

TUFF-LINK™

MINI-LINK™ PRODUCT FAMILY

Mini-Link™ Interconnects, Cable Assemblies & Receptacles

The Remke family of Mini-Link Industrial Interconnects are available in TPE, Rubber and Plastic. TPE (or thermoplastic elastomer) is ideally suited for environments with chemicals and corrosives, while plastic can be used in most general industrial applications. Mini-Link rubber plugs and cable assemblies are excellent for use in applications where flexibility and resistance to abusive environments through a broad temperature range is important.

Features of the Mini-Link family of interconnects include:

- NEMA 6P and IP 68 protection
- connectors, cable assemblies and receptacles available in male & female, straight and 90° designs in 2 thru 12 pole configurations
- available with either heavy-duty SOOW, SJOOW or STOW cable
- unique Parall-Arc™ contacts that are nickel coated, then gold plated. The female contact incorporates a stainless steel sleeve to restrict expansion and prevent mis-insertion.
- pins and contacts are crimped onto wires with eight indentations assuring secure terminations
- connectors that meet or exceed UL, CSA, NEMA, SAE, IEC and automotive specifications
- integral stain relief and plated coupling nuts



Typical Applications Using Mini-Link Connectors

Sensors on conveyors
Automated assembly equipment
Packaging equipment
Robotics equipment
Bus systems
Transportation equipment

Products That Typically Use Mini-Link Connectors

12 and 18mm proximity sensors
Limit switches
Photoelectric switches
Solenoids & Hydraulic valves
Foot operated switches
Power tools
Cranes, hoists and their controls



TUFF-LINK™

**MINI-LINK™ PRODUCT
ORDERING INFORMATION**

1=Mini-Link

Number of Poles

| | |
|-----------------------|---|
| 02 = 2 Pole | 07 = 7 Pole |
| 03 = 3 Pole | 08 = 8 Pole |
| 04 = 4 Pole | 09 = 9 Pole |
| 05 = 5 Pole | 10 = 10 Pole |
| 06A = 6 Pole (A-Size) | 12 = 12 Pole |
| 06B = 6 Pole (B-Size) | Note: 6 pole (B-Size) through 12 pole in rubber only |

Connector Style

| | |
|---------------------------------|---|
| A = Female Straight | K = M/F Ext.(Straight/Straight) |
| B = Male Straight | Note: External Threaded Male |
| C = Female 90 Degree | L = M/F Ext. (Straight/90°) |
| D = Male 90 Degree | Note: External Threaded Male |
| Note: PVC & TPE Cordsets only | M = M/F Ext.(90°/Straight) |
| E = Male Straight | Note: External Threaded Male |
| Note: External Threaded Male | N = M/F Ext. (90°/90°) |
| F = Male 90 Degree | Note: External Threaded Male |
| Note: External Threaded Male | P = Male Receptacle |
| G = M/F Ext.(Straight/Straight) | Q = Female Receptacle |
| H = M/F Ext. (Straight/90°) | AD = Female Receptacle |
| I = M/F Ext.(90°/Straight) | (Internal Thread 2 to 5 Pole only) |
| J = M/F Ext. (90°/90°) | Note: Other connector styles available. Consult factory. |

Assembly Length (FT.)

| | |
|---------------------------|---------------------|
| 1st Digit is 100 x length | Ex: 0005 is 1/2 ft. |
| 2nd Digit is 10 x length | 0050 is 5 ft. |
| 3rd Digit is 1 x length | 0500 is 50 ft. |
| 4th Digit is .1 x length | 5000 is 500 ft. |

Cable Code

| | |
|-----------------------------|--|
| A = #16 AWG SOOW-Rubber | AP = #16 AWG STOW-Plastic |
| C = #18 AWG SJOW-Rubber | Note: 2 through 5 pole only |
| Note: 2 through 5 pole only | AQ = 18 AWG TPE-Plastic |
| M = #16/1C PVC | Note: 2 through 5 pole only |
| (Receptacles Only) | Note: Other cable codes available. Consult factory. |
| N = #18/1C PVC | |
| (Receptacles Only) | |

Coupling or Shell Option

| | |
|-------------------------------|----------------------------------|
| 1 = Stainless Steel | N = Non-metallic |
| Note: Leave blank | Note: 2 to 5 Pole only. |
| for Std. Materials (Aluminum) | Stainless N/A on 90° Receptacle. |

NOTES

For custom configuration, please contact the factory for pricing
and delivery information.
Other connector styles and cable codes available. Consult factory.

F

1 03 A 0030 A 1

Use this example for help when ordering.

TUFF-LINK™

MINI-LINK™ PVC PLUG ASSEMBLIES

SPECIFICATIONS

Materials

Body: PVC

Contact Carrier: Nitrile Rubber

Contact Sleeve: Stainless Steel

Contact: Brass, Gold Plated over Nickel

Coupling Nut: Machined Aluminum, Black Anodized

Cable: #16 AWG Type STOW, 65 x #34 stranding 105° C

Cable Diameters: 2/C-.37", 3/C-.39", 4/C-.42",
 5/C-.50", 6/C-.53"

Electrical

Voltage Rating: 600 VAC

Contact Resistance: ≤5mΩ

Environmental

Protection: IP68, NEMA 6P

Operating Temp: -20°C to 105°C

Certifications



Recognized,
 File No. E165657



Certified,
 File No. E165657

OPTIONS

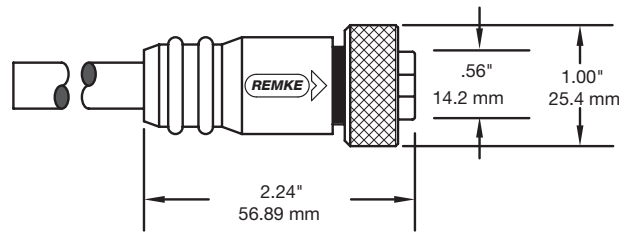
#18 AWG (PVC) Plug Assemblies

Stainless Steel Couplers

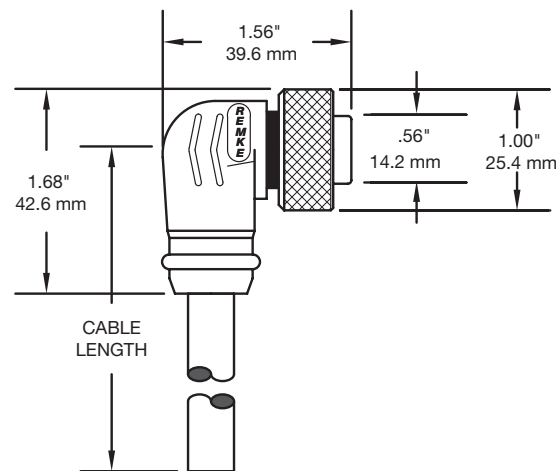
Plastic Couplers

DIMENSIONS

Straight Plug








90° Plug








MALE

PLUG ASSEMBLY PART NUMBERS

| Number of Poles | Male Face View | Wiring Color Code | AMP RTG. @ 600V | Cable Length | Straight | 90 Degree |
|-----------------|--|--|----------------------------------|--------------------------------|--|--|
| 2 |  | 1-WHITE 2-BLACK | 13A 13A 13A 13A | 3 FT 6 FT 12 FT 20 FT | 102B0030AP 102B0060AP 102B0120AP 102B0200AP | 102D0030AP 102D0060AP 102D0120AP 102D0200AP |
| 3 |  | 1-GREEN 2-BLACK 3-WHITE | 13A 13A 13A 13A | 3 FT 6 FT 12 FT 20 FT | 103B0030AP 103B0060AP 103B0120AP 103B0200AP | 103D0030AP 103D0060AP 103D0120AP 103D0200AP |
| 4 |  | 1-BLACK 2-WHITE 3-RED 4-GREEN | 10A 10A 10A 10A | 3 FT 6 FT 12 FT 20 FT | 104B0030AP 104B0060AP 104B0120AP 104B0200AP | 104D0030AP 104D0060AP 104D0120AP 104D0200AP |
| 5 |  | 1-WHITE 2-RED 3-GREEN 4-ORANGE 5-BLACK | 8A 8A 8A 8A 8A | 3 FT 6 FT 12 FT 20 FT | 105B0030AP 105B0060AP 105B0120AP 105B0200AP | 105D0030AP 105D0060AP 105D0120AP 105D0200AP |
| 6 |  | 1-WHITE 2-RED 3-GREEN 4-ORANGE 5-BLACK 6-BLUE | 8A 8A 8A 8A 8A 8A | 3 FT 6 FT 12 FT 20 FT | 106AB0030AP 106AB0060AP 106AB0120AP 106AB0200AP | 106AD0030AP 106AD0060AP 106AD0120AP 106AD0200AP |

FEMALE

PLUG ASSEMBLY PART NUMBERS

| Number of Poles | Female Face View | Wiring Color Code | AMP RTG. @ 600V | Cable Length | Straight | 90 Degree |
|-----------------|---|--|----------------------------------|--------------------------------|--|--|
| 2 |  | 1-WHITE 2-BLACK | 13A 13A 13A 13A | 3 FT 6 FT 12 FT 20 FT | 102A0030AP 102A0060AP 102A0120AP 102A0200AP | 102C0030AP 102C0060AP 102C0120AP 102C0200AP |
| 3 |  | 1-GREEN 2-BLACK 3-WHITE | 13A 13A 13A 13A | 3 FT 6 FT 12 FT 20 FT | 103A0030AP 103A0060AP 103A0120AP 103A0200AP | 103C0030AP 103C0060AP 103C0120AP 103C0200AP |
| 4 |  | 1-BLACK 2-WHITE 3-RED 4-GREEN | 10A 10A 10A 10A | 3 FT 6 FT 12 FT 20 FT | 104A0030AP 104A0060AP 104A0120AP 104A0200AP | 104C0030AP 104C0060AP 104C0120AP 104C0200AP |
| 5 |  | 1-WHITE 2-RED 3-GREEN 4-ORANGE 5-BLACK | 8A 8A 8A 8A 8A | 3 FT 6 FT 12 FT 20 FT | 105A0030AP 105A0060AP 105A0120AP 105A0200AP | 105C0030AP 105C0060AP 105C0120AP 105C0200AP |
| 6 |  | 1-WHITE 2-RED 3-GREEN 4-ORANGE 5-BLACK 6-BLUE | 8A 8A 8A 8A 8A 8A | 3 FT 6 FT 12 FT 20 FT | 106AA0030AP 106AA0060AP 106AA0120AP 106AA0200AP | 106AC0030AP 106AC0060AP 106AC0120AP 106AC0200AP |

TUFF-LINK™

PVC MINI-LINK™ CABLE ASSEMBLIES



SPECIFICATIONS

Materials

Body: PVC
Contact Carrier: Nitrile Rubber
Contact Sleeve: Stainless Steel
Contact: Brass, Gold Plated over Nickel
Coupling Nut: Machined Aluminum, Black Anodized
Cable: #16 AWG Type STOW, 65 x #34 stranding, 105° C
Cable Diameters: 2/C-.37", 3/C-.39", 4/C-.42", 5/C-.50", 6/C-.53"

Electrical

Voltage Rating: 600 VAC
Contact Resistance: ≤5mΩ

Environmental

Protection: IP68, NEMA 6P
Operating Temp: -20°C to 105°C

Certifications

Recognized, File No. E165657
 Certified, File No. E165657

OPTIONS

#18 AWG (PVC) Plug Assemblies
Stainless Steel Couplers
Plastic Couplers

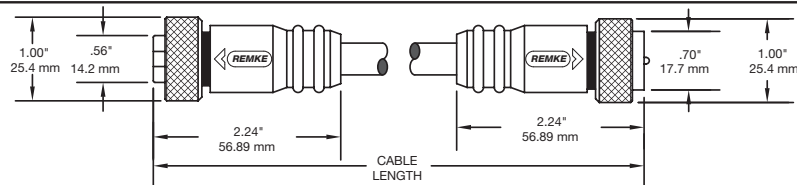
DOUBLE END CABLE ASSEMBLIES

CABLE ASSEMBLY PART NUMBERS

| Number of Poles | Male Face View | Female Face View | Wiring Color Code | Amp RTG. @600V | Cable Length | Male/Female Assembly |
|-----------------|----------------|------------------|--|----------------------------------|--------------------------------|--|
| 2 | | | 1-WHITE 2-BLACK | 13A 13A 13A 13A | 3 FT 6 FT 12 FT 20 FT | 102G0030AP 102G0060AP 102G0120AP 102G0200AP |
| 3 | | | 1-GREEN 2-BLACK 3-WHITE | 13A 13A 13A 13A | 3 FT 6 FT 12 FT 20 FT | 103G0030AP 103G0060AP 103G0120AP 103G0200AP |
| 4 | | | 1-BLACK 2-WHITE 3-RED 4-GREEN | 10A 10A 10A 10A | 3 FT 6 FT 12 FT 20 FT | 104G0030AP 104G0060AP 104G0120AP 104G0200AP |
| 5 | | | 1-WHITE 2-RED 3-GREEN 4-ORANGE 5-BLACK | 8A 8A 8A 8A 8A | 3 FT 6 FT 12 FT 20 FT | 105G0030AP 105G0060AP 105G0120AP 105G0200AP |
| 6 | | | 1-WHITE 2-RED 3-GREEN 4-ORANGE 5-BLACK 6-BLUE | 8A 8A 8A 8A 8A 8A | 3 FT 6 FT 12 FT 20 FT | 106AG0030AP 106AG0060AP 106AG0120AP 106AG0200AP |

DIMENSIONS

Male/Female Cordset



TUFF-LINK™

MINI-LINK™ PVC TEE CONNECTORS

SPECIFICATIONS

Materials

Body: PVC

Contact Carrier: PVC

Contacts: Copper Alloy, Gold Plated

Coupling Nut: Aluminum, Clear Anodized

Electrical

Voltage Rating: 300VAC

Ampacity: 8 AMPS

Environmental

Protection: IP67

Operating Temp: -40°C to 105°C

Certifications

Pending

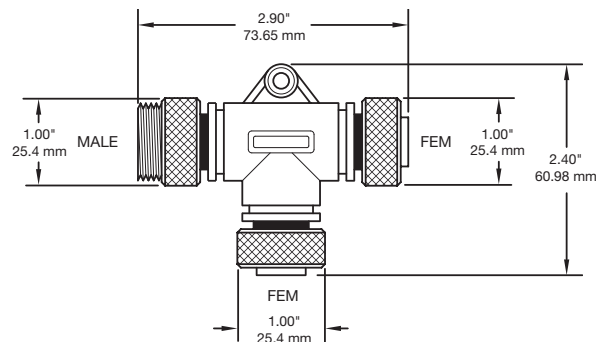


TEE CONNECTOR PART NUMBERS

| Number of Poles | Male Face View | Female Face View | Configuration | Wiring Diagram | Male/Female TEE |
|-----------------|----------------|------------------|--------------------|----------------|-----------------|
| 3 | | | 1-Male 2-Female | | TM/MFF3 |
| 4 | | | 1-Male 2-Female | | TM/MFF4 |
| 5 | | | 1-Male 2-Female | | TM/MFF5 |

F

DIMENSIONS



TUFF-LINK™

2 TO 6 POLE RUBBER MINI-LINK™ ASSEMBLIES

SPECIFICATIONS

Materials

Body: Nitrile Rubber

Contact: Brass, Gold Plated over Nickel

Sleeve: Stainless Steel

Coupling Nut: Machined Aluminum,
Black Anodized
(stainless steel available)

Cable: #16 AWG NBR/PVC Rubber 65 x
#34 stranding 90° C, UL Recognized
SOOW, CSA Certified

Cable Diameters: 2/C-.37", 3/C-.39",
4/C-.42", 5/C-.50", 6/C-.53"

Electrical

Voltage Rating: 600 VAC

Contact Resistance: ≤5mΩ

Environmental

Protection: IP68, NEMA 6P

Operating Temp: -50°C to 90°C (UL),
-34°C to 90°C (CSA)

Certifications



Recognized,
File No. E165657



Certified,
File No. E165657

OPTIONS

Stainless Steel Hardware can be specified -
add "SS" after Part Number; to
specify 18 AWG Cable, add "-18" after the
Part Number. For Nylon hardware - add "N"
after Part Number.

Consult the factory for custom cord lengths,
and a full range of wire
management product accessories.

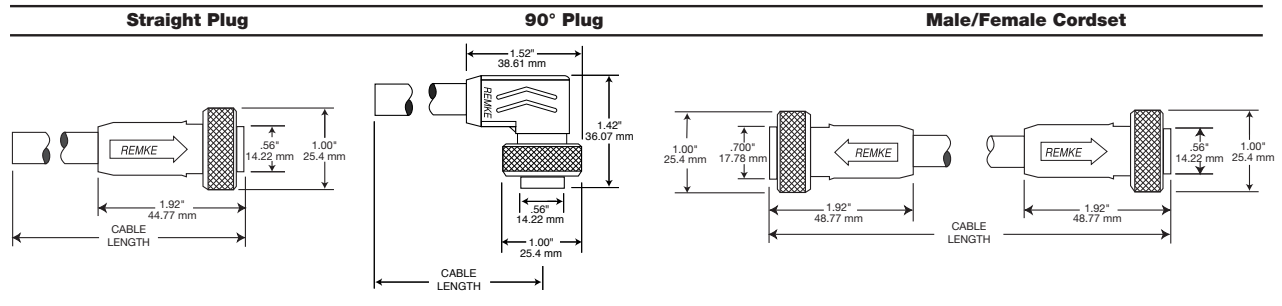


PLUGS AND CABLE ASSEMBLIES WITH #16 AWG SOOW-A CABLE

PLUG ASSEMBLY PART NUMBERS

| Number of Poles | Male Face View | Wiring Color Code | AMP RTG. @600V | Cable Length | Male Straight | Female Straight | Female 90 Degree | Male/Female Assembly |
|-----------------|----------------|-------------------|----------------|--------------|---------------|-----------------|------------------|----------------------|
| 2 | | | | | | | | |
| | | 1-WHITE | 13A | 3 FT | 50707 | 50710 | 50710-90 | 50783 |
| | | 2-BLACK | 13A | 6 FT | 50708 | 50711 | 50711-90 | 50725 |
| | | | 13A | 12 FT | 50709 | 50712 | 50712-90 | 50730 |
| | | | 13A | 20 FT | 50752 | 50748 | 50748-90 | 50743 |
| 3 | | | | | | | | |
| | | 1-GREEN | 13A | 3 FT | 50904 | 50901 | 50901-90 | 50973 |
| | | 2-BLACK | 13A | 6 FT | 50905 | 50902 | 50902-90 | 51018 |
| | | 3-WHITE | 13A | 12 FT | 50906 | 50903 | 50903-90 | 50946 |
| | | | 13A | 20 FT | 50982 | 50974 | 50974-90 | 50945 |
| 4 | | | | | | | | |
| | | 1-BLACK | 10A | 3 FT | 51110 | 51107 | 51107-90 | 51119 |
| | | 2-WHITE | 10A | 6 FT | 51111 | 51108 | 51108-90 | 51120 |
| | | 3-RED | 10A | 12 FT | 51112 | 51109 | 51109-90 | 51115 |
| | | 4-GREEN | 10A | 20 FT | 51134 | 51177 | 51177-90 | 51118 |
| 5 | | | | | | | | |
| | | 1-WHITE | 8A | 3 FT | 51315 | 51306 | 51306-90 | 51319 |
| | | 2-RED | 8A | 6 FT | 51316 | 51307 | 51307-90 | 51320 |
| | | 3-GREEN | 8A | 12 FT | 51317 | 51308 | 51308-90 | 51343 |
| | | 4-ORANGE | 8A | 20 FT | 51332 | 51322 | 51322-90 | 105G0200A |
| | | 5-BLACK | | | | | | |
| 6 | | | | | | | | |
| | | 1-WHITE | 8A | 3 FT | 106AB0030A | 106AA0030A | 106AC0030A | 106AG0030A |
| | | 2-RED | 8A | 6 FT | 106AB0060A | 106AA0060A | 106AC0060A | 106AG0060A |
| | | 3-GREEN | 8A | 12 FT | 106AB0120A | 106AA0120A | 106AC0120A | 106AG0120A |
| | | 4-ORANGE | 8A | 20 FT | 106AB0200A | 106AA0200A | 106AC0200A | 106AG0200A |
| | | 5-BLACK | | | | | | |
| | | 6-BLUE | | | | | | |

DIMENSIONS



TUFF-LINK™

6 TO 8 POLE RUBBER MINI-LINK™ ASSEMBLIES



SPECIFICATIONS

Materials

Body: Nitrile Rubber
Contact: Brass, Gold Plated over Nickel
Sleeve: Stainless Steel
Coupling Nut: Machined Aluminum, Black Anodized (stainless steel available)
Cable: #16 AWG NBR/PVC Rubber 65 x #34 stranding 90° C, UL Recognized SOOW, CSA Certified
Cable Diameters: 6/C-.53", 7/C-.54", 8/C-.60"

Electrical

Voltage Rating: 600 VAC
Contact Resistance: ≤5mΩ

Environmental




Protection: IP68, NEMA 6P
Operating Temp: -50°C to 90°C (UL), -34°C to 90°C (CSA)

OPTIONS

Stainless Steel Hardware can be specified - add "SS" after Part Number.
Consult the factory for custom cord lengths, and a full range of wire management product accessories.

PLUGS AND CABLE ASSEMBLIES WITH #16 AWG SOOW-A CABLE

PLUG ASSEMBLY PART NUMBERS

| Number of Poles | Male Face View | Wiring Color Code | AMP RTG. @600V | Cable Length | Male Straight | Female Straight | Female 90 Degree | Male/Female Assembly |
|---|-----------------|-------------------|----------------|--------------|---------------|-----------------|------------------|----------------------|
| 6 B-Size | | | | | | | | |
|  | 1-ORANGE | 8A | 3 FT | 52608 | 52601 | 52601-90 | 52671 | |
| | 2-BLUE | 8A | 6 FT | 52609 | 52602 | 52602-90 | 52611 | |
| | 3-BLACK | 8A | 12 FT | 52610 | 52603 | 52603-90 | 52628 | |
| | 5-RED | 8A | 20 FT | 52627 | 52685 | 52685-90 | 52660 | |
| | 6-GREEN | | | | | | | |
| 7 | | | | | | | | |
|  | 1-WHT.BLK. TR. | 8A | 3 FT | 52808 | 52801 | 52801-90 | 52862 | |
| | 2-BLACK | 8A | 6 FT | 52809 | 52802 | 52802-90 | 52819 | |
| | 3-WHITE | 8A | 12 FT | 52810 | 52803 | 52803-90 | 52820 | |
| | 4-RED | 8A | 20 FT | 52872 | 52821 | 52821-90 | 52866 | |
| | 5-ORANGE | | | | | | | |
| | 6-BLUE | | | | | | | |
| | 7-GREEN | | | | | | | |
| 8 | | | | | | | | |
|  | 1-ORANGE | 7A | 3 FT | 53008 | 53001 | 53001-90 | 53056 | |
| | 2-BLUE | 7A | 6 FT | 53009 | 53002 | 53002-90 | 53015 | |
| | 3-WHT.-BLK. TR. | 7A | 12 FT | 53010 | 53003 | 53003-90 | 53067 | |
| | 4-BLACK | 7A | 20 FT | 53066 | 53062 | 53062-90 | 53073 | |
| | 5-WHITE | | | | | | | |
| | 6-RED | | | | | | | |
| | 7-GREEN | | | | | | | |
| | 8-RED-BLK. TR. | | | | | | | |

TUFF-LINK™

9 TO 12 POLE RUBBER MINI-LINK™ ASSEMBLIES



SPECIFICATIONS

Materials

Body: Nitrile Rubber

Contact: Brass, Gold Plated over Nickel

Sleeve: Stainless Steel

Coupling Nut: Machined Aluminum,
Black Anodized (stainless steel available)

Cable: #16 AWG NBR/PVC Rubber 65 x
#34 stranding 90° C,
UL Recognized SOOW, CSA Certified

Cable Diameters: 9/C-.62", 10/C-.63",
12/C-.67"

Electrical

Voltage Rating: 600 VAC

Contact Resistance: ≤5mΩ

Environmental

Protection: IP68, NEMA 6P

Operating Temp: -50°C to 90°C (UL),
-34°C to 90°C (CSA)

Certifications



Recognized,
File No. E165657



Certified,
File No. E165657

OPTIONS

Stainless Steel Hardware can be specified -
add "SS" after Part Number.




Consult the factory for custom cord lengths,
and a full range of wire
management product accessories.

NOTE

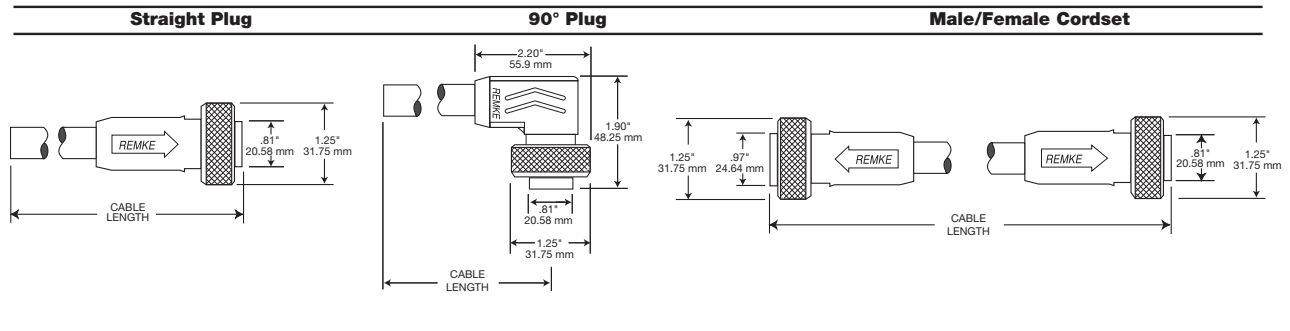
Not available in #18 AWG.

PLUGS AND CABLE ASSEMBLIES WITH #16 AWG SOOW-A CABLE

PLUG ASSEMBLY PART NUMBERS

| Number of Poles | Male Face View | Wiring Color Code | | AMP RTG. @600V | Cable Length | Male Straight | Female Straight | Female 90 Degree | Male/Female Assembly |
|---|------------------|-------------------|----|----------------|--------------|---------------|-----------------|------------------|----------------------|
| 9 | | | | | | | | | |
|  | 1-ORANGE | 6-RED | 7A | 3 FT | 57008 | 57001 | 57001-90 | 57029 | |
| | 2-BLUE | 7-GREEN | 7A | 6 FT | 57009 | 57002 | 57002-90 | 57051 | |
| | 3-RED -BLK. TR. | 8-WHITE-BLK.TR. | 7A | 12 FT | 57010 | 57003 | 57003-90 | 57052 | |
| | 4-GREEN-BLK. TR | 9-BLACK | 7A | 20 FT | 57057 | 57043 | 57043-90 | 57025 | |
| | 5-WHITE | | | | | | | | |
| 10 | | | | | | | | | |
|  | 1-ORANGE | 6- ORG.-BLK. TR. | 7A | 3 FT | 57208 | 57201 | 57201-90 | 57253 | |
| | 2-BLUE | 7-RED | 7A | 6 FT | 57209 | 57202 | 57202-90 | 57224 | |
| | 3-WHT.-BLK.TR. | 8-GREEN | 7A | 12 FT | 57210 | 57203 | 57203-90 | 57250 | |
| | 4-RED-BLK TR. | 9-BLACK | 7A | 20 FT | 57235 | 57239 | 57239-90 | 57212 | |
| | 5-GREEN-BLK. TR. | 10-WHITE | | | | | | | |
| 12 | | | | | | | | | |
|  | 1-ORANGE | 7-BLUE-BLK.TR. | 5A | 3 FT | 57408 | 57401 | 57401-90 | 57479 | |
| | 2-BLUE | 8-BLK.-WHT.TR. | 5A | 6 FT | 57409 | 57402 | 57402-90 | 57413 | |
| | 3-WHT.-BLK.TR. | 9-GREEN | 5A | 12 FT | 57410 | 57403 | 57403-90 | 57446 | |
| | 4-RED-BLK TR. | 10-RED | 5A | 20 FT | 57425 | 57449 | 57449-90 | 57424 | |
| | 5-GREEN-BLK. TR. | 11-WHITE | | | | | | | |
| | 6- ORG.-BLK. TR. | 12-BLACK | | | | | | | |

DIMENSIONS



TUFF-LINK™

2 TO 6 POLE MINI-LINK™ RECEPTACLES



SPECIFICATIONS

Materials

Insert Material: Nitrile Rubber
Contact: Brass, Gold Plated over Nickel
Sleeve: Stainless Steel
Shell: Machined Aluminum, Black Anodized (stainless steel available)
Wire: #16 AWG/600 Volts 26 x #30 Stranding
"O" Ring: Viton
Lock Nut: Plated Steel (not pictured)

Electrical

Voltage Rating: 600 VAC
Contact Resistance: ≤5mΩ

Environmental

Protection: IP68, NEMA 6P
Operating Temp: -50°C to 90°C (UL),
-34°C to 90°C (CSA)

Certifications

Recognized,
File No. E165657
 Certified,
File No. E165657

OPTIONS

Stainless Steel Hardware can be specified - add "SS" after Part Number; to specify 18 AWG Wire add "-18" after the Part Number.

*-Not available in stainless steel.

Consult the factory for custom wire length and a full range of wire management product accessories.

NOTE

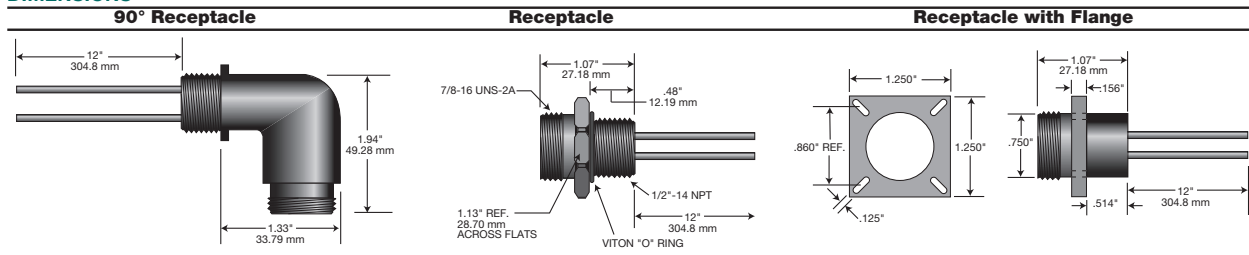
Knock-out dimensions in Tuff-Link Technical Reference Section.

RECEPTACLES WITH 12" PIGTAIL LEADS

PLUG ASSEMBLY PART NUMBERS

| Number of Poles | AMPS | Male Face View | Wiring Color Code | Male Straight | Male 90 Degree* | Male Flange Mt.* | Female Straight | Female 90 Degree* | Female Flange Mt.* |
|-----------------|-----------|----------------|--|---------------|-----------------|------------------|-----------------|-------------------|--------------------|
| 2 | 13 | | 1-WHITE 2-BLACK | 50705 | 50706 | 50799 | 50701 | 50702 | 50798 |
| 3 | 13 | | 1-GREEN 2-BLACK 3-WHITE | 50909 | 50908 | 50992 | 50910 | 50911 | 50991 |
| 4 | 10 | | 1-BLACK 2-WHITE 3-RED 4-GREEN | 51103 | 51101 | 51198 | 51104 | 51105 | 51197 |
| 5 | 8 | | 1-WHITE 2-RED 3-GREEN 4-ORANGE 5-BLACK | 51310 | 51311 | 51397 | 51313 | 51314 | 51396 |
| 6 | 8 | | 1-WHITE 2-RED 3-GREEN 4-ORANGE 5-BLACK 6-BLUE | 106AF001QM | 106AU001QM | 106APF001QM | 106AQ001QM | 106AV001QM | 106AQF001QM |

DIMENSIONS



TUFF-LINK™

6 TO 8 POLE MINI-LINK™ RECEPTACLES



SPECIFICATIONS

Materials

Insert Material: Nitrile Rubber
Contact: Brass, Gold Plated over Nickel
Sleeve: Stainless Steel
Shell: Machined Aluminum, Black Anodized (stainless steel available)
Wire: #16 AWG/600 Volts 26 x #30 Stranding
"O" Ring: Viton
Lock Nut: Plated Steel (not pictured)

Electrical

Voltage Rating: 600 VAC
Contact Resistance: ≤5mΩ

Environmental

Protection: IP68, NEMA 6P
Operating Temp: -50°C to 90°C (UL),
-34°C to 90°C (CSA)

Certifications

Recognized,
File No. E165657
 Certified,
File No. E165657

OPTIONS

Stainless Steel Hardware can be specified - add "SS" after Part Number; to specify 18 AWG Wire add "-18" after the Part Number. Consult the factory for custom wire length and a full range of wire management product accessories.

NOTE

Knock-out dimensions in Tuff-Link Technical Reference Section.

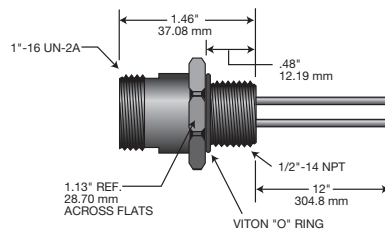
RECEPTACLES WITH 12" PIGTAIL LEADS

PLUG ASSEMBLY PART NUMBERS

| Number of Poles | AMPS | Male Face View | Wiring Color Code | Male Straight | Female Straight |
|-----------------|----------|----------------|---|---------------|-----------------|
| 6 B Size | 8 | | 1-ORANGE 2-BLUE 3-BLACK 4-WHITE 5-RED 6-GREEN | 52605 | 52607 |
| 7 | 8 | | 1-WHT. BLK. TR. 2-BLACK 3-WHITE 4-RED 5-ORANGE 6-BLUE 7-GREEN | 52805 | 52807 |
| 8 | 7 | | 1-ORANGE 2-BLUE 3-WHT.-BLK. TR. 4-BLACK 5-WHITE 6-RED 7-GREEN 8-RED-BLK. TR. | 53005 | 53007 |

DIMENSIONS

Receptacle



TUFF-LINK™

9 TO 12 POLE MINI-LINK™ RECEPTACLES



SPECIFICATIONS

Materials

Insert Material: Nitrile Rubber
Contact: Brass, Gold Plated over Nickel
Sleeve: Stainless Steel
Shell: Machined Aluminum, Black Anodized (stainless steel available)
Wire: #16 AWG/600 Volts 26 x #30 Stranding
"O" Ring: Viton
Lock Nut: Plated Steel (not pictured)

Electrical

Voltage Rating: 600 VAC
Contact Resistance: ≤5mΩ

Environmental

Protection: IP68, NEMA 6P
Operating Temp: -50°C to 90°C (UL),
-34°C to 90°C (CSA)

Certifications

Recognized,
File No. E165657
 Certified,
File No. E165657

OPTIONS

Stainless Steel Hardware can be specified - add "SS" after Part Number; to specify 18 AWG Wire add "-18" after the Part Number.
*-Not available in stainless steel.

Consult the factory for custom wire length and a full range of wire management product accessories.

NOTE

Knock-out dimensions in Tuff-Link Technical Reference Section.

RECEPTACLES WITH 12" PIGTAIL LEADS

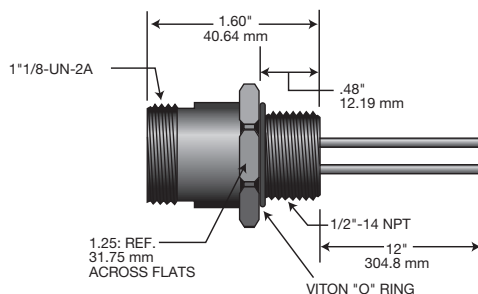
PLUG ASSEMBLY PART NUMBERS

| Number of Poles | AMPS | Male Face View | Wiring Color Code | | Male Straight | Female Straight |
|-----------------|------|----------------|--|---|---------------|-----------------|
| 9 | 7 | | 1-ORANGE 2-BLUE 3-RED-BLK. TR. 4-GREEN-BLK. TR 5-WHITE | 6-RED 7-GREEN 8-WHITE-BLK.TR. 9-BLACK | 57005 | 57007 |
| 10 | 7 | | 1-ORANGE 2-BLUE 3-WHT.-BLK.TR. 4-RED-BLK TR. 5-GREEN-BLK. TR. | 6-ORG.-BLK. TR. 7-RED 8-GREEN 9-BLACK 10-WHITE | 57205 | 57207 |
| 12 | 5 | | 1-ORANGE 2-BLUE 3-WHT.-BLK. TR. 4-RED-BLK TR. 5-GREEN-BLK. TR. 6- ORG.-BLK. TR. | 7-BLUE-BLK.TR. 8-BLK.-WHT.TR. 9-GREEN 10-RED 11-WHITE 12-BLACK | 57405 | 57407 |

F

DIMENSIONS

Receptacle



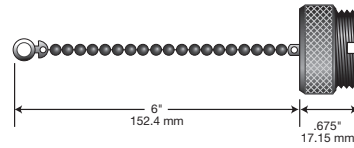
TUFF-LINK™

**MINI-LINK™ AND WIRE
MANAGEMENT ACCESSORIES**

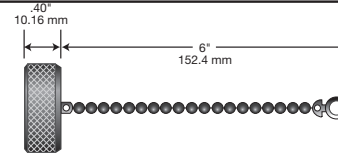


CLOSURE CAPS FOR PLUGS AND RECEPTACLES

Plug



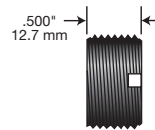
Receptacle



| Number of Poles | Plugs | Receptacles |
|--------------------------|---------|-------------|
| 2, 3, 4, 5 or 6 (A-Size) | 75-0085 | 75-0086 |
| 6 (B-Size), 7 or 8 | 75-0102 | 75-0103 |
| 9, 10 or 12 | 75-0104 | 75-0105 |

Also available in stainless steel

ADAPTER FOR JOINING TWO CABLE ASSEMBLIES



| Number of Poles | Part Number |
|-----------------|-------------|
| 2 to 6 (A-Size) | 56-0426 |
| 6 (B-Size) to 8 | 56-0466 |
| 9 to 12 | 56-0496 |

Also available in stainless steel

STRAIN RELIEF CORD GRIPS

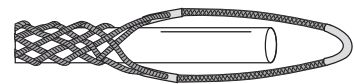
Available in standard sizes (1/4" through 3"), Remke Cord Grips are produced in aluminum, nylon, steel and stainless steel to provide maximum sealing and support for cord terminations. Custom designs are available, including designs with metric threads and other special features. Inquire of your Remke Representative or Distributor.

Cord Grips



Wide Range Grips

Bus Drop Grips



TUFF-LINK™

MICRO-PORT™ AND MINI-PORT™ DISTRIBUTION BOXES

Micro-Port and Mini-Port Distribution Boxes

Remke's Micro-Port and Mini-Port Distribution Boxes consolidate up to 12 connections into a single base unit. Using these boxes means you can change components in seconds and conserve space by utilizing a single cable connection to your control system instead of up to eight separate cables.

Micro-Port Distribution Boxes feature:

- Parallel wiring
- Standard gold-plated contacts for enhanced connectivity
- PVC, PUR or rubber cables to meet various environmental needs
- 4, 6 or 8 outlets in either 3 or 4 pole, single or dual keyway configurations

Mini-Port Distribution Boxes feature

- Parallel wiring or optional Series wiring
- Standard gold-plated contacts for enhanced connectivity
- PVC, PUR or rubber cables to meet various environmental needs
- 4, 6 or 8 outlets in a 3 pole configuration

All Remke distribution boxes are designed to eliminate the need for knockouts and terminal strips so that wiring errors won't occur – saving you both time and money during installation and maintenance.



Typical Applications Using Mini-Port Or Micro-Port Distribution Boxes

Automotive assembly
Robotics
Packaging machinery
Conveyors
Material handling equipment
Automated machinery

Products That Typically Use Mini-Port Or Micro-Port Distribution Boxes

8mm, 12mm or 18mm

- proximity sensors
- limit switches
- solenoids
- miniature controls



* Consult elecDirect.com customer service for further details.

TUFF-LINK™

TUFF-LINK™ BUS SYSTEM CONNECTOR PRODUCTS

Tuff-Link™ Bus System Connector Products

Developed to meet DeviceNet™, Honeywell SDS™ and Seriplex™ network architecture, the Tuff-Link family of Bus System Connector Products are designed for harsh industrial environments including IP 68 conditions. The product line includes connectors, cable assemblies, receptacles, molded tees, terminators and several types of multi-port junction boxes all of which meet NEMA, IEC, UL & CSA standards.

The family of Bus System Connector Products includes:

- both Mini-Link™ and Micro-Link™ 5-pole connectors which are available as either single or double-ended cable assemblies in a variety of male/female and straight/90° configurations with optional stainless steel couplers
- mating male or female panel mount receptacles for any cable assembly configuration.
 - these receptacles feature both an O-Ring and locknut to create the tightest seal possible – which are features that most other connector manufacturers offer only as an option.
- Mini-Port and Micro-Port Bus Box in two styles: passive feed-thru and passive drop
 - Passive feed-thru boxes are ideal for applications where the trunk line of the bus network is adjacent to machines since this style box takes the place of a molded tee.
 - Both the Mini and Micro versions of the passive feed-thru box are available with 4 or 6 ports.
 - Passive drop boxes are available with 4, 6 or 8 ports in both the Mini and Micro sizes.

The Tuff-Link Bus System product family also includes tees and terminators molded from durable PVC with optional stainless steel couplers.



* Consult elecDirect.com customer service for further details.

TUFF-LINK™

TUFF-LINK TECHNICAL REFERENCE SECTION

RoHS STATEMENT

Remke Industries supports the European Union's efforts to remove harmful chemicals from electrical products. In compliance with Directive 2002/95/EC of the European Parliament and the Council of the European Union regarding the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), Remke Industries certifies either:

1. The maximum concentration values of weight in homogenous materials for the substances referred to in Article 4(1) of directive 2002/95/EC that are contained in the Products do not exceed the maximum concentration values of 0.1% in respect of lead, mercury, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers, and 0.01% in respect of cadmium. OR
2. The product supplied is exempt from this directive.

Remke Industries certifies that all products of our manufacture are fully compliant to the current RoHS Directive.

KNOCKOUT HOLE DIMENSIONS

| N.P.T. Hub Size | Knockout Hole Recommended (Min to Max/Inches) |
|--------------------|--|
| 1/4" | .540 to .570 |
| 3/8" | .671 to .701 |
| 1/2" | .859 to .906 |
| 3/4" | 1.094 to 1.141 |
| 1" | 1.359 to 1.406 |
| 1 1/4" | 1.719 to 1.766 |
| 1 1/2" | 1.969 to 2.016 |
| 2" | 2.453 to 2.500 |
| 2 1/2" | 2.953 to 3.000 |
| 3" | 3.578 to 3.625 |

COMPOUND RESISTANCE TABLE

| Category | PVC | PUR | Rubber | TPE |
|-------------------------------|-----|-----|--------|-----|
| Abrasion Resistance | F-G | E | E | E |
| Acid Resistance | G-E | E | G | E |
| Alcohol Resistance | G-E | E | G | E |
| Alkali Resistance | G-E | E | F-G | E |
| Benzol, Toluol Resistance | G-E | E | F-G | E |
| Degreaser Solvents Resistance | P-F | G-E | P | G-E |
| Electrical Properties | F-G | E | G | E |
| Flame Resistance | G-E | G-E | P-F | E |
| Gasoline Resistance | P | G-E | F-G | E |
| Heat Resistance | G | G-E | G | G-E |
| Low Temp Flexability | P-F | G | G-E | G-E |
| Nuclear Radiation Resistance | F | E | F-G | P |
| Oil Resistance | F | O | G | O |
| Oxidation Resistance | E | E | G | O |
| Ozone Resistance | E | E | G | E |
| Water Resistance | G-E | G-E | G-E | G |
| Weather, Sunlight Resistance | G-E | E | F-G | O |
| Weld Slag Resistance | F | G-E | O | G-E |

NOTES

P=Poor, F=Fair, G=Good, E=Excellent, O=Outstanding

These ratings are based on average performances of general use compounds. Special compounding can enhance performance capabilities.

CABLE CROSS REFERENCE AWG TO mm²

| AWG | mm ² | AWG | mm ² | AWG | mm ² |
|-----|-----------------|-----|-----------------|-----|-----------------|
| 30 | 0.05 | 21 | 0.38 | 16 | 1.5 |
| 28 | 0.08 | 20 | 0.5 | 14 | 2.5 |
| 26 | 0.14 | 18 | 0.75 | 12 | 4 |
| 24 | 0.25 | 17 | 1 | 10 | 6 |
| 22 | 0.34 | | | 8 | 10 |

F

TUFF-LINK APPLICATION GUIDE

| PRODUCT | CONNECTS TO | APPLICATIONS |
|---|---|--|
| PICO-LINK Connectors | 8mm sensors, switches, actuators, etc. Miniature modular controls Printed circuit boards Temperature probes | Robotic end arm tooling Gear tooth sensing Conveyors Material handling equipment Packaging equipment |
| MICRO-LINK Connectors | M12 sensors & actuators Modular controls and solenoids 12 & 18mm sensors & actuators Photoelectric switches Proximity, pressure & limit switches Hydraulic & pneumatic valves | Conveyors Pick-n-place robots & machines Assembly & packaging lines OEM machines & equipment Transfer lines Automated machinery |
| MINI-LINK Connectors | 12 & 18mm sensors & actuators Solenoids & hydraulic valves Fractional HP motors Proximity, pressure & limit switches Power tools & foot operated switches Controls for cranes & hoists | Material handling systems Assembly & packaging lines Conveyors OEM machines & equipment Robotics Transportation equipment |
| MICRO-PORT & MINI-PORT DISTRIBUTION BOXES | 8-12- or 18mm sensors & actuators Proximity, pressure & limit switches Solenoids & Miniature controls | Wire consolidation on automated assembly, material handling and packaging equipment Wire consolidation in robotics |

MATERIAL/APPLICATION GUIDE - CABLE JACKET MATERIAL

| | COST | TYPICAL APPLICATIONS |
|--|------------------|---|
| TYPE SOOW & SJOOW RUBBER Excellent resistance to oils, acids, chemicals, water, ozone, extreme temperatures, cuts, tears & abrasion. Flame retardant & highly flexible. Indoor/outdoor rated. Sunlight resistant. | Moderate to High | Extra hard usage on industrial equipment, heavy tools, motors, welding with hot substrates like weld spatter, machinery mining applications, and where solvents, oil and coolants exist. |
| PVC (polyvinylchloride) Excellent flame, heat, oxidation and moisture resistance. Good performance in a wide range of temperatures. Good resistance to tearing & abrasions and resists some cutting fluids. | Low | General assembly applications, general industrial machinery, controls & control instrumentation. Other applications include general wiring, and outdoors. Not suited for high-flex applications. |
| PUR (polyurethane) Excellent resistance to oils, solvents, greases, oxidation, ozone. Excellent cut-through, tear, and abrasion performance. Resistant to many industrial fluids. Poor resistance to steam, high temperatures and acids. Long flex life. | Moderate | High abuse areas including metal cutting and machining. High-flex applications including robotics. Good in cold temperature & freezer applications. Good in applications with mechanical abuse, vibration and impact. |
| TPE (thermoplastic elastomer) Excellent ozone, chemical, oil and water resistance. Rated for constant flexing. Highly flexible and resistant to flame, weld slag, broad range of chemicals & corrosive cutting fluids. Excellent abrasion resistance, wide range of operating temperatures, good weatherability. | Moderate | General use in harsh environments. Ideal in automotive plants -welding robots, machining and general use. Mobile equipment or machines. High-flex applications like end of arm tooling, grippers, robots and other automated equipment. |
| SILICONE Excellent high temperature resistance. Temperature range -65 to +260 degrees C. | Moderate to High | Food processing, packaging, refrigeration, furnaces, foundries, glass manufacturing, steel mills & other high temperature processes. |

MATERIAL/APPLICATION GUIDE - COUPLING NUT MATERIAL

| | STANDARD OR OPTIONAL | TYPICAL APPLICATIONS |
|--|----------------------|--|
| ANODIZED ALUMINUM Stronger & more durable than regular aluminum with increased corrosion resistance and surface hardness. Highly resistant to scratches & wear. Resists moisture and salt spray. Durable and easy to maintain - cleans easily. | Standard | Good to use in applications where durability is critical including food manufacturing & prep equipment, automotive production, general manufacturing, marine industry, medical & dental equipment, pulp and paper. |
| STAINLESS STEEL Rated to IP 68 and can withstand 1200 PSI applications with water, detergents & surfactants. Corrosion resistant, retains strength at high temperatures, easy cleaning, attractive appearance, excellent impact resistance, high resistance to shock at low & high temperatures. Provides the longest protection against freezing and rusting. | Optional | Excellent for wash down environments and food industry applications or any place caustic materials are used. Ideal for use in hospitals, dairies, automotive, conveyors, chemical & petrochemical plants, oil & gas offshore and onshore, power generation. |
| NICKEL PLATED BRASS Superior protection against corrosion. Provides enhanced appearance and superior conductivity. More economical than stainless steel. Resistant to salt water, weak acids and alkalis, alcohol, esters, ketones, ether, gasoline, mineral oil, animal and vegetable oil. | Standard | Ideally suited for washdown environments in food processing plants at ASTM salt spray tests indicate corrosion resistance with similar properties of stainless steel. Also suited for waste-water treatment facilities, offshore & marine industry. |
| PEEK POLYMERS High performance thermoplastic with melting temperature of 649°F. Exceptional strength. Excellent resistance to wide range of chemical environments even at higher temperatures. Insoluble in most common solvents. Can be used in steam or high water pressure. Resistant to oil, fire and smoke. | Optional | Well suited for use in automotive and transport machinery, food & beverage equipment and parts, industrial and chemical processing equipment, medical & healthcare devices, military & defense equipment, oil and gas machinery, deep drilling components textile machinery. |