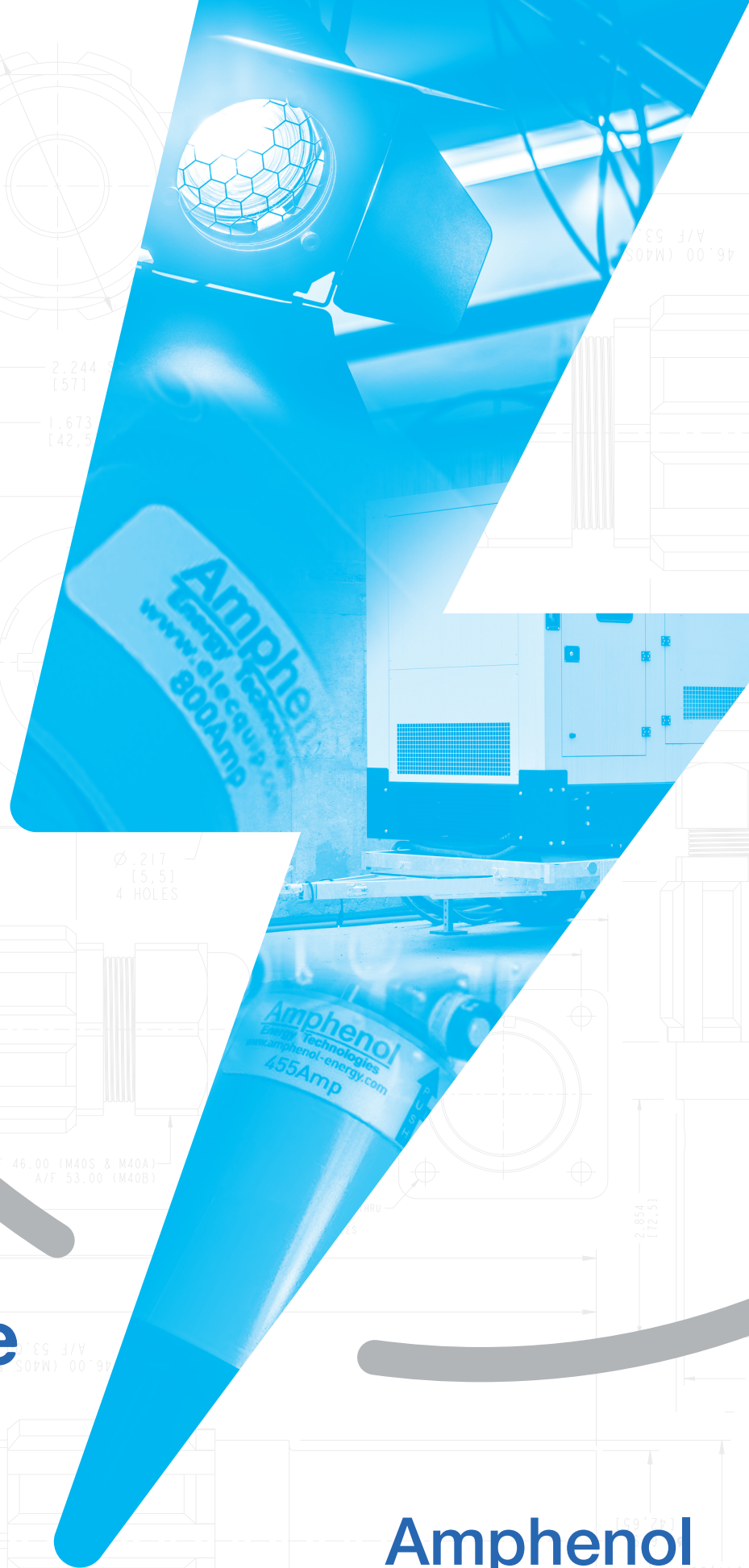
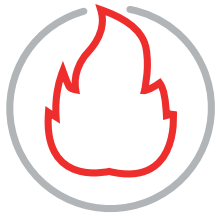


Amphe-Phase Singlepole Power Connector

Amphe phenol
Energy Technologies
www.amphenol-energy.com



Hazardous Area



SCAN ME

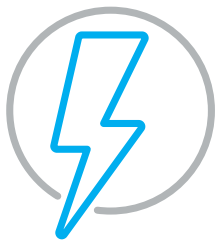
Starline-EX



SCAN ME

Amphe-EX

Topside



SCAN ME

Neptune



SCAN ME

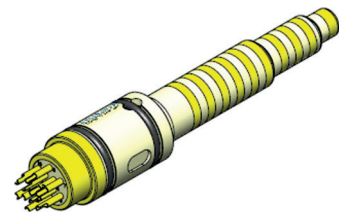
Starline

Down Hole



SCAN ME

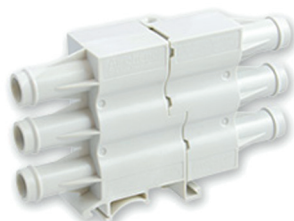
KTK



SCAN ME

DHR- Rotatable

Subsea



SCAN ME

Zeus



SCAN ME

Submariner 5500

PRODUCT OVERVIEW

With increased demand for temporary high power systems in entertainment & industrial applications, the choice of high current connectors is critical to ensure safety and reliability for every use.

Designed to connect single & three phase high current power circuits, Amphe-Phase single pole connectors are at the forefront of both safety and technical capability.

These connectors have been tried and tested in some of the harshest environments worldwide; from the oil fields of Canada to data centres in the Arctic Circle. Based on their impressive technical capabilities, added safety features, rugged construction, reliability and quality, they are a popular choice for professional engineers.

Standard safety features include a secondary locking system which requires a key to unlock the connection. This is in addition to fingerproofed electrical contacts on all connectors, which reduces the risk of accidental contact when the connector is live.

Connectors are available in cable and panel-mount formats with either crimp or screw contacts. Rated at 500A and 800A for single core cables from 25 - 300mm², Amphe-Phase connectors are, at present, amongst the highest rated and safest connectors of their type on the market.

High Current Capacity The Amphe-Phase connector's advanced contact design achieves its 800A* continuous rating by utilising an arrangement of 29 transfer bridges. Each transfer bridge is rated at 30A, giving a total of 870A* per contact.

Performance Enhancements

- Increased Current Carrying Capacity (500A/800A)
- Increased Short Circuit Ratings (35.5Ka)
- Reduced Insertion Force
- Rubber Hand Grip for ease of coupling
- Cable Strain Relief (25mm-300mm)
- Manufactured to ISO 9001:2015

Safety Improvements

- Waterproof & Dust Protection Rating (IP67)
- Colour Coded Keyed Locking Mechanism
- Finger-Proof Protection against electric shock (IP2X)
- Flame Retardant Materials (UL94-VO)
- Improved Impact Resistance
- Environmental Caps
- UL Certified Product





Connectors are available in cable and panel-mount formats with either crimp or screw contacts. Rated at 500A and 800A for single core cables from 25 - 300mm²

Amphe-Power Range – Key Specification

| | |
|--------------------------------------|---|
| No of Contacts: | 1 |
| Maximum Continuous Current Rating:* | Up to 800A |
| Surge Current: | 75kA |
| Short Circuit Rating: | Up to 35.5kA |
| Cables Cross Sectional Area C.S.A: | 25mm ² to 300mm ² |
| Contact Termination: | Screw or Crimp |
| Mating Method: | Bayonet Lock |
| Operating Voltage: | 1000V AC |
| Max Rated Voltage to Earth: | 2kV AC / 3kV DC |
| Minimum Flashover: | 9.5kV DC or AC Peak |
| Insulation Resistance: | >5M ohms @ 500V DC |
| Ingress Protection:** | IP67 |
| Protection against Electrical Shock: | IP2X |
| Flammability: | UL94-V0 |
| Mating Cycles: | >500 |
| Shell Material: | High Temperature Thermoplastic |
| Ambient Temperature | -30 to +125°C |
| Contact Plating: | Silver |

*Subject to environmental factors and cable choice etc. **In accordance with EN60529.



International Electrical Colour Coding Standards

| Region | Earth Key E | Neutral Key N | Line 1 Key 1 | Line 2 Key 2 | Line 3 Key 3 |
|----------------------------|----------------|------------------|-----------------|-----------------|-----------------|
| European & UK (Harmonised) | Green | Blue | Brown | Black | Grey |
| UK (Traditional) | Green | Black | Red | Yellow | Blue |
| Australia | Green | Black | Red | White | Blue |
| USA - LV | Green | White | Black | Red | Blue |
| USA - HV | Green | White | Brown | Orange | Yellow |

APPLICATIONS

Amphe-Phase connectors offer a safe and durable solution for high power applications up to 800Amps. With its touch-safe contact design and IP67 ratings it is the perfect connector for a wide range of harsh environments.

Amphe-Phase connectors are designed to easily mate and have inline and panel mount source and drain styles to enable daisy chain circuit solutions. With set screw contact options you can install these connectors without the need for expensive custom tooling.

Typical applications for Amphe-Phase Single pole connectors include Generators, three phase motors, utilities cabinets, light distribution panels, welding units and load banks.

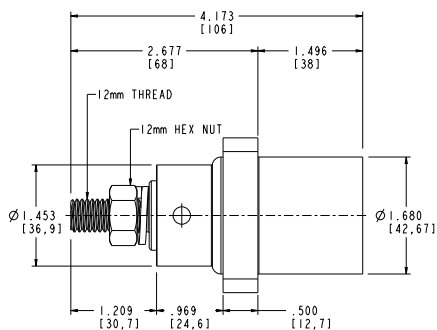


PRODUCT DIMENSION

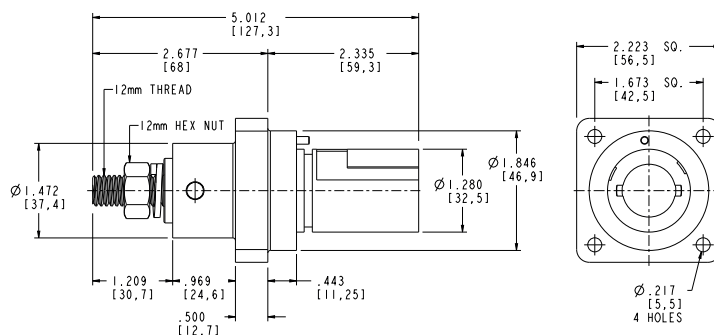


AMPHE-PHASE RANGE

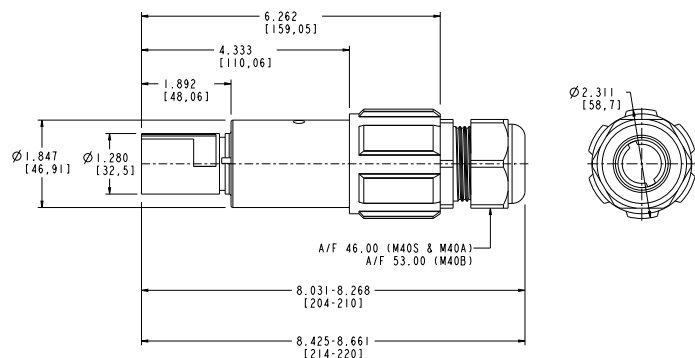
Panel Source



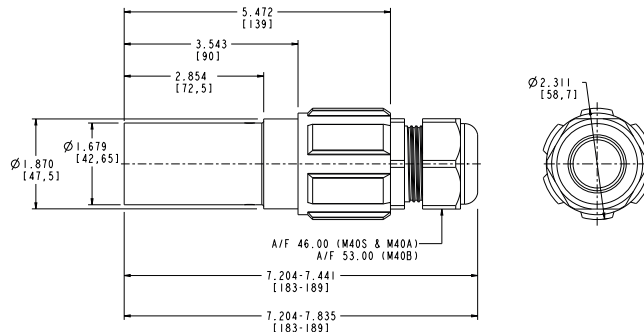
Panel Drain



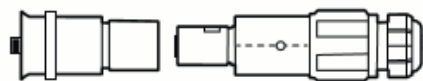
Line Drain



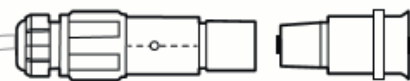
Line Source



Line Drain



Line Source



Panel Source

Panel Drain

Line Source

Line Drain

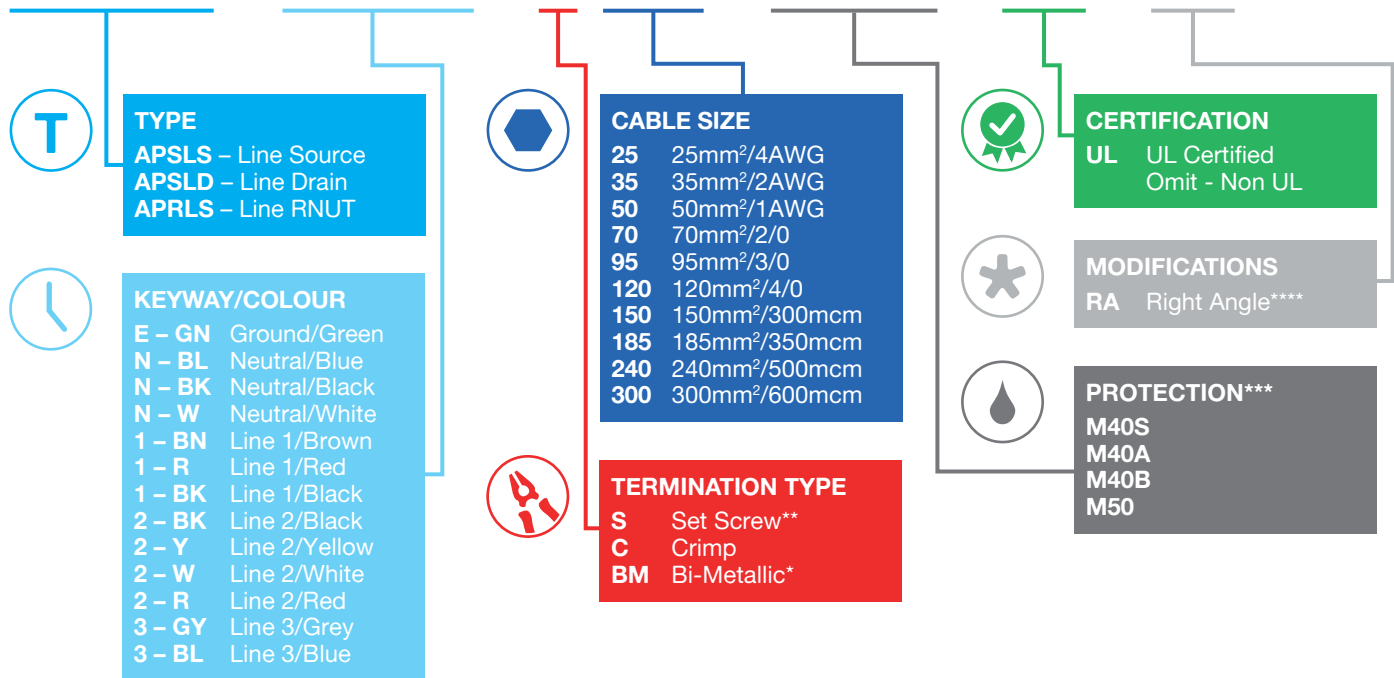
(all measurements are in mm)

HOW TO ORDER

EXAMPLE CODE LOGIC

Catalog Numbering System: how to order **Amphe-Phase Plug and Inline Receptacle**

APSLS - E - GN - S 120 - M40S - UL - RA



Right-Angled Connector

Amphe-Phase Right Angled Connectors allow cables to be hung at 90 degrees from Panel Mount Connectors. The device allows for reduced cable protrusion, this is a useful option where minimal space is available for connection of temporary power cables. The Right Angled Connector is fully compatible with all other Amphe-

Phase connectors. Termination of the cable is simple with nothing more than spanner required. A cable lug can be locked onto a threaded post inside the backshell. Standard sizes are supplied with a 120 x M12 Lug. Source, Drain and Rotalock configurations can be supplied. Other colours and sizes are available.

* Bi Metallic crimp contact are only available in 120mm² - 150mm². Not available for UL Listed product. ** Set Screw Version available up to 150mm², reduction sleeves available for cables sizes 25, 35, 50, 70 & 95mm². Caps and accessories also available, please ask for details. *** Larger cable glands upon request. **** Right angled backshells are available for 30mm² - 240mm². Non UL | Set Screw up to 150mm², Crimp up to 300mm². UL Listed | Set screw up to 120mm² (250kcmil), Crimp to 150mm² (300kcmil)



EXAMPLE CODE LOGIC

Catalog Numbering System: how to order **Amphe-Phase Panel Mount Recepticle**

APSPS - E - GN - T5 - UL - 45



TYPE

APSPS – Panel Source
APSPD – Panel Drain
APRPS – Panel RNUT



KEYWAY/COLOUR

E – GN Ground/Green
N – BL Neutral/Blue
N – BK Neutral/Black
N – W Neutral/White
1 – BN Line 1/Brown
1 – R Line 1/Red
1 – BK Line 1/Black
2 – BK Line 2/Black
2 – Y Line 2/Yellow
2 – W Line 2/White
2 – R Line 2/Red
3 – GY Line 3/Grey
3 – BL Line 3/Blue



AMPERAGE

T5 500amps/UL 455amps
T8 800amps/UL 615amps



CERTIFICATION

UL UL Certified
Omit - Non UL



MODIFICATIONS

45 45° Adapter

Bi-Metallic Contact

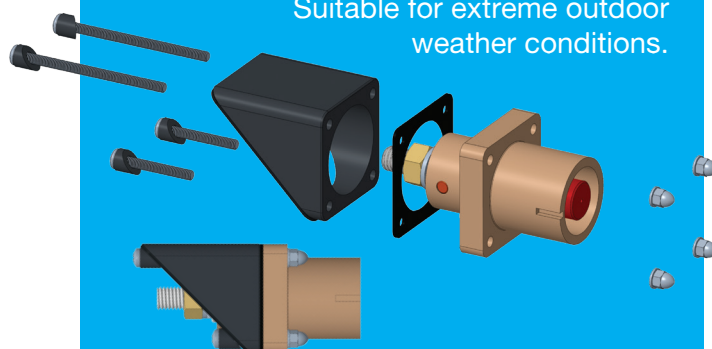
Amphe-Phase Bimetal Connector are Amphenol's solution to connect aluminium cables in high current circuits that incorporate copper cable and busbars. The bimetallic power connector is manufactured using the best raw materials, allowing for a flawless friction weld process producing the highest quality conductor. Bimetallic industrial plugs can be terminated onto aluminium cable meaning lugs can be replaced with a safer insulated termination.



45° Panel Mount Adapter

The Amphe-Phase 45° Adapter allows angled mounting to reduce cable protrusion, minimizes cable termination strain and reduce direct weathering.

Suitable for extreme outdoor weather conditions.

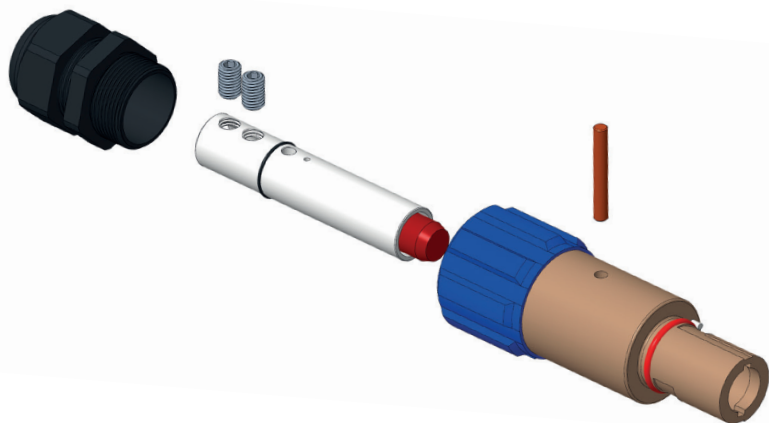


USER GUIDE

This overview of the Amphe-Phase connectors is to make sure that customers are 100% satisfied with our product. To do so we have written detailed procedures to guide you through the steps of correctly assembling and maintaining the product

Due to the wide range of cable types available in today's market, to guarantee that an acceptable result is obtained when Amphe-Phase Connectors are terminated to cables, the process for the variety of terminations has to be evaluated.

This procedure provides all the details of how to successfully terminate Amphe-Phase connectors, either by crimping, set screws or threaded post methods.



Contents

1. Overview
2. Termination Methods
 - 2.1 Procedure for Set screw termination
 - 2.2 Procedure for Panel Mounted Connectors
 - 2.3 Crimp Termination
3. Safety and maintenance checks

1. This Procedure tells you:

- How to perform a crimped termination
- The recommended crimp tools and dies
- How to perform a set screw termination
- How terminate a threaded post panel type connector
- Safety checks

Please contact us on
sales@amphenol-energy.com

Follow us on



Amphenol
Energy Technologies
www.amphenol-energy.com



2. Termination Methods:

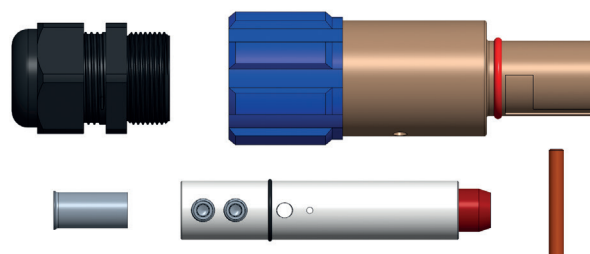
There are three methods on how to terminate cables on the Amphe-Phase contacts;

- Set Screw termination
- Threaded Post termination
- Crimp termination

2.1 Set Screw Termination Procedure:

The recommended assembly procedure has been devised to show step-by-step how to terminate cables to our set screw contact. For a satisfactory termination it is essential that the recommended assembly procedure is used.

Component Parts of Typical Line Connector (Drain Version Shown)



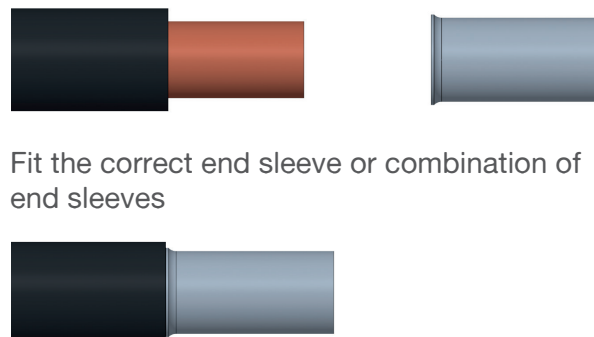
1. From the packaging: Remove the cable gland from the insulator and remove the contact.
2. Check the cable overall diameter. The standard Black M40A gland will facilitate cable diameter of 19-28mm. If your cable is of a diameter between 15-18mm diameter the PP00131 reduction bush supplied should be fitted to the M40A cable gland. To do this remove the black rubber sealing ring inside the rear of the gland and replace with the PP00131 M40S bush.
3. Slide the completed cable gland along the cable jacket.
4. With care, strip back the cable insulation 33mm. Try not to damage any of the conductor's stranding.

End Sleeve Selection Guide

| Cable Size (mm ²) | Cable Size (mm ²) | Set Screw Torque Minimum | Cable Jacket Strip Length |
|-------------------------------|-------------------------------|--------------------------|---------------------------|
| 25/4 awg | RSR25 | 10.5 Nm | 33mm |
| 35/2 awg | RSR35 | 10.5 Nm | 33mm |
| 50/1 awg | RSR50 | 10.5 Nm | 33mm |
| 70/2/0 | RSR70 | 10.5 Nm | 33mm |
| 95/3/0 | RSR95 | 10.5 Nm | 33mm |

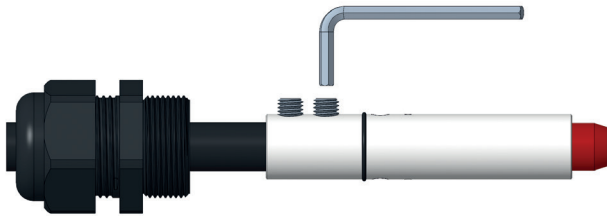
Using the table above, select the appropriate reduction sleeves and slide in sequence on to the exposed conductor stranding. Please note; all sleeves down to the size recommended for the cable in use must be used. I.e. For a 35mm² cable, the R120, R95, R70, R50 and R35 sleeves should all be used in sequence. All the sleeves fit perfectly inside each other to create a gradual reduction span. The flared end of the sleeves should be against the cable insulation.

5. Fit the correct end sleeve or combination of end sleeves



USER GUIDE

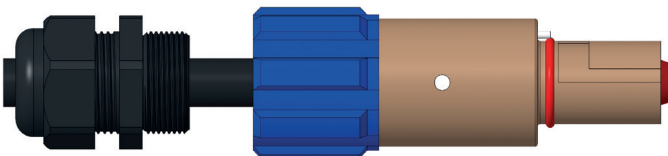
6. Slide the cable and reduction sleeves into the back of the contact ensuring they are fully inserted inside the contact. Using a 5mm Allen bit, tighten the set screws in accordance with the table above.



7. Now insert the contact into the rear of the insulator and align the hole in the contact so that it is in line with the holes in the insulator.

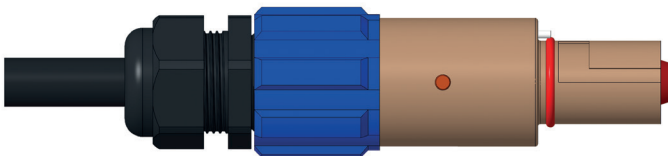


8. Now align the dowel pin with the tapered end first with the hole in the insulator. The dowel pin is designed to be a tight interference fit with insulator hole and it is necessary to drive the pin using a hammer through the insulator and contact. When fully inserted the pin will be flush with the surface of the insulator body.



Note: Dowel pins are designed to be used only once. In the event that the connector is unassembled a new dowel pin should be fitted on re-assembly. Also, never use a dowel pin that is not a tight interference fit within the Insulator as this could lead to failure of the watertight barrier or allow the contact to dislodge from the insulator. Periodic checks should be made to ensure security of dowel pins.

9. Now screw the cable gland onto the insulator and tighten the body and dome nut to 11Nm.



Your connector should now be complete and ready for an overall inspection.



2.2 Panel Mounted Connectors Procedure

Panel connectors are supplied fully assembled and ready for direct mounting to equipment.

1. When the panel Connector is mounted in equipment: remove the nut and washer from the threaded post section.
2. Fit your selected terminal or accessory over the threaded area.
3. Refit the Washer and bolt on to the threaded area and tighten to a MAXIMUM of 12 – 14Nm.

2.3 Crimp Termination

It is important to use the recommended Crimp tool and Die to ensure a satisfactory crimp:

ME series Crimp Die Hand Held Crimping Tool: HT 131-C
Cordless Hydraulic 14.4v Crimping Tool : B 131-C

1. A hydraulic crimping tool and hexagonal Die set is used to perform a crimp termination. Selection of the correct crimp die is essential to achieve a reliable result.

As cable conductor sections vary widely, the table below is intended as a guide to appropriate die selection. Cable tensile test should be performed to ensure the final crimp termination meets the tensile and mv drop test of a particular specification.



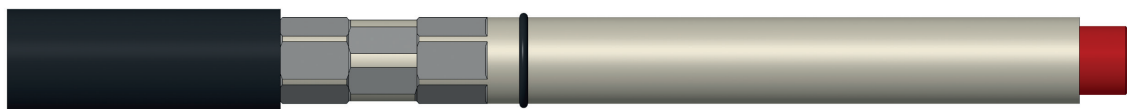
Crimp Contact Dimensions and Die Selector

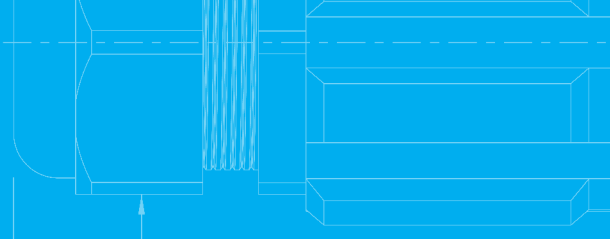
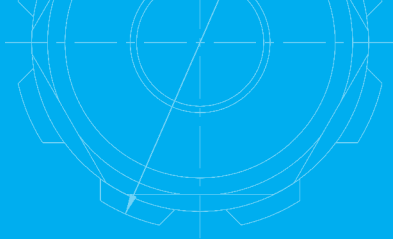
| Cable Size (mm ²) | Inside Diameter | Outside Diameter | Tensile Strength IEC61238-1 | Die Set Code & (No. of Crimps) |
|-------------------------------|-----------------|------------------|--------------------------------|-----------------------------------|
| 25/4 awg | 7.0mm | 9.4mm | 1.500N | ME 5 (2) |
| 35/2 awg | 8.9mm | 11.8mm | 2.100N | ME 07 (2) |
| 50/1 awg | 10mm | 13mm | 3.000N | ME 10 (2) |
| 70/2/0 | 11.3mm | 14.7mm | 4.200N | ME 14 (2) |
| 95/3/0 | 13.5mm | 17.6mm | 5.700N | ME 19 (2) |
| 120/4/0 | 15.2mm | 19.7mm | 7.200N | ME 24 (2) |
| 150/300mcm | 16.8mm | 21.6mm | 9.000N | ME 30 (2) |
| 185/350mcm | 19.2mm | 24.5mm | 11.100N | ME 37 (2) |
| 250/500mcm | 21.1mm | 25.4mm | 14.400N | ME 48 (3) |
| 300/600mcm | 24mm | 30mm | 18.000N | ME 60 (3) |

USER GUIDE

Crimp Termination Guide

1. Select the appropriate Die set from table 2 above. For example if you are using a 240mm² cable use Die set ME48.
2. Strip the cable jacket to leave 43mm of conductor exposed.
3. Slide the conductor into the rear of the contact. Take care to ensure all the wire strands are inside the contact.
4. Place the contact and cable carefully into the die set and close the crimping tool. In the case of tool HT131 the tool hands are pumped until they go no further. As the tool reaches the required compression you will feel and hear a click. The tool can then be opened to release the finished crimp.
5. In some case more than one crimp is recommended to ensure the maximum surface area of crimp are achieved. From table 2 we can see for example that a 240mm crimp should be made in 3 equidistant positions along the contact crimp area.





3. Safety and Maintenance Checks

- a) Check external surface of Insulators periodically for signs of cracks or breaks. If there are any signs of damage, then the insulator should be replaced.
- b) Check cable glands for tightness. In use, cable glands can become loose and this could lead to water ingress, so periodic checking is essential.
- c) Check condition and position of Cable gland seal within the cable gland. If any degradation is suspected a new seal or gland should be fitted.
- d) With Drain connectors: check condition of the front O ring for signs of degradation. Also periodically a film of Silicone grease should be applied to the O ring surface. This will allow continued ease of mating and protect the O ring.
- e) With Drain connectors: check the secondary locking pin which is spring loaded moves freely. It should travel fully down to the insulator surface and fully extend.
- f) Check security and position of dowel pins. With a slight tap with a hammer the dowel pins should not move.

Following these steps above will ensure the long term safety and continued performance of your connectors.

*** Replacement parts for service are readily available from the factory*

WARNING! Do not alter this product in any way. Doing so may lead to serious injury or death. Use copper conductors only. Read Instructions completely before wiring. Ensure all safety checks are carried out before and after use. This product should be installed, Inspected and maintained by qualified electricians only, in accordance with local and national electrical codes.



TOOLS

CRIMP TOOLING

**Crimping Tool
HT 131-C Cordless**



**Hydraulic14.4v Crimping Tool
B131-C**



| Cable Size (mm ²) | Inside Diameter | Outside Diameter | Tensile Strength IEC61238-1 | Die Set P/N (No. of Crimps) |
|-------------------------------|-----------------|------------------|--------------------------------|--------------------------------|
| 25 | 7.0mm | 9.4mm | 1.500N | ME 5 (2) |
| 35 | 8.9mm | 11.8mm | 2.100N | ME 07 (2) |
| 50 | 10mm | 13mm | 3.000N | ME 10 (2) |
| 75 | 11.3mm | 14.7mm | 4.200N | ME 14 (2) |
| 95 | 13.5mm | 17.6mm | 5.700N | ME 19 (2) |
| 120 | 15.2mm | 19.7mm | 7.200N | ME 24 (2) |
| 150 | 16.8mm | 21.6mm | 9.000N | ME 30 (2) |
| 185 | 19.2mm | 24.5mm | 11.100N | ME 37 (2) |
| 250 | 21.1mm | 25.4mm | 14.400N | ME 48 (3) |
| 300 | 24mm | 30mm | 18.000N | ME 60 (3) |



SET SCREW TOOLING

**5mm Torque Driver Bit
TD5-BT**



**Torque Driver
TD5-HX-SKT**



ACCESSORIES



IP DUST CAPS

Catalog Numbering System: how to order

IPCP - LD - E - GN

S

STYLE

IPCP – IP67
DC – IP44

T

TYPE

LD – Line Source
LS – Line Drain
PD – Panel Drain
PS – Panel Drain



KEYWAY/COLOUR

| | |
|--------|---------------|
| E – GN | Ground/Green |
| N – BL | Neutral/Blue |
| N – BK | Neutral/Black |
| N – W | Neutral/White |
| 1 – BN | Line 1/Brown |
| 1 – R | Line 1/Red |
| 1 – BK | Line 1/Black |
| 2 – BK | Line 2/Black |
| 2 – Y | Line 2/Yellow |
| 2 – W | Line 2/White |
| 2 – R | Line 2/Red |
| 3 – GY | Line 3/Grey |
| 3 – BL | Line 3/Blue |

DC-PD

Dustcap IP44 for
Panel Drain



IPCP-LD-E-GN

Environmental
Cap IP67 for
Line Drain



IPCP-LS-E-GN

Environmental Cap IP67
for Line Source



DC-PS

Dustcap IP44 for
Panel Source



ACCESSORIES

AMPHE-PHASE RELEASE KEY

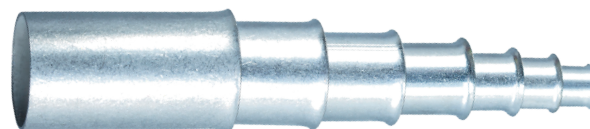
Part Number
Description

APSLRK

Amphe-Phase Secondary Locking Release Key



REDUCTION SLEEVES


Cable Size (mm²)
Part Number
**Set Screw
Torque Minimum**
Cable Jacket Strip Length

| | | | |
|----|-------|---------|------|
| 25 | RSR25 | 10.5 Nm | 33mm |
| 35 | RSR35 | 10.5 Nm | 33mm |
| 50 | RSR50 | 10.5 Nm | 33mm |
| 75 | RSR70 | 10.5 Nm | 33mm |
| 95 | RSR95 | 10.5 Nm | 33mm |



ACCESSORIES

AMPHENOL RANGE

R49 & R24 POWER



Application

Single Contact heavy duty circular connectors harsh environments.

R49-CM R24-CM
R49-PM R24-PM
R49-BM R24-BM

Standard Requirements

CSA and EAC certified

Oil, Alkaline, UV and weather resistant
Insulations: synthetic rubber

Coupling Mounting

Snap action retainer with a hasp bracket that has hole to accommodate standard OSHA compliant lock.

Main Features

- Up to 1490A power
- R24 is the RADSOK option of R49 allowing a smaller packaging and higher power performance
- Basket weave cable retention optional backend
- R24/R49 adaptor flange to retrofit old designs RMP

Markets

Mobile powergen, drilling rigs, petro-chemical, offshore oil drilling, shore to ship/cold ironing, cranes

Contact Termination

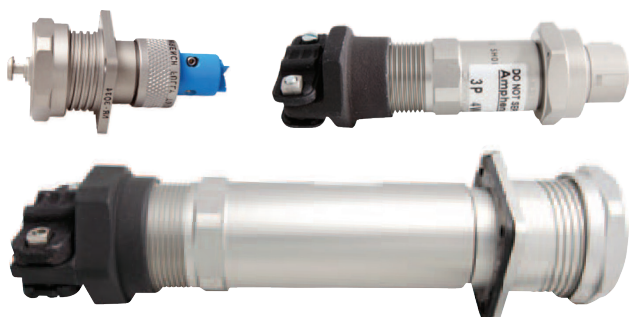
Power contact to accommodate from 4/0AWG (120mm²) up to 777MCM (400mm²)

Performance Environ/Elect

IP67 rating for environmental sealing. Up to high amperage of 1490 amps at 1000V AC or DC rating available.



NEPTUNE CONNECTORS



Application

2, 3, 4 power contact inserts designed to withstand variable frequency drive if required from 30A up to 200A.

Standard Requirements

Neptune Series is UL, EAC and CE.

Coupling Mounting

Machined metal shell provides a heavy duty packaging in a smaller footprint than other connectors in the market. Cable adapters provide ample wire termination spacing.

Main Features

- UL 1682 listed, IEC61984 and EAC certified
- Metal rugged connector for Harsh environments
- Allows use of multi-conductor VFD cables

Markets

Mobile gen set, power generation, lighting, cranes, load banks, events, amusement parks, high powered equipment, welding, convention centres, data centres power temp

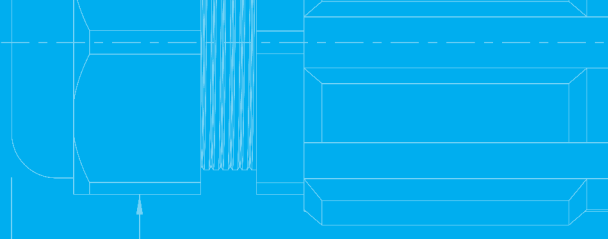
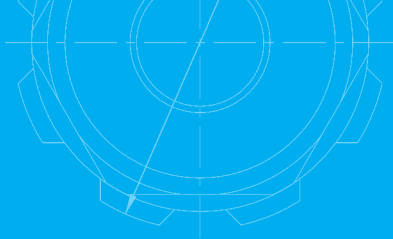
Contact Termination

Pressure terminated contacts used to achieve high amperages up to 200A. Crimp style termination available as optional.

Performance Environ/Elect

VFD inserts with RADSOK provide significantly reduced insertion forces vs. standards. Lower temp rise allows for higher current in a smaller package. Inserts are rated to 600 hz at 1000 volts.





GENLOK AMPHE-PHASE



Markets

Mobile gen set, power generation, lighting, cranes, load banks, events, amusement parks, high powered equipment, welding, convention centers, data centers power temp

Application

Single Contact heavy duty circular connectors panel for harsh environments designed for safety operations.

Standard Requirements

UL Certified (E514205)
UL94-VO
Flammability

Coupling Mounting

Bayonet mechanical locking system requiring a key to unlock for additional safety.

Main Features

- Waterproof & Dust Protection Rating (IP67)
- Sequential mating locking system to ensure safety circuits are connected first and disconnected last (FMLB)
- Finger-Proof Protection against electric shock (IP2X)
- Flame Retardant Materials (UL94-VO)
- Improved Impact Resistance
- Environmental Caps
- UL Certified Product (E514205)

Contact Termination

Power contact to accommodate from 4AWG (25mm²) up to 600MCM (300mm²).

Performance Environ/Elect

IP67 rating for environmental sealing. Up to high amperage of 800 amps at 1000V AC.



SCAN ME

AMPHE-309 PIN & SLEEVE



Main Features

- Industrial Pin and Sleeve standard connectors
- Mechanical Interlock available
- EX and IECEx version available as optional

Markets

Mobile gen set, power generation, lighting, cranes, load banks, events, amusement parks, high powered equipment, welding, convention centres, data centres power temp

Application

3, 4, 5 power contact inserts designed to withstand variable frequency drive if required from 20A up to 100A.

Standard Requirements

IEC 60309-1 & 2,
EN 60309-1 & 2,
BS 4343-2 1992 and
UL 1682 & 1686.

Coupling Mounting

Standard Pin and Sleeve layout inter mateble with the industry. Made with VALOX to achieve optimal performance in harsh environments.

Contact Termination

Pressure terminated contacts facing all to the termination side to reduce installation time.

Performance Environ/Elect

Waterproof IP67 or splash proof IP44 options. 600VAC/ 250 VDC (minimum creepage and clearances per UL 840).



SCAN ME



Amphenol Energy Technologies Headquarters

1701 Birchwood Ave, Des Plaines, IL 60018

Phone: +1 (773) 463 8343 **Website:** www.amphenol-energy.com **Email:** sales@amphenol-aet.com



Amphenol Nelson Dunn Technologies

17719 Valley View Avenue
Cerritos, CA 90703 USA

Phone: +1 (714) 249-7700

Website: www.amphenol-ecs.com



Amphenol Middle East Enterprises FZE

Warehouse # C1-16,
Ajman Free Zone- UAE

Phone: +971 6-7422494

Website: www.amphenol-energy.com



Amphenol Nogales

Prolongacion Reforma 61-6 B2 Col.
Paseo de las Lomas C.P 01330 Mexico

Phone: +52 (55) 5258 9984

Website: www.amphenol-energy.com



Amphenol Energy Technologies

14505 Torrey Chase Blvd, Suite 209,
Houston, TX 70014

Email: sales@amphenol-aet.com

Website: www.amphenol-energy.com