
8	1 ½"
9	2"
M	2 ½"
N	3"
P	3 ½"
Q	4"

CONDUIT LOCATION LETTERS



If the first opening is to be omitted, use the letter 'O'. For example, AO9 will specify one 2" opening on side 'A' centered 11.5" off the bottom.

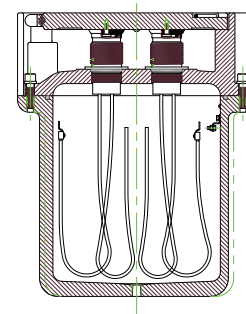


CODE LOGIC – GROUND POWER, DUPLEX

DUPLEX

GD	-	A1	B3	L	1	2	-	93	B	6	8	D	7	M
1		2	3	4	5	6		7	8	9	10	11	12	13

- 1. **Classification** GD = Class I, Groups C-D, 600 VAC, 60/400 Hertz Ex d IIC T6 IP 66/67 T70°, 1000 VAC / 500 VDC
- 2. **Receptacle #1** A1 = See Receptacle Table
- 3. **Receptacle #2** B3 = See Receptacle Table
- 4. **Contact** L = Crimp Type, Silver-plated / Standard
- 5. **Insert Keying #1** Omit for normal (N) key - See Receptacle Table
- 6. **Insert Keying #2** Omit for normal (N) key - See Receptacle Table
- 7. **Box Size** 93 = Duplex Receptacle
- 8. **NPT Location** Side A, B, C, D or E - See Conduit Location Drawing
- 9. **NPT Size #1** Select from Code Symbol Table
- 10. **NPT Size #2** Select from Code Symbol Table - Omit if Not Required
- 11. **(12 and 13)** Same as 8, 9, and 10 - If Required

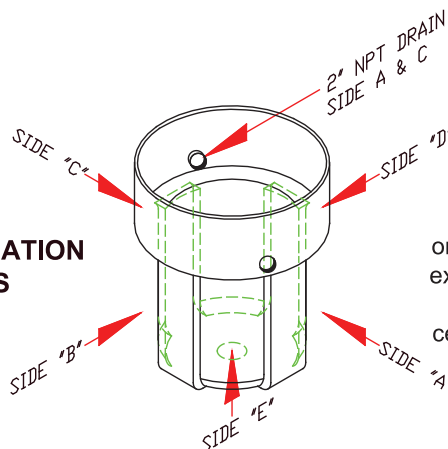


RECEPTACLE TABLE							
AMPS			INSERT	INSERT SYMBOL	RECEPTACLE ASSEMBLY	KEY POSITIONS ¹	
UL	CS	EX					
30	c	us	32	2 POLE, 3 WIRE	A1	GD-1716-51SL-L36	N + 7
				3 POLE, 4 WIRE	A2	GD-1716-23SL-L36	N + 5
				4 POLE, 5 WIRE	B1	GD-1720-36SL-L36	N + 2
60	c	us	63	2 POLE, 3 WIRE	B2	GD-1720-61SL-L36	N + 7
				3 POLE, 4 WIRE	B3	GD-1720-40SL-L36	N + 4

1. NORMAL KEY POSITION = N; ALTERNATE KEYS = 01, 02, ETC.

CODE SYMBOLS – NPT	
SYMBOL	NPT SIZE
4	½"
5	¾"
6	1"
7	1 ¼"
8	1 ½"
9	2"
M	2 ½"
N	3"
P	3 ½"
Q	4"

CONDUIT LOCATION LETTERS



If the first opening is to be omitted, use the letter 'O'. For example, AO9 will specify one 2" opening on side 'A' centered 11.5" off the bottom.

Note: Code logic is provided to identify features called out by standard part numbers. Not all component codes are compatible with all others. Reference part number tables under appropriate product sections of this catalog or consult Vantage Technology.

CONNECTORS

STRATELINE



STRATELINE DELAYED ACTION

STRATELINE®

Circuit Breaking, Delayed Action Type

Explosionproof, Class I, Groups C and D

20 or 30 Amperes
2 Pole, 3 Wire or 3 Pole, 4 Wire



EPD Plugs and ER Receptacles, in addition to their regular function of making electrical connections to portable equipment, are current-interrupting devices which provide a safe and positive means for opening and closing electrical circuits.

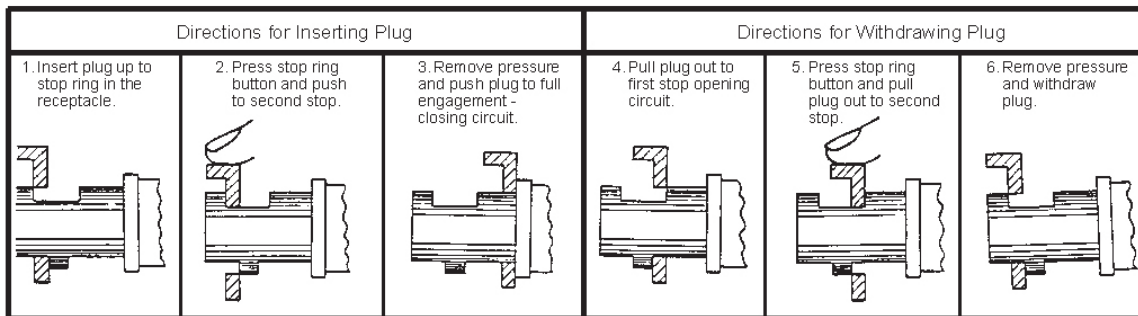
The contacts are confined within closed chambers to snuff the arc and are detained a sufficient length of time in their travel to permit cooling before exposure to the atmosphere. This is accomplished by the delayed action feature, which operates on the extremely simple straight-line principle illustrated schematically below.

Contact units are factory-sealed in the receptacle housing at the terminal end therefore seal fittings are not required adjacent to the receptacle. Flexible lead wires are provided for connection to the circuit wires.

Plugs and receptacles with a longer extra pole connect directly to the shell, completing the grounding circuit through the conduit system. The ground pole of the plug has a solder-less lug for connecting the extra conductor of the portable cord which is required by Article 500 of the N.E.C. for grounding non-current carrying metal parts of portable devices

Listed plugs fit only receptacles of the same rating.

Circuit Breaking, Delayed Action Operating Principle





PART NUMBERS ERR & EPD

STRATELINE®

**Factory Sealed
EPD PLUGS AND ERR RECEPTACLES
CIRCUIT BREAKING WITH DELAYED ACTION**

Explosionproof Class I, Groups C and D

ERR Receptacles

ERR Two-Gang Receptacles

EPD Plugs - Aluminum Alloy



Plugs fit only receptacles of the same electrical rating as listed in the spaces directly to the left of each plug group.

	FOR CIRCUITS	HUB POSITIONS	HUB SIZE	RECEPTACLE CATALOG NUMBER		DIAMETER CORD	PLUG CATALOG NUMBER
20 AMPERE	20 AMPERES OR 1 HP, 120 OR 240 VOLTS - 60 HZ						
				Single	Duplex		
	2 Pole 3 Wire	Dead End ‡	½ ¾ 1	ERRA-11532 ERRA-21532 ERRA-31532	ERRA-115322 ERRA-215322 ERRA-315322	.250 to .625	EPD-51532
	2 Pole 3 Wire	Through Feed	½ ¾ 1		ERRC-115322 ERRC-215322 ERRC-315322		
	20 AMPERES OR 1 ½ HP, 120 OR 240 VOLTS - 60 HZ						
	3 Pole 4 Wire	Dead End ‡	½ ¾ 1	ERRA-11542 ERRA-21542 ERRA-31542	ERRA-115422 ERRA-215422 ERRA-315422	.250 to .625	EPD-51542
3 Pole 4 Wire	Through Feed	½ ¾ 1		ERRC-115422 ERRC-215422 ERRC-315422			
30 AMPERE	30 AMPERES OR 1 ½ HP, 120 OR 240 VAC; 7 AMPERES OR ½ HP, 480 VAC - 60 HZ						
	2 Pole 3 Wire	Dead End ‡	¾ 1	ERRA-23032 ERRA-33032	ERRA-230322 ERRA-330322	.375 to .625 .626 to .875	EPD-53032 EPD-73032
		Through Feed	¾ 1		ERRC-230322 ERRC-330322		
	30 AMPERES OR 3 HP, 120 OR 240 VAC; 7 AMPERES OR ½ HP, 480 VAC - 60 HZ						
3 Pole 4 Wire	Dead End ‡	¾ 1	ERRA-23042 ERRA-33042	ERRA-230422 ERRA-330422	.375 to .625 .626 to .875	EPD-53042 EPD-73042	
	Through Feed	¾ 1		ERRC-230422 ERRC-330422			

‡ Can be installed with hub at top or bottom, as covers are reversible.
 Dimensions: Height including hubs: 6 1/4" except 1" hub sizes which are 6 1/2".
 Width: 3 1/2" for single gang - 7 3/8" for two gang.
 Mounting Holes: 11/32" diameter on 5 1/2" x 2 1/2" centers.
 Depth from mounting surface to end of receptacle cover: 7 1/8" for 20 amperes - 8 3/4" for 30 amperes.

See Page CN81 for Part Number Code Logic.

CONNECTORS



STRATELINE

PART NUMBERS ERH & EPD

STRATELINE®

Factory Sealed

EPD PLUGS AND ERH RECEPTACLES CIRCUIT BREAKING WITH DELAYED ACTION

Explosionproof Class I, Groups C and D

ERH Receptacles



ERH Two-Gang Receptacles



EPD Plugs - Aluminum Alloy



Plugs fit only receptacles of the same electrical rating as listed in the spaces directly to the left of each plug group.

	FOR CIRCUITS	HUB POSITIONS	HUB SIZE	RECEPTACLE CATALOG NUMBER		DIAMETER CORD	PLUG CATALOG NUMBER
20 AMPERE	20 AMPERES OR 1 HP, 120 OR 240 VAC - 60 HZ						
				Single	Duplex		
	2 Pole 3 Wire	Dead End ‡	½ ¾ 1	ERHA-11532 ERHA-21532 ERHA-31532	ERHA-115322 ERHA-215322 ERHA-315322	.250 to .625	EPD-51532
	2 Pole 3 Wire	Through Feed	½ ¾ 1		ERHC-115322 ERHC-215322 ERHC-315322		
	20 AMPERES OR 1 ½ HP, 120 OR 240 VAC - 60 HZ						
	3 Pole 4 Wire	Dead End ‡	½ ¾ 1	ERHA-11542 ERHA-21542 ERHA-31542	ERHA-115422 ERHA-215422 ERHA-315422	.250 to .625	EPD-51542
3 Pole 4 Wire	Through Feed	½ ¾ 1		ERHC-115422 ERHC-215422 ERHC-315422			
30 AMPERE	30 AMPERES OR 1 ½ HP, 120 OR 240 VAC; 7 AMPERES OR ½ HP, 480 VAC - 60 HZ						
	2 Pole 3 Wire	Dead End ‡	¾ 1	ERHA-23032 ERHA-33032	ERHA-230322 ERHA-330322	.375 to .625 .626 to .875	EPD-53032 EPD-73032
		Through Feed	¾ 1		ERHC-230322 ERHC-330322		
	30 AMPERES OR 3 HP, 120 OR 240 VAC; 7 AMPERES OR ½ HP, 480 VAC - 60 HZ						
	3 Pole 4 Wire	Dead End ‡	¾ 1	ERHA-23042 ERHA-33042	ERHA-230422 ERHA-330422	.375 to .625 .626 to .875	EPD-53042 EPD-73042
		Through Feed	¾ 1		ERHC-230422 ERHC-330422		

‡ Can be installed with hub at top or bottom, as covers are reversible.

Dimensions: Height including hubs: 6 1/4" except 1" hub sizes which are 6 1/2".

Width: 3 1/2" for single gang - 7 3/8" for two gang.

Mounting Holes: 11/32" diameter on 5 1/2" x 2 1/2" centers.

Depth from mounting surface to end of receptacle cover: 7 1/8" for 20 amperes - 8 3/4" for 30 amperes.

See Page CN81 for Part Number Code Logic.

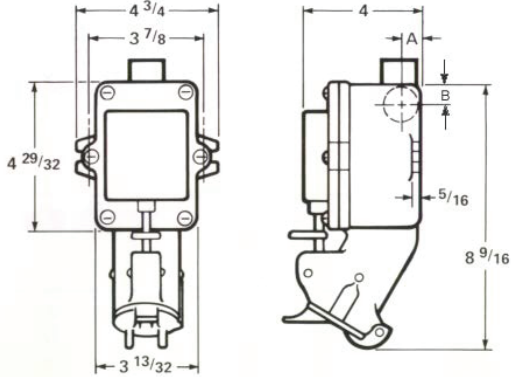


STRATELINE PXD & YXA

STRATELINE®

Featuring an Interlocked Tumbler Switch

Explosionproof and Dust-tight, Class I, Group D and Class II, Group G



APPLICATION

Used as service outlets for portable electrical equipment in hazardous locations.

CONSTRUCTION

Plugs cannot be inserted or withdrawn unless switch is open. Switch cannot be closed unless plugs are fully inserted. The extra pole of the receptacle is connected to the housing to complete the equipment ground circuit.

SERIES	SIZE NPT (INCHES)	A (INCHES)	B (INCHES)	INSIDE CLEAR DIMENSIONS (INCHES)		
				LENGTH	WIDTH	DEPTH
YX	1/2	21/32	5/8	2 15/16	2 17/32	2 9/16
	3/4	25/32	17/32	2 15/16	2 17/32	2 9/16
	1	7/8	17/32	2 15/16	2 17/32	2 9/16

RUST PROOFED FERROUS ALLOY	2 Pole, 3 Wire 30 Amp 250 Vac 1 HP 460 Vac 2 HP 240 Vac	3 Pole, 4 Wire 20 Amp 460 Vac 30 Amp 250 Vac 2 HP 240 Vac or 480 Vac	HUB SIZE (NPT INCHES)
	CATALOG NUMBER	CATALOG NUMBER	
	YXA-13022-G	YXA-13032-G	1/2
	YXA-23022-G	YXA-23032-G	3/4
	YXA-33022-G	YXA-33032-G	1
	YXRL-113022-G	YXRL-113032-G	1/2
	YXRL-223022-G	YXRL-223032-G	3/4
	YXRL-333022-G	YXRL-333032-G	1
	PXD SERIES PLUGS FOR YX SERIES RECEPTACLES WITH STRAIN RELIEF CORD GRIP ALUMINUM ALLOY, NATURAL FINISH		DIAMETER CORD (INCHES)
	2 Pole, 3 Wire 30 Amp 250 Vac 1 HP 460 Vac 2 HP 240 Vac	3 Pole, 4 Wire 20 Amp 460 Vac 30 Amp 250 Vac 2 HP 240 Vac or 480 Vac	
	CATALOG NUMBER	CATALOG NUMBER	
	PXD-53032-G	PXD-53042-G	.250 to .625
	PXD-73032-G	PXD-73042-G	.625 to .875

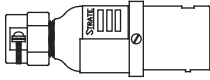
See Page CN82 for Part Number Code Logic.

CONNECTORS

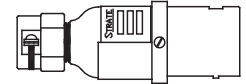


STRATELINE

CODE LOGIC – EPD AND ER



EPD	-	3	30	3	2
1		2	3	4	5



1. Classification

EPD = Explosionproof ... Class I, Division 1, Groups C and D

2. Cable Diameter Range

5 = .250" to .625" (15 Amp)

5 = .375" to .687" (30 Amp)

7 = .750" to .875" (15 and 30 Amp)

3. Rating

15 = 20 amps / 1 HP 2 pole, 3 wire at 120 or 240VAC

15 = 20 amps / 1½" HP 3 pole, 4 wire at 120 or 240VAC

30 = 30 amps / 1½HP 2 pole, 3 wire at 120 or 240VAC
7 amps / 1½ HP 480VAC 60 Hz

30 = 30 amps / 3 HP 3 pole, 4 wire at 120 or 240VAC
7 amps / 1½ HP 480VAC, 60 Hz

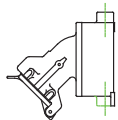
4. Insert

3 = 2 pole, 3 wire

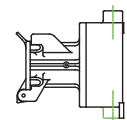
4 = 3 pole, 4 wire

5. Voltage

2 = 240 volts See rating specified above.



ER	R	A	-	2	30	3	2	2
1	2	3		4	5	6	7	8



1. Classification

ER = Explosionproof Receptacle ... Class I, Division 1, Groups C and D

2. Types

R = Angled (45°) Receptacle H = Straight (90°) Receptacle

3. Style

A = Single Hub

C = Thru-feed Hub

P = Panel-mount

4. Hub Size

1 = ½" NPT

2 = ¾" NPT

3 = 1" NPT

5. Rating

15 = 20 amps 2 pole, 3 wire at 120 or 240VAC

15 = 20 amps 3 pole, 4 wire at 120 or 240VAC

30 = 30 amps 2 pole, 3 wire at 120 or 240VAC
7 amps / 1½ HP 7 amps at 480VAC 60 Hz

30 = 30 amps 3 pole, 4 wire at 120 or 240 Vac
7 amps / 1½ HP 480VAC, 60 Hz

6. Insert

3 = 2 pole, 3 wire 4 = 3 pole, 4 wire

7. Voltage

2 = 240 volts See rating specified above.

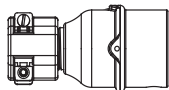
8. Gang Style

2 = 2 Gang Receptacle Omit for single gang

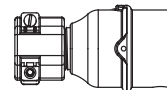
Note: Code logic is provided to identify features called out by standard part numbers. Not all component codes are compatible with all others. Reference part number tables under appropriate product sections of this catalog or consult Vantage Technology.



CODE LOGIC – YX AND PX



PXD	-	5	30	3	2	-	G
1		2	3	4	5		6



1. Classification

PXD = Explosionproof Plugs Class I, Division 1, Group D and Class II, Groups F and G

2. Cable Diameter Range

5 = .250" to .625"

7 = .625" to .875"

3. Rating

30 = 30 amps at 250VAC for 2 pole 3 wire 2 HP at 240VAC
 1 HP 460VAC

30 = 30 amps at 250VAC for 3 pole 4 wire 2 HP at 240VAC or 480VAC
 20 amps at 460VAC

4. Insert

2 = 2 pole, 3 wire

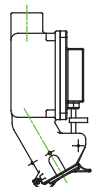
3 = 3 pole, 4 wire

5. Voltage

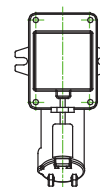
2 = 250VAC See rating specified above.

6. Grounding

G = Grounded through shell and extra pole.



YX	A	-	2	2	30	3	2	-	G
1	2		3	4	5	6	7		8



1. Classification

YX = Explosionproof Receptacles Class I, Division 1, Group D and Class II, Groups F and G

2. Hub Style

A = Top Hub

RL = Right and Left Thru-feed Hubs

3. Hub Size

1 = 1/2"

2 = 3/4"

3 = 1"

4. Hub Size

Omit for top hub only

1 = 1/2"

2 = 3/4"

3 = 1"

5. Rating

30 = 30 amps at 250VAC for 2 pole 3 wire 2 HP at 240VAC
 1 HP 460VAC

30 = 30 amps at 250VAC for 3 pole 4 wire 2 HP at 240VAC or 480VAC
 20 amps at 460VAC

6. Insert

2 = 2 pole, 3 wire

3 = 3 pole, 4 wire

7. Voltage

2 = 250VAC See rating specified above.

8. Grounding

G = Grounded through shell and extra pole.

Note: Code logic is provided to identify features called out by standard part numbers. Not all component codes are compatible with all others. Reference part number tables under appropriate product sections of this catalog or consult Vantage Technology.

CONNECTORS



APPLICATIONS

PRODUCT APPLICATIONS

Vantage connectors have safely served industry for over forty years with unmatched reliability. Our connectors can be found throughout the Americas and worldwide, on land-based facilities or offshore drilling platforms, in aerospace, petroleum, process manufacturing, chemicals, mining and other industries. Let us know how we can meet your needs.

Liquid Natural Gas ESD Systems



Ship to Shore
Safety



Aerospace Ground Support



Evolved Expendable Launch Vehicle
DELTA
Heavy



Evolved Expendable Launch Vehicle

Aircraft Hangars and Apron Installations



Ground Power
60/400 Hz



CE 260 Amps Ex
UL 200 Amps

Offshore and Land Drilling

Interconnects for Engine
and Fluid / Pressure Skids



Flat Cable
and
Multi-Cable
Connections

Control Cable
Fanouts,

Submersible.

Pharmaceutical Grade



Submersible
Corrosion Resistant

Power Generation

Explosionproof
plugs and
receptacles
eliminate
hardwiring and
conduit.



Mobile Gas Compressors

