



# INDUSTRIAL & COMMERCIAL TRANSPORTATION

Terminals and Connectors



# Contents

## General Information

|                                 |      |
|---------------------------------|------|
| About TE Connectivity .....     | 2    |
| TE.com .....                    | 3    |
| Introduction to Connectors..... | 4-5  |
| Connector Series Overview.....  | 6-10 |

## AMP Products

|                               |       |
|-------------------------------|-------|
| AMPSEAL Connectors .....      | 11-20 |
| AMPSEAL 16 Connectors .....   | 21-34 |
| Circular DIN Connectors.....  | 35-44 |
| HDSCS Connectors.....         | 45-62 |
| LEAVYSEAL Connectors .....    | 63-78 |
| Superseal 1.0 Connectors..... | 79-84 |

## DEUTSCH Products

|                          |         |
|--------------------------|---------|
| AEC Series .....         | 85-90   |
| DRB Series .....         | 91-98   |
| DRC Series .....         | 99-108  |
| DT Family .....          | 109-132 |
| HD10 Series .....        | 133-144 |
| HD30 & HDP20 Series..... | 145-160 |
| STRIKE Series .....      | 161-168 |
| Common Contacts.....     | 169-180 |
| Tooling.....             | 181-190 |

## Specialty Products

|                                        |         |
|----------------------------------------|---------|
| Bussing Options .....                  | 191-194 |
| Controller Area Networks .....         | 195-207 |
| Diodes & Resistors.....                | 205-208 |
| Printed Circuit Board Connectors ..... | 209-222 |
| Single Terminal.....                   | 223-228 |

## Additional Resources

|                                                                   |         |
|-------------------------------------------------------------------|---------|
| Modification List.....                                            | 230-238 |
| Other TE Industrial & Commercial Transportation<br>Products ..... | 239-240 |
| Requirements & Standards.....                                     | 241     |
| Glossary .....                                                    | 242-247 |
| Index .....                                                       | 248-252 |

### We go to extremes to make sure EVERY CONNECTION COUNTS.

TE Connectivity's (TE) products are in nearly every high-tech product imaginable. From consumer electronics, health care, energy supply, and communication networks, to the transportation and aviation industries, TE's extensive portfolio of over 500,000 products keep the world connected. TE's intelligent and robust solutions and technologies carry over to the industrial and heavy duty vehicle markets. TE offers products that work just as hard as the vehicles in which they are installed.



Years ago, tractors, construction equipment, trucks, and boats had simple electrical systems that might have included electrical starting and a basic lighting package. Today, ECUs, joysticks, fuel-efficient engines, LED lights, and CAN systems are standard equipment. The need to protect sensitive electrical systems from vibration, moisture, dust, dirt, salt and airborne particles has never been greater. TE Industrial & Commercial Transportation is a leader in supporting today's increasingly complex and sophisticated equipment and applications.

TE's comprehensive line of Industrial & Commercial Transportation products include an unparalleled portfolio of rugged electrical connector products and sensor technologies. TE's environmentally sealed connectors are designed to withstand the harshest environmental conditions and to keep vehicles moving forward. TE's portfolio of heavy duty sensors help vehicles operate safer, cleaner, and smarter.

From heavy duty trucks to construction equipment, mining vehicles to fire trucks, as well as boats, motorcycles, and tractors, leading manufacturers count on TE Industrial & Commercial Transportation.



### Online Resources

The TE Connectivity Industrial & Commercial Transportation's website is an innovative and interactive source for application information, product updates, and technical solutions.



### PRODUCT LITERATURE AND VIDEOS

TE Industrial & Commercial Transportation offers a variety of product specific catalogs, brochures, and videos to better serve you.

For more information on literature for TE Industrial & Commercial Transportation, please contact your representative or go to <http://www.te.com/usa-en/industries/truck-bus-off-road-vehicles/ictliterature.html>

To view videos about TE Industrial & Commercial Transportation, please go to <http://www.te.com/usa-en/industries/truck-bus-off-road-vehicles/ict-video-index.html>

### TE INDUSTRIAL & COMMERCIAL TRANSPORTATION PRODUCTS

For more information on TE Industrial & Commercial Transportation products, please go to <http://www.te.com/usa-en/industries/truck-bus-off-road-vehicles/products.html>



### PRODUCT INFORMATION CENTER (PIC)

You can rely on TE Connectivity's PIC team to provide support for answers to your general information or technical questions in an efficient and effective manner.

Connect with our PIC staff, <http://www.te.com/usa-en/customer-support/email.html>

## Introduction to Connectors

In heavy industries, electrical systems must stand up to rigorous conditions and all weather environments. Failure in an electrical system can be expensive to diagnose and down equipment can stop entire operations. As equipment becomes increasingly sophisticated and reliant on electronic packaging and diagnostics, design engineers know the importance of choosing environmentally sealed electrical connectors capable of holding up to extreme conditions. Many manufacturers count on TE Connectivity Industrial & Commercial Transportation's electrical connectors to maintain their electrical connections.



### Benefits of industrial connectors

There are many different connectors for harsh environments and connector selection for each specific application is important. Once the questions of wire gauge and pin count have been addressed, the environmental challenges specific to each application must be identified, including if the electrical system will be exposed to heat, impact or vibration. Other elements that need to be addressed include if the connectors will be susceptible to moisture or chemicals and field serviceability. Developed with simplicity of design and ease of use in mind, TE connectors offer a variety of innovative solutions to suit nearly any application and stand up to environmental challenges.

Whether for a new application or a retrofit, connectors provide simplified design and wiring, and easy field repairs. TE Industrial & Commercial Transportation's connector applications include ECUs, joysticks, industrial and marine engines, control boxes, lights and CAN systems, just to mention a few. TE Industrial & Commercial Transportation's connector series offer several features designed to combat environmental challenges.

### Connector features help protect electrical connections

Connector bodies must be able to stand up to environmental conditions. Rugged all-metal bodies and corrosion resistant thermoplastic shells are manufactured from high quality materials selected for their ability to withstand years of environmental exposure. Metal connectors are built to withstand the force and shock of hard impacts that connectors face in rough environments. High-grade thermoplastic connectors are lightweight and are engineered to be flame resistant and extremely chemical resistant. Different connector body materials are available to meet diverse application requirements.

## Introduction to Connectors

Proper contact alignment is another important aspect of environmentally sealed electrical connectors. Secondary locks snap into or onto the mating face of a connector to help confirm the contacts slide together properly when the connectors are mated. Many of TE Industrial & Commercial Transportation's connectors feature secondary locks that are commonly referred to as wedgelocks, terminal position assurance (TPA), or primary latch reinforcement (PLR). Wedgelocks, TPAs, and PLRs provide additional stability to both the contact barrel and the mated connectors.

A firm, secure locking mechanism that can withstand vibration and shock is critical to maintain a steadfast connector engagement in rugged applications. TE Industrial & Commercial Transportation's connectors are held together by push-latches, threaded coupling rings, or tightened together by jackscrews. The locking mechanisms are easy to engage and disengage and give an audible or tactile signal when they are securely fastened. Once fastened, the locking mechanisms prevent disengagement due to vibration or impact.

Since even a small degradation in electrical connections can be critical to industrial vehicles, manufacturers are turning to TE Industrial & Commercial Transportation's environmentally sealed electrical connectors to keep their equipment running. Connectors are increasingly needed as industrial equipment becomes more complex and reliant on electronic control units, CAN systems, and on-board communications systems. With a wide variety of industrial electrical connectors, manufacturers can find a connector for nearly any application. No matter the environment, TE's industrial connectors provide the innovative solutions demanded by harsh conditions. TE's dedication to quality and innovation has created a unique system of easy-to-use connectors to simplify processes from start to finish.



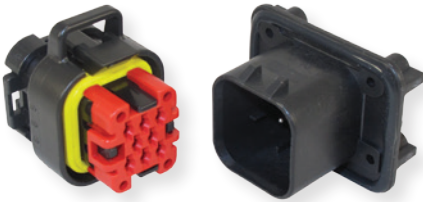
### Connector Series Overview

TE Connectivity connectors offer different shapes, latching mechanisms, mounting styles, and materials to meet diverse application requirements and offer accessories to further expand the series' flexibility. Below is an overview of each connector series that highlights the cavity count, wire gauge, material, and locking mechanism style. For complete series information, please see the series section of the catalog.



#### AEC Series

- Accepts contact size 16 (13 amps)
- 14-20 AWG (2.00-0.50 mm<sup>2</sup>)
- 40 cavity arrangement
- In-line
- Square, thermoplastic housing
- Jackscrew for mating



#### AMPSEAL Connectors

- Accepts contact size 1.3 mm (up to 17 amps gold, up to 8 amps tin)
- 16-20 AWG (1.25-0.50 mm<sup>2</sup>)
- 8, 14, 23, and 35 cavity arrangements
- PCB mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Integrated wedgelock confirms contact alignment and retention
- Product specification documents: 108-1329 and 114-16016



#### AMPSEAL 16 Connectors

- Accepts contact size HDSF 16 (up to 13 amps)
- 14-20 AWG (2.00-0.50 mm<sup>2</sup>)
- 2, 3, 4, 6, 8, and 12 cavity arrangements
- In-line mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Integrated Primary Latch Reinforcement (PLR) confirms contact alignment and retention
- Product specification documents: 108-2184, 114-13045, and 114-13065





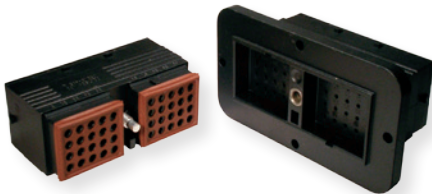
### Circular DIN Connectors

- Accepts contact size 2.5 mm (up to 40 amps)
- 2.50-0.20 mm<sup>2</sup>
- 2, 3, and 4 cavity arrangements
- In-line, flange, or PCB mount
- Circular, thermoplastic housing
- Coupling ring for mating
- Product specification documents: 108-18621 and 114-18255



### DRB Series

- Accepts contact sizes 4 (100 amps), 8 (60 amps), 12 (25 amps), 16 (13 amps), and 20 (7.5 amps)
- 6-22 AWG (16.00-0.35 mm<sup>2</sup>)
- 48, 60, 102, and 128 cavity arrangements
- Flange mount
- Rectangular, thermoplastic housing
- Jackscrew for mating
- Wedgelocks confirm contact alignment and retention



### DRC Series

- Accepts contact sizes 16 (13 amps), and 20 (7.5 amps)
- 14-22 AWG (2.50-0.35 mm<sup>2</sup>)
- 24, 38, 40, 50, 60, 64, 70, and 76 cavity arrangements
- In-line, flange, or PCB mount
- Rectangular, thermoplastic housing
- Jackscrew for mating



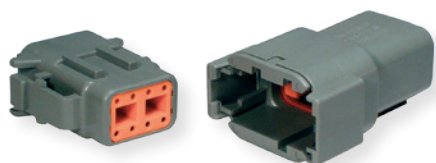
### DT Series

- Accepts contact size 16 (13 amps)
- 14-20 AWG (2.00-0.50 mm<sup>2</sup>)
- 2, 3, 4, 6, 8, and 12 cavity arrangements
- In-line, flange, or PCB mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Wedgelocks confirm contact alignment and retention
- Product specification document: 108-151009



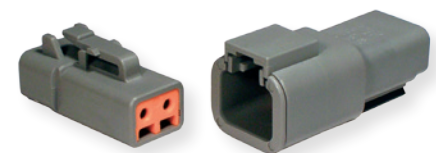
### DTHD Series

- Accepts contact sizes 4 (100 amps), 8 (60 amps), and 12 (25 amps)
- 6-14 AWG (16.00-2.00 mm<sup>2</sup>)
- 1 cavity arrangement
- In-line or flange mount
- Circular, thermoplastic housing
- Integrated latch for mating



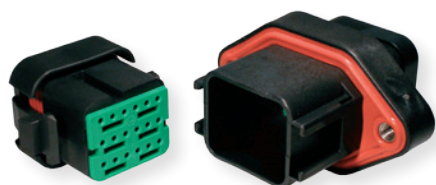
### DTM Series

- Accepts contact size 20 (7.5 amps)
- 14-22 AWG (2.50-0.35 mm<sup>2</sup>)
- 2, 3, 4, 6, 8, and 12 cavity arrangements
- In-line, flange, or PCB mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Wedgelocks confirm contact alignment and retention
- Product specification document: 108-151010



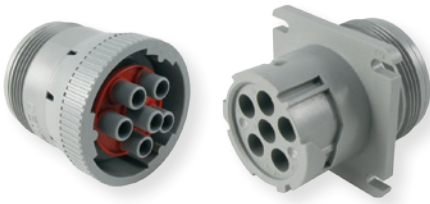
### DTP Series

- Accepts contact size 12 (25 amps)
- 10-14 AWG (6.00-2.00 mm<sup>2</sup>)
- 2 and 4 cavity arrangements
- In-line, flange, or PCB mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Wedgelocks confirm contact alignment and retention



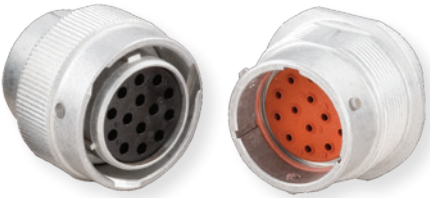
### DTV Series

- Accepts contact size 16 (13 amps)
- 14-20 AWG (2.00-0.50 mm<sup>2</sup>)
- 18 cavity arrangement
- Flange mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Wedgelocks confirm contact alignment and retention



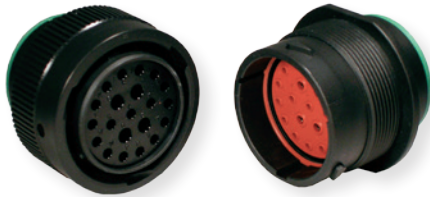
### HD10 Series

- Accepts contact sizes 4 (100 amps), 12 (25 amps), and 16 (13 amps)
- 6-20 AWG (16.00-0.50 mm<sup>2</sup>)
- 3, 4, 5, 6, and 9 cavity arrangements
- In-line, flange, or PCB mount
- Circular, thermoplastic housing
- Coupling ring for mating



### HD30 Series

- Accepts contact sizes 4 (100 amps), 8 (60 amps), 12 (25 amps), 16 (13 amps), and 20 (7.5 amps)
- 6-22 AWG (13.00-0.35 mm<sup>2</sup>)
- 2, 6, 8, 9, 14, 16, 18, 19, 20, 21, 23, 29, 31, 33, 35, and 47 cavity arrangements
- In-line or flange mount
- Circular, aluminum housing
- Coupling ring for mating



### HDP20 Series

- Accepts contact sizes 4 (100 amps), 8 (60 amps), 12 (25 amps), 16 (13 amps), and 20 (7.5 amps)
- 4-22 AWG (25.00-0.35 mm<sup>2</sup>)
- 2, 6, 7, 8, 9, 14, 16, 18, 19, 20, 21, 23, 29, 31, 33, 35, and 47 cavity arrangements
- In-line or flange mount
- Circular, thermoplastic housing
- Coupling ring for mating



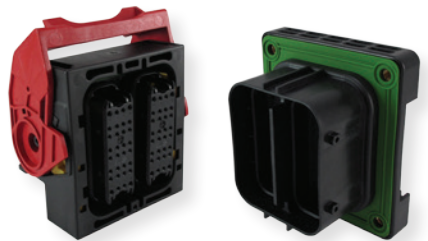
### HDSCS Connectors

- Accepts contact sizes 6.3 (up to 40 amps), 2.8 (up to 40 amps), and 1.5K (up to 20 amps)
- 6.00-0.20 mm<sup>2</sup>
- 2, 3, 4, 6, 7, 8, 10, 12, 15, 16, and 18 cavity arrangements
- In-line or flange mount
- Rectangular, thermoplastic housing
- Slide lock for mating
- Integrated secondary lock confirms contact alignment and retention
- Product specification documents: 108-94020 and 114-18756



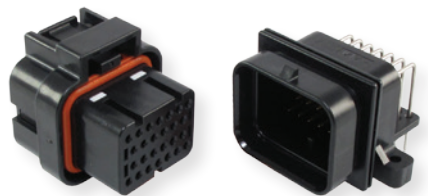
### LEAVYSEAL Connectors

- Accepts contact sizes 6.3 (up to 40 amps), 2.8 (up to 40 amps), and 1.5K (up to 20 amps)
- 6.00-0.20 mm<sup>2</sup>
- 15, 18, 21, 22, 26, 29, 31, 39, 46, 62, and 92 cavity arrangements
- In-line, flange, or PCB mount
- Rectangular, thermoplastic housing
- Lever for mating
- Integrated secondary lock confirms contact alignment and retention
- Product specification documents: 108-18696 and 114-18376



### STRIKE Series

- Accepts contact sizes 16 (13 amps) and 20 (7.5 amps)
- 14-22 AWG (2.50-0.35 mm<sup>2</sup>)
- 32 and 64 cavity arrangements
- In-line, flange, or PCB mount
- Square, thermoplastic housing
- Lever for mating
- TPA confirms contact alignment and retention



### Superseal 1.0 Connectors

- Accepts contact size 1.0 mm (up to 15 amps)
- 1.25-0.50 mm<sup>2</sup>
- 26, 34, and 60 cavity arrangements
- PCB mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- TPA confirms contact alignment and retention
- Product specification documents: 108-78140 and 114-78011



# Contents

AMPSEAL Connector Overview .....12

Product Documentation .....12

Performance Specifications .....12

Material Specifications .....13

Dimensions .....13

Configurations .....13

Ordering Information ..... 14

Accessories .....15

Contacts ..... 15-16

Tooling .....17

How To Instructions .....18-19

### AMPSEAL Connector Overview

AMPSEAL connectors provide rugged reliability and environmental sealing. They are available in cable plugs and PCB mount headers that are designed to stand up to high-temperature underhood applications. The pre-assembled receptacle housing connector features built-in contact sealing and an integral interfacial seal that protects mated connectors.



### APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with AMPSEAL connector products. The following TE Connectivity document numbers may be helpful:

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| 54285-2 (Catalog Section)             | 408-3229 (Instruction Sheet)          |
| 108-1329 (Product Specification)      | 408-9592 (Instruction Sheet, Tooling) |
| 114-16016 (Application Specification) | 408-9999 (Instruction Sheet, Tooling) |

### AMPSEAL CONNECTOR PERFORMANCE SPECIFICATIONS

|                               |                                                                                                                                                                                                                                                                                                           |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Current:</b>               | Up to 17 amps gold, up to 8 amps tin                                                                                                                                                                                                                                                                      |
| <b>Temperature:</b>           | Operating at temperatures -40°C to +125°C for gold plated, -40°C to +105°C for tin plated                                                                                                                                                                                                                 |
| <b>Durability:</b>            | See <i>note</i> . Mate and unmate specimens for 10 cycles at maximum rate of 600 cycles per hour.                                                                                                                                                                                                         |
| <b>Physical Shock:</b>        | No discontinuities of 1 microsecond or longer duration. TE Spec 109-26-1. Subject mated specimens to 50 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Fig 5 in TE product document 108-1329. |
| <b>Insulation Resistance:</b> | 100 megohms minimum. TE Spec 109-28-4. Test between adjacent contacts of mated specimens.                                                                                                                                                                                                                 |
| <b>Immersion:</b>             | Leakage current not to exceed 50 micro-amperes at 48 volts DC. TE Spec 109-74-5. Immerse specimens to a depth of 100 mm in 5% salt water at a temperature of $23 \pm 5^\circ \text{C}$ for 1 hour. Check between adjacent circuits and each surface to reference electrode.                               |
| <b>Random Vibration:</b>      | See <i>note</i> . TE Spec 109-21-7, Condition G, except 10-500 Hz frequency range. Subject mated specimens to 10 Gs for 8 hours each plane.                                                                                                                                                               |
| <b>Voltage:</b>               | 250 volts AC                                                                                                                                                                                                                                                                                              |

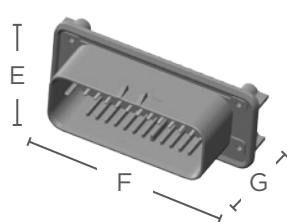
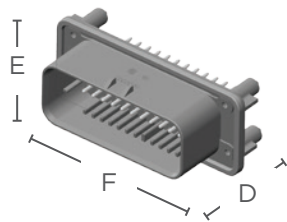
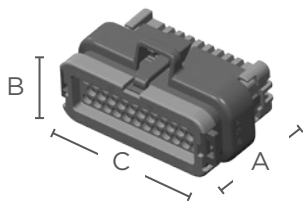
Note: Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 3 of TE product document 108-1329.

# AMPSEAL Connectors

## MATERIAL SPECIFICATIONS

- Wire Seal:** Silicone rubber
- Mating Seal:** Silicone rubber
- Cover:** Glass filled PBT
- Locking Wedge:** PBT

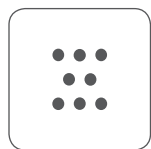
## DIMENSIONS



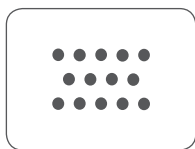
| AMPSEAL Receptacle Housing |                     |                     |                    | AMPSEAL Header                  |                     |                    |                         |
|----------------------------|---------------------|---------------------|--------------------|---------------------------------|---------------------|--------------------|-------------------------|
| Cavity                     | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>Straight<br>D | Overall Height<br>E | Overall Width<br>F | Overall Length 90°<br>G |
| 8                          | 1.32 (33.6)         | 1.36 (34.6)         | 1.08 (27.4)        | 1.35 (34.3)                     | 1.26 (32.1)         | 1.61 (40.8)        | 1.49 (37.9)             |
| 14                         | 1.32 (33.6)         | 1.36 (34.6)         | 1.39 (35.4)        | 1.35 (34.3)                     | 1.26 (32.1)         | 1.92 (48.8)        | 1.49 (37.9)             |
| 23                         | 1.32 (33.6)         | 1.36 (34.6)         | 1.87 (47.4)        | 1.35 (34.25)                    | 1.26 (32.1)         | 2.39 (60.8)        | 1.49 (37.9)             |
| 35                         | 1.32 (33.6)         | 1.36 (34.6)         | 2.50 (63.4)        | 1.35 (34.25)                    | 1.26 (32.1)         | 3.03 (76.9)        | 1.49 (37.9)             |

Dimensions are for reference only.

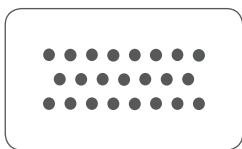
## CONFIGURATIONS



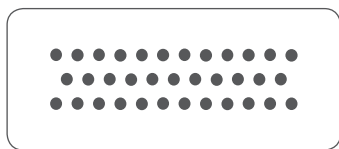
**8 Positions**  
8 size 1.3 mm



**14 Positions**  
14 size 1.3 mm



**23 Positions**  
23 size 1.3 mm



**35 Positions**  
35 size 1.3 mm

## ORDERING INFORMATION

| Position | Keyed Housing Color | Contact Finish | Receptacle Housing | Right-Angle PCB Header |            | Vertical PCB Header |            |
|----------|---------------------|----------------|--------------------|------------------------|------------|---------------------|------------|
|          |                     |                |                    | Without Seal           | With Seal  | Without Seal        | With Seal  |
| 8        | Black               | Tin plated     | 776286-1           | 776279-1               | 776280-1   | 776275-1            | 776276-1   |
|          |                     | Gold plated    |                    | 1-776279-1             | 1-776280-1 | 1-776275-1          | 1-776276-1 |
|          | Natural             | Tin plated     | 776286-2           | 776279-2               | 776280-2   | 776275-2            | 776276-2   |
|          |                     | Gold plated    |                    | 1-776279-2             | 1-776280-2 | 1-776275-2          | 1-776276-2 |
| 14       | Black               | Tin plated     | 776273-1           | 776266-1               | 776267-1   | 776261-1            | 776262-1   |
|          |                     | Gold plated    |                    | 1-776266-1             | 1-776267-1 | 1-776261-1          | 1-776262-1 |
|          | Natural             | Tin plated     | 776273-2           | 776266-2               | 776267-2   | 776261-2            | 776262-2   |
|          |                     | Gold plated    |                    | 1-776266-2             | 1-776267-2 | 1-776261-2          | 1-776262-2 |
|          | Gray                | Tin plated     | 776273-4           | 776266-4               | 776267-4   | 776261-4            | 776262-4   |
|          |                     | Gold plated    |                    | 1-776266-4             | 1-776267-4 | 1-776261-4          | 1-776262-4 |
|          | Blue                | Tin plated     | 776273-5           | 776266-5               | 776267-5   | 776261-5            | 776262-5   |
|          |                     | Gold plated    |                    | 1-776266-5             | 1-776267-5 | 1-776261-5          | 1-776262-5 |
| 23       | Black               | Tin plated     | 770680-1           | 770669-1               | 776087-1   | 776200-1            | 776228-1   |
|          |                     | Gold plated    |                    | 1-770669-1             | 1-776087-1 | 1-776200-1          | 1-776228-1 |
|          | Natural             | Tin plated     | 770680-2           | 770669-2               | 776087-2   | 776200-2            | 776228-2   |
|          |                     | Gold plated    |                    | 1-770669-2             | 1-776087-2 | 1-776200-2          | 1-776228-2 |
|          | Gray                | Tin plated     | 770680-4           | 770669-4               | 776087-4   | 776200-4            | 776228-4   |
|          |                     | Gold plated    |                    | 1-770669-4             | 1-776087-4 | 1-776200-4          | 1-776228-4 |
|          | Blue                | Tin plated     | 770680-5           | 770669-5               | 776087-5   | 776200-5            | 776228-5   |
|          |                     | Gold plated    |                    | 1-770669-5             | 1-776087-5 | 1-776200-5          | 1-776228-5 |
| 35       | Black               | Tin plated     | 776164-1           | 776180-1               | 776163-1   | 776230-1            | 776231-1   |
|          |                     | Gold plated    |                    | 1-776180-1             | 1-776163-1 | 1-776230-1          | 1-776231-1 |
|          | Natural             | Tin plated     | 776164-2           | 776180-2               | 776163-2   | 776230-2            | 776231-2   |
|          |                     | Gold plated    |                    | 1-776180-2             | 1-776163-2 | 1-776230-2          | 1-776231-2 |
|          | Gray                | Tin plated     | 776164-4           | 776180-4               | 776163-4   | 776230-4            | 776231-4   |
|          |                     | Gold plated    |                    | 1-776180-4             | 1-776163-4 | 1-776230-4          | 1-776231-4 |
|          | Blue                | Tin plated     | 776164-5           | 776180-5               | 776163-5   | 776230-5            | 776231-5   |
|          |                     | Gold plated    |                    | 1-776180-5             | 1-776163-5 | 1-776230-5          | 1-776231-5 |
|          | Orange              | Gold plated    | 776164-6           | 1-776180-6             | 1-776163-6 | -                   | 1-776231-6 |

## AMPSEAL Connectors

### WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

| Contact Size                                  | Standard Seal          |
|-----------------------------------------------|------------------------|
| 1.3 mm<br>16-20 AWG (1.5-0.5mm <sup>2</sup> ) | .067-.106<br>(1.7-2.7) |

### Accessories

Wire relief is available as an accessory for the AMPSEAL 23 and 35 positions connectors. The wire relief offers a high level of protection and helps reduce strain from the wires.

### WIRE RELIEF



| Positions | Part Number                                                        | Description                                                                        |
|-----------|--------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 23        | 776464-1<br>(one half, two halves required per receptacle housing) | Vertical, sealed receptacle housing wire relief (accepts no. 4 self-tapping screw) |
| 35        | 776463-1<br>(one half, two halves required per receptacle housing) | Vertical, sealed receptacle housing wire relief (accepts no. 4 self-tapping screw) |

### Contacts

The AMPSEAL connectors commonly use the 1.3 mm three contact beam lanceless stamped & formed contact system.

### 1.3 MM CONTACT PERFORMANCE SPECIFICATIONS

#### Durability

TE Spec 109-27. Mate and unmate specimens for 10 cycles at maximum rate of 600 cycles per hour. See *note*.

#### Current Rating

Up to 17 amps gold, up to 8 amps tin, consult TE product document 108-1329.

#### Contact Retention

TE Spec 109-30. Apply an axial load of 115 N to contacts in the axial direction with wedge lock in locked position. Contacts shall not dislodge.

#### Crimp Tensile Strength

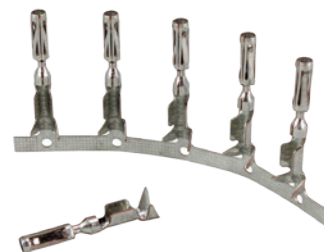
| Contact Size | Tensile Strength |
|--------------|------------------|
| Size 20      | 80 lbs           |
| Size 18      | 90 lbs           |
| Size 16      | 150 lbs          |

Note: Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 3 of TE product document 108-1329.

## AMPSEAL Connectors

### 1.3 MM STAMPED & FORMED CONTACTS FOR AMPSEAL

| Size      | Receptacle Part Numbers |                     |             |                     | Wire Size<br>AWG (mm <sup>2</sup> ) | Insulation<br>Diameter<br>(mm) | Finish                   |
|-----------|-------------------------|---------------------|-------------|---------------------|-------------------------------------|--------------------------------|--------------------------|
|           | Strip Form              | Package<br>Quantity | Loose Piece | Package<br>Quantity |                                     |                                |                          |
| 1.3<br>mm | 770520-1                | 5000                | 770854-1    | 1000                | 16-20<br>(1.5-0.5)                  | .067-.106<br>(1.7-2.7)         | Pre-tin<br>plated        |
|           | 770520-3                | 5000                | 770854-3    | 1000                |                                     |                                | Selective<br>gold plated |



### SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity that has been pierced must be filled with the appropriate size sealing plug.



| Color | Part Number | Contact Size | Wire Gauge<br>Range | Material |
|-------|-------------|--------------|---------------------|----------|
| White | 770678-1    | 1.3 mm       | 16-20 AWG           | Nylon    |



## AMPSEAL Connectors

### Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

#### HAND TOOLS FOR 1.3 MM CONTACTS



PRO-CRIMPER III    CERTI-CRIMP II

| Receptacle<br>Strip Form | Receptacle<br>Loose Piece | Tool P/N  | Description                                       |
|--------------------------|---------------------------|-----------|---------------------------------------------------|
| 770520-1<br>770520-3     | 770854-1<br>770854-3      | 58529-1   | PRO-CRIMPER III hand tool<br>and die set assembly |
|                          |                           | 2217748-1 | CERTI-CRIMP II straight<br>action hand tool       |

Note: Base PRO-CRIMPER III tool part number with -2 suffix is the part number for the die set, which can be ordered separately

#### AUTOMATED TOOLING FOR 1.3 MM CONTACTS

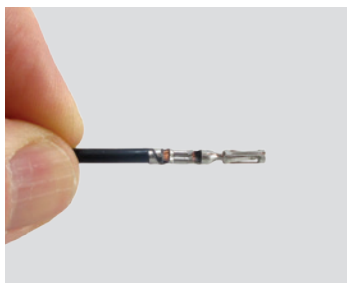


| Receptacle<br>Strip Form | Applicator P/N | Description                                       |
|--------------------------|----------------|---------------------------------------------------|
| 770520-1<br>770520-3     | 2151376-1      | OCEAN end feed applicator<br>with mechanical feed |
|                          | 2151376-2      | OCEAN end feed applicator<br>with pneumatic feed  |

Note: Applicators with additional feed styles are available, contact your representative

### How To Instructions

#### CONTACT INSERTION

**Step 1:**

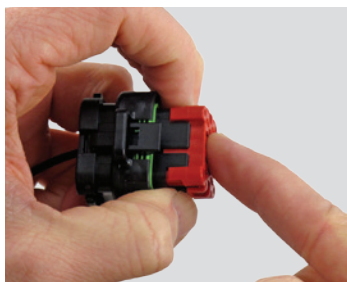
Grasp crimped contact approximately one inch behind the contact barrel.

**Step 2:**

Check that the wedgelock of the plug assembly is in open position. Align the contact with the applicable cavity.

**Step 3:**

Insert the contact into the connector cavity until there is an audible and tactile click. A slight tug will verify the contact is locked in place.

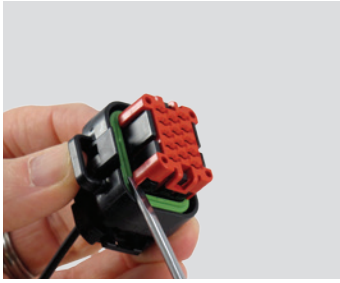
**Step 4:**

After all the contacts have been inserted, close the wedgelock by simultaneously squeezing locking latches inward and pushing the wedgelock into the housing.

**Note**

AMPSEAL connector grommet is solid until pierced.

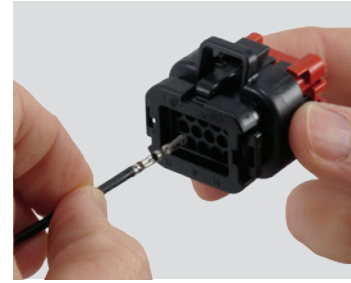
### CONTACT REMOVAL



**Step 1:**  
Insert the tip of a screwdriver (2-5mm wide blade) between the edge of the plug assembly housing and one corner of the wedgelock.



**Step 2:**  
Gently pry the edge of the wedgelock until it is released from (but not completely removed) the housing. Repeat these steps for the opposite corner of the wedge.



**Step 3:**  
Gently pull the wire of the contact to be removed while rotating the wire (a quarter turn each direction) back and forth until the contact is removed from the housing.

NOTES:

# Contents

|                                     |       |
|-------------------------------------|-------|
| AMPSEAL 16 Connector Overview ..... | 22    |
| Product Documentation .....         | 22    |
| Performance Specifications .....    | 22    |
| Material Specifications .....       | 23    |
| Dimensions .....                    | 23    |
| Configurations .....                | 23    |
| Ordering Information .....          | 24    |
| Accessories .....                   | 25-26 |
| AMPSEAL 16 Hybrid Lever .....       | 27-28 |
| Contacts .....                      | 29-30 |
| Tooling .....                       | 31-32 |
| How To Instructions .....           | 33-34 |

### AMPSEAL 16 Connector Overview

The AMPSEAL 16 connector system is targeted for off-road, heavy duty industrial, recreational and agricultural applications. This wire-to-wire and wire-to-device connector line was designed to meet the rigorous demands of an industry that requires the highest standards in performance.

AMPSEAL 16 receptacle and pin housings offer a one-piece approach and come fully assembled.



### APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with AMPSEAL 16 products. The following TE Connectivity document numbers may be helpful:

1654281-2 (Catalog Section)

108-2184 (Product Specification)

114-13065 (Application Specification)

114-13045 (Application Specification, Contacts)

408-8623 (Instruction Sheet)

501-708 (Qualification Test Report)

### AMPSEAL 16 CONNECTOR PERFORMANCE SPECIFICATIONS

|                               |                                                                                                                                                                    |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Current:</b>               | Up to 13 amps                                                                                                                                                      |
| <b>Temperature:</b>           | Operating at temperatures -40°C to +125°C                                                                                                                          |
| <b>Durability:</b>            | See note. 50 cycles.                                                                                                                                               |
| <b>Insulation Resistance:</b> | 20 megohms minimum. SAE J2030 6.3. Insulation resistance at 1000 volts DC adjacent terminals measured after 60 seconds or until stabilization occurs.              |
| <b>Immersion:</b>             | IP67 rating                                                                                                                                                        |
| <b>Random Vibration:</b>      | No discontinuities. See note. EIA-364-28 Subject mated specimens to 21 G's rms between 25 to 2000 Hz. Twenty hours in each of three mutually perpendicular planes. |
| <b>Voltage:</b>               | 250 volts DC                                                                                                                                                       |

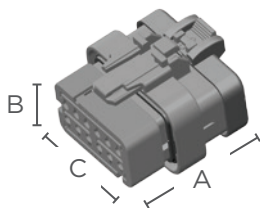
Note: Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in Product Qualification and Requalification Test Sequence in Figure 3 of TE product document 108-2184.

# AMPSEAL 16 Connectors

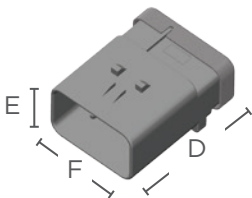
## MATERIAL SPECIFICATIONS

|                       |                                |
|-----------------------|--------------------------------|
| Wire Seal:            | Silicone rubber                |
| Plug Peripheral Seal: | Silicone rubber                |
| Housing               | 15% Glass filled thermoplastic |
| CPA:                  | 15% Glass filled thermoplastic |
| PLR:                  | 15% Glass filled thermoplastic |

## DIMENSIONS



AMPSEAL 16 Receptacle Housing



AMPSEAL 16 Cap

| Cavity | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|--------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| 2      | 1.45 (36.75)        | .93 (23.5)          | .80 (20.33)        | 1.87 (47.55)        | .75 (18.93)         | .77 (19.60)        |
| 3      | 1.45 (36.80)        | .93 (23.5)          | .98 (24.83)        | 1.87 (47.55)        | .75 (19.15)         | .95 (24.10)        |
| 4      | 1.44 (36.70)        | 1.06 (26.8)         | 1.00 (25.33)       | 1.87 (47.55)        | .88 (22.45)         | .97 (24.60)        |
| 6      | 1.44 (36.60)        | 1.22 (31.0)         | 1.00 (25.33)       | 1.87 (47.55)        | 1.05 (26.65)        | .97 (24.60)        |
| 8      | 1.45 (36.80)        | 1.24 (31.5)         | 1.15 (29.33)       | 1.87 (47.55)        | 1.05 (26.65)        | 1.13 (28.60)       |
| 12     | 1.45 (36.80)        | 1.24 (31.5)         | 1.51 (38.33)       | 1.87 (47.55)        | 1.05 (26.65)        | 1.48 (37.60)       |

Dimensions are for reference only.

## CONFIGURATIONS



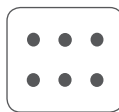
2 Positions  
2 size 16



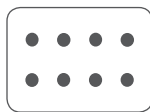
3 Positions  
3 size 16



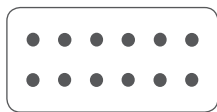
4 Positions  
4 size 16



6 Positions  
6 size 16



8 Positions  
8 size 16



12 Positions  
12 size 16



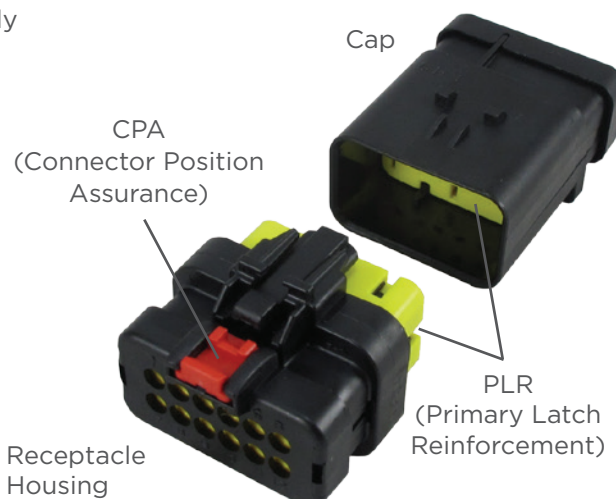
## ORDERING INFORMATION

| Position | PLR Color | Keying | Receptacle Housing | Cap                | Receptacle Housing | Cap               |
|----------|-----------|--------|--------------------|--------------------|--------------------|-------------------|
|          |           |        | Standard Dia. Seal | Standard Dia. Seal | Reduced Dia. Seal  | Reduced Dia. Seal |
| 2        | Red       | Key A  | 776427-1           | 776428-1           | 776522-1           | 776534-1          |
|          | Gray      | Key B  | 776427-2           | 776428-2           | 776522-2           | 776534-2          |
|          | Yellow    | Key C  | 776427-3           | 776428-3           | 776522-3           | 776534-3          |
|          | Green     | Key D  | 776427-4           | 776428-4           | 776522-4           | 776534-4          |
| 3        | Red       | Key A  | 776429-1           | 776430-1           | 776523-1           | 776535-1          |
|          | Gray      | Key B  | 776429-2           | 776430-2           | 776523-2           | 776535-2          |
|          | Yellow    | Key C  | 776429-3           | 776430-3           | 776523-3           | 776535-3          |
|          | Green     | Key D  | 776429-4           | 776430-4           | 776523-4           | 776535-4          |
| 4        | Red       | Key A  | 776487-1           | 776488-1           | 776524-1           | 776536-1          |
|          | Gray      | Key B  | 776487-2           | 776488-2           | 776524-2           | 776536-2          |
|          | Yellow    | Key C  | 776487-3           | 776488-3           | 776524-3           | 776536-3          |
|          | Green     | Key D  | 776487-4           | 776488-4           | 776524-4           | 776536-4          |
| 6        | Red       | Key A  | 776433-1           | 776434-1           | 776531-1           | 776537-1          |
|          | Gray      | Key B  | 776433-2           | 776434-2           | 776531-2           | 776537-2          |
|          | Yellow    | Key C  | 776433-3           | 776434-3           | 776531-3           | 776537-3          |
| 8        | Red       | Key A  | 776494-1           | 776495-1           | 776532-1           | 776538-1          |
|          | Gray      | Key B  | 776494-2           | 776495-2           | 776532-2           | 776538-2          |
|          | Yellow    | Key C  | 776494-3           | 776495-3           | 776532-3           | 776538-3          |
|          | Green     | Key D  | 776494-4           | 776495-4           | 776532-4           | 776538-4          |
| 12       | Red       | Key A  | 776437-1           | 776438-1           | 776533-1           | 776539-1          |
|          | Gray      | Key B  | 776437-2           | 776438-2           | 776533-2           | 776539-2          |
|          | Yellow    | Key C  | 776437-3           | 776438-3           | 776533-3           | 776539-3          |
|          | Green     | Key D  | 776437-4           | 776438-4           | 776533-4           | 776539-4          |

Receptacle housing and cap PLR colors are mechanically keyed to mate only with identical colors.

Part Number Suffix:

- 1 = A key (**red PLR**)
- 2 = B key (**gray PLR**)
- 3 = C key (**yellow PLR**)
- 4 = D key (**green PLR**)



## AMPSEAL 16 Connectors

### WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

| Contact Size                                      | Standard Seal            | Reduced Diameter Seal    |
|---------------------------------------------------|--------------------------|--------------------------|
| HDSF 16<br>14-20 AWG<br>(2.0-0.5mm <sup>2</sup> ) | .086-.144<br>(2.18-3.67) | .051-.100<br>(1.30-2.54) |

### Accessories

Backshells and mounting clips are accessory items available for use with AMPSEAL 16 connectors. These accessories cover design requirements by assisting with mounting, providing additional protection, and offering increased aesthetics.

### BACKSHELLS



#### Part Numbers

| Number of Positions | Conduit Size | Standard Straight        | Standard 90°           | Low Profile 90° Rec. Housing | Low Profile 90° Pin Housing |
|---------------------|--------------|--------------------------|------------------------|------------------------------|-----------------------------|
| 2                   | NC08/NW7.5   | 2035047-1 <sup>†</sup>   | 2035048-1 <sup>†</sup> | 2035366-1                    | 2098436-1                   |
|                     | NC12/NW10    | -                        | 2035048-5 <sup>†</sup> | 2035366-3                    | 2098436-3                   |
| 3                   | NC08/NW7.5   | 2035047-2 <sup>†</sup>   | 2035048-2 <sup>†</sup> | 2035366-2                    | 2098436-2                   |
|                     | NC12/NW10    | -                        | 2035048-6 <sup>†</sup> | 2035366-4                    | 2098436-4                   |
| 4                   | NC08/NW7.5   | 2035047-3 <sup>†</sup>   | 2035048-3 <sup>†</sup> | 2035366-7                    | 2098436-7                   |
|                     | NC12/NW10    | 2035047-5 <sup>†</sup>   | 2035048-7 <sup>†</sup> | 2035366-9                    | 2098436-9                   |
|                     | NC16/NW13    | -                        | -                      | 1-2035366-1                  | 1-2098436-1                 |
| 6                   | NC08/NW7.5   | 2035047-4 <sup>†</sup>   | -                      | 2035366-8                    | 2098436-8                   |
|                     | NC12/NW10    | 2035047-6 <sup>†</sup>   | -                      | 1-2035366-0                  | 1-2098436-0                 |
|                     | NC16/NW13    | -                        | -                      | 1-2035366-2                  | 1-2098436-2                 |
| 8                   | NC12/NW10    | 2035047-7 <sup>†</sup>   | -                      | -                            | -                           |
|                     | NC16/NW13    | 2035047-9 <sup>†</sup>   | 2035047-9 <sup>†</sup> | -                            | -                           |
| 12                  | NC12/NW10    | 2035047-8 <sup>†</sup>   | -                      | -                            | -                           |
|                     | NC16/NW13    | 1-2035047-0 <sup>†</sup> | -                      | -                            | -                           |
|                     | NC20/NW17    | 1-2035047-1 <sup>†</sup> | -                      | -                            | -                           |

<sup>†</sup> = Backshell available only with latch window. Can be used for cap assembly if desired.

## BACKSHELLS - NEXT GENERATION

| Number of Positions | Conduit Size | Plug Part Numbers              |                         | Cap Part Numbers               |                         |
|---------------------|--------------|--------------------------------|-------------------------|--------------------------------|-------------------------|
|                     |              | Straight Backshell Part Number | 90° Adapter Part Number | Straight Backshell Part Number | 90° Adapter Part Number |
| 2                   | Smooth       | 2292797-1                      | 2292849-1               | 2292860-1                      | 2292849-1               |
|                     | NC12/NW10    | 2292797-2                      | 2292849-2               | 2292860-2                      | 2292849-2               |
|                     | NC08/NW7.5   | 2292797-3                      | 2292849-3               | 2292860-3                      | 2292849-3               |
| 3                   | Smooth       | 2292798-1                      | 2292849-1               | 2292861-1                      | 2292849-1               |
|                     | NC12/NW10    | 2292798-2                      | 2292849-2               | 2292861-2                      | 2292849-2               |
|                     | NC08/NW7.5   | 2292798-3                      | 2292849-3               | 2292861-3                      | 2292849-3               |
| 4                   | Smooth       | 2292799-1                      | 2292850-1               | 2292862-1                      | 2292850-1               |
|                     | NC16/NW13    | 2292799-2                      | 2292850-2               | 2292862-2                      | 2292850-2               |
|                     | NC12/NW10    | 2292799-3                      | 2292850-3               | 2292862-3                      | 2292850-3               |
| 6                   | Smooth       | 2292800-1                      | 2292850-1               | 2292863-1                      | 2292850-1               |
|                     | NC16/NW13    | 2292800-2                      | 2292850-2               | 2292863-2                      | 2292850-2               |
|                     | NC12/NW10    | 2292800-3                      | 2292850-3               | 2292863-3                      | 2292850-3               |
| 8                   | Smooth       | 2292801-1                      | 2292851-1               | 2292864-1                      | 2292851-1               |
|                     | NC20/NW17    | 2292801-2                      | 2292851-2               | 2292864-2                      | 2292851-2               |
|                     | NC16/NW13    | 2292801-3                      | 2292851-3               | 2292864-3                      | 2292851-3               |
| 12                  | Smooth       | 2292802-1                      | 2292851-1               | 2292865-1                      | 2292851-1               |
|                     | NC16/NW13    | 2292802-2                      | 2292851-2               | 2292865-2                      | 2292851-2               |
|                     | NC12/NW10    | 2292802-3                      | 2292851-3               | 2292865-3                      | 2292851-3               |

Note: Expected availability December 2015, contact your representative

## MOUNTING CLIPS



| Part Number | Description                                   |
|-------------|-----------------------------------------------|
| 1924487-1   | Mounting clip without anti-rotational feature |
| 1924487-2   | Mounting clip with anti-rotational feature    |

# AMPSEAL 16 Connectors

## AMPSEAL 16 Hybrid Lever Overview

The AMPSEAL 16 hybrid lever is a sealed connector system that features a lever slide mechanism for mating and a slide in mounting clip. The mix of 24 size 16 and 4 size 12 terminals creates design flexibility for use in various vehicle applications.



The tool-less mounting design, environmental protection, and temporary panel retention latches (which temporarily hold the connector in place for one person mounting through the panel) all reduce application cost and assembly time.

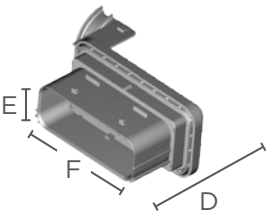
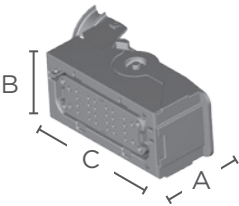
## APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with the AMPSEAL 16 hybrid lever product. The following TE Connectivity document numbers may be helpful:

108-32036 (Product Specification)  
114-32117 (Application Specification)

501-32026 (Qualification Test Report)

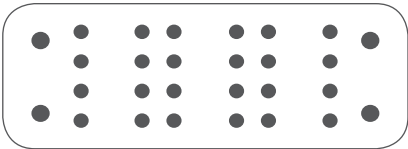
## DIMENSIONS



| AMPSEAL 16 Hybrid Lever Receptacle Housing |                     |                     |                    | AMPSEAL 16 Hybrid Lever Cap |                     |                    |
|--------------------------------------------|---------------------|---------------------|--------------------|-----------------------------|---------------------|--------------------|
| Cavity                                     | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D         | Overall Height<br>E | Overall Width<br>F |
| 28                                         | 2.08 (52.95)        | 1.82 (46.25)        | 4.59 (116.5)       | 2.86 (72.75)                | 1.91 (48.45)        | 4.38 (111.25)      |

Dimensions are for reference only.

## CONFIGURATION



**28 Positions**  
24 size 16, 4 size 12

### ORDERING INFORMATION

| Position | Keying | Plug Housing | Cap Housing |
|----------|--------|--------------|-------------|
| 28       | Key A  | 2138839-1    | 2138846-1   |
|          | Key B  | 2138839-2    | 2138846-2   |

### Accessories

Wire covers and mounting clips are accessory items available for use with AMPSEAL 16 hybrid lever connectors. These accessories cover design requirements by assisting with mounting and providing wire strain relief.

### WIRE COVER



| Part Number | Description                                        |
|-------------|----------------------------------------------------|
| 2138853-1   | Wire cover for 28 position AMPSEAL 16 hybrid lever |

### MOUNTING CLIPS



| Part Number | Description               |
|-------------|---------------------------|
| 2138852-1   | Mounting clip, 5 mm panel |
| 2138852-2   | Mounting clip, 4 mm panel |
| 2138852-3   | Mounting clip, 3 mm panel |

## AMPSEAL 16 Connectors

### Contacts

AMPSEAL 16 and AMPSEAL 16 hybrid lever connectors commonly use the HDSF size 16 contact system. The contacts are round, stamped & formed contacts with dual beam sockets.

### HDSF 16 CONTACT PERFORMANCE SPECIFICATIONS

#### Durability

SAE J2030 6.11. 50 cycles. *See note.*

#### Current Rating

Up to 13 amps, consult TE product document 108-2184.

#### Contact Retention

IEC 512-8, Test 51a. Apply axial load of 111 N to contacts at a maximum rate of 10 N per second (or 50mm per minute) and hold for 10 seconds. Contacts shall not dislodge.

#### Crimp Tensile Strength

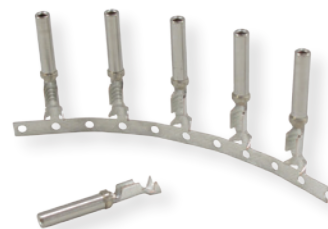
USCAR 21 @ 50mm/min

| Wire Gauge | Tensile Strength |
|------------|------------------|
| 18 AWG     | 90 N Min         |
| 16 AWG     | 120 N Min        |
| 14 AWG     | 180 N Min        |

#### Voltage Drop

| Contact Size | Test Current Amps | Voltage Drop (millivolts max) |
|--------------|-------------------|-------------------------------|
| 18           | 8                 | 100                           |
| 16           | 10                | 100                           |
| 14           | 13                | 100                           |

Note: Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence in Figure 3 of TE product document 108-2184. USCAR is a trademark.



## AMPSEAL 16 Connectors

### HDSF 16 STAMPED & FORMED CONTACTS FOR AMPSEAL 16 CONNECTORS

| Size       | Pin Part Numbers |                     |                |                     | Wire Size<br>AWG<br>(mm <sup>2</sup> ) | Insulation<br>Diameter<br>(mm) | Wire<br>Insulation<br>Support | Finish |
|------------|------------------|---------------------|----------------|---------------------|----------------------------------------|--------------------------------|-------------------------------|--------|
|            | Strip Form       | Package<br>Quantity | Loose<br>Piece | Package<br>Quantity |                                        |                                |                               |        |
| HDSF<br>16 | 1924463-1        | 4000                | 1924579-1      | 1000                | 18-20<br>(0.8-0.5)                     | .107-.05<br>(2.72-1.27)        | yes                           | Gold   |
|            | 1924463-3        | 4000                | 1924579-3      | 1000                |                                        |                                |                               | Nickel |
|            | 776349-1         | 4000                | -              | -                   | 18-20<br>(0.8-0.5)                     | .131-.089<br>(3.33-2.26)       | yes                           | Gold   |
|            | 776349-3         | 4000                | -              | -                   |                                        |                                |                               | Nickel |
|            | 638078-1         | 4000                | 776300-1       | 1000                | 14-18<br>(2.0-0.8)                     | .131-.089<br>(3.33-2.26)       | yes                           | Gold   |
|            | 638078-3         | 4000                | 776300-2       | 1000                |                                        |                                |                               | Nickel |
|            | 638112-1         | 4000                | 776298-1       | 1000                | 14-18<br>(2.0-0.8)                     | .155-0.077<br>(3.94-1.96)      | no                            | Gold   |
|            | 638112-3         | 4000                | 776298-2       | 1000                |                                        |                                |                               | Nickel |
|            | 2098250-1        | 4000                | -              | -                   | 18<br>(1.5-0.8)                        | .118-.065<br>(3.00-1.65)       | yes                           | Gold   |
|            | 2098250-3        | 4000                | -              | -                   |                                        |                                |                               | Nickel |
|            | 2098252-1        | 4000                | -              | -                   | 14<br>(2.0-1.5)                        | .128-.083<br>(3.25-2.10)       | yes                           | Gold   |
|            | 2098252-3        | 4000                | -              | -                   |                                        |                                |                               | Nickel |

| Size       | Receptacle Part Numbers |                     |                |                     | Wire Size<br>AWG<br>(mm <sup>2</sup> ) | Insulation<br>Diameter<br>(mm) | Wire<br>Insulation<br>Support | Finish |
|------------|-------------------------|---------------------|----------------|---------------------|----------------------------------------|--------------------------------|-------------------------------|--------|
|            | Strip Form              | Package<br>Quantity | Loose<br>Piece | Package<br>Quantity |                                        |                                |                               |        |
| HDSF<br>16 | 1924464-1               | 4000                | 1924580-1      | 1000                | 18-20<br>(0.8-0.5)                     | .107-.05<br>(2.72-1.27)        | yes                           | Gold   |
|            | 1924464-2               | 4000                | 1924580-2      | 1000                |                                        |                                |                               | Nickel |
|            | 776493-1                | 4000                | -              | -                   | 18-20<br>(0.8-0.5)                     | .131-.089<br>(3.33-2.26)       | yes                           | Gold   |
|            | 776493-2                | 4000                | -              | -                   |                                        |                                |                               | Nickel |
|            | 776492-1                | 4000                | 776299-1       | 1000                | 14-18<br>(2.0-0.8)                     | .131-.089<br>(3.33-2.26)       | yes                           | Gold   |
|            | 776492-2                | 4000                | 776299-2       | 1000                |                                        |                                |                               | Nickel |
|            | 776491-1                | 4000                | 776297-1       | 1000                | 14-18<br>(2.0-0.8)                     | .155-.077<br>(3.94-1.96)       | no                            | Gold   |
|            | 776491-2                | 4000                | 776297-2       | 1000                |                                        |                                |                               | Nickel |
|            | 2098251-1               | 4000                | -              | -                   | 18<br>(1.5-0.8)                        | .118-.065<br>(3.00-1.65)       | yes                           | Gold   |
|            | 2098251-2               | 4000                | -              | -                   |                                        |                                |                               | Nickel |
|            | 2098253-1               | 4000                | -              | -                   | 14<br>(2.0-1.5)                        | .128-.083<br>(3.25-2.10)       | yes                           | Gold   |
|            | 2098253-2               | 4000                | -              | -                   |                                        |                                |                               | Nickel |

## AMPSEAL 16 Connectors

### SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.



| Color  | Part Number | Contact Size | Wire Gauge Range | Description                                            |
|--------|-------------|--------------|------------------|--------------------------------------------------------|
| Yellow | 776363-1    | Size 16      | 16-20 AWG        | PBT, used with AMPSEAL 16 (standard diameter cavities) |
| White  | 776364-1    | Size 20      | 16-20 AWG        | PBT, used with AMPSEAL 16 (reduced diameter cavities)  |

### Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

### HAND TOOLS FOR HDSF 16 CONTACTS



PRO-CRIMPER III    CERTI-CRIMP II

| Pin Strip Form                               | Pin Loose Piece        | Socket Strip Form                            | Socket Loose Piece     | Tool P/N  | Description                                    |
|----------------------------------------------|------------------------|----------------------------------------------|------------------------|-----------|------------------------------------------------|
| 1924463-1<br>1924463-3                       | 1924579-1<br>1924579-3 | 1924464-1<br>1924464-2                       | 1924580-1<br>1924580-2 | 2119118-1 | PRO-CRIMPER III hand tool and die set assembly |
| 638078-1<br>638078-3<br>776349-1<br>776349-3 | 776300-1<br>776300-2   | 776492-1<br>776492-2<br>776493-1<br>776493-2 | 776299-1<br>776299-2   | 91337-1   | PRO-CRIMPER III hand tool and die set assembly |
| 638112-1<br>638112-3                         | 776298-1<br>776298-2   | 776491-1<br>776491-2                         | 776297-1<br>776297-2   | 2217753-1 | CERTI-CRIMP II straight action hand tool       |

Note: Base PRO-CRIMPER III tool part number with -2 suffix is the part number for the die set, which can be ordered separately



### AUTOMATED TOOLING FOR HDSF 16 CONTACTS



OCEAN end  
feed applicator



OCEAN side  
feed applicator

| Pin Strip Form                               | Socket Strip Form                            | Applicator P/N | Description                                                                             |
|----------------------------------------------|----------------------------------------------|----------------|-----------------------------------------------------------------------------------------|
| 1924463-1<br>1924463-3                       | 1924464-1<br>1924464-2                       | 2151962-1      | OCEAN end feed applicator with mechanical feed                                          |
|                                              |                                              | 2151962-2      | OCEAN end feed applicator with pneumatic feed                                           |
| 638078-1<br>638078-3<br>776349-1<br>776349-3 | 776492-1<br>776492-2<br>776493-1<br>776493-2 | 2151731-1      | OCEAN end feed applicator with mechanical feed                                          |
|                                              |                                              | 2151731-2      | OCEAN end feed applicator with pneumatic feed                                           |
| 638112-1<br>638112-3                         | 776491-1<br>776491-2                         | 2151239-1      | OCEAN end feed applicator with mechanical feed                                          |
|                                              |                                              | 2151239-2      | OCEAN end feed applicator with pneumatic feed                                           |
| 2098250-1<br>2098250-3                       | 2098251-1<br>2098251-2                       | 2151617-1      | OCEAN end feed applicator with mechanical feed                                          |
|                                              |                                              | 2151617-2      | OCEAN end feed applicator with pneumatic feed                                           |
| 2098252-1<br>2098252-3                       | 2098253-1<br>2098253-2                       | 1530207-1      | OCEAN side feed applicator that crops the terminal strip, for use in lead-maker         |
|                                              |                                              | 1530207-2      | OCEAN side feed applicator that crops the terminal strip, for use in bench press        |
|                                              |                                              | 1530207-6      | OCEAN side feed applicator that does not crop the terminal strip, for use in lead-maker |

Note: Applicators with additional feed styles are available, contact your representative

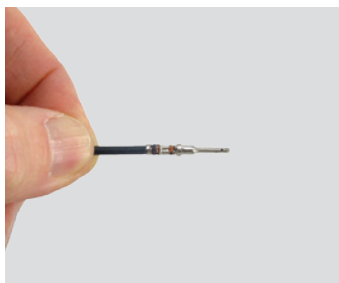
### EXTRACTION TOOL FOR HDSF 16 CONTACTS



| Part Number | Description                                  |
|-------------|----------------------------------------------|
| 776106-1    | Contact extraction tool for HDSF 16 contacts |

### How To Instructions

#### CONTACT INSERTION

**Step 1:**

Grasp crimped contact approximately one inch behind the contact barrel.

**Step 2:**

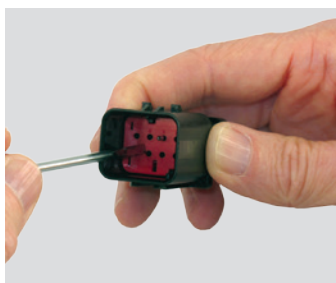
Verify the PLR is in the pre-staged position, unlocked.

**Step 3:**

Align the contact with the desired circuit cavity at the rear of the housing assembly.

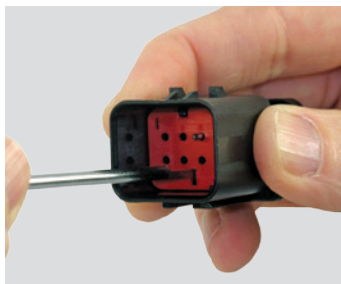
**Step 4:**

Push the contact straight into the connector cavity until the contact retention finger returns to its normal position behind the retention shoulder on the contact. A slight tug will verify the contact is locked in place.

**Step 5:**

When all of the required contacts have been inserted, push the PLR into the fully locked position.

### CONTACT REMOVAL



**Step 1:**  
Insert the removal tool into the PLR extraction slot and pull until the PLR is completely removed from the housing.



**Step 2:**  
Insert the tool into the contact cavity and deflect the contact retention finger.



**Step 3:**  
Gently pull the wire until the contact is free from the housing.

# Contents

|                                       |       |
|---------------------------------------|-------|
| Circular DIN Connector Overview ..... | 36    |
| Product Documentation .....           | 36    |
| Performance Specifications .....      | 36    |
| Material Specifications .....         | 36    |
| Dimensions .....                      | 37    |
| Configurations .....                  | 37    |
| Ordering Information .....            | 38    |
| Accessories .....                     | 38-39 |
| Contacts .....                        | 39-41 |
| Tooling .....                         | 42-44 |

## Circular DIN Connectors

### Circular DIN Connector Overview

The Circular DIN connectors are designed to meet the requirements of the DIN 72585/ISO 15170 standards. They feature a coupling ring for mating. Circular DIN connectors are suitable for in-line, flange mount, or PCB applications.



### APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with Circular DIN products. The following TE document numbers may be helpful:

1654286-3 (Catalog Section)  
108-18621 (Product Specification)  
114-18255 (Application Specification)

### CIRCULAR DIN CONNECTOR PERFORMANCE SPECIFICATIONS

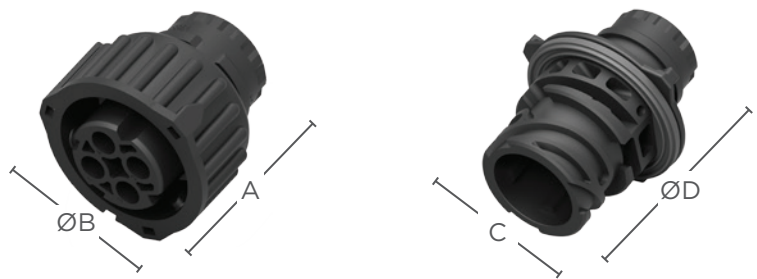
|                                         |                                                                                                                                                                            |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Current:</b>                         | Up to 40 amps                                                                                                                                                              |
| <b>Temperature:</b>                     | Operating at temperatures -40°C to +120°C for plastic parts, short term up to +140°C defined in the standard ISO 15170                                                     |
| <b>Durability:</b>                      | 20 cycles, max. testing requirement in the standard ISO 15170, former DIN 72585                                                                                            |
| <b>Insulation Resistance:</b>           | No flash over or breakdown between every two contacts or between every contact and outer contour of the housing permitted at 1000 volts AC and 50 or 60 Hz for 60 seconds. |
| <b>Immersion:</b>                       | No ingress of water is allowed, acc. to DIN 40050-9 IPX7, IPX9K                                                                                                            |
| <b>Vibration:</b>                       | According to standard ISO 15170, former DIN 72585                                                                                                                          |
| <b>Dielectric Withstanding Voltage:</b> | No flash over or breakdown between every two contacts or between every contact and outer contour of the housing permitted at 1000 volts AC and 50 or 60 Hz for 60 seconds. |

### MATERIAL SPECIFICATIONS

|                     |                         |
|---------------------|-------------------------|
| <b>Flange Seal:</b> | Silicone rubber         |
| <b>Housing:</b>     | Glass filled PBT and PA |

# Circular DIN Connectors

## DIMENSIONS



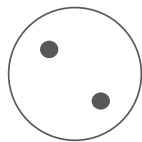
Circular DIN Socket Housing

Circular DIN Pin Housing

| Cavity | Overall Length<br>A | Overall Height<br>ØB | Overall Length<br>C | Overall Height<br>ØD |
|--------|---------------------|----------------------|---------------------|----------------------|
| 2      | 1.22 (31.0)         | 1.29 (32.8)          | 1.73 (44.0)         | 1.34 (34.0)          |
| 3      | 1.22 (31.0)         | 1.29 (32.8)          | 1.73 (44.0)         | 1.34 (34.0)          |
| 4      | 1.22 (31.0)         | 1.29 (32.8)          | 1.73 (44.0)         | 1.34 (34.0)          |

Dimensions are for reference only.

## CONFIGURATIONS



2 Positions  
2 size 2.5 mm



3 Positions  
3 size 2.5 mm



4 Positions  
4 size 2.5 mm

## ORDERING INFORMATION

| Position | Keying Type | Housing Color | Socket Housing                    | Pin Housing | PCB Header Vertical                |
|----------|-------------|---------------|-----------------------------------|-------------|------------------------------------|
| 2        | 1           | Black         | 1-967325-3                        | 1-967402-3  | 1394324-1 (tin)                    |
|          |             |               | 1-968968-3<br>(secondary locking) |             |                                    |
|          | 2           | Gray          | 2-967325-3                        | 2-967402-3  | -                                  |
|          |             |               | 2-968968-3                        |             | -                                  |
|          | 3           | Green         | 3-967325-3                        | -           | -                                  |
| 4        | Blue        | 4-967325-3    | -                                 | -           |                                    |
| 3        | 1           | Black         | 1-967325-2                        | 1-967402-2  | 1394324-4                          |
|          |             |               | 1-968968-2<br>(secondary locking) |             |                                    |
|          | 2           | Gray          | 2-967325-2                        | -           | -                                  |
|          | 3           | Green         | 3-967325-2                        | -           | -                                  |
|          | 4           | Blue          | 4-967325-2                        | -           | -                                  |
| 4        | 1           | Black         | 1-967325-1                        | 1-967402-1  | 1241598-1<br>(no ventilation disk) |
|          |             |               | 1-968968-1<br>(secondary locking) |             | 1394324-2<br>(tin)                 |
|          |             |               |                                   |             | 1394324-3<br>(gold)                |
|          |             |               |                                   |             | 1703780-1<br>(ferrite disk)        |
|          | 2           | Gray          | 2-967325-1                        | 2-967402-1  | -                                  |
|          | 3           | Green         | 3-967325-1                        | 3-967402-1  | -                                  |
|          | 4           | Blue          | 4-967325-1                        | 4-967402-1  | -                                  |

## Accessories

Covers, backshells, and mounting rings are accessory items available for use with Circular DIN connectors. These accessories cover design requirements by assisting with mounting, providing additional protection, and offering increased aesthetics.

## COVERS



| Description                                               | Color | Part Number |
|-----------------------------------------------------------|-------|-------------|
| Front cover for socket housing 967325, suitable for IPX9K | Black | 185636-1    |
| Front cover for pin housing 967402, with ring             |       | 1394277-1   |
| Front cover for pin housing 967402, without ring          |       | 1394277-2   |

## Circular DIN Connectors

### BACKSHELLS



| Description                                                  | Color | Part Number |
|--------------------------------------------------------------|-------|-------------|
| Right-angle adapter with universal clamp                     | Black | 965576-1    |
| Vertical adapter with universal clamp                        | Black | 965784-1    |
| Right-angle adapter for NW 7.5 mm diameter corrugated tubing | Black | 185793-1    |
| Right-angle adapter for NW 8.5 mm diameter corrugated tubing | Black | 965577-1    |
| Right-angle adapter for NW 10 mm diameter corrugated tubing  | Black | 965783-1    |
| Vertical adapter for NW 7.5 mm diameter corrugated tubing    | Black | 185792-1    |
| Vertical adapter for NW 8.5 mm diameter corrugated tubing    | Black | 965785-1    |
| Vertical adapter for NW 10 mm diameter corrugated tubing     | Black | 965786-1    |
| Right-angle adapter 4 position for hose                      | Black | 1534789-1   |
| Vertical adapter 4 position for hose                         | Black | 1534791-1   |
| Vertical adapter 4 position for jacketed cable 5.2-6.5 mm    | Black | 1418916-1   |
| Vertical adapter 4 position for jacketed cable 6.0-9.5 mm    | Black | 1418917-1   |
| Right-angle adapter 4 position for jacketed cable 5.2-6.5 mm | Black | 1418918-1   |
| Right-angle adapter 4 position for jacketed cable 6.0-9.5 mm | Black | 1418919-1   |

### MOUNTING RING

| Description                   | Color | Part Number |
|-------------------------------|-------|-------------|
| Mounting ring for pin housing | Black | 965687-1    |

### Contacts

The Circular DIN connectors commonly use the 2.5 mm round, two-piece stamped & formed contact system.

### 2.5 MM CONTACT PERFORMANCE SPECIFICATIONS

#### Durability

Maximum mating cycles  
10 (tin)  
50 (silver)  
100 (gold)

#### Current Rating

|              |               |
|--------------|---------------|
| Contact Size | Max. Current  |
| 2.5 mm       | up to 40 amps |

#### Contact Retention(in housing)

|              |           |
|--------------|-----------|
| Contact Size | Min. Load |
| 2.5 mm       | > 90 N    |

with secondary retention up to 100 N

#### Crimp Tensile Strength

|                     |                  |
|---------------------|------------------|
| Contact Size        | Tensile Strength |
| .35 mm <sup>2</sup> | ≥ 50 N           |
| .5 mm <sup>2</sup>  | ≥ 60 N           |
| 1.0 mm <sup>2</sup> | ≥ 100 N          |
| 1.5 mm <sup>2</sup> | ≥ 150 N          |
| 2.5 mm <sup>2</sup> | ≥ 200 N          |
| 4.0 mm <sup>2</sup> | ≥ 250 N          |



### 2.5 MM STAMPED & FORMED CONTACTS FOR CIRCULAR DIN

Stamped & Formed Pins

| Size   | Pin Part Numbers |                  |             |                  | Wire Size (mm <sup>2</sup> ) | Insulation Diameter FLR (mm) | Finish      |
|--------|------------------|------------------|-------------|------------------|------------------------------|------------------------------|-------------|
|        | Strip Form       | Package Quantity | Loose Piece | Package Quantity |                              |                              |             |
| 2.5 mm | 929963-1         | 3500             | 962967-1    | 500              | 0.5-1.0                      | 1.4-2.1                      | Tin plated  |
|        | 929963-8         | 3500             | 962967-8    | 500              |                              |                              | Gold plated |
|        | 1-929963-0       | 3500             | 1-962967-0  | 500              |                              |                              |             |
|        | 929964-1         | 3500             | 962968-1    | 500              | ≥1.0-2.5                     | 1.9-3.0                      | Tin plated  |
|        | 1-929964-0       | 3500             | 1-962968-0  | 500              |                              |                              | Gold plated |
|        | 929965-1         | 2500             | 962969-1    | 500              | ≥2.5-4.0                     | 2.7-3.6                      | Tin plated  |

Stamped & Formed Pins with Single Wire Sealing System

| Size   | Pin Part Numbers |                  |             |                  | Wire Size (mm <sup>2</sup> ) | Insulation Diameter FLR (mm) | Finish        |
|--------|------------------|------------------|-------------|------------------|------------------------------|------------------------------|---------------|
|        | Strip Form       | Package Quantity | Loose Piece | Package Quantity |                              |                              |               |
| 2.5 mm | 929966-1         | 3500             | 962970-1    | 500              | 0.2-0.4                      | 1.2-2.1                      | Tin plated    |
|        | 929966-7         | 3500             | 962970-7    | 500              |                              |                              | Silver plated |
|        | 929967-1         | 3000             | 962971-1    | 500              | 0.5-1.0                      | 1.2-2.1                      | Tin plated    |
|        | 929967-4         | 3000             | 962971-4    | 500              |                              |                              |               |
|        | 929967-7         | 3000             | 962971-7    | 500              |                              |                              | Silver plated |
|        | 1-929967-4       | 3000             | 1-962971-4  | 500              |                              |                              |               |
|        | 929967-8         | 3000             | 962971-8    | 500              |                              |                              | Gold plated   |
|        | 1-929967-0       | 3000             | 1-962971-0  | 500              |                              |                              |               |
|        | 929968-1         | 3000             | 962972-1    | 500              | ≥1.0-2.5                     | 2.2-3.0                      | Tin plated    |
|        | 929968-4         | 3000             | 962972-4    | 500              |                              |                              |               |
|        | 929968-7         | 3000             | 962972-7    | 500              |                              |                              | Silver plated |
|        | 929968-8         | 3000             | 962972-8    | 500              |                              |                              | Gold plated   |
|        |                  |                  |             |                  |                              |                              |               |



### Stamped & Formed Sockets

| Size   | Socket Part Numbers |                  |             |                  | Wire Size (mm <sup>2</sup> ) | Insulation Diameter FLR (mm) | Finish        |
|--------|---------------------|------------------|-------------|------------------|------------------------------|------------------------------|---------------|
|        | Strip Form          | Package Quantity | Loose Piece | Package Quantity |                              |                              |               |
| 2.5 mm | 929969-1            | 3000             | 962976-1    | 500              | 0.2-0.4                      | 1.15-1.6                     | Tin plated    |
|        | 929970-1            | 3000             | 962977-1    | 500              | 0.5-1.0                      | 1.4-2.1                      | Tin plated    |
|        | 929970-7            | 3000             | 962977-7    | 500              |                              |                              | Silver plated |
|        | 929970-8            | 3000             | 962977-8    | 500              |                              |                              | Gold plated   |
|        | 929971-1            | 3000             | 962978-1    | 500              | ≥1.0-2.5                     | 1.9-3.0                      | Tin plated    |
|        | 929971-7            | 3000             | 962978-7    | 500              |                              |                              | Silver plated |
|        | 929971-8            | 3000             | 962978-8    | 500              |                              |                              | Gold plated   |
|        | 929972-1            | 3000             | 962979-1    | 500              | ≥2.5-4.0                     | 2.7-3.0                      | Tin plated    |

### Stamped & Formed Sockets with Single Wire Sealing System

| Size   | Socket Part Numbers |                  |             |                  | Wire Size (mm <sup>2</sup> ) | Insulation Diameter FLR (mm) | Finish        |
|--------|---------------------|------------------|-------------|------------------|------------------------------|------------------------------|---------------|
|        | Strip Form          | Package Quantity | Loose Piece | Package Quantity |                              |                              |               |
| 2.5 mm | 929973-1            | 3000             | 962980-1    | 500              | 0.2-0.4                      | 1.2-2.1                      | Tin plated    |
|        | 929974-1            | 3000             | 962981-1    | 500              | 0.5-1.0                      | 1.2-2.1                      | Tin plated    |
|        | 929974-4            | 3000             | 962981-4    | 500              |                              |                              | Gold plated   |
|        | 929974-8            | 3000             | 962981-8    | 500              |                              |                              | Silver plated |
|        | 929974-7            | 3000             | 962981-7    | 500              |                              |                              | Tin plated    |
|        | 1-929974-4          | 3000             | 1-962981-4  | 500              | ≥1.0-2.5                     | 2.2-3.0                      | Gold plated   |
|        | 929975-1            | 3000             | 962982-1    | 500              |                              |                              | Silver plated |
|        | 929975-4            | 3000             | 962982-4    | 500              |                              |                              | Tin plated    |
|        | 929975-8            | 3000             | 962982-8    | 500              |                              |                              | Gold plated   |
|        | 929975-7            | 3000             | 962982-7    | 500              |                              |                              | Silver plated |



## Circular DIN Connectors

### WIRE SEALS

Wire seals are required for connectors without an integrated rear seal to maintain an environmental seal.

| Contact Size | Insulation Diameter (mm) | Color  | Part Number | Package Quantity |
|--------------|--------------------------|--------|-------------|------------------|
| 2.5 mm       | 1.2-2.1 FLR              | Gray   | 828920-1    | 5000             |
|              | 2.2-3.0 FLR              | Violet | 828921-1    |                  |

### SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.

| Contact Size | Wire Size    | Color   | Part Number | Package Quantity |
|--------------|--------------|---------|-------------|------------------|
| 2.5 mm       | up to 3.0 mm | Natural | 828922-1    | 10,000           |
|              |              | Green   | 828922-2    |                  |
|              | up to 3.7 mm | Natural | 828986-1    |                  |

### Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.



PRO-CRIMPER III

CERTI-LOK

### HAND TOOL FOR 2.5 MM CONTACTS

| Pin Strip Form                                                           | Pin Loose Piece                                                          | Socket Strip Form                                                                                          | Socket Loose Piece                                                                                         | Tool P/N | Description                                    |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------|
| 1-929967-0<br>1-929967-4<br>929967-1<br>929967-4<br>929967-7<br>929967-8 | 1-926971-0<br>1-926971-4<br>962971-1<br>962971-4<br>962971-7<br>962971-8 | 1-929974-4<br>929974-1<br>929974-4<br>929974-7<br>929974-8<br>929975-1<br>929975-4<br>929975-7<br>929975-8 | 1-962981-4<br>962981-1<br>962981-4<br>962981-7<br>962981-8<br>962982-1<br>962982-4<br>962982-7<br>962982-8 | 58606-1  | PRO-CRIMPER III hand tool and die set assembly |
| 1-929964-0<br>929964-1                                                   | 1-962968-0<br>962968-1                                                   | 929971-1<br>929971-7<br>929971-7                                                                           | 962978-1<br>962978-7<br>962978-8                                                                           | 734285-2 | CERTI-LOK hand tool with fixed die             |

### AUTOMATED TOOLING FOR 2.5 MM CONTACTS



OCEAN end  
feed applicator



OCEAN side  
feed applicator

| Pin Strip Form                     | Socket Strip Form                | Applicator P/N | Description                                                                                       |
|------------------------------------|----------------------------------|----------------|---------------------------------------------------------------------------------------------------|
| 1-929963-0<br>929963-1<br>929963-8 | 929970-1<br>929970-7<br>929970-8 | 1426121-1      | OCEAN side feed applicator that crops the terminal strip, for use in lead-maker                   |
|                                    |                                  | 1426121-2      | OCEAN side feed applicator that crops the terminal strip, for use in bench press                  |
|                                    |                                  | 1426121-6      | OCEAN side feed applicator that does not crop the terminal strip, for use in lead-maker           |
|                                    |                                  | 1528689-1      | OCEAN side feed applicator with fine adjust that crops the terminal strip, for use in lead-maker  |
|                                    |                                  | 1528689-2      | OCEAN side feed applicator with fine adjust that crops the terminal strip, for use in bench press |
|                                    |                                  | 1528689-6      | OCEAN side feed applicator that does not crop the terminal strip, for use in lead-maker           |
| 929966-1<br>929966-7               | 929973-1                         | 2151732-1      | OCEAN end feed applicator with mechanical feed                                                    |
|                                    |                                  | 2151732-2      | OCEAN end feed applicator with pneumatic feed                                                     |
| 1-929964-0<br>929964-1             | 929971-1<br>929971-7<br>929971-8 | 2266503-1      | OCEAN end feed applicator with mechanical feed                                                    |
|                                    |                                  | 2266503-2      | OCEAN end feed applicator with pneumatic feed                                                     |
| 929965-1                           | 929972-1                         | 1426425-1      | OCEAN side feed applicator that crops the terminal strip, for use in lead-maker                   |
|                                    |                                  | 1426425-2      | OCEAN side feed applicator that crops the terminal strip, for use in bench press                  |
|                                    |                                  | 1426425-6      | OCEAN side feed applicator that does not crop the terminal strip, for use in lead-maker           |

Note: Applicators with additional feed styles are available, contact your representative

### AUTOMATED TOOLING FOR 2.5 MM CONTACTS (CONTINUED)

| Pin Strip Form                                                           | Socket Strip Form                                          | Applicator P/N | Description                                    |
|--------------------------------------------------------------------------|------------------------------------------------------------|----------------|------------------------------------------------|
| 1-929967-0<br>1-929967-4<br>929967-1<br>929967-4<br>929967-7<br>929967-8 | 1-929974-4<br>929974-1<br>929974-4<br>929974-7<br>929974-8 | 2151139-1      | OCEAN end feed applicator with mechanical feed |
|                                                                          |                                                            | 2151139-1      | OCEAN end feed applicator with pneumatic feed  |
| -                                                                        | 929975-1<br>929975-4<br>929975-7<br>929975-8               | 2151345-1      | OCEAN end feed applicator with mechanical feed |
|                                                                          |                                                            | 2151345-2      | OCEAN end feed applicator with pneumatic feed  |

Note: Applicators with additional feed styles are available, contact your representative

### EXTRACTION TOOL FOR 2.5 MM CONTACTS



| Part Number | Description                                       |
|-------------|---------------------------------------------------|
| 1-1579007-8 | Contact extraction tool for 2.5 mm contact system |

# Contents

|                                  |       |
|----------------------------------|-------|
| HDSCS Connector Overview .....   | 46    |
| Product Documentation .....      | 46    |
| Performance Specifications ..... | 46    |
| Material Specifications .....    | 47    |
| Dimensions .....                 | 47    |
| Configurations .....             | 48    |
| Ordering Information .....       | 49-50 |
| Accessories .....                | 51-52 |
| Contacts .....                   | 53-55 |
| Tooling .....                    | 57-60 |
| How To Instructions .....        | 60-61 |

### HDSCS Connector Overview

The Heavy Duty Sealed Connector Series (HDSCS) offers several cavity arrangements and mixed wire sizes. The rugged, thermoplastic connectors have a secondary lock with poke-yoke feature and can be used for in-line or flange mount applications. HDSCS connectors are available in five housing sizes and four keying options.



### APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with HDSCS products. The following TE Connectivity document numbers may be helpful:

1654326-1 (Catalog Section)

108-94020 (Product Specification)

114-18756 (Application Specification)

1563709 (Product Group Drawing)

### HDSCS CONNECTOR PERFORMANCE SPECIFICATIONS

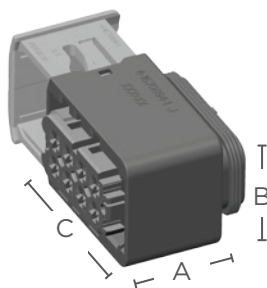
|                                         |                                                                                                                                                                                                                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Current:</b>                         | Up to 40 amps                                                                                                                                                                                                                   |
| <b>Temperature:</b>                     | Operating at temperatures -40°C to +140°C                                                                                                                                                                                       |
| <b>Durability:</b>                      | Up to 10 cycles (tin), up to 50 cycles (silver), up to 100 cycles (gold), see individual product specifications for additional details.                                                                                         |
| <b>Insulation Resistance:</b>           | 500 volts DC, test acc. to ISO 16750-2 (4.12).                                                                                                                                                                                  |
| <b>Immersion:</b>                       | IP67 rating, IP6K9K with cover, for tab housings with flange, only by observing mounting instructions.                                                                                                                          |
| <b>Random Vibration:</b>                | No physical damage of housings and contacts, no derogation of function; the connection may not open at 177 m/s <sup>2</sup> , 94 hours for each of the three axes. See product specification 108-94020 for full specifications. |
| <b>Voltage:</b>                         | Up to 42 volts DC                                                                                                                                                                                                               |
| <b>Dielectric Withstanding Voltage:</b> | No flash over or breakdown between adjacent contacts and outer contour of the housing permitted at 500 volts AC and 50 or 60 Hz for 60 seconds.                                                                                 |
| <b>Flammability</b>                     | Product with UL 94 V0 rated material is available                                                                                                                                                                               |

# HDSCS Connectors

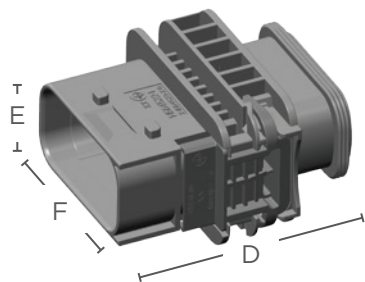
## MATERIAL SPECIFICATIONS

|                             |                  |
|-----------------------------|------------------|
| Flange Seal:                | Silicone rubber  |
| Seal for Secondary Locking: | Silicone rubber  |
| Housing:                    | Glass filled PBT |
| Secondary Locking:          | Glass filled PBT |
| Slide Lock:                 | Glass filled PBT |

## DIMENSIONS



HDSCS Receptacle Housing



HDSCS Tab Housing

| Group | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|-------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| A     | 1.23 (31.3)         | 0.73 (18.5)         | 1.02 (26.0)        | 1.64 (47.1)         | 0.75 (19.0)         | 1.09 (27.6)        |
| B     | 1.23 (31.3)         | 1.01 (25.7)         | 1.19 (30.2)        | 1.64 (47.1)         | 1.06 (27.0)         | 1.09 (27.6)        |
| C     | 1.23 (31.3)         | 1.01 (25.7)         | 1.23 (31.2)        | 1.64 (47.1)         | 1.06 (27.0)         | 1.28 (32.6)        |
| D     | 1.23 (31.3)         | 1.01 (25.7)         | 1.54 (39.2)        | 1.64 (47.1)         | 1.06 (27.0)         | 1.60 (40.6)        |
| E     | 1.23 (31.3)         | 1.01 (25.7)         | 2.02 (51.2)        | 1.64 (47.1)         | 1.06 (27.0)         | 2.07 (52.6)        |

Dimensions are for reference only.



### GROUP A SIZE CONFIGURATIONS



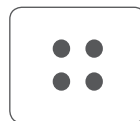
**2 Positions**  
2 size 1.5K



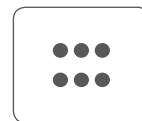
**2 Positions**  
2 size 2.8



**3 Positions**  
3 size 1.5K

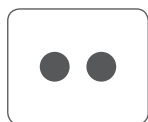


**4 Positions**  
4 size 2.8

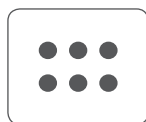


**6 Positions**  
6 size 1.5K

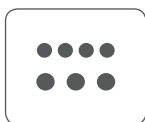
### GROUP C SIZE CONFIGURATIONS



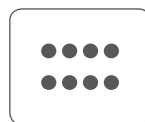
**2 Positions**  
2 size 6.3



**6 Positions**  
6 size 2.8

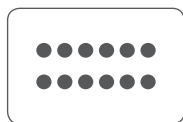


**7 Positions**  
4 size 1.5K  
3 size 2.8

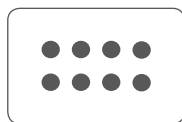


**8 Positions**  
8 size 1.5K

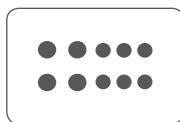
### GROUP D SIZE CONFIGURATIONS



**12 Positions**  
12 size 1.5K

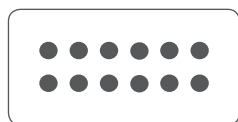


**8 Positions**  
8 size 2.8

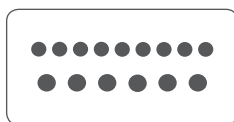


**10 Positions**  
6 size 1.5K  
4 size 2.8

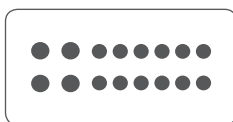
### GROUP E SIZE CONFIGURATIONS



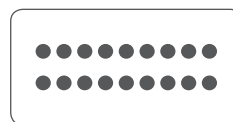
**12 Positions**  
12 size 2.8



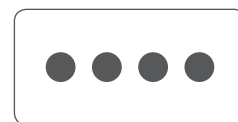
**15 Positions**  
9 size 1.5K  
6 size 2.8



**16 Positions**  
12 size 1.5K  
4 size 2.8



**18 Positions**  
18 size 1.5K



**4 Positions**  
4 size 6.3

## ORDERING INFORMATION

| Position | Group | Contact Size        | Keying Color | Receptacle Housing | Tab Housing |                |
|----------|-------|---------------------|--------------|--------------------|-------------|----------------|
|          |       |                     |              |                    | Flange      | Without Flange |
| 2        | A     | 2.8                 | Black        | 1-1418483-1        | 1-1703841-1 | 1-1703839-1    |
|          |       |                     | Gray         | 2-1418483-1        | 2-1703841-1 | 2-1703839-1    |
|          |       |                     | Green        | 3-1418483-1        | 3-1703841-1 | 3-1703839-1    |
|          |       |                     | Blue         | 4-1418483-1        | 4-1703841-1 | 4-1703839-1    |
| (3) 2    | A     | 1.5K                | Black        | 1-1418448-2        | -           | -              |
|          |       |                     | Gray         | 2-1418448-2        | -           | -              |
|          |       |                     | Green        | 3-1418448-2        | -           | -              |
|          |       |                     | Blue         | 4-1418448-2        | -           | -              |
| 2        | C     | 6.3                 | Black        | 1-1564542-1        | 1-1564546-1 | 1-1564544-1    |
|          |       |                     | Gray         | 2-1564542-1        | 2-1564546-1 | 2-1564544-1    |
|          |       |                     | Green        | 3-1564542-1        | 3-1564546-1 | 3-1564544-1    |
|          |       |                     | Blue         | 4-1564542-1        | 4-1564546-1 | 4-1564544-1    |
| 3        | A     | 1.5K                | Black        | 1-1418448-1        | 1-1703843-1 | 1-1670730-1    |
|          |       |                     | Gray         | 2-1418448-1        | 2-1703843-1 | 2-1670730-1    |
|          |       |                     | Green        | 3-1418448-1        | 3-1703843-1 | 3-1670730-1    |
|          |       |                     | Blue         | 4-1418448-1        | 4-1703843-1 | 4-1670730-1    |
| 4        | B     | 2.8                 | Black        | 1-1418390-1        | 1-1703808-1 | 1-1703818-1    |
|          |       |                     | Gray         | 2-1418390-1        | 2-1703808-1 | 2-1703818-1    |
|          |       |                     | Green        | 3-1418390-1        | 3-1703808-1 | 3-1703818-1    |
|          |       |                     | Blue         | 4-1418390-1        | 4-1703808-1 | 4-1703818-1    |
|          | E     | 6.3                 | Black        | 1-1564330-1        | -           | 1-1564534-1    |
|          |       |                     | Gray         | 2-1564330-1        | -           | 2-1564534-1    |
|          |       |                     | Green        | 3-1564330-1        | -           | 3-1564534-1    |
|          |       |                     | Blue         | 4-1564330-1        | -           | 4-1564534-1    |
| 6        | B     | 1.5K                | Black        | 1-1418469-1        | 1-1703820-1 | 1-1703773-1    |
|          |       |                     | Gray         | 2-1418469-1        | 2-1703820-1 | 2-1703773-1    |
|          |       |                     | Green        | 3-1418469-1        | 3-1703820-1 | 3-1703773-1    |
|          |       |                     | Blue         | 4-1418469-1        | 4-1703820-1 | 4-1703773-1    |
|          | C     | 2.8                 | Black        | 1-1418437-1        | -           | -              |
|          |       |                     | Gray         | 2-1418437-1        | -           | -              |
|          |       |                     | Green        | 3-1418437-1        | -           | -              |
|          |       |                     | Blue         | 4-1418437-1        | -           | -              |
| 7        | C     | (4) 1.5K<br>(3) 2.8 | Black        | 1-1418480-1        | 1-1670214-1 | 1-1703648-1    |
|          |       |                     | Gray         | 2-1418480-1        | 2-1670214-1 | 2-1703648-1    |
|          |       |                     | Green        | 3-1418480-1        | 3-1670214-1 | 3-1703648-1    |
|          |       |                     | Blue         | 4-1418480-1        | 4-1670214-1 | 4-1703648-1    |

## ORDERING INFORMATION (CONTINUED)

| Position | Group | Contact Size         | Keying Color | Receptacle Housing | Tab Housing |                |
|----------|-------|----------------------|--------------|--------------------|-------------|----------------|
|          |       |                      |              |                    | Flange      | Without Flange |
| 8        | C     | 1.5K                 | Black        | 1-1418479-1        | 1-1564416-1 | 1-1564512-1    |
|          |       |                      | Gray         | 2-1418479-1        | 2-1564416-1 | 2-1564512-1    |
|          |       |                      | Green        | 3-1418479-1        | 3-1564416-1 | 3-1564512-1    |
|          |       |                      | Blue         | 4-1418479-1        | 4-1564416-1 | 4-1564512-1    |
|          | D     | 2.8                  | Black        | 1-1670894-1        | -           | 1-1564522-1    |
|          |       |                      | Gray         | 2-1670894-1        | -           | 2-1564522-1    |
|          |       |                      | Green        | 3-1670894-1        | -           | 3-1564522-1    |
|          |       |                      | Blue         | 4-1670894-1        | -           | 4-1564522-1    |
| 10       | D     | (6) 1.5K<br>(4) 2.8  | Black        | 1-1564514-1        | 1-1564518-1 | 1-1564516-1    |
|          |       |                      | Gray         | 2-1564514-1        | 2-1564518-1 | 2-1564516-1    |
|          |       |                      | Green        | 3-1564514-1        | 3-1564518-1 | 3-1564516-1    |
|          |       |                      | Blue         | 4-1564514-1        | 4-1564518-1 | 4-1564516-1    |
| 12       | D     | 1.5K                 | Black        | 1-1703639-1        | 1-1564520-1 | 1-1564414-1    |
|          |       |                      | Gray         | 2-1703639-1        | 2-1564520-1 | 2-1564414-1    |
|          |       |                      | Green        | 3-1703639-1        | 3-1564520-1 | 3-1564414-1    |
|          |       |                      | Blue         | 4-1703639-1        | 4-1564520-1 | 4-1564414-1    |
|          | E     | 2.8                  | Black        | 1-1670901-1        | -           | -              |
|          |       |                      | Gray         | 2-1670901-1        | -           | -              |
|          |       |                      | Green        | 3-1670901-1        | -           | -              |
|          |       |                      | Blue         | 4-1670901-1        | -           | -              |
| 15       | E     | (9) 1.5K<br>(6) 2.8  | Black        | 1-1563878-1        | 1-1564532-1 | 1-1564530-1    |
|          |       |                      | Gray         | 2-1563878-1        | 2-1564532-1 | 2-1564530-1    |
|          |       |                      | Green        | 3-1563878-1        | 3-1564532-1 | 3-1564530-1    |
|          |       |                      | Blue         | 4-1563878-1        | 4-1564532-1 | 4-1564530-1    |
| 16       | E     | (12) 1.5K<br>(4) 2.8 | Black        | 1-1564337-1        | 1-1564407-1 | 1-1564528-1    |
|          |       |                      | Gray         | 2-1564337-1        | 2-1564407-1 | 2-1564528-1    |
|          |       |                      | Green        | 3-1564337-1        | 3-1564407-1 | 3-1564528-1    |
|          |       |                      | Blue         | 4-1564337-1        | 4-1564407-1 | 4-1564528-1    |
| 18       | E     | 1.5K                 | Black        | 1-1563759-1        | 1-1564526-1 | 1-1564412-1    |
|          |       |                      | Gray         | 2-1563759-1        | 2-1564526-1 | 2-1564412-1    |
|          |       |                      | Green        | 3-1563759-1        | 3-1564526-1 | 3-1564412-1    |
|          |       |                      | Blue         | 4-1563759-1        | 4-1564526-1 | 4-1564412-1    |

## HDSCS Connectors

### Accessories

Several accessory items are available to complement the HDSCS connectors including backshells, fixing slides, and protection caps. Accessory items cover a wide array of design requirements such as assisting with mounting, providing additional protection, and offering enhanced aesthetics.

### BACKSHELLS

| Group | Part Number | Description                                                          |
|-------|-------------|----------------------------------------------------------------------|
| A     | 1670365-1   | Vertical adapter for NW 8.5 mm diameter corrugated tubing            |
|       | 1670150-1   | Right-angle adapter for NW 8.5 mm diameter corrugated tubing         |
| B     | 965576-1    | Right-angle adapter with universal clamp                             |
|       | 965784-1    | Vertical adapter with universal clamp                                |
|       | 185793-1    | Right-angle adapter for NW 7.5 mm diameter corrugated tubing         |
|       | 965577-1    | Right-angle adapter for NW 8.5 mm diameter corrugated tubing         |
|       | 965783-1    | Right-angle adapter for NW 10 mm diameter corrugated tubing          |
|       | 185792-1    | Vertical adapter for NW 7.5 mm diameter corrugated tubing            |
|       | 965785-1    | Vertical adapter for NW 8.5 mm diameter corrugated tubing            |
|       | 965786-1    | Vertical adapter for NW 10 mm diameter corrugated tubing             |
|       | 1534789-1   | Right-angle adapter 4/7 position for hose                            |
|       | 1534791-1   | Vertical adapter 4/7 position for hose                               |
|       | 1418916-1   | Vertical adapter 4/7 position for jacketed cable 5.2-6.5 mm          |
|       | 1418917-1   | Vertical adapter 4/7 position for jacketed cable 6.0-9.5 mm          |
|       | 1418918-1   | Right-angle adapter 4/7 position for jacketed cable 5.2-6.5 mm       |
|       | 1418919-1   | Right-angle adapter 4/7 position for jacketed cable 6.0-9.5 mm       |
| C     | 1670364-1   | Vertical adapter for NW 13 mm diameter corrugated tubing             |
|       | 1670057-1   | Right-angle adapter for NW 13 mm diameter corrugated tubing          |
| D     | 1563111-1   | Vertical adapter for NW 13 mm diameter corrugated tubing             |
|       | 1563110-1   | Right-angle adapter for NW 13 mm diameter corrugated tubing          |
| E     | 1670866-1   | Vertical adapter for NW 17 mm diameter corrugated tubing and hose    |
|       | 1670865-1   | Right-angle adapter for NW 17 mm diameter corrugated tubing and hose |

### FIXING SLIDES

Fixing slides are used to help secure HDSCS connectors while mounting them. The locking slides can accommodate panel thicknesses from 1.0-3.5 mm.



| Group | Part Number | Color   | Panel Thickness |
|-------|-------------|---------|-----------------|
| A     | 1703838-6   | Gray    | 3.5 mm          |
|       | 1703838-1   | Yellow  | 3.0 mm          |
|       | 1703838-2   | Red     | 2.5 mm          |
| B     | 1703810-6   | Gray    | 3.5 mm          |
|       | 1703810-1   | Yellow  | 3.0 mm          |
|       | 1703810-2   | Red     | 2.5 mm          |
| C     | 1670720-6   | Gray    | 3.5 mm          |
|       | 1670720-1   | Yellow  | 3.0 mm          |
|       | 1670720-2   | Red     | 2.5 mm          |
| D     | 1564562-1   | Yellow  | 3.0 mm          |
|       | 1564562-2   | Red     | 2.5 mm          |
|       | 1564562-5   | Gray    | 1.5 mm          |
|       | 1564562-4   | Natural | 1.0 mm          |
| E     | 1564411-6   | Gray    | 3.5 mm          |
|       | 1564411-1   | Yellow  | 3.0 mm          |
|       | 1564411-2   | Red     | 2.5 mm          |
|       | 1564411-5   | Gray    | 1.5 mm          |

### PROTECTION CAPS

The HDSCS protection caps provide an environmental seal and are used to protect the connector interface when the two halves are not mated.



| Group | Part Number | Housing    |
|-------|-------------|------------|
| A     | 2112299-1   | Receptacle |
|       | 2112289-1   | Tab        |
| B     | 2112300-1   | Receptacle |
|       | 2112291-1   | Tab        |
| C     | 2112301-1   | Receptacle |
|       | 2112293-1   | Tab        |
| D     | 2112302-1   | Receptacle |
|       | 2112295-1   | Tab        |
| E     | 2112303-1   | Receptacle |
|       | 2112297-1   | Tab        |

### Contacts

The HDSCS connectors commonly use the AMP MCP stamped & formed contact system.

#### AMP MCP CONTACT PERFORMANCE SPECIFICATIONS

##### Durability

10 cycles (tin)  
50 cycles (silver)  
100 cycles (gold)

##### Current Rating

| Contact Size | Max. Current  |
|--------------|---------------|
| 1.5K         | up to 20 amps |
| 2.8          | up to 40 amps |
| 6.3/4.8K     | up to 40 amps |

##### Contact Retention

| Contact Size | Min. Load |
|--------------|-----------|
| 1.5K         | 40/60 N   |
| 2.8          | 80 N      |
| 6.3/4.8K     | 80 N      |

##### Crimp Tensile Strength

| Contact Size         | Tensile Strength |
|----------------------|------------------|
| <b>1.5K</b>          |                  |
| .22 mm <sup>2</sup>  | ≥ 32 N           |
| .35 mm <sup>2</sup>  | ≥ 50 N           |
| .50 mm <sup>2</sup>  | ≥ 60 N           |
| .75 mm <sup>2</sup>  | ≥ 85 N           |
| 1.0 mm <sup>2</sup>  | ≥ 108 N          |
| 1.25 mm <sup>2</sup> | ≥ 135 N (16 AWG) |
| 1.5 mm <sup>2</sup>  | ≥ 135 N          |

##### 2.8

|                     |         |
|---------------------|---------|
| .22 mm <sup>2</sup> | ≥ 28 N  |
| .35 mm <sup>2</sup> | ≥ 50 N  |
| .50 mm <sup>2</sup> | ≥ 60 N  |
| .75 mm <sup>2</sup> | ≥ 85 N  |
| 1.0 mm <sup>2</sup> | ≥ 108 N |
| 1.5 mm <sup>2</sup> | ≥ 150 N |
| 2.5 mm <sup>2</sup> | ≥ 200 N |

##### 6.3./4.8K

|                     |         |
|---------------------|---------|
| .35 mm <sup>2</sup> | ≥ 50 N  |
| .50 mm <sup>2</sup> | ≥ 60 N  |
| .75 mm <sup>2</sup> | ≥ 85 N  |
| 1.0 mm <sup>2</sup> | ≥ 108 N |
| 1.5 mm <sup>2</sup> | ≥ 150 N |
| 2.5 mm <sup>2</sup> | ≥ 200 N |
| 4.0 mm <sup>2</sup> | ≥ 310 N |
| 6.0 mm <sup>2</sup> | ≥ 450 N |

## HDSCS Connectors

### AMP MCP CONTACTS FOR HDSCS

Stamped & Formed Tabs with Single Wire Sealing System - AMP MCP

| Tab Part Numbers |            |                     |             |                     | Wire Size<br>(mm <sup>2</sup> ) | Insulation<br>Dia. (mm)<br>FLR | Finish                                                         |
|------------------|------------|---------------------|-------------|---------------------|---------------------------------|--------------------------------|----------------------------------------------------------------|
| Size             | Strip Form | Package<br>Quantity | Loose Piece | Package<br>Quantity |                                 |                                |                                                                |
| 1.5K             | 969028     | 4000                | 969029      | 500                 | 0.2-0.5                         | 1.2-1.6                        | -2/-3                                                          |
|                  | 964269     | 4000                | 964270      | 500                 | 0.5-1.0                         | 1.4-2.1                        | -2/-3/-5                                                       |
|                  | 1703278    | 4000                | 1703279     | 500                 | 1.5                             | 1.9-2.4                        | -2/-5                                                          |
| 2.8              | 965982     | 3500                | 965983      | 500                 | 0.2-0.5                         | max 2.1                        | 1-xxx-1<br>1-xxx-3                                             |
|                  | 962915     | 3500                | 963748      | 500                 | 0.5-1.0                         | max 2.1                        | 1-xxx-1<br>1-xxx-2<br>1-xxx-3<br>2-xxx-1<br>2-xxx-2<br>2-xxx-3 |
|                  | 962916     | 3300                | 963749      | 500                 | 1.5-2.5                         | max 3.0                        | 1-xxx-1<br>1-xxx-2<br>1-xxx-3<br>2-xxx-1<br>2-xxx-2<br>2-xxx-3 |
|                  | 1719504    | 3200                | 1719503     | 500                 | 12 TXL                          | max 3.2                        | 1-xxx-1<br>1-xxx-2                                             |
| 6.3/<br>4.8K     | 962917     | 1500                | 963742      | 500                 | 0.5-1.0                         | 1.4-2.1                        | 1-xxx-1<br>1-xxx-2<br>2-xxx-1<br>2-xxx-2                       |
|                  | 962918     | 1500                | 963743      | 500                 | 1.5-2.5                         | 2.2-3.0                        | 1-xxx-1<br>1-xxx-2<br>2-xxx-1<br>2-xxx-2                       |
|                  | 962919     | 1500                | 963744      | 500                 | >2.5-4.0                        | 2.7-3.7                        | 1-xxx-1<br>1-xxx-2<br>2-xxx-1<br>2-xxx-2                       |

AMP MCP Tab Finish Codes

| Finish Code | Material                       |
|-------------|--------------------------------|
| -2          | CuFe2, pre-tin plated          |
| -3          | CuSn4, gold plated             |
| -5          | CuSn4, selective silver plated |
| 1-xxx-1     | CuSn, pre-tin plated           |

Finish Code      Material

|         |                               |
|---------|-------------------------------|
| 1-xxx-2 | CuSn, selective silver plated |
| 1-xxx-3 | CuSn, selective gold plated   |
| 2-xxx-1 | CuFe, pre-tin plated          |
| 2-xxx-2 | CuFe, selective silver plated |
| 2-xxx-3 | CuFe, selective gold plated   |

Stamped & Formed Receptacles with Single Wire Sealing System - AMP MCP

| Size         | Receptacle Part Numbers |                  |             |                  | Wire Size (mm <sup>2</sup> ) | Insulation Diameter (mm) |         | Finish                        |
|--------------|-------------------------|------------------|-------------|------------------|------------------------------|--------------------------|---------|-------------------------------|
|              | Strip Form              | Package Quantity | Loose Piece | Package Quantity |                              | FLK                      | FLR     |                               |
| 1.5K         | 1564324                 | 4500             | 1564325     | 500              | 0.22-0.35                    | -                        | 1.1-1.4 | -1/-2/-3                      |
|              | 1241380                 | 4500             | 1241381     | 500              | 0.5-1.0                      | -                        | 1.4-2.1 | -1/-2/-3<br>1-xxx-2*          |
|              | 1418884                 | 4500             | 1418885     | 500              | >1.0-1.5                     | -                        | 2.2-2.4 | -1/-3                         |
| 2.8          | 968882                  | 4500             | 968896      | 500              | 0.35                         | -                        | 1.2-1.4 | 1-xxx-1<br>1-xxx-3            |
|              | 968855                  | 3500             | 968875      | 500              | 0.5-1.0                      | -                        | 1.4-2.1 | 1-xxx-1<br>1-xxx-2<br>1-xxx-3 |
|              | 968857                  | 4000             | 968876      | 500              | >1.0-2.5                     | -                        | 2.2-3.0 | 1-xxx-1<br>1-xxx-3            |
| 6.3/<br>4.8K | 1241410                 | 1500             | 1241411     | 500              | 0.35-0.5                     | 1.3-2.3                  | 1.2-1.6 | -1/-3                         |
|              | 1241412                 | 1500             | 1241413     | 500              | 0.5-1.0                      | 2.0-2.7                  | 1.4-2.1 | -1/-3                         |
|              | 1241414                 | 1500             | 1241415     | 500              | >1.0-2.5                     | 2.7-3.7                  | 2.2-3.0 | -1/-3                         |
|              | 1241416                 | 1500             | 1241417     | 500              | >2.5-4.0                     | 4.1-4.5                  | 3.4-3.7 | -1/-3                         |
|              | 1241418                 | 1500             | 1241419     | 500              | 4.0-6.0                      | -                        | 3.4-4.3 | -4<br>1-xxx-3<br>2-xxx-3      |

AMP MCP Receptacle Finish Codes

| Finish Code | Material                                     |
|-------------|----------------------------------------------|
| -1          | CuNiSi, pre-tin plated                       |
| -2          | CuNiSi, selective gold plated                |
| -3          | CuNiSi, selective silver plated              |
| -4          | CuNiSi, tin-silver pre-plated                |
| 1-xxx-1     | CuNiSi, pre-tin plated                       |
| 1-xxx-2     | CuNiSi, selective gold plated                |
| 1-xxx-2*    | CuNiSi, min 1.27 µm<br>selective gold plated |
| 1-xxx-3     | CuNiSi, selective silver plated              |





### WIRE SEALS

Wire seals are required for connectors without an integrated rear seal to maintain an environmental seal.



| Contact Size | Insulation Diameter (mm) | Color     | Part Number | Package Quantity |
|--------------|--------------------------|-----------|-------------|------------------|
| 1.5K         | 0.9-1.2                  | Green     | 1718705-1   | 10,000           |
|              | 1.2-1.6                  | Red       | 964971-1    |                  |
|              |                          | Blue      | 1394133-1   |                  |
|              | 1.4-1.9                  | Gray      | 963530-1    |                  |
|              | 1.9-2.1                  | Yellow    | 964972-1    |                  |
| 2.8          | 1.9-2.4                  | Orange    | 2112323-1   | 1000             |
|              | 1.2-2.1                  | Blue      | 828904-1    |                  |
|              |                          |           | 828904-2    |                  |
| 6.3/4.8K     | 2.2-3.0                  | White     | 828905-1    | 10,000           |
|              | 1.4-2.0                  | Yellow    | 2177018-1   | 10,000           |
|              | 2.0-2.7                  | White     | 1394511-1   |                  |
|              | 2.7-2.9                  | Red brown | 1823111-1   |                  |
|              | 3.4-3.7                  | Blue      | 1394512-1   |                  |
|              | 4.0-4.5                  | Green     | 1719043-1   |                  |

### SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.

| Contact Size | Wire Size | Color       | Part Number | Package Quantity |
|--------------|-----------|-------------|-------------|------------------|
| 1.5K         | 3.6 mm    | White       | 963531-1    | 10,000           |
|              |           | Natural     | 1394132-1   |                  |
| 2.8          | 5.6 mm    | Natural     | 828922-1    |                  |
|              |           | Green       | 828922-2    |                  |
| 6.3/4.8K     | 8.5 mm    | Transparent | 967652-1    |                  |

## HDSCS Connectors

### Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

#### HAND TOOL FOR AMP MCP CONTACTS



| Contact Size | Tab Strip Form              | Tab Loose Piece             | Receptacle Strip Form | Receptacle Loose Piece | Tool P/N                              | Description                                |
|--------------|-----------------------------|-----------------------------|-----------------------|------------------------|---------------------------------------|--------------------------------------------|
| 1.5K         | 1703278<br>964269<br>969028 | 1703279<br>964270<br>969029 | -                     | -                      | 539663-2 (die)<br>539663-2 (frame)    | ERGOCRIMP<br>hand tool<br>and die assembly |
|              | -                           | -                           | 1418884               | 1418885                | 5-1579001-3 (die)<br>539635-1 (frame) |                                            |
|              | -                           | -                           | 1564324               | 1564325                | 4-1579016-0 (die)<br>539635-1 (frame) |                                            |
| 2.8          | 962915<br>962916            | 963748<br>963749            | -                     | -                      | 539758-2 (die)<br>539635-1 (frame)    | ERGOCRIMP<br>hand tool<br>and die assembly |
|              | 965982                      | 965983                      |                       |                        | 539737-2 (die)<br>539635-1 (frame)    |                                            |
|              | -                           | -                           | 968882                | 968896                 | 539725-2 (die)<br>539635-1 (frame)    |                                            |
| 6.3/<br>4.8K | 962917<br>962918<br>962919  | 963742<br>963743<br>963744  | -                     | -                      | 539757-2 (die)<br>539635-1 (frame)    | ERGOCRIMP<br>hand tool<br>and die assembly |
|              | -                           | -                           | 1241410<br>1241412    | 1241411<br>1241413     | 539955-2 (die)<br>539635-1 (frame)    |                                            |
|              | -                           | -                           | 1241416<br>1241414    | 1241415<br>1241417     | 539956-2 (die)<br>539635-1 (frame)    |                                            |
|              | -                           | -                           | 1241418               | 1241419                | 3-1579021-7 (die)<br>539635-1 (frame) |                                            |

### AUTOMATED FOR AMP MCP CONTACTS



OCEAN end  
feed applicator

| Contact Size | Tab Strip Form | Receptacle Strip Form | Applicator P/N | Feed Type           |
|--------------|----------------|-----------------------|----------------|---------------------|
| 1.5K         | 969028         | -                     | 2151056-1      | Mechanical end feed |
|              |                |                       | 2151056-2      | Pneumatic end feed  |
|              | 964269         | -                     | 2151935-1      | Mechanical end feed |
|              |                |                       | 2151935-2      | Pneumatic end feed  |
|              | 1703278        | -                     | 2266180-1      | Mechanical end feed |
|              |                |                       | 2266180-2      | Pneumatic end feed  |
|              | -              | 1418884               | 2266179-1      | Mechanical end feed |
|              |                |                       | 2266179-2      | Pneumatic end feed  |
|              | -              | 1564324               | 2151469-1      | Mechanical end feed |
|              |                |                       | 2151469-2      | Pneumatic end feed  |
| 2.8          | 962915         | -                     | 2151181-1      | Mechanical end feed |
|              |                |                       | 2151181-2      | Pneumatic end feed  |
|              | 962916         | -                     | 2151260-1      | Mechanical end feed |
|              |                |                       | 2151260-2      | Pneumatic end feed  |
|              | 965982         | -                     | 2151840-1      | Mechanical end feed |
|              |                |                       | 2151840-2      | Pneumatic end feed  |
|              | -              | 968882                | 2151559-1      | Mechanical end feed |
|              |                |                       | 2151559-2      | Pneumatic end feed  |

Note: Applicators with additional feed styles are available, contact your representative

### AUTOMATED FOR AMP MCP CONTACTS (CONTINUED)

| Contact Size | Tab Strip Form | Receptacle Strip Form | Applicator P/N | Description         |
|--------------|----------------|-----------------------|----------------|---------------------|
| 6.3/4.8K     | 962917         | -                     | 2266535-1      | Mechanical end feed |
|              |                |                       | 2266535-2      | Pneumatic end feed  |
|              | 962918         | -                     | 2151783-1      | Mechanical end feed |
|              |                |                       | 2151783-2      | Pneumatic end feed  |
|              | 962919         | -                     | 2151782-1      | Mechanical end feed |
|              |                |                       | 2151782-2      | Pneumatic end feed  |
|              | -              | 1241410               | 2151695-1      | Mechanical end feed |
|              |                |                       | 2151695-2      | Pneumatic end feed  |
|              | -              | 1241412               | 2151234-1      | Mechanical end feed |
|              |                |                       | 2151234-2      | Pneumatic end feed  |
|              | -              | 1241416               | 2151151-1      | Mechanical end feed |
|              |                |                       | 2151151-2      | Pneumatic end feed  |
|              | -              | 1241414               | 2266490-1      | Mechanical end feed |
|              |                |                       | 2266490-2      | Pneumatic end feed  |
|              | -              | 1241418               | 2151466-1      | Mechanical end feed |
|              |                |                       | 2151466-2      | Pneumatic end feed  |

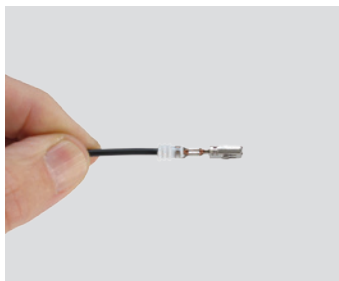
Note: Applicators with additional feed styles are available, contact your representative

### EXTRACTION AND INSERTION TOOLS FOR AMP MCP CONTACTS

| Contact Size    | Part Number | Description |
|-----------------|-------------|-------------|
| 1.5K            | 539960-1    | Extraction  |
|                 | 1-1579007-1 | Extraction  |
|                 | 1579008-9   | Insertion   |
| 2.8             | 519609-1    | Insertion   |
| 2.8<br>6.3/4.8K | 1-1579007-6 | Extraction  |
| 6.3/4.8K        | 1-1579007-3 | Extraction  |

### How To Instructions

#### CONTACT INSERTION

**Step 1:**

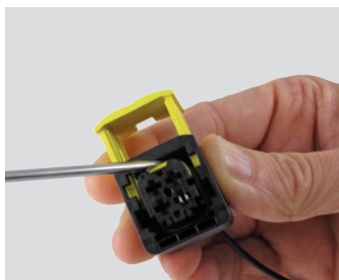
Grasp crimped contact approximately one inch behind the contact barrel.

**Step 2:**

Make sure the contact is in the correct orientation. Verify the integrated secondary lock is in the unlocked position.

**Step 3:**

Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.

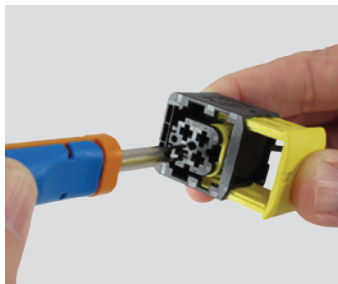
**Step 4:**

Push the integrated secondary lock into the locked position with a DT-RT1 or a screwdriver.

### CONTACT REMOVAL



**Step 1:**  
Using a DT-RT1 or a screwdriver, unlock the integrated secondary lock.



**Step 2:**  
Using the appropriate extraction tool, insert the blades into the contact cavity until they stop.



**Step 3:**  
Pull contact wire assembly out of connector.

NOTES:

# Contents

|                                   |       |
|-----------------------------------|-------|
| LEAVYSEAL Connector Overview..... | 64    |
| Product Documentation.....        | 64    |
| Performance Specifications.....   | 64    |
| Material Specifications.....      | 64    |
| Dimensions.....                   | 65    |
| Configurations.....               | 65-66 |
| Ordering Information.....         | 67-68 |
| Accessories.....                  | 69-71 |
| Contacts.....                     | 71-73 |
| Tooling.....                      | 75-77 |
| How To Instructions.....          | 78    |



### LEAVYSEAL Connector Overview

The rugged LEAVYSEAL connectors are multi-pin and accept multiple wire sizes. LEAVYSEAL products utilize a lever lock system for mating and are available in several mounting styles and keying options. The housings come in six sizes and feature an integrated cable attachment.



### APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with LEAVYSEAL products. The following TE Connectivity document numbers may be helpful:

1307998-3 (Catalog Section)

108-18696 (Product Specification)

114-18376 (Application Specification)

2293396 (Product Group Drawing)

### LEAVYSEAL CONNECTOR PERFORMANCE SPECIFICATIONS

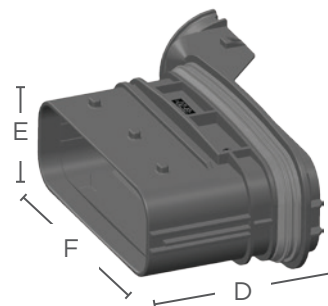
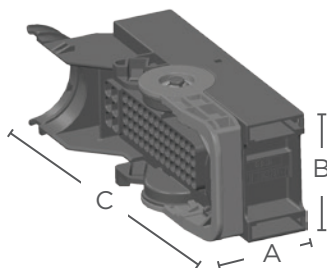
|                                         |                                                                                                                                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Current:</b>                         | Up to 40 amps                                                                                                                                   |
| <b>Temperature:</b>                     | Operating at temperatures ranges -40°C to +140°C, see individual product specifications for specific range.                                     |
| <b>Durability:</b>                      | Up to 20 cycles (tin), up to 50 cycles (silver), up to 100 cycles (gold), see individual product specifications for additional details.         |
| <b>Insulation Resistance:</b>           | 500 volts DC, see individual product specifications for testing conditions.                                                                     |
| <b>Immersion:</b>                       | IP67 rating, IP6K9K with cover                                                                                                                  |
| <b>Voltage:</b>                         | 42 volts AC/DC                                                                                                                                  |
| <b>Dielectric Withstanding Voltage:</b> | No flash over or breakdown between adjacent contacts and outer contour of the housing permitted at 500 volts AC and 50 or 60 Hz for 60 seconds. |
| <b>Flammability</b>                     | Product with a UL 94 V0 rated material is available                                                                                             |

### MATERIAL SPECIFICATIONS

|                           |                  |
|---------------------------|------------------|
| <b>Flange Seal:</b>       | Silicone rubber  |
| <b>Housing:</b>           | Glass filled PBT |
| <b>Secondary Locking:</b> | Glass filled PBT |

## LEAVYSEAL Connectors

### DIMENSIONS



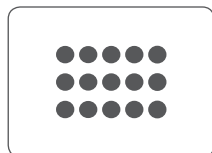
**LEAVYSEAL Receptacle Housing**

**LEAVYSEAL Tab Housing**

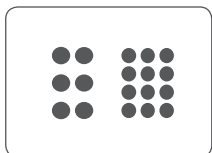
| Group | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|-------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| 1     | 1.46 (37.0)         | 1.57 (40.0)         | 2.33 (57.9)        | 1.48 (37.6)         | 1.93 (49.0)         | 1.91 (48.4)        |
| 2     | 1.49 (37.9)         | 1.72 (43.7)         | 2.73 (69.4)        | 1.81 (46.1)         | 2.03 (51.5)         | 2.62 (66.6)        |
| 3     | 1.73 (44.0)         | 1.64 (41.7)         | 3.64 (92.5)        | 2.19 (55.5)         | 2.47 (62.7)         | 3.62 (92.0)        |
| 4     | 1.43 (36.4)         | 1.71 (43.5)         | 4.09 (104.0)       | -                   | -                   | -                  |
| 5     | 1.73 (44.0)         | 1.81 (46.0)         | 4.04 (102.5)       | 1.80 (45.8)         | 2.78 (70.7)         | 4.46 (113.3)       |
| 6     | 1.83 (46.6)         | 1.79 (45.5)         | 5.26 (133.5)       | -                   | -                   | -                  |

Dimensions are for reference only.

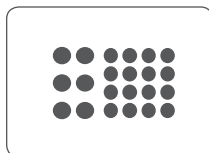
### GROUP 1 CONFIGURATIONS



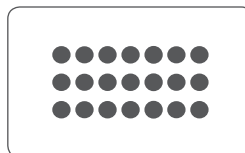
**15 Positions**  
15 size 2.8



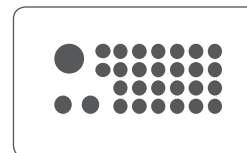
**18 Positions**  
12 size 1.5K  
6 size 2.8



**22 Positions**  
16 size 1.5K  
6 size 2.8



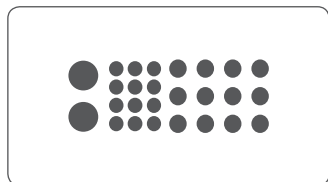
**21 Positions**  
21 size 2.8



**29 Positions**  
26 size 1.5K  
2 size 2.8  
1 size 6.3

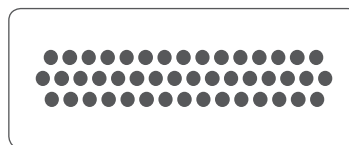
### GROUP 2 CONFIGURATIONS

### GROUP 3 CONFIGURATIONS



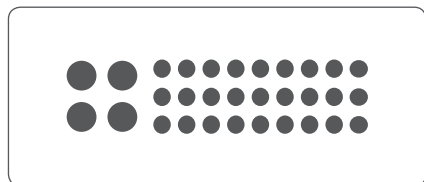
**26 Positions**  
12 size 1.5K  
12 size 2.8  
2 size 6.3

### GROUP 4 CONFIGURATIONS



**46 Positions**  
46 size 1.5K

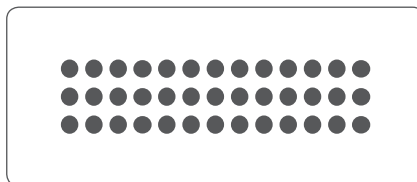
### GROUP 5 CONFIGURATIONS



**31 Positions**

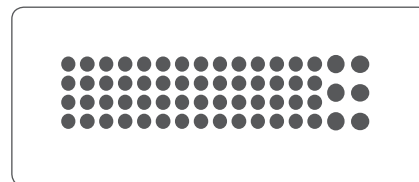
27 size 2.8

4 size 6.3



**39 Positions**

39 size 2.8

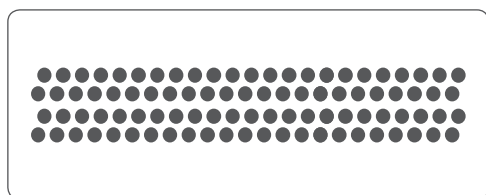


**62 Positions**

56 size 1.5K

6 size 2.8

### GROUP 6 CONFIGURATIONS



**92 Positions**

92 size 1.5K

## ORDERING INFORMATION

| Position | Group | Contact Size         | Keying | Housing Color | Receptacle Housing            | Tab Housing          |                        |
|----------|-------|----------------------|--------|---------------|-------------------------------|----------------------|------------------------|
|          |       |                      |        |               |                               | In-line/Flange       | PCB                    |
| 15       | 1     | 2.8                  | A      | Black         | 1-1534126-1                   | 1703799-1            | -                      |
|          |       |                      | B      | Natural       | 2-1534126-1                   | -                    | -                      |
|          |       |                      | C      | Blue          | 3-1534126-1                   | -                    | -                      |
| 21       | 2     | 2.8                  | A      | Black         | 1-1534127-1                   | 1-2112162-1 (flange) | 1534238-1 (straight)   |
|          |       |                      | B      | Natural       | 2-1534127-1                   | 2-2112162-1          | -                      |
|          |       |                      | C      | Blue          | 3-1534127-1                   | 3-2112162-1          | -                      |
|          |       |                      | D      | Violet        | 4-1534127-1                   | 4-2112162-1          | -                      |
| 31       | 5     | (27) 2.8<br>(4) 6.3  | A      | Bordeaux      | 1-1564297-6                   | -                    | -                      |
| 39       | 5     | 2.8                  | E      | Emerald Green | 5-1718321-3                   | 5-1718323-1          | 5-1418363-1 (straight) |
|          |       |                      | F      | Fawn Brown    | 6-1718321-3                   | 6-1718323-1          | 5-1418363-3 (90°)      |
| 46       | 4     | 1.5K                 | A      | Black         | 1-2112231-1                   | -                    | -                      |
| 62       | 5     | (56) 1.5K<br>(6) 2.8 | A      | Black         | 1-1418883-1                   | 1-1718324-1          | 1-1418362-1 (straight) |
|          |       |                      | B      | Gray          | 2-1418883-1                   | 2-1718324-1          | 1-1418362-3 (90°)      |
|          |       |                      | C      | Blue          | 3-1418883-1                   | 3-1718324-1          | 2-1418362-1 (straight) |
|          |       |                      | D      | Green         | 4-1418883-1                   | -                    | 2-1418362-3 (90°)      |
| 92       | 6     | 1.5K                 | A      | Black         | 1-703998-1 (NW 26 wire exit)  | -                    | 1-1452228-9 (straight) |
|          |       |                      | A      | Black         | 3-1703998-1 (NW 29 wire exit) |                      |                        |
|          |       |                      | B      | Black         | 4-1703998-1 (NW 29 wire exit) | -                    | -                      |
|          |       |                      | C      | Black         | 5-1703998-1 (NW 29 wire exit) | -                    | -                      |

## ORDERING INFORMATION - VO RATED MATERIAL

| Position | Group | Contact Size                     | Keying | Housing Color | Receptacle Housing | Tab Housing              |                            |
|----------|-------|----------------------------------|--------|---------------|--------------------|--------------------------|----------------------------|
|          |       |                                  |        |               |                    | In-line/Flange           | PCB                        |
| 18       | 1     | (12) 1.5K<br>(6) 2.8             | A      | Black         | 1823440-2          | 1-1823448-2              | -                          |
| 21       | 2     | 2.8                              | A      | Black         | 1-2208688-1        | 1-2112162-1*<br>(flange) | 1534238-1*<br>(straight)   |
| 22       | 1     | (16) 1.5K<br>(6) 2.8             | A      | Black         | 1-1823440-3        | 1-1823449-1              | -                          |
|          |       |                                  | B      | Gray          | 2-1823440-3        | 2-1823449-1              | -                          |
|          |       |                                  | C      | Blue          | 3-1823440-3        | -                        | -                          |
|          |       |                                  | D      | Green         | 4-1823440-3        | -                        | -                          |
| 26       | 3     | (12) 1.5K<br>(12) 2.8<br>(2) 6.3 | A      | Black         | 1-2112035-1        | 1-2112041-1              | -                          |
|          |       |                                  |        |               |                    | 1-2112041-2              |                            |
| 29       | 2     | (26) 1.5K<br>(2) 2.8<br>(1) 6.3  | A      | Black         | 1-1823402-1        | -                        | -                          |
|          |       |                                  | B      | Gray          | 2-1823402-1        | -                        | -                          |
|          |       |                                  | C      | Blue          | 3-1823402-1        | -                        | -                          |
| 31       | 5     | (27) 2.8<br>(4) 6.3              | A      | Bordeaux      | 1-2208685-6        | -                        | -                          |
| 39       | 5     | 2.8                              | E      | Emerald Green | 5-2208684-3        | 5-1718323-1*             | 5-1418363-1*<br>(straight) |
|          |       |                                  | F      | Fawn Brown    | 6-2208684-3        | 6-1718323-1*             | 5-1418362-3*<br>(90°)      |
| 62       | 5     | (56) 1.5K<br>(6) 2.8             | A      | Black         | 1-1823498-1        | -                        | -                          |
|          |       |                                  | B      | Gray          | 2-1823498-1        | -                        | -                          |
|          |       |                                  | C      | Blue          | 3-1823498-1        | -                        | -                          |
|          |       |                                  | D      | Green         | 4-1823498-1        | -                        | -                          |

\*Non-VO rated material

### Accessories

Backshells, adapters, locking slides, and protective covers are accessory items available for use with LEAVYSEAL connectors. These accessories cover design requirements by assisting with mounting, providing additional protection, and offering increased aesthetics.

### BACKSHELLS/COVERS

To achieve an IP6K9K rating, backshells must be used with the LEAVYSEAL connectors. The 90° backshells are available with ribs to accommodate corrugated tubing.



| Positions | Housing                      | Part Number | Tubing |
|-----------|------------------------------|-------------|--------|
| 15        | Receptacle                   | 9-1394049-1 | NW 13  |
|           | Tab                          | 9-1394049   | NW 13  |
| 21        | Receptacle                   | 9-1394050-1 | NW 17  |
|           | Tab                          | 2112167-1   | NW 17  |
| 22        | Receptacle                   | 2112452-1   | NW 17  |
| 26        | Receptacle or Tab            | 2112046-1   | NW 22  |
| 31        | Receptacle                   | 1418882-1   | NW 26  |
| 39        | Receptacle                   | 1418882-1   | NW 26  |
|           | Tab                          |             |        |
| 46        | Receptacle                   | 2112233-1   | NW 22  |
| 62        | Receptacle                   | 1418882-1   | NW 26  |
|           | Tab                          |             |        |
| 62 (V0)   | Receptacle/Tab               | 1823500-1   | NW 26  |
| 92        | Receptacle (NW 26 wire exit) | 1703997-1   | NW 26  |
|           | Receptacle (NW 29 wire exit) | 2141345-1   | NW 29  |

## LEAVYSEAL Connectors

### ADAPTERS

Adapters are available to aid in mounting LEAVYSEAL connectors. The adapters are available in multiple sizes and can mount up to four LEAVYSEAL connectors.



| Positions | Housing | Part Number | Description                    |
|-----------|---------|-------------|--------------------------------|
| 15/22     | Tab     | 1703806-1   | 1 bay, sealed                  |
| 39/62     | Tab     | 1718329-1   | 1 bay, unsealed                |
|           |         | 1813123-1   | 2 bays, unsealed               |
|           |         | 1813123-2   | 2 bays, 1 bay closed, unsealed |
|           |         | 2138002-1   | 4 bays, sealed                 |

### LOCKING SLIDES

Locking slides are used to help secure LEAVYSEAL connectors while mounting them. The locking slides may be used with adapters or panels with a thickness of 2.5 mm, 3.0 mm, or 3.5 mm.



| Positions | Part Number | Color  | Description                         |
|-----------|-------------|--------|-------------------------------------|
| 15/22     | 1703804-1   | Red    | For use with adapter                |
| 21        | 2112166-1   | Red    | For use with 2.5 mm panel thickness |
|           | 2112166-2   | Yellow | For use with 3 mm panel thickness   |
|           | 2112166-3   | Gray   | For use with 3.5 mm panel thickness |
| 26        | 2112045-1   | Red    | For use with 2.5 mm panel thickness |
|           | 2112045-2   | Yellow | For use with 3 mm panel thickness   |
| 39/62     | 1718328-1   | Red    | For use with adapter                |

### INTERFACE PROTECTION COVER

The LEAVYSEAL protection cover provides an environmental seal and is used to protect the connector interface when the two halves are not mated.

| Positions | Part Number | Color |
|-----------|-------------|-------|
| 21        | 1-1394052-1 | Black |

### Contacts

The LEAVYSEAL connectors commonly use the AMP MCP stamped & formed contact system.

### AMP MCP CONTACT PERFORMANCE SPECIFICATIONS

#### Durability

10 cycles (tin)  
50 cycles (silver)  
100 cycles (gold)

#### Current Rating

| Contact Size | Max. Current  |
|--------------|---------------|
| 1.5K         | up to 20 amps |
| 2.8          | up to 40 amps |
| 6.3/4.8K     | up to 40 amps |

#### Contact Retention

| Contact Size | Min. Load |
|--------------|-----------|
| 1.5K         | 40/60 N   |
| 2.8          | 80 N      |
| 6.3/4.8K     | 80 N      |

#### Crimp Tensile Strength

| Contact Size         | Tensile Strength |
|----------------------|------------------|
| <b>1.5K</b>          |                  |
| .22 mm <sup>2</sup>  | ≥ 32 N           |
| .35 mm <sup>2</sup>  | ≥ 50 N           |
| .50 mm <sup>2</sup>  | ≥ 60 N           |
| .75 mm <sup>2</sup>  | ≥ 85 N           |
| 1.0 mm <sup>2</sup>  | ≥ 108 N          |
| 1.25 mm <sup>2</sup> | ≥ 135 N (16 AWG) |
| 1.5 mm <sup>2</sup>  | ≥ 135 N          |

#### 2.8

|                     |         |
|---------------------|---------|
| .22 mm <sup>2</sup> | ≥ 28 N  |
| .35 mm <sup>2</sup> | ≥ 50 N  |
| .50 mm <sup>2</sup> | ≥ 60 N  |
| .75 mm <sup>2</sup> | ≥ 85 N  |
| 1.0 mm <sup>2</sup> | ≥ 108 N |
| 1.5 mm <sup>2</sup> | ≥ 150 N |
| 2.5 mm <sup>2</sup> | ≥ 200 N |

#### 6.3./4.8K

|                     |         |
|---------------------|---------|
| .35 mm <sup>2</sup> | ≥ 50 N  |
| .50 mm <sup>2</sup> | ≥ 60 N  |
| .75 mm <sup>2</sup> | ≥ 85 N  |
| 1.0 mm <sup>2</sup> | ≥ 108 N |
| 1.5 mm <sup>2</sup> | ≥ 150 N |
| 2.5 mm <sup>2</sup> | ≥ 200 N |
| 4.0 mm <sup>2</sup> | ≥ 310 N |
| 6.0 mm <sup>2</sup> | ≥ 450 N |



## AMP MCP CONTACTS FOR LEAVYSEAL

Stamped & Formed Tabs with Single Wire Sealing System - AMP MCP

| Tab Part Numbers |            |                     |             |                     | Wire Size<br>(mm <sup>2</sup> ) | Insulation<br>Dia. (mm)<br>FLR | Finish                                                         |
|------------------|------------|---------------------|-------------|---------------------|---------------------------------|--------------------------------|----------------------------------------------------------------|
| Size             | Strip Form | Package<br>Quantity | Loose Piece | Package<br>Quantity |                                 |                                |                                                                |
| 1.5K             | 969028     | 4000                | 969029      | 500                 | 0.2-0.5                         | 1.2-1.6                        | -2/-3                                                          |
|                  | 964269     | 4000                | 964270      | 500                 | 0.5-1.0                         | 1.4-2.1                        | -2/-3/-5                                                       |
|                  | 1703278    | 4000                | 1703279     | 500                 | 1.5                             | 1.9-2.4                        | -2/-5                                                          |
| 2.8              | 965982     | 3500                | 965983      | 500                 | 0.2-0.5                         | max 2.1                        | 1-xxx-1<br>1-xxx-3                                             |
|                  | 962915     | 3500                | 963748      | 500                 | 0.5-1.0                         | max 2.1                        | 1-xxx-1<br>1-xxx-2<br>1-xxx-3<br>2-xxx-1<br>2-xxx-2<br>2-xxx-3 |
|                  | 962916     | 3300                | 963749      | 500                 | 1.5-2.5                         | max 3.0                        | 1-xxx-1<br>1-xxx-2<br>1-xxx-3<br>2-xxx-1<br>2-xxx-2<br>2-xxx-3 |
|                  | 1719504    | 3200                | 1719503     | 500                 | 12 TXL                          | max 3.2                        | 1-xxx-1<br>1-xxx-2                                             |
| 6.3/<br>4.8K     | 962917     | 1500                | 963742      | 500                 | 0.5-1.0                         | 1.4-2.1                        | 1-xxx-1<br>1-xxx-2<br>2-xxx-1<br>2-xxx-2                       |
|                  | 962918     | 1500                | 963743      | 500                 | 1.5-2.5                         | 2.2-3.0                        | 1-xxx-1<br>1-xxx-2<br>2-xxx-1<br>2-xxx-2                       |
|                  | 962919     | 1500                | 963744      | 500                 | >2.5-4.0                        | 2.7-3.7                        | 1-xxx-1<br>1-xxx-2<br>2-xxx-1<br>2-xxx-2                       |

AMP MCP Tab Finish Codes

| Finish Code | Material                       |
|-------------|--------------------------------|
| -2          | CuFe2, pre-tin plated          |
| -3          | CuSn4, gold plated             |
| -5          | CuSn4, selective silver plated |
| 1-xxx-1     | CuSn, pre-tin plated           |

Finish Code      Material

|         |                               |
|---------|-------------------------------|
| 1-xxx-2 | CuSn, selective silver plated |
| 1-xxx-3 | CuSn, selective gold plated   |
| 2-xxx-1 | CuFe, pre-tin plated          |
| 2-xxx-2 | CuFe, selective silver plated |
| 2-xxx-3 | CuFe, selective gold plated   |

Stamped & Formed Receptacles with Single Wire Sealing System - AMP MCP

| Size         | Receptacle Part Numbers |                  |             |                  | Wire Size (mm <sup>2</sup> ) | Insulation Diameter (mm) |         | Finish                        |
|--------------|-------------------------|------------------|-------------|------------------|------------------------------|--------------------------|---------|-------------------------------|
|              | Strip Form              | Package Quantity | Loose Piece | Package Quantity |                              | FLK                      | FLR     |                               |
| 1.5K         | 1564324                 | 4500             | 1564325     | 500              | 0.22-0.35                    | -                        | 1.1-1.4 | -1/-2/-3                      |
|              | 1241380                 | 4500             | 1241381     | 500              | 0.5-1.0                      | -                        | 1.4-2.1 | -1/-2/-3<br>1-xxx-2*          |
|              | 1418884                 | 4500             | 1418885     | 500              | >1.0-1.5                     | -                        | 2.2-2.4 | -1/-3                         |
| 2.8          | 968882                  | 4500             | 968896      | 500              | 0.35                         | -                        | 1.2-1.4 | 1-xxx-1<br>1-xxx-3            |
|              | 968855                  | 3500             | 968875      | 500              | 0.5-1.0                      | -                        | 1.4-2.1 | 1-xxx-1<br>1-xxx-2<br>1-xxx-3 |
|              | 968857                  | 4000             | 968876      | 500              | >1.0-2.5                     | -                        | 2.2-3.0 | 1-xxx-1<br>1-xxx-3            |
| 6.3/<br>4.8K | 1241410                 | 1500             | 1241411     | 500              | 0.35-0.5                     | 1.3-2.3                  | 1.2-1.6 | -1/-3                         |
|              | 1241412                 | 1500             | 1241413     | 500              | 0.5-1.0                      | 2.0-2.7                  | 1.4-2.1 | -1/-3                         |
|              | 1241414                 | 1500             | 1241415     | 500              | >1.0-2.5                     | 2.7-3.7                  | 2.2-3.0 | -1/-3                         |
|              | 1241416                 | 1500             | 1241417     | 500              | >2.5-4.0                     | 4.1-4.5                  | 3.4-3.7 | -1/-3                         |
|              | 1241418                 | 1500             | 1241419     | 500              | 4.0-6.0                      | -                        | 3.4-4.3 | -4<br>1-xxx-3<br>2-xxx-3      |

AMP MCP Receptacle Finish Codes

| Finish Code | Material                                     |
|-------------|----------------------------------------------|
| -1          | CuNiSi, pre-tin plated                       |
| -2          | CuNiSi, selective gold plated                |
| -3          | CuNiSi, selective silver plated              |
| -4          | CuNiSi, tin-silver pre-plated                |
| 1-xxx-1     | CuNiSi, pre-tin plated                       |
| 1-xxx-2     | CuNiSi, selective gold plated                |
| 1-xxx-2*    | CuNiSi, min 1.27 µm<br>selective gold plated |
| 1-xxx-3     | CuNiSi, selective silver plated              |



### WIRE SEALS

Wire seals are required for connectors without an integrated rear seal to maintain an environmental seal.



| Contact Size | Insulation Diameter (mm) | Color     | Part Number | Package Quantity |
|--------------|--------------------------|-----------|-------------|------------------|
| 1.5K         | 0.9-1.2                  | Green     | 1718705-1   | 10,000           |
|              | 1.2-1.6                  | Red       | 964971-1    |                  |
|              |                          | Blue      | 1394133-1   |                  |
|              | 1.4-1.9                  | Gray      | 963530-1    |                  |
|              | 1.9-2.1                  | Yellow    | 964972-1    |                  |
| 2.8          | 1.9-2.4                  | Orange    | 2112323-1   | 1000             |
|              | 1.2-2.1                  | Blue      | 828904-1    |                  |
|              |                          |           | 828904-2    |                  |
| 6.3/4.8K     | 2.2-3.0                  | White     | 828905-1    | 10,000           |
|              | 1.4-2.0                  | Yellow    | 2177018-1   | 10,000           |
|              | 2.0-2.7                  | White     | 1394511-1   |                  |
|              | 2.7-2.9                  | Red brown | 1823111-1   |                  |
|              | 3.4-3.7                  | Blue      | 1394512-1   |                  |
|              | 4.0-4.5                  | Green     | 1719043-1   |                  |

### SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.

| Contact Size | Wire Size | Color       | Part Number | Package Quantity |
|--------------|-----------|-------------|-------------|------------------|
| 1.5K         | 3.6 mm    | White       | 963531-1    | 10,000           |
|              |           | Natural     | 1394132-1   |                  |
| 2.8          | 5.6 mm    | Natural     | 828922-1    |                  |
|              |           | Green       | 828922-2    |                  |
| 6.3/4.8K     | 8.5 mm    | Transparent | 967652-1    |                  |

## LEAVYSEAL Connectors

### Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

#### HAND TOOL FOR AMP MCP CONTACTS



| Contact Size | Tab Strip Form              | Tab Loose Piece             | Receptacle Strip Form | Receptacle Loose Piece | Tool P/N                              | Description                                |
|--------------|-----------------------------|-----------------------------|-----------------------|------------------------|---------------------------------------|--------------------------------------------|
| 1.5K         | 1703278<br>964269<br>969028 | 1703279<br>964270<br>969029 | -                     | -                      | 539663-2 (die)<br>539663-2 (frame)    | ERGOCRIMP<br>hand tool<br>and die assembly |
|              | -                           | -                           | 1418884               | 1418885                | 5-1579001-3 (die)<br>539635-1 (frame) |                                            |
|              | -                           | -                           | 1564324               | 1564325                | 4-1579016-0 (die)<br>539635-1 (frame) |                                            |
| 2.8          | 962915<br>962916            | 963748<br>963749            | -                     | -                      | 539758-2 (die)<br>539635-1 (frame)    | ERGOCRIMP<br>hand tool<br>and die assembly |
|              | 965982                      | 965983                      |                       |                        | 539737-2 (die)<br>539635-1 (frame)    |                                            |
|              | -                           | -                           | 968882                | 968896                 | 539725-2 (die)<br>539635-1 (frame)    |                                            |
| 6.3/<br>4.8K | 962917<br>962918<br>962919  | 963742<br>963743<br>963744  | -                     | -                      | 539757-2 (die)<br>539635-1 (frame)    | ERGOCRIMP<br>hand tool<br>and die assembly |
|              | -                           | -                           | 1241410<br>1241412    | 1241411<br>1241413     | 539955-2 (die)<br>539635-1 (frame)    |                                            |
|              | -                           | -                           | 1241416<br>1241414    | 1241415<br>1241417     | 539956-2 (die)<br>539635-1 (frame)    |                                            |
|              | -                           | -                           | 1241418               | 1241419                | 3-1579021-7 (die)<br>539635-1 (frame) |                                            |

## AUTOMATED FOR AMP MCP CONTACTS



OCEAN end feed applicator

| Contact Size | Tab Strip Form | Receptacle Strip Form | Applicator P/N | Feed Type           |
|--------------|----------------|-----------------------|----------------|---------------------|
| 1.5K         | 969028         | -                     | 2151056-1      | Mechanical end feed |
|              |                |                       | 2151056-2      | Pneumatic end feed  |
|              | 964269         | -                     | 2151935-1      | Mechanical end feed |
|              |                |                       | 2151935-2      | Pneumatic end feed  |
|              | 1703278        | -                     | 2266180-1      | Mechanical end feed |
|              |                |                       | 2266180-2      | Pneumatic end feed  |
|              | -              | 1418884               | 2266179-1      | Mechanical end feed |
|              |                |                       | 2266179-2      | Pneumatic end feed  |
|              | -              | 1564324               | 2151469-1      | Mechanical end feed |
|              |                |                       | 2151469-2      | Pneumatic end feed  |
| 2.8          | 962915         | -                     | 2151181-1      | Mechanical end feed |
|              |                |                       | 2151181-2      | Pneumatic end feed  |
|              | 962916         | -                     | 2151260-1      | Mechanical end feed |
|              |                |                       | 2151260-2      | Pneumatic end feed  |
|              | 965982         | -                     | 2151840-1      | Mechanical end feed |
|              |                |                       | 2151840-2      | Pneumatic end feed  |
|              | -              | 968882                | 2151559-1      | Mechanical end feed |
|              |                |                       | 2151559-2      | Pneumatic end feed  |

Note: Applicators with additional feed styles are available, contact your representative

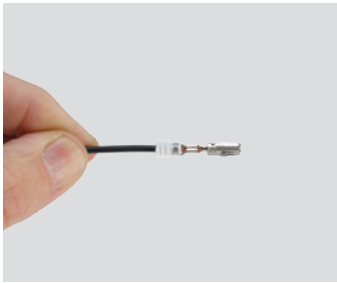
## AUTOMATED FOR AMP MCP CONTACTS (CONTINUED)

| Contact Size | Tab Strip Form | Receptacle Strip Form | Applicator P/N | Description         |
|--------------|----------------|-----------------------|----------------|---------------------|
| 6.3/4.8K     | 962917         | -                     | 2266535-1      | Mechanical end feed |
|              |                |                       | 2266535-2      | Pneumatic end feed  |
|              | 962918         | -                     | 2151783-1      | Mechanical end feed |
|              |                |                       | 2151783-2      | Pneumatic end feed  |
|              | 962919         | -                     | 2151782-1      | Mechanical end feed |
|              |                |                       | 2151782-2      | Pneumatic end feed  |
|              | -              | 1241410               | 2151695-1      | Mechanical end feed |
|              |                |                       | 2151695-2      | Pneumatic end feed  |
|              | -              | 1241412               | 2151234-1      | Mechanical end feed |
|              |                |                       | 2151234-2      | Pneumatic end feed  |
|              | -              | 1241416               | 2151151-1      | Mechanical end feed |
|              |                |                       | 2151151-2      | Pneumatic end feed  |
|              | -              | 1241414               | 2266490-1      | Mechanical end feed |
|              |                |                       | 2266490-2      | Pneumatic end feed  |
|              | -              | 1241418               | 2151466-1      | Mechanical end feed |
|              |                |                       | 2151466-2      | Pneumatic end feed  |

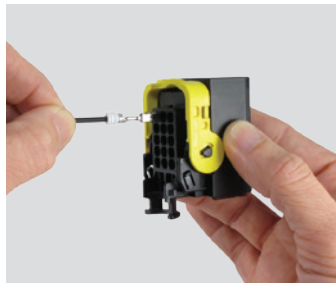
Note: Applicators with additional feed styles are available, contact your representative

### How To Instructions

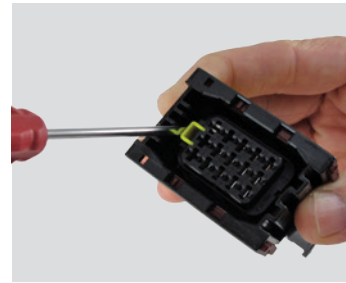
#### CONTACT INSERTION



**Step 1:**  
Grasp crimped contact approximately one inch behind the contact barrel.



**Step 2:**  
Verify the integrated secondary lock is in the unlocked position. Make sure the contact is in the correct orientation. Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.



**Step 3:**  
Push the integrated secondary lock into the locked position with a DT-RT1 or a screwdriver.

#### CONTACT REMOVAL



**Step 1:**  
Using a DT-RT1 or a screwdriver, unlock the integrated secondary lock.



**Step 2:**  
Using the appropriate extraction tool, insert the blades into the contact cavity until they stop.



**Step 3:**  
Pull contact wire assembly out of connector.

# Contents

Superseal 1.0 Connector Overview ..... 80

Product Documentation ..... 80

Performance Specifications ..... 80

Material Specifications ..... 80

Dimensions ..... 81

Configurations ..... 81

Ordering Information ..... 82

Contacts ..... 83

Tooling ..... 84



## Superseal 1.0 Connectors

### Superseal 1.0 Connector Overview

The Superseal 1.0 mm connectors are designed to meet the increasing need for dependable printed circuit board applications in harsh environments. The Superseal headers are available with straight or right-angle pins. Various locking latch options and keying configurations are available.



### APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with Superseal 1.0 products. The following TE document numbers may be helpful:

1308072-2 (Catalog Section)

108-78140 (Product Specification)

114-78011 (Application Specification)

### SUPERSEAL 1.0 CONNECTOR PERFORMANCE SPECIFICATIONS

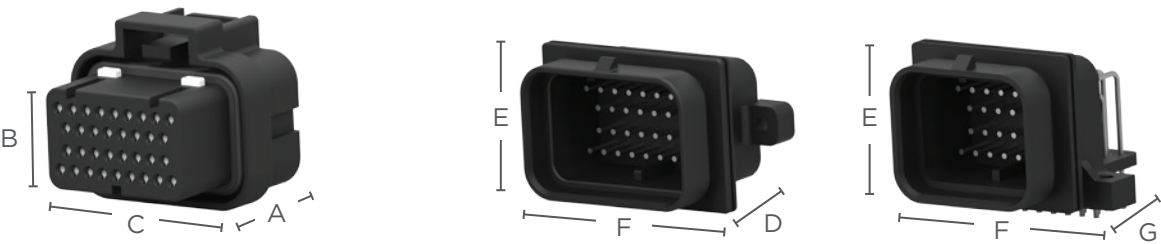
|                                         |                                                                                                                                          |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Current:</b>                         | Up to 15 amps                                                                                                                            |
| <b>Temperature:</b>                     | Operating at temperatures -40°C to +125°C                                                                                                |
| <b>Durability:</b>                      | After cap housing is connected, the plug housing is mated and then 78.4 N force is applied in a rocking motion. 25 test cycles.          |
| <b>Insulation Resistance:</b>           | 100 megohms minimum. Test between adjacent contacts and between contact and earth with insulation resistance meter of 500 volts DC.      |
| <b>Immersion:</b>                       | Per JIS D0203                                                                                                                            |
| <b>Random Vibration:</b>                | Tested in each of three mutually perpendicular axis.<br>See Fig 8 in product document 108-78140.                                         |
| <b>Dielectric Withstanding Voltage:</b> | Insulation does not breakdown at 1000 volts AC or 1600 volts DC for duration of 1 minute between contacts and between contact and earth. |
| <b>Voltage:</b>                         | 250 volts AC, DC                                                                                                                         |

### MATERIAL SPECIFICATIONS

|                 |                         |
|-----------------|-------------------------|
| <b>Grommet:</b> | Silicone rubber         |
| <b>Housing:</b> | Thermoplastic           |
| <b>TPA:</b>     | Thermoplastic polyester |

# Superseal 1.0 Connectors

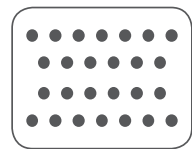
## DIMENSIONS



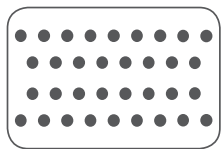
| Superseal 1.0 Plug Housing |                     |                     |                    | Superseal 1.0 Pin Header     |                     |                    |                         |
|----------------------------|---------------------|---------------------|--------------------|------------------------------|---------------------|--------------------|-------------------------|
| Cavity                     | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length Vertical<br>D | Overall Height<br>E | Overall Width<br>F | Overall Length 90°<br>G |
| 26                         | 1.26 (32.1)         | 1.36 (34.5)         | 1.26 (32.1)        | 1.14 (29.0)                  | 1.23 (31.4)         | 1.55 (39.5)        | 1.44 (36.5)             |
| 34                         | 1.26 (32.1)         | 1.49 (38.0)         | 1.50 (38.2)        | 1.14 (29.0)                  | 1.23 (31.4)         | 1.79 (45.5)        | 1.44 (36.5)             |
| 60                         | -                   | -                   | -                  | -                            | 1.23 (31.4)         | 3.07 (78.0)        | 1.44 (36.5)             |

Dimensions are for reference only.

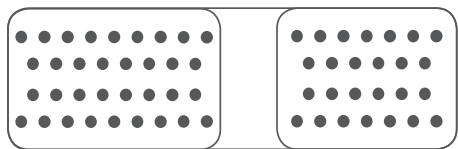
## CONFIGURATIONS



**26 Positions**  
26 size 1.0 mm



**34 Positions**  
34 size 1.0 mm



**60 Positions**  
60 size 1.0 mm

## ORDERING INFORMATION

| Position | Pin Header  | Plug Housing                            | Keying Type         | Locking |
|----------|-------------|-----------------------------------------|---------------------|---------|
| 26       | 9-6437287-8 | 3-1437290-7                             | 1 (4 row)           | Upper   |
|          | 9-6437287-9 | 3-1437290-8                             | 2 (4 row)           | Upper   |
|          | 6473423-1   | 1473416-1                               | 3 (4 row)           | Upper   |
|          | 6473423-2   | 1473416-2                               | 4 (4 row)           | Upper   |
|          | 5-6447223-0 | 3-1437290-7                             | 1 (4 row)           | Lower   |
|          | 6437288-4   | 3-1437290-8                             | 2 (4 row)           | Lower   |
|          | 2-6437285-8 | 2-1437285-2                             | 1 (4 row)           | Double  |
|          | 2-6437285-9 | 1-1447232-7                             | 2 (4 row)           | Double  |
|          | 6437288-6   | 3-1437290-7                             | 1 (4 row, vertical) | Upper   |
|          | 6473418-1   | 3-1437290-8                             | 2 (4 row, vertical) | Upper   |
|          | 6473418-2   | 1473416-1                               | 3 (4 row, vertical) | Upper   |
|          | 6473711-1   | 1473712-1                               | 1 (2 row)           | Upper   |
|          | 6473711-2   |                                         | 1 (2 row)           | Lower   |
| 34       | 6437288-1   | 4-1437290-0                             | 1 (4 row)           | Upper   |
|          | 6437288-2   | 4-1437290-1                             | 2 (4 row)           | Upper   |
|          | 2-6437285-5 | 4-1437290-0                             | 1 (4 row)           | Lower   |
|          | 2-6437285-6 | 4-1437290-1                             | 2 (4 row)           | Lower   |
|          | 3-6437285-0 | 2-1437285-3                             | 1 (4 row)           | Double  |
|          | 3-6437285-1 | 3-1437290-9                             | 2 (4 row)           | Double  |
|          | 2-6447232-3 | 4-1437290-0                             | 1 (4 row, vertical) | Upper   |
|          | 2-6447232-4 | 4-1437290-1                             | 2 (4 row, vertical) | Upper   |
| 60       | 6437288-3   | 3-1437290-7 (26P),<br>4-1437290-0 (34P) | 1 (4 row)           | Upper   |
|          | 6473427-1   | 1473416-1 (26P),<br>4-1437290-1 (34P)   | 2 + 3 (4 row)       | Upper   |
|          | 6437288-5   | 3-1437290-7 (26P),<br>4-143790-0 (34P)  | 1 (4 row)           | Lower   |
|          | 3-6437285-2 | 2-1437285-2 (26P),<br>2-1437285-3 (34P) | 1 (4 row)           | Double  |

## Superseal 1.0 Connectors

### Contacts

The Superseal 1.0 mm connectors commonly use the AMP Superseal double spring, stamped & formed contact system.

### 1.0 MM CONTACT PERFORMANCE SPECIFICATIONS

#### Durability

25 cycles, per “Kojiri” (rocking motion) durability test

#### Contact Retention (between contact and housing)

1.0mm  $\geq$  58.8N

#### Current Rating

Up to 15 amps, consult TE product specification 108-78140

#### Crimp Tensile Strength

| Contact Size         | Tensile Strength |
|----------------------|------------------|
| .5mm <sup>2</sup>    | $\geq$ 88.2N     |
| .85 mm <sup>2</sup>  | $\geq$ 127.4N    |
| 1.25 mm <sup>2</sup> | $\geq$ 176.4N    |

### 1.0 MM STAMPED & FORMED CONTACTS FOR SUPERSEAL 1.0



Stamped & Formed Receptacles - 1.0 mm

| Size   | Receptacle Strip Form | Wire Size (mm <sup>2</sup> ) | Insulation Diameter (mm) | Finish                                                                           |
|--------|-----------------------|------------------------------|--------------------------|----------------------------------------------------------------------------------|
| 1.0 mm | 3-1447221-4           | 0.5                          | 1.6-2.2                  | Copper alloy<br>Gold over nickel (contact part),<br>Tin over Nickel (crimp area) |
|        | 3-1447221-3           | .75-.85                      | 1.6-2.4                  |                                                                                  |
|        |                       | 1.25                         | 1.9-2.2                  |                                                                                  |

### SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.



| Contact Size | Color | Part Number |
|--------------|-------|-------------|
| 1.0 mm       | White | 4-1437284-3 |

## Superseal 1.0 Connectors

### Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

#### HAND TOOLS FOR 1.0 MM CONTACTS



| Receptacle P/N             | Tool P/N  | Description                                           |
|----------------------------|-----------|-------------------------------------------------------|
| 3-1447221-3<br>3-1447221-4 | 1454509-1 | CERTI-CRIMP straight action hand tool with fixed dies |

#### AUTOMATED TOOLING FOR 1.0 MM CONTACTS



| Receptacle P/N             | Applicator P/N | Description                                    |
|----------------------------|----------------|------------------------------------------------|
| 3-1447221-3<br>3-1447221-4 | 2151705-1      | OCEAN end feed applicator with mechanical feed |
|                            | 2151705-2      | OCEAN end feed applicator with pneumatic feed  |

Note: Applicators with additional feed styles are available, contact your representative

# Contents

AEC Series Overview ..... 86

Performance Specifications ..... 86

Material Specifications..... 86

Dimensions .....87

Configurations.....87

Ordering Information..... 88

Accessories..... 89

How To Instructions ..... 89-90

### AEC Series Overview

DEUTSCH AEC series connectors are environmentally sealed, heavy duty electrical connectors that accept size 16 contacts. The AEC series connectors are constructed of rugged thermoplastic and offer several keying options.



### DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

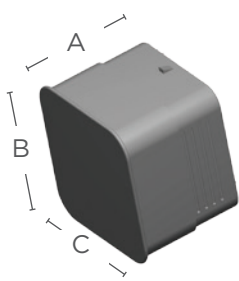
|                                         |                                                                                                                                                                                                                                                  |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Temperature:</b>                     | Operating at temperatures -55°C to +125°C                                                                                                                                                                                                        |
| <b>Durability:</b>                      | No electrical or mechanical defects after 100 cycles of engagement and disengagement.                                                                                                                                                            |
| <b>Vibration:</b>                       | No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond. |
| <b>Fluid Resistance:</b>                | Connectors show no damage when exposed to most fluids used in industrial applications.                                                                                                                                                           |
| <b>Insulation Resistance:</b>           | 1000 megohms minimum at 25°C.                                                                                                                                                                                                                    |
| <b>Immersion:</b>                       | IP68 rating                                                                                                                                                                                                                                      |
| <b>Moisture Resistance:</b>             | Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.                                                                                                         |
| <b>Dielectric Withstanding Voltage:</b> | Current leakage less than 2 milliamps at 1500 volts AC.                                                                                                                                                                                          |
| <b>Thermal Cycle:</b>                   | No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.                                                                                                                                                                      |

### MATERIAL SPECIFICATIONS

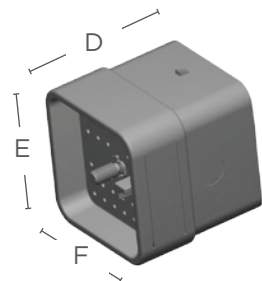
|                                     |                       |
|-------------------------------------|-----------------------|
| <b>Grommet:</b>                     | Silicone rubber       |
| <b>Jackscrew:</b>                   | Stainless steel       |
| <b>Plug Threaded Inserts:</b>       | Stainless steel       |
| <b>Receptacle Threaded Inserts:</b> | Stainless steel/brass |
| <b>Shell:</b>                       | Glass filled PEI      |

AEC Series

DIMENSIONS



AEC Plug



AEC Receptacle

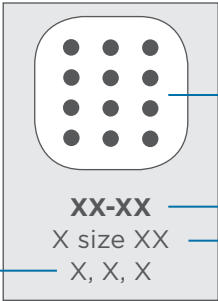
| Cavity | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|--------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| 40     | 1.440 (36.58)       | 1.778 (45.16)       | 1.894 (48.11)      | 1.642 (41.71)       | 1.944 (49.38)       | 1.828 (46.43)      |

Dimensions are for reference only.

CONFIGURATION

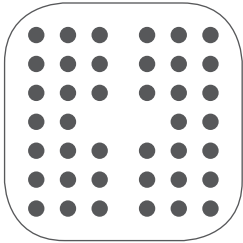
Keying Options

|   |               |
|---|---------------|
| A | A key         |
| B | B key         |
| C | C key         |
| D | D key         |
| U | Universal key |



Insert Arrangement

Part Number  
Number and Size of Cavities



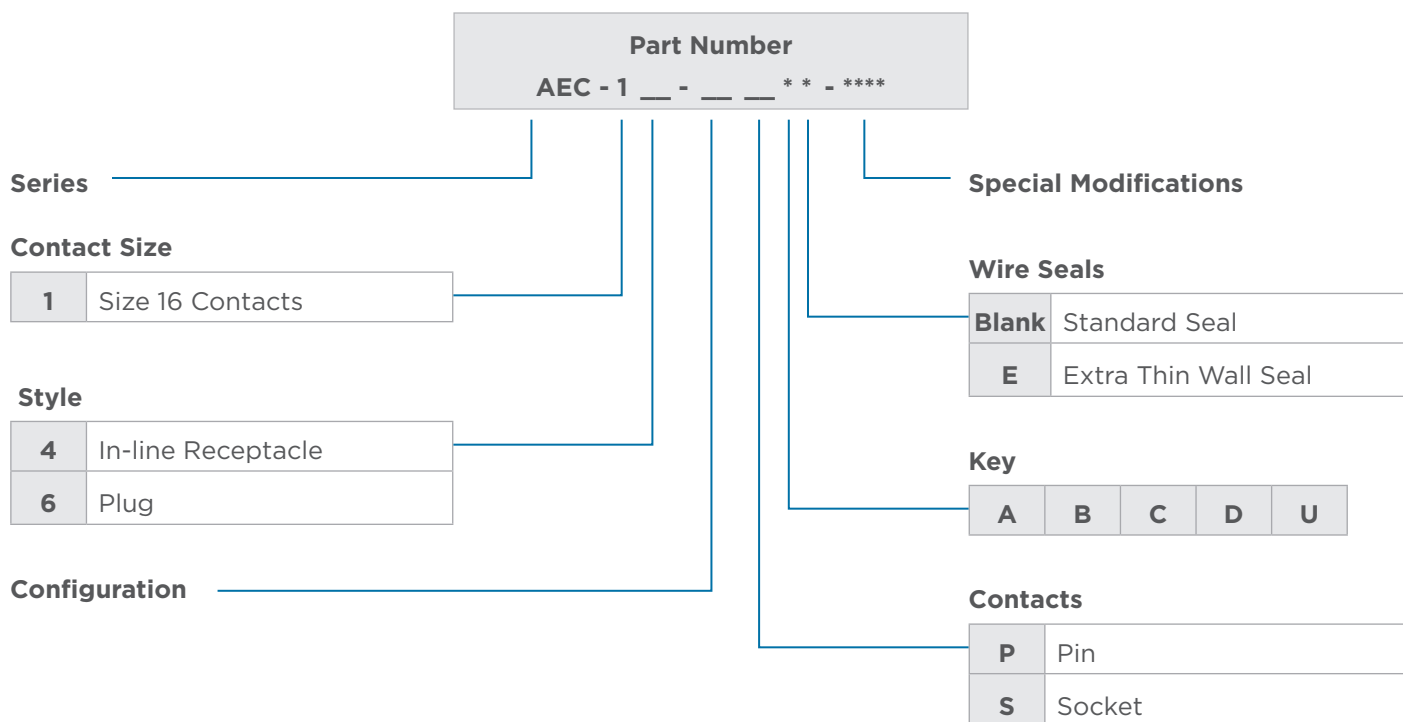
AEC1\*-40\*\*\*  
40 size 16  
A, B, C, D, U

Note

Do not over torque jackscrew.  
The recommended torque  
rating for the AEC series plug  
jackscrew when tightening is  
25-28 IN-LB (2.86-3.16 N.M.).



## PART NUMBERING SYSTEM



## ORDERING INFORMATION

Here are some of the common part numbers in the AEC series. Several additional connectors may be available.

| Position | Keying | Plug       | Receptacle |
|----------|--------|------------|------------|
| 40       | A      | AEC16-40SA | AEC14-40PA |
|          | B      | AEC16-40SB | AEC14-40PB |
|          | C      | AEC16-40SC | AEC14-40PC |
|          | D      | AEC16-40SD | AEC14-40PD |

## WIRE SEALING RANGES

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

| Contact Size                                 | Standard Seal            | Thin Seal<br>T-Seal      | Extra Thin Seal<br>E-Seal |
|----------------------------------------------|--------------------------|--------------------------|---------------------------|
| 16<br>14-20 AWG<br>(2.0-0.5mm <sup>2</sup> ) | .100-.134<br>(2.54-3.40) | .088-.134<br>(2.23-3.40) | .053-.120<br>(1.35-3.05)  |

# AEC Series

## Accessories

Dust caps and boots are available for use with AEC series connectors. The dust caps are designed to help provide protection to the connector interface when the connector halves are not mated. The boots are aesthetically appealing and provide increased protection from dirt, paint overspray, and pressure washing.



| Dust Cap Description                                    | Part Number   |
|---------------------------------------------------------|---------------|
| Dust cap, 40 way receptacle, environmentally sealed     | 0504-002-4001 |
| Dust cap, 40 way receptacle, non-environmentally sealed | 0515-009-4005 |
| Dust cap, 40 way plug, non-environmentally sealed       | 0515-010-4005 |

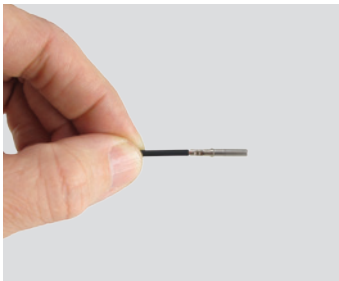


| Boot Description                                  | Part Number     |
|---------------------------------------------------|-----------------|
| Boot, 40 way plug or receptacle, black, step-down | AEC40-BT-STPDWN |

\*Distorting the boots can lessen their longevity

## How To Instructions

### CONTACT INSERTION



**Step 1:**  
Grasp crimped contact approximately one inch behind the contact barrel.

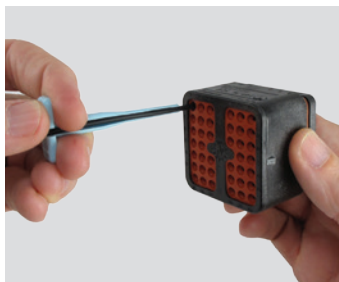


**Step 2:**  
Hold connector with rear grommet facing you.

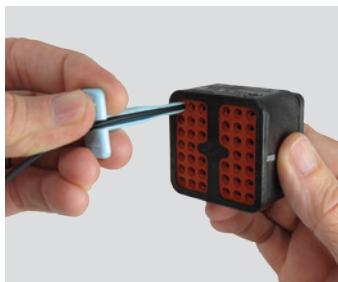


**Step 3:**  
Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.

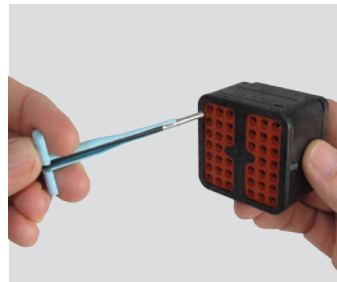
### CONTACT REMOVAL

**Step 1:**

With rear insert toward you, snap appropriate size removal tool over the wire of contact to be removed.

**Step 2:**

Slide tool along the wire into the insert cavity until it engages contact and resistance is felt.

**Step 3:**

Pull contact wire assembly out of connector.

# Contents

DRB Series Overview .....92

Performance Specifications .....92

Material Specifications.....92

Dimensions ..... 93

Configurations..... 93

Ordering Information..... 94

Required Components..... 95-96

Accessories.....97

How To Instructions .....97-98

### DRB Series Overview

DEUTSCH DRB series connectors are heavy duty connectors suitable for bulkhead applications. They are designed to accommodate multiple wire gauges and feature high pin counts, including 48, 60, 102, and 128 cavities. To increase the design flexibility, the DRB series offers several mounting flange options and wire arrangements. The DRB series is suited for on- and off-highway applications, marine, industrial, and agriculture markets in harsh environments.



### DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

|                                         |                                                                                                                                                                                                                                                  |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Temperature:</b>                     | Operating at temperatures -55°C to +125°C                                                                                                                                                                                                        |
| <b>Durability:</b>                      | No electrical or mechanical defects after 100 cycles of engagement and disengagement.                                                                                                                                                            |
| <b>Vibration:</b>                       | No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond. |
| <b>Fluid Resistance:</b>                | Connectors show no damage when exposed to most fluids used in industrial applications.                                                                                                                                                           |
| <b>Insulation Resistance:</b>           | 1000 megohms minimum at 25°C.                                                                                                                                                                                                                    |
| <b>Immersion:</b>                       | IP68 rating                                                                                                                                                                                                                                      |
| <b>Moisture Resistance:</b>             | Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.                                                                                                         |
| <b>Dielectric Withstanding Voltage:</b> | Current leakage less than 2 milliamps at 1500 volts AC.                                                                                                                                                                                          |
| <b>Thermal Cycle:</b>                   | No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.                                                                                                                                                                      |

### MATERIAL SPECIFICATIONS

|                     |                  |
|---------------------|------------------|
| <b>Flange Body:</b> | Glass filled PA  |
| <b>Flange Clip:</b> | Spring steel     |
| <b>Grommet:</b>     | Silicone rubber  |
| <b>Jackscrew:</b>   | Stainless steel  |
| <b>Shell:</b>       | Glass filled PA  |
| <b>Wedgelocks:</b>  | Glass filled PBT |

DIMENSIONS



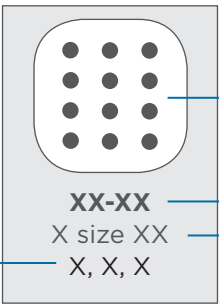
| DRB Plug |                     |                     |                    | DRB Receptacle      |                     |                    |
|----------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| Cavity   | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
| 48 & 60  | 1.406 (35.71)       | 2.606 (66.19)       | 2.606 (66.19)      | 2.077 (52.76)       | 2.606 (66.19)       | 2.606 (66.19)      |
| 102      | 1.778 (45.16)       | 2.966 (75.34)       | 4.951 (125.76)     | 2.291 (58.19)       | 2.966 (75.34)       | 4.951 (125.76)     |
| 128      | 1.748 (44.40)       | 2.966 (75.34)       | 4.951 (125.76)     | 2.291 (58.19)       | 2.966 (75.34)       | 4.951 (125.76)     |

Dimensions are for reference only.

CONFIGURATIONS

Keying Options

|   |       |
|---|-------|
| A | A key |
| B | B key |
| C | C key |
| D | D key |



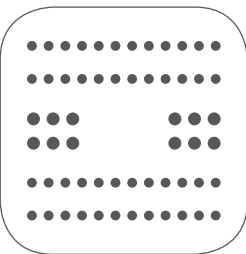
Insert Arrangement

Part Number

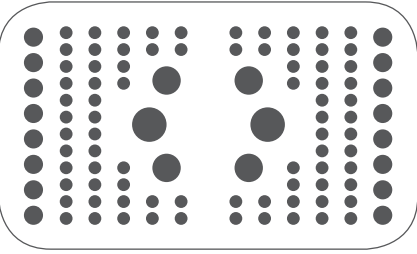
Number and Size of Cavities



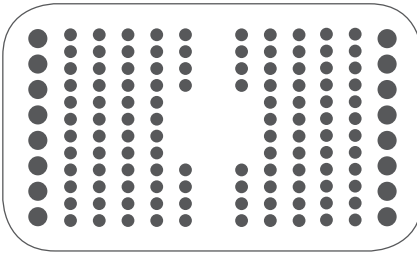
**DRB1\*-48\*\***  
 12 size 12  
 12 size 16  
 24 size 20  
 A, B, C, D



**DRB1\*-60\*\***  
 12 size 16  
 48 size 20  
 A, B, C, D

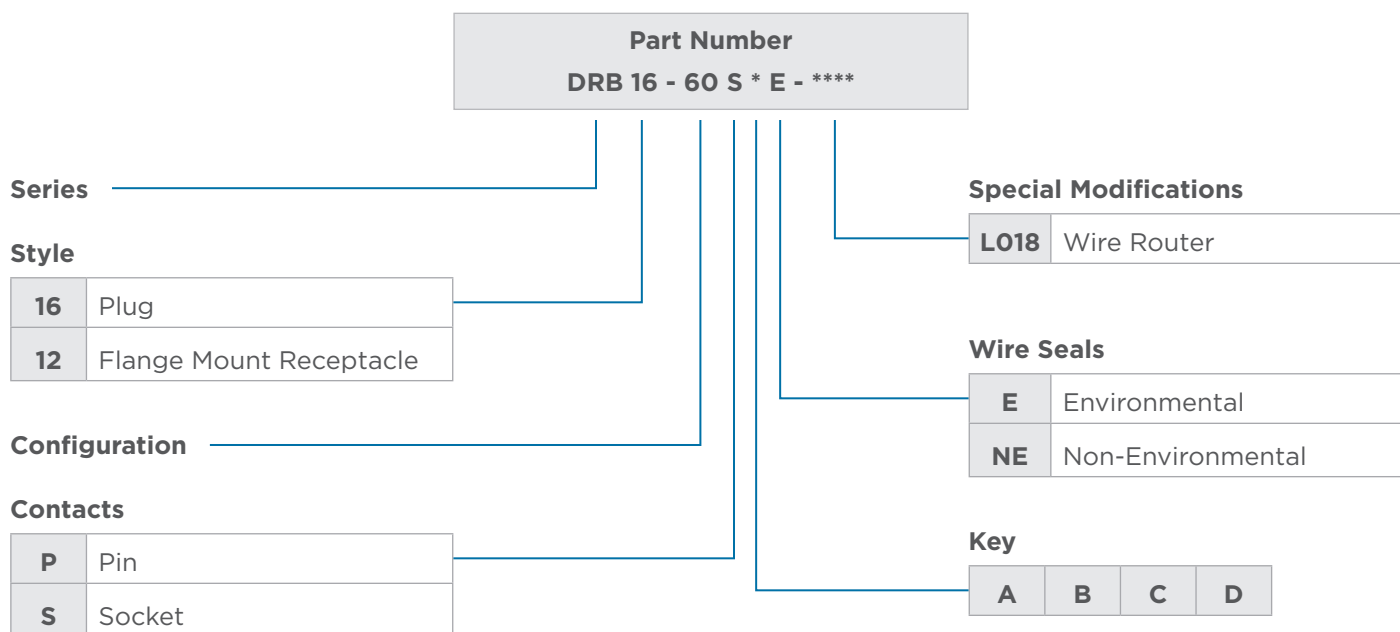


**DRB1\*-102\*\*\***  
 2 size 4  
 4 size 8  
 16 size 12  
 80 size 16  
 A, B, C, D



**DRB1\*-128\*\*\***  
 16 size 12  
 112 size 16  
 A, B, C, D

### PART NUMBERING SYSTEM



### ORDERING INFORMATION

Here are some of the common part numbers in the DRB series. Several additional connectors may be available.

| Position | Keying | Plug              | Receptacle        |
|----------|--------|-------------------|-------------------|
| 48       | Key A  | DRB16-48SAE-L018  | DRB12-48PAE-L018  |
|          | Key B  | DRB16-48SBE-L018  | DRB12-48PBE-L018  |
|          | Key C  | DRB16-48SCE-L018  | DRB12-48PCE-L018  |
|          | Key D  | DRB16-48SDE-L018  | DRB12-48PDE-L018  |
| 60       | Key A  | DRB16-60SAE-L018  | DRB12-60PAE-L018  |
|          | Key B  | DRB16-60SBE-L018  | DRB12-60PBE-L018  |
|          | Key C  | DRB16-60SCE-L018  | DRB12-60PCE-L018  |
|          | Key D  | DRB16-60SDE-L018  | DRB12-60PDE-L018  |
| 102      | Key A  | DRB16-102SAE-L018 | DRB12-102PAE-L018 |
|          | Key B  | DRB16-102SBE-L018 | DRB12-102PBE-L018 |
|          | Key C  | DRB16-102SCE-L018 | DRB12-102PCE-L018 |
|          | Key D  | DRB16-102SDE-L018 | DRB12-102PDE-L018 |
| 128      | Key A  | DRB16-128SAE-L018 | DRB12-128PAE-L018 |
|          | Key B  | DRB16-128SBE-L018 | DRB12-128PBE-L018 |
|          | Key C  | DRB16-128SCE-L018 | DRB12-128PCE-L018 |
|          | Key D  | DRB16-128SDE-L018 | DRB12-128PDE-L018 |



### WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

| Contact Size                                  | Standard Seal            | Extra Thin Seal<br>E-Seal |
|-----------------------------------------------|--------------------------|---------------------------|
| 20<br>16-22 AWG<br>(1.0-0.35mm <sup>2</sup> ) | .040-.095<br>(1.02-2.41) | .040-.095<br>(1.02-2.41)  |
| 16<br>14-20 AWG<br>(2.0-0.5mm <sup>2</sup> )  | .100-.134<br>(2.54-3.40) | .053-.120<br>(1.35-3.05)  |
| 12<br>10-14 AWG<br>(5.0-2.0mm <sup>2</sup> )  | .134-.170<br>(3.40-4.32) | .097-.158<br>(2.46-4.01)  |
| 8<br>8-10 AWG<br>(8.0-5.0mm <sup>2</sup> )    | .190-.240<br>(4.83-6.10) | .135-.220<br>(3.43-5.59)  |
| 4<br>6 AWG<br>(13.0mm <sup>2</sup> )          | .280-.292<br>(7.11-7.42) | .261-.292<br>(6.63-7.42)  |

### Required Components

A complete DRB assembly requires a wedgelock for each plug and receptacle and a mounting flange. There are several flange options to accommodate design requirements. The wedgelocks are required to confirm proper contact placement.

|                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |  |
| Plug                                                                                | Plug<br>Wedgelock(s)                                                                | Flange                                                                              | Receptacle<br>Wedgelock(s)                                                            | Receptacle                                                                            |



### FLANGE OPTIONS



| Part Number | Accepts Connectors                 | Description                                                                                                           |
|-------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| DRBF-2*     | (1) DRB 48 or 60 way               | Single mounting flange for one 48 or 60 way DRB plug and receptacle mated pair                                        |
| DRBF-3**    | (2) DRB 48 or 60 ways              | Double mounting flange for any combination of two 48 or 60 way DRB plug and receptacle mated pairs                    |
| DRBF-1*     | (1) DRB 102 way or (1) DRB 128 way | Single mounting flange for the 102 or 128 way DRB plug and receptacle mated pair                                      |
| DRBM-3*     | (1) DRB 102 way or (1) DRB 128 way | Single mounting flange for the 102 or 128 way DRB plug and receptacle mated pair, includes two 125 amp mounting posts |

\*A, B, C, D keying available, contact your representative

### SECONDARY WEDGELOCKS

DEUTSCH DRB electrical connectors require secondary wedgelocks which are sold separately. The wedgelocks confirm proper contact alignment and offer keying options within each connector. Secondary wedgelocks are assembled at the mating interfaces and click into place.

#### Receptacle Wedgelocks

|          |                                                 |
|----------|-------------------------------------------------|
| WB-48P*  | Wedgelock for 48 way receptacle                 |
| WB-60P*  | Wedgelock for 60 way receptacle                 |
| WB-51P*L | Left wedgelock for 102 way receptacle           |
| WB-51P*R | Right wedgelock for 102 way receptacle          |
| WB-64P*  | Wedgelock for 128 way receptacle (requires two) |

\*A, B, C, D keying available

#### Plug Wedgelocks

|          |                                           |
|----------|-------------------------------------------|
| WB-48S*  | Wedgelock for 48 way plug                 |
| WB-60S*  | Wedgelock for 60 way plug                 |
| WB-51S*L | Left wedgelock for 102 way plug           |
| WB-51S*R | Right wedgelock for 102 way plug          |
| WB-64S*  | Wedgelock for 128 way plug (requires two) |

\*A, B, C, D keying available



Accessories

BOOTS



Boots provide a professional looking finishing touch for DEUTSCH DRB series connectors. Made of durable plastisol, these slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray, and pressure washing. The plastisol boots are rated from -20°F to +212°F (-28°C to +100°C) and offer a slip-on design making installation quick and easy.

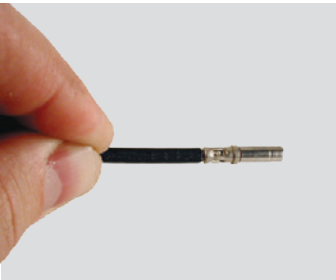


| Part Number     | Description                                          |
|-----------------|------------------------------------------------------|
| DRB48-60-BT     | 48 way plug or receptacle boot, black                |
| DRB48-60-BT     | 60 way plug or receptacle boot, black                |
| DRB102-BT       | 102/128 way plug or receptacle boot, black           |
| DRB102-BT-90DEG | 102/128 way plug or receptacle boot, 90° bend, black |

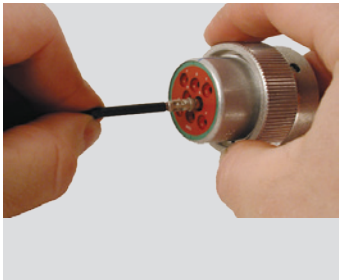
\*Distorting the boots can lessen their longevity

How To Instructions

CONTACT INSERTION



**Step 1:**  
Hold connector with rear grommet/wire router cap facing you.

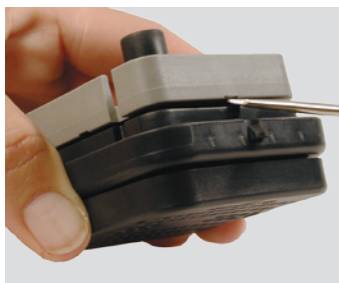


**Step 2:**  
Push contact straight into contact cavity until a click is heard/felt. A slight tug will confirm the contact is inserted correctly.



**Step 3:**  
Once all contacts are in place, insert wedge-lock by lining up the keyway. The wedgelock will press into place.

### CONTACT REMOVAL



#### Step 1:

Remove wedgelock using a screwdriver. Pull wedgelock straight out.



#### Step 2:

To remove contacts, gently pull wire backwards, while at the same time releasing the locking finger by moving it away from the contact with a screwdriver.

### ASSEMBLY



#### Step 1:

Wedgelocks should be pressed firmly in place, with only a slight gap showing between the wedgelock and connector.



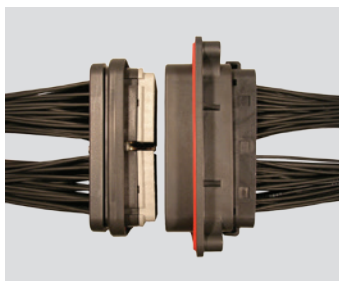
#### Step 2:

If the wedgelock will not go all the way in, check to make sure all of the contacts are properly seated.



#### Step 3:

Contacts should be fully inserted into the connector, with the locking fingers in place under the shoulder of the contact. If a contact is not fully inserted, the retention finger will prevent the wedgelock from pressing into place.



#### Step 4:

When mating the plug with the receptacle, confirm that the plug is not being pulled into the receptacle at an angle by the jackscrew.

Improper assembly can cause the jackscrew to be stripped during assembly. To prevent damage, the jackscrew will strip out before the threads in the connector are damaged. If the jackscrew becomes stripped, please replace the jackscrew and the push nut.

#### Note

Do not over torque jackscrew. The recommended torque rating for the DRB series plug jackscrew when tightening is 30-35 IN-LB (3.38-3.95 N.M.).

# Contents

DRC Series Overview ..... 100

Performance Specifications ..... 100

Material Specifications ..... 100

Dimensions ..... 101

Configurations ..... 102

Ordering Information ..... 103-104

Accessories ..... 106-107

How To Instructions ..... 108

### DRC Series Overview

The environmentally sealed DEUTSCH DRC series is a rectangular connector series that offers insert arrangements of 24, 40, 50, 60, 64, 70, and 76 cavities and accepts size 12, 16, and 20 contacts. Several mounting options are available including in-line, flange mount, and PCB mount.



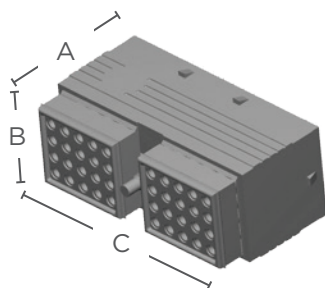
### DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

|                                         |                                                                                                                                                                                                                                                  |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Temperature:</b>                     | Operating at temperatures -55°C to +125°C                                                                                                                                                                                                        |
| <b>Durability:</b>                      | No electrical or mechanical defects after 100 cycles of engagement and disengagement.                                                                                                                                                            |
| <b>Vibration:</b>                       | No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond. |
| <b>Fluid Resistance:</b>                | Connectors show no damage when exposed to most fluids used in industrial applications.                                                                                                                                                           |
| <b>Insulation Resistance:</b>           | 1000 megohms minimum at 25°C.                                                                                                                                                                                                                    |
| <b>Immersion:</b>                       | IP68 rating                                                                                                                                                                                                                                      |
| <b>Moisture Resistance:</b>             | Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.                                                                                                         |
| <b>Dielectric Withstanding Voltage:</b> | Current leakage less than 2 milliamps at 1500 volts AC.                                                                                                                                                                                          |
| <b>Thermal Cycle:</b>                   | No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.                                                                                                                                                                      |

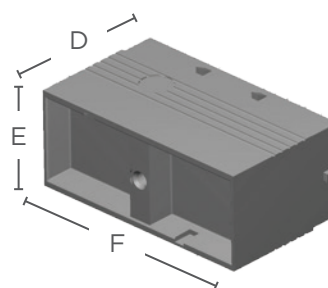
### MATERIAL SPECIFICATIONS

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| <b>Grommet:</b>                     | Silicone rubber                   |
| <b>Insert Retainer:</b>             | Unfilled PEI                      |
| <b>JackscREW:</b>                   | Stainless steel                   |
| <b>Receptacle Threaded Inserts:</b> | Stainless steel/Brass             |
| <b>Shell:</b>                       | Glass filled PA, Glass filled PPS |

## DIMENSIONS



**DRC Plug**



**DRC Receptacle**

| Cavity      | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|-------------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| 24 (sz. 20) | 1.435 (36.45)       | 1.244 (31.60)       | 2.004 (50.90)      | 1.785 (45.34)       | 1.500 (38.10)       | 3.104 (78.84)      |
| 24 (sz. 16) | 1.600 (40.64)       | 1.148 (29.16)       | 2.100 (53.34)      | 1.742 (44.25)       | 1.202 (30.53)       | 2.154 (54.71)      |
| 38          | 1.435 (36.45)       | 1.274 (32.36)       | 2.700 (68.58)      | -                   | -                   | -                  |
| 40 (sz. 20) | 1.380 (35.05)       | 1.244 (31.60)       | 2.700 (68.58)      | 1.785 (45.34)       | 1.500 (38.10)       | 3.800 (96.52)      |
| 40 (sz. 16) | 1.597 (40.56)       | 1.202 (30.53)       | 2.868 (72.85)      | 1.699 (43.15)       | 1.202 (30.53)       | 2.908 (73.86)      |
| 50          | 1.435 (36.45)       | 1.408 (35.76)       | 2.700 (68.58)      | -                   | 1.987 (50.47)       | 3.094 (78.59)      |
| 60          | 1.435 (36.45)       | 1.448 (36.78)       | 2.700 (68.58)      | -                   | 2.161 (54.89)       | 3.094 (78.59)      |
| 64          | -                   | -                   | -                  | 1.785 (45.34)       | 1.500 (38.10)       | 5.866 (149.00)     |
| 70          | 1.643 (41.73)       | 1.421 (36.09)       | 4.094 (103.99)     | 1.757 (44.63)       | 1.421 (36.09)       | 4.094 (103.99)     |
| 76          | -                   | -                   | -                  | 1.115 (28.32)       | 1.827 (46.41)       | 5.686 (144.42)     |

Dimensions are for reference only.

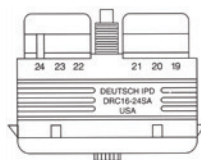
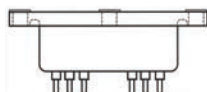
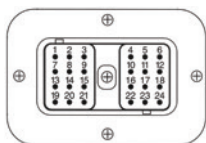
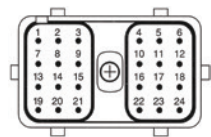
## CONNECTOR STYLES

In-line  
Receptacle

Flange Mount  
Receptacle

PCB Receptacle

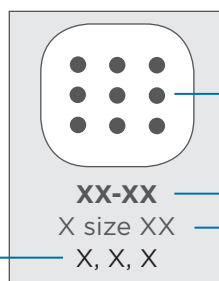
Standard Plug



## CONFIGURATIONS

### Connector Styles

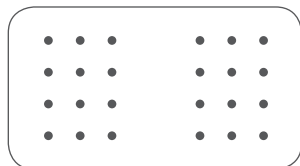
|          |                         |
|----------|-------------------------|
| <b>I</b> | In-line                 |
| <b>F</b> | Flange Mount Receptacle |
| <b>P</b> | PCB Receptacle          |



Insert Arrangement

Part Number

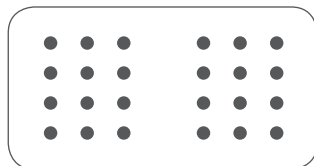
Number and Size of Cavities



**DRC2\*-24\*\***

24 size 20

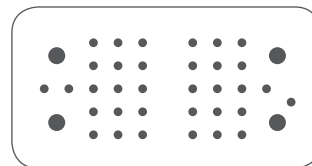
I, F, P



**DRC1\*-24\*\***

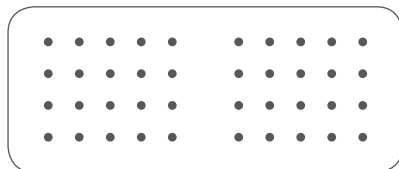
24 size 1

I, F, P



**DRC26-38\*\***

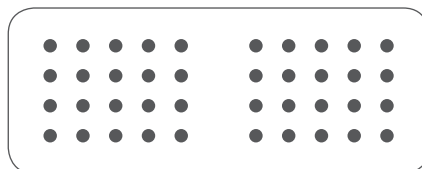
34 size 20, 4 size 12  
(Plug for **DRC20-76P\*\*\*\***)



**DRC2\*-40\*\***

40 size 20

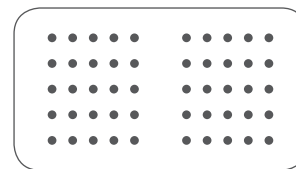
F, P



**DRC1\*-40\*\***

40 size 16

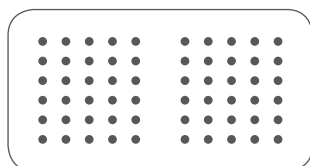
I, F, P



**DRC2\*-50\*\***

50 size 20

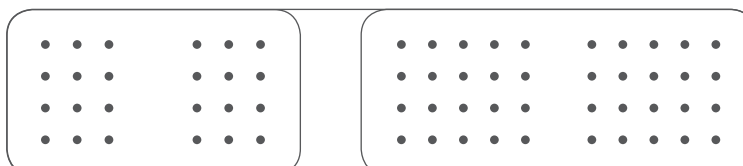
P



**DRC2\*-60\*\***

60 size 20

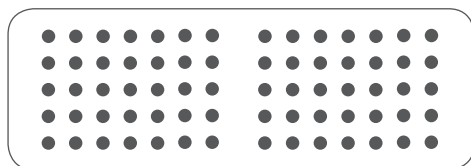
P



**DRC2\*-64\*\***

64 size 20

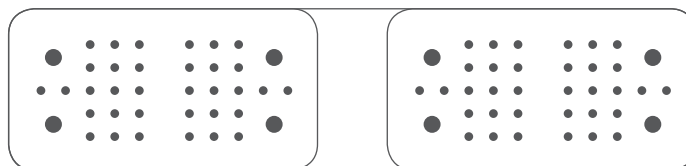
P



**DRC1\*-70\*\***

70 size 16

I, F, P



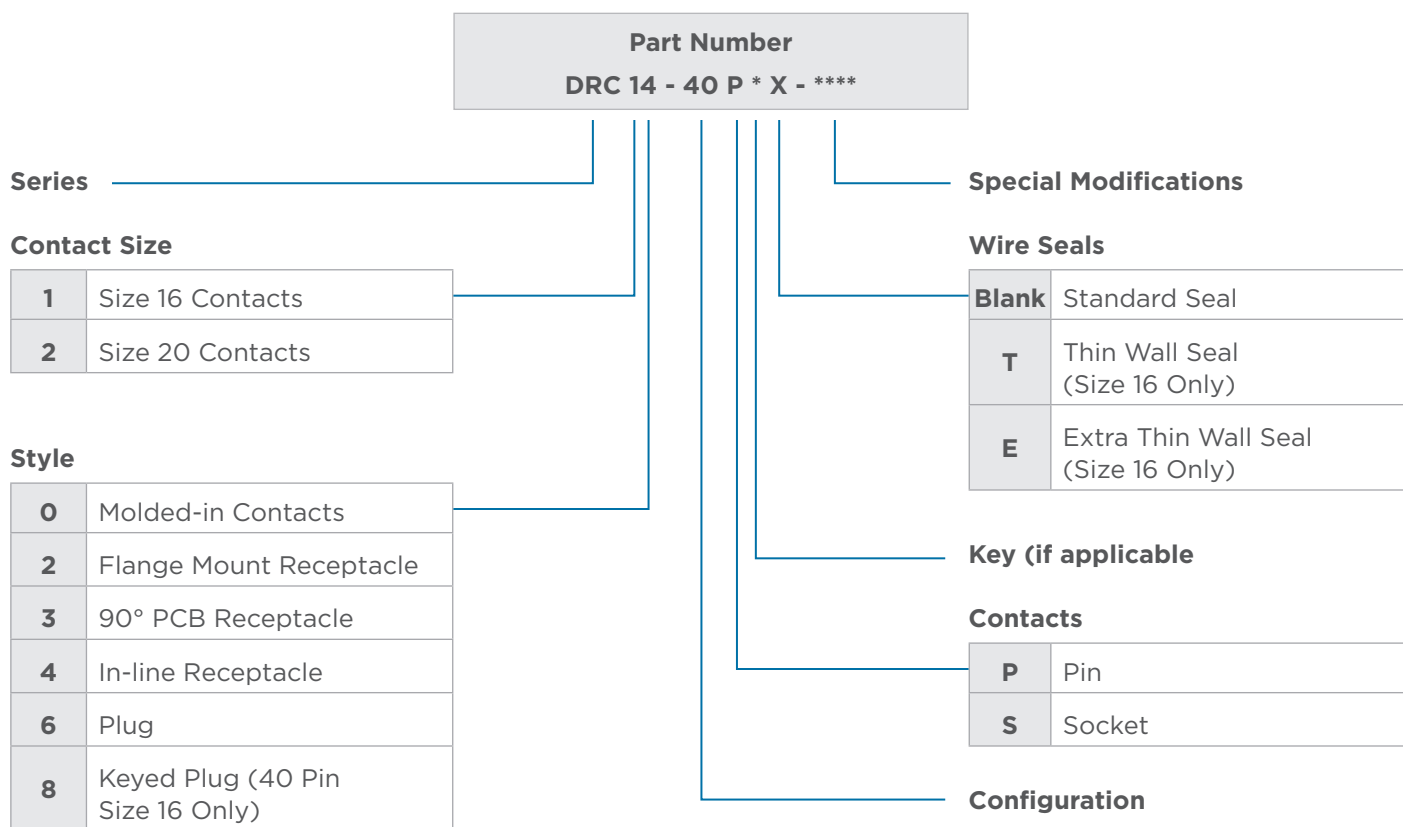
**DRC20-76P\*\*\*\***

68 size 20, 8 size 12

P

## DRC Series

### PART NUMBERING SYSTEM



### ORDERING INFORMATION

Here are some of the common part numbers in the DRC series. Several additional connectors may be available.

| Position       | Key | Plug             | Receptacle In-line | Receptacle Flange | Receptacle PCB       |
|----------------|-----|------------------|--------------------|-------------------|----------------------|
| 24<br>(sz. 20) | A   | DRC26-24SA       | -                  | -                 | DRC23-24PA (90°)     |
|                | B   | DRC26-24SB       | -                  | -                 | DRC23-24PB (90°)     |
|                | C   | DRC26-24SC       | -                  | -                 | DRC23-24PC (90°)     |
|                | D   | DRC26-24SD       | -                  | -                 | DRC23-24PD (90°)     |
| 24<br>(sz. 16) | A   | DRC16-24SA       | DRC14-24PA         | DRC12-24PA        | DRC10-24PA (180°)    |
|                |     |                  |                    |                   | DRC13-24PA (90°)     |
|                | B   | DRC16-24SB       | DRC14-24PB         | DRC12-24PB        | DRC10-24PB (180°)    |
|                |     |                  |                    |                   | DRC13-24PB (90°)     |
|                | C   | DRC16-24SC       | DRC14-24PC         | DRC12-24PC        | DRC10-24PC (180°)    |
|                |     |                  |                    |                   | DRC13-24PC (90°)     |
|                | D   | DRC16-24SD       | DRC14-24PD         | DRC12-24PD        | DRC10-24PD (180°)    |
|                |     |                  |                    |                   | DRC13-24PD (90°)     |
| 38<br>(sz. 20) | 01  | DRC26-38S01-P017 | -                  | -                 | DRC20-76P0102 (180°) |
|                | 02  | DRC26-38S02-P017 | -                  | -                 |                      |



## ORDERING INFORMATION (CONTINUED)

| Position                        | Key   | Plug                                  | Receptacle<br>In-line | Receptacle<br>Flange | Receptacle<br>PCB                 |
|---------------------------------|-------|---------------------------------------|-----------------------|----------------------|-----------------------------------|
| 40<br>(sz. 20)                  | A     | DRC26-40SA                            | -                     | DRC22-40PA           | DRC23-40PA (90°)                  |
|                                 | B     | DRC26-40SB                            | -                     | DRC22-40PB           | DRC23-40PB (90°)                  |
|                                 | C     | DRC26-40SC                            | -                     | DRC22-40PC           | DRC23-40PC (90°)                  |
|                                 | D     | DRC26-40SD                            | -                     | DRC22-40PD           | DRC23-40PD (90°)                  |
| 40<br>(sz. 16)                  | A     | DRC18-40SA                            | DRC14-40PA            | DRC12-40PA           | DRC10-40PA (180°)                 |
|                                 |       |                                       |                       |                      | DRC13-40PA (90°)                  |
|                                 | B     | DRC18-40SB                            | DRC14-40PB            | DRC12-40PB           | DRC10-40PB (180°)                 |
|                                 |       |                                       |                       |                      | DRC13-40PB (90°)                  |
|                                 | C     | DRC18-40SC                            | DRC14-40PC            | DRC12-40PC           | DRC10-40PC (180°)                 |
|                                 |       |                                       |                       |                      | DRC13-40PC (90°)                  |
|                                 | D     | DRC18-40SD                            | DRC14-40PD            | DRC12-40PD           | DRC10-40PD (180°)                 |
|                                 |       |                                       |                       |                      | DRC13-40PD (90°)                  |
| 50<br>(sz. 20)                  | 01    | DRC26-50S01                           | -                     | -                    | DRC20-50P01 (180°, outside mount) |
|                                 |       |                                       |                       |                      | DRC22-50P01 (180°, inside mount)  |
|                                 | 02    | DRC26-50S02                           | -                     | -                    | DRC20-50P02 (180°, outside mount) |
|                                 |       |                                       |                       |                      | DRC22-50P02 (180°, inside mount)  |
|                                 | 03    | DRC26-50S03                           | -                     | -                    | DRC20-50P03 (180°, outside mount) |
|                                 |       |                                       |                       |                      | DRC22-50P03 (180°, inside mount)  |
|                                 | 04    | DRC26-50S04                           | -                     | -                    | DRC20-50P04 (180°, outside mount) |
|                                 |       |                                       |                       |                      | DRC22-50P04 (180°, inside mount)  |
| 60<br>(sz. 20)                  | 05    | DRC26-60S05                           | -                     | -                    | -                                 |
|                                 | 06    | DRC26-60S06                           | -                     | -                    | -                                 |
|                                 | 07    | DRC26-60S07                           | -                     | -                    | -                                 |
| 64<br>(sz. 20)                  | AA    | DRC26-24SA/<br>DRC26-40SA             | -                     | -                    | DRC23-64PAA (90°)                 |
| 70<br>(sz. 16)                  | A     | DRC16-70SA                            | DRC14-70PA            | DRC12-70PA           | DRC13-70PA                        |
|                                 | B     | DRC16-70SB                            | DRC14-70PB            | DRC12-70PB           | DRC13-70PB                        |
|                                 | C     | DRC16-70SC                            | DRC14-70PC            | DRC12-70PC           | DRC13-70PC                        |
|                                 | D     | DRC16-70SD                            | DRC14-70PD            | DRC12-70PD           | DRC13-70PD                        |
| 76<br>(sz. 20<br>and sz.<br>12) | 01/02 | DRC26-38S01-P017/<br>DRC26-38S02-P017 | -                     | -                    | DRC20-76P0102 (180°)              |

## DRC Series

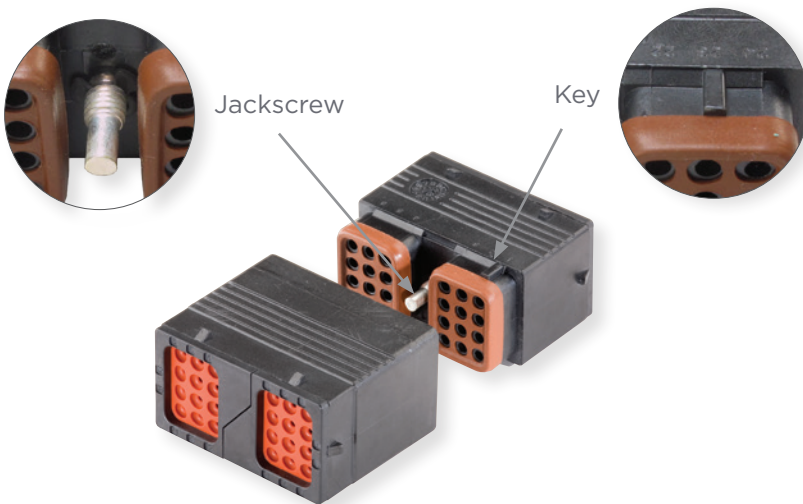
### WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

| Contact Size                                  | Standard Seal            | Thin Seal<br>T-Seal      | Extra Thin Seal<br>E-Seal |
|-----------------------------------------------|--------------------------|--------------------------|---------------------------|
| 20<br>16-22 AWG<br>(1.0-0.35mm <sup>2</sup> ) | .040-.095<br>(1.02-2.41) | .040-.095<br>(1.02-2.41) | .040-.095<br>(1.02-2.41)  |
| 16<br>14-20 AWG<br>(2.0-0.5mm <sup>2</sup> )  | .100-.134<br>(2.54-3.40) | .088-.134<br>(2.23-3.40) | .053-.120<br>(1.35-3.05)  |
| 12<br>10-14 AWG<br>(6.0-2.0mm <sup>2</sup> )  | .097-.170<br>(2.46-4.95) | .113-.170<br>(2.87-4.32) | .097-.158<br>(2.46-4.01)  |

### MATING CRITERIA

DEUTSCH DRC series plugs are keyed to provide positive alignment and to prevent mis-mating.



#### Note

Do not over torque jackscrew.  
The recommended torque  
rating for the DRC series plug  
jackscrew when tightening is  
25-28 IN-LB (2.82-3.16 N.M.).

### Accessories

Several accessory items are available to complement the connectors including boots, gaskets, backshells, and wire routers. Accessories are designed to complete the application and meet a wide array of design requirements such as providing additional protection and offering increased aesthetics.

### BACKSHELLS

DEUTSCH DRC series backshells are designed to snap onto the back of the connectors and accept convoluted tubing. The rigid, durable backshells offer a high level of protection, provide strain relief, and improve aesthetics.



| Connector Cavities | Part Number   | Description                                                                 |
|--------------------|---------------|-----------------------------------------------------------------------------|
| 38                 | 0528-003-3805 | 90° backshell to the side, plug                                             |
| 38                 | 0528-004-3805 | 90° backshell, plug                                                         |
| 38                 | 0528-005-3805 | 90° low profile backshell, plug                                             |
| 40                 | 0515-015-4005 | Wire router, plug                                                           |
| 50                 | 0528-001-5005 | 90° backshell, plug                                                         |
| 60                 | 0528-002-6005 | 90° backshell, plug                                                         |
| 60                 | 0528-007-6005 | 90° backshell to the side, plug                                             |
| 70                 | 0515-029-7005 | Straight wire router, plug                                                  |
| 70                 | 0515-031-7005 | Straight wire router, plug or receptacle,                                   |
| 70                 | 0528-006-7005 | Straight backshell, plug or receptacle, requires two halves and wire router |
| 70                 | 0528-012-7005 | 90° backshell to the side, plug or receptacle, without tubing rib           |

### BOOTS



Boots provide a professional looking finishing touch for DEUTSCH DRC series connectors. Made of durable plastisol, these slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray, and pressure washing. The plastisol boots are rated from -20°F to +212°F (-28°C to +100°C) and offer a slip-on design making installation quick and easy.



| Part Number    | Description                                                |
|----------------|------------------------------------------------------------|
| DRC24-BT       | 24 way boot, size 16 contact arrangements, black           |
| DRC26-24BT     | 24 way boot, size 20 contact arrangements, black           |
| DRC40-BT       | 40 way boot, size 16 contact arrangements, black           |
| DRC40-BT-90DEG | 40 way boot, size 16 contact arrangements, 90° bend, black |
| DRC26-40BT     | 40 way boot, size 20 contact arrangements, black           |
| DRC70-BT       | 70 way boot, size 16 contact arrangements, black           |

\*Distorting the boots can lessen their longevity

### GASKETS



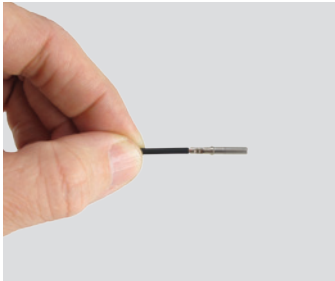
Moisture, dirt, salt, sand, and road debris can all work their way into electrical panels through unsealed mounting flanges. Rated to operate in environments from -70°F to +225 F (-56°C to +107°C), these rugged high quality neoprene gaskets form a tight seal between the panel face and connector flange to help keep out destructive elements. The gaskets have a thickness of .125" and the material meets the UL-94-HBF, Mil-R-6130C, and FMVSS-302 flammability specifications.



| Gasket Part Number | Connector Part Number |
|--------------------|-----------------------|
| DRC24-GKT          | DRC12-24P**           |
| DRC40-GKT          | DRC12-40P**           |
| DRC70-GKT          | DRC12-70P**           |

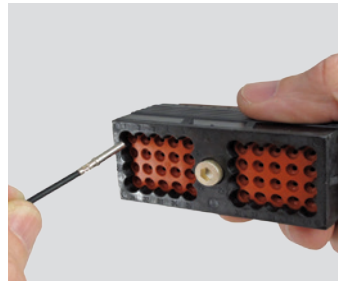
### How To Instructions

#### CONTACT INSERTION



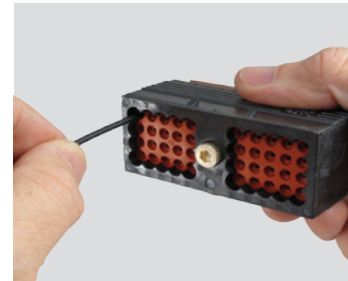
**Step 1:**

Grasp crimped contact approximately one inch behind the contact barrel.



**Step 2:**

Hold connector with rear grommet facing you.



**Step 3:**

Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.

#### CONTACT REMOVAL



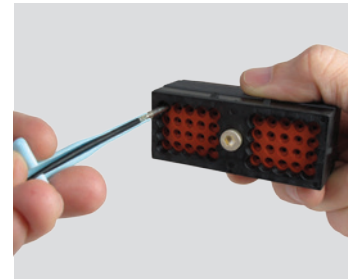
**Step 1:**

With rear insert toward you, snap appropriate size removal tool over the wire of contact to be removed.



**Step 2:**

Slide tool along the wire into the insert cavity until it engages contact and resistance is felt.



**Step 3:**

Pull contact wire assembly out of connector.

# Contents

|                                                      |         |
|------------------------------------------------------|---------|
| DT Family Overview .....                             | 110     |
| Product Documentation .....                          | 111     |
| Performance Specifications .....                     | 111     |
| Material Specifications .....                        | 111     |
| Dimensions .....                                     | 112-113 |
| Configurations .....                                 | 114     |
| Ordering Information .....                           | 115-116 |
| Required Components .....                            | 117-118 |
| Special Modifications .....                          | 118-120 |
| Accessories .....                                    | 121-127 |
| DT Family Printed Circuit Board .....                | 128     |
| DTMH Series & High Temperature<br>Modification ..... | 129-130 |
| DTV Series .....                                     | 131     |
| How To Instructions .....                            | 132     |

### DT Family Overview

DEUTSCH DT, DTM, and DTP series environmentally sealed connectors are designed for cable to cable and cable to board applications. The DT connectors are used in harsh environment applications where even a small degradation in connection may be critical. Thermoplastic housings offer a wide operating temperature range and silicone rear wire and interface seals allow the connectors to withstand conditions of extreme temperature and moisture.

The DEUTSCH DT series general purpose connectors will provide reliability and performance on the engine or transmission, under the hood, on the chassis, or in the cab.



### DT SERIES OVERVIEW

DEUTSCH DT series connectors offer field proven reliability and rugged quality. The DT design strengths include optional flange mounting, multi-pin arrangements, and design flexibility. The DT series offers the designer the ability to use multiple size 16 contacts, each with 13 amp continuous capacity, within a single shell.

### DTM SERIES OVERVIEW

DEUTSCH DTM series connectors offer solutions to your smaller wire gauge applications. Building on the DT design strengths, the DTM connector line was developed to fill the need for lower amperage, multi-pin connectors. The DTM series offers the designer the ability to use multiple size 20 contacts, each with 7.5 amp continuous capacity, within a single shell.

### DTP SERIES OVERVIEW

DEUTSCH DTP series connectors provide solutions for your power application requirements. Building on both the DT and DTM design strengths, the DTP connector line was developed to fill the need for higher amperage, multi-pin connectors.

The DTP series offers the designer the ability to use multiple size 12 contacts, each with 25 amp continuous capacity, within a single shell. The DTP connectors are currently available in two and four pin configurations.

## DT Family

---

### APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with DT Family products. The following TE Connectivity document numbers may be helpful:

108-151009 (Product Specification, DT series)

108-151010 (Product Specification, DTM series)

### DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

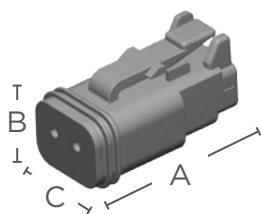
|                                         |                                                                                                                                                                                                                                                  |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Temperature:</b>                     | Operating at temperatures -55°C to +125°C<br>• DTMH series: -55°C to +150°C                                                                                                                                                                      |
| <b>Durability:</b>                      | No electrical or mechanical defects after 100 cycles of engagement and disengagement.                                                                                                                                                            |
| <b>Vibration:</b>                       | No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond. |
| <b>Fluid Resistance:</b>                | Connectors show no damage when exposed to most fluids used in industrial applications.                                                                                                                                                           |
| <b>Insulation Resistance:</b>           | 1000 megohms minimum at 25°C.                                                                                                                                                                                                                    |
| <b>Immersion:</b>                       | IP68 rating                                                                                                                                                                                                                                      |
| <b>Moisture Resistance:</b>             | Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.                                                                                                         |
| <b>Dielectric Withstanding Voltage:</b> | Current leakage less than 2 milliamps at 1500 volts AC.                                                                                                                                                                                          |
| <b>Thermal Cycle:</b>                   | No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.                                                                                                                                                                      |

### MATERIAL SPECIFICATIONS (DT, DTM, DTMH, DTP, DTV SERIES)

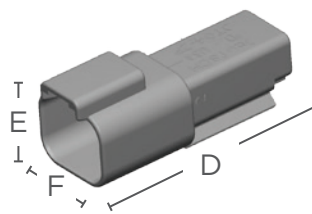
|                                             |                  |
|---------------------------------------------|------------------|
| <b>Grommet:</b>                             | Silicone rubber  |
| <b>Receptacle<br/>Interfacial Seal:</b>     | Silicone rubber  |
| <b>Receptacle<br/>Threaded<br/>Inserts:</b> | Stainless steel  |
| <b>Shell:</b>                               | Glass filled PA  |
| <b>Wedgelocks:</b>                          | Glass filled PBT |



## DT SERIES DIMENSIONS



DT Plug

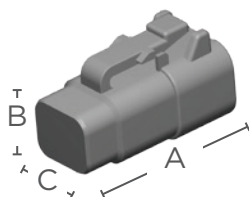


DT Receptacle

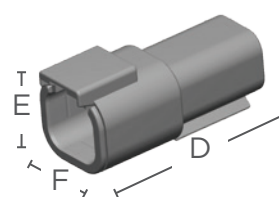
| Cavity | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|--------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| 2      | 1.118 (28.4)        | .628 (15.95)        | .591 (15.01)       | 1.708 (43.38)       | .670 (17.02)        | .675 (17.15)       |
| 3      | 1.118 (28.4)        | .934 (23.72)        | .718 (18.23)       | 1.698 (43.13)       | .973 (24.71)        | .832 (21.13)       |
| 4      | 1.218 (30.94)       | .724 (18.39)        | .716 (18.19)       | 1.808 (45.92)       | .776 (19.71)        | .820 (20.83)       |
| 6      | 1.218 (30.94)       | .891 (22.63)        | .716 (18.19)       | 1.808 (45.92)       | .951 (24.16)        | .820 (20.83)       |
| 8      | 1.217 (30.91)       | .776 (19.71)        | 1.465 (37.21)      | 1.798 (45.67)       | 1.000 (25.40)       | 1.435 (36.45)      |
| 12     | 1.218 (30.94)       | .716 (18.19)        | 1.597 (40.56)      | 1.808 (45.92)       | .876 (22.25)        | 1.597 (40.56)      |

Dimensions are for reference only.

## DTM SERIES DIMENSIONS



DTM Plug

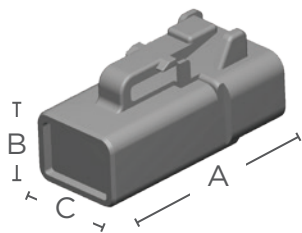


DTM Receptacle

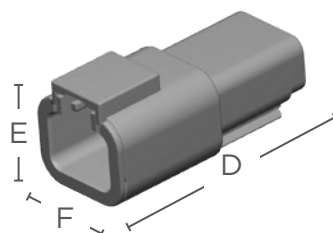
| Cavity | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|--------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| 2      | 1.085 (27.56)       | .508 (12.90)        | .475 (12.07)       | 1.620 (41.15)       | .638 (16.21)        | .651 (16.54)       |
| 3      | 1.085 (27.56)       | .551 (14.00)        | .640 (16.26)       | 1.620 (41.15)       | .638 (16.21)        | .861 (20.73)       |
| 4      | 1.185 (30.10)       | .695 (17.65)        | .600 (15.24)       | 1.720 (43.69)       | .772 (19.61)        | .756 (19.20)       |
| 6      | 1.185 (30.10)       | .817 (20.75)        | .600 (15.24)       | 1.720 (43.69)       | .937 (23.80)        | .756 (19.20)       |
| 8      | 1.185 (30.10)       | .600 (15.24)        | 1.245 (31.62)      | 1.720 (43.69)       | .796 (20.22)        | 1.245 (31.62)      |
| 12     | 1.185 (30.10)       | .600 (15.24)        | 1.575 (40.01)      | 1.720 (43.69)       | .796 (20.22)        | 1.575 (40.01)      |

Dimensions are for reference only.

DTP SERIES DIMENSIONS



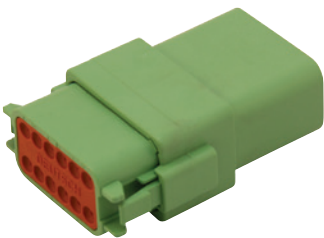
DTP Plug



DTP Receptacle

| Cavity | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|--------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| 2      | 1.364 (34.65)       | .711 (18.06)        | .732 (18.59)       | 1.861 (47.27)       | .869 (22.07)        | .872 (22.15)       |
| 4      | 1.364 (34.65)       | .960 (24.38)        | .868 (22.05)       | 1.861 (47.27)       | 1.048 (26.62)       | 1.060 (26.92)      |

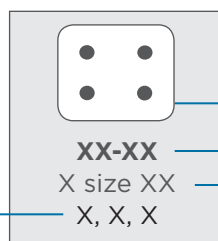
Dimensions are for reference only.



## DT FAMILY CONFIGURATIONS

### Keying Options

|          |       |
|----------|-------|
| <b>A</b> | A key |
| <b>B</b> | B key |
| <b>C</b> | C key |
| <b>D</b> | D key |



Insert Arrangement

Part Number

Number and Size of Cavities

## DT SERIES CONFIGURATIONS



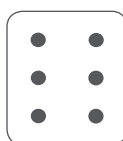
**DT0\*-2\***  
2 size 16



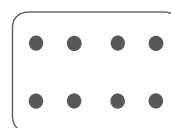
**DT0\*-3\***  
3 size 16



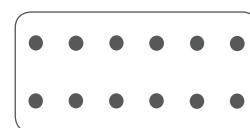
**DT0\*-4\***  
4 size 16



**DT0\*-6\***  
6 size 16

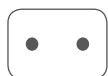


**DT0\*-08\*\***  
8 size 16  
A, B, C, D



**DT0\*-12\*\***  
12 size 16  
A, B, C, D

## DTM SERIES CONFIGURATIONS



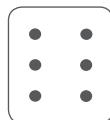
**DTM0\*-2\***  
2 size 20



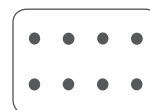
**DTM0\*-3\***  
3 size 20



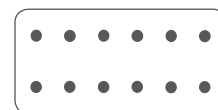
**DTM0\*-4\***  
4 size 20



**DTM0\*-6\***  
6 size 20

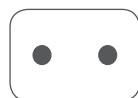


**DTM0\*-08\*\***  
8 size 20  
A, B, C, D

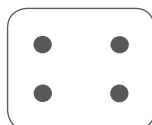


**DTM0\*-12\*\***  
12 size 20  
A, B, C, D

## DTP SERIES CONFIGURATIONS

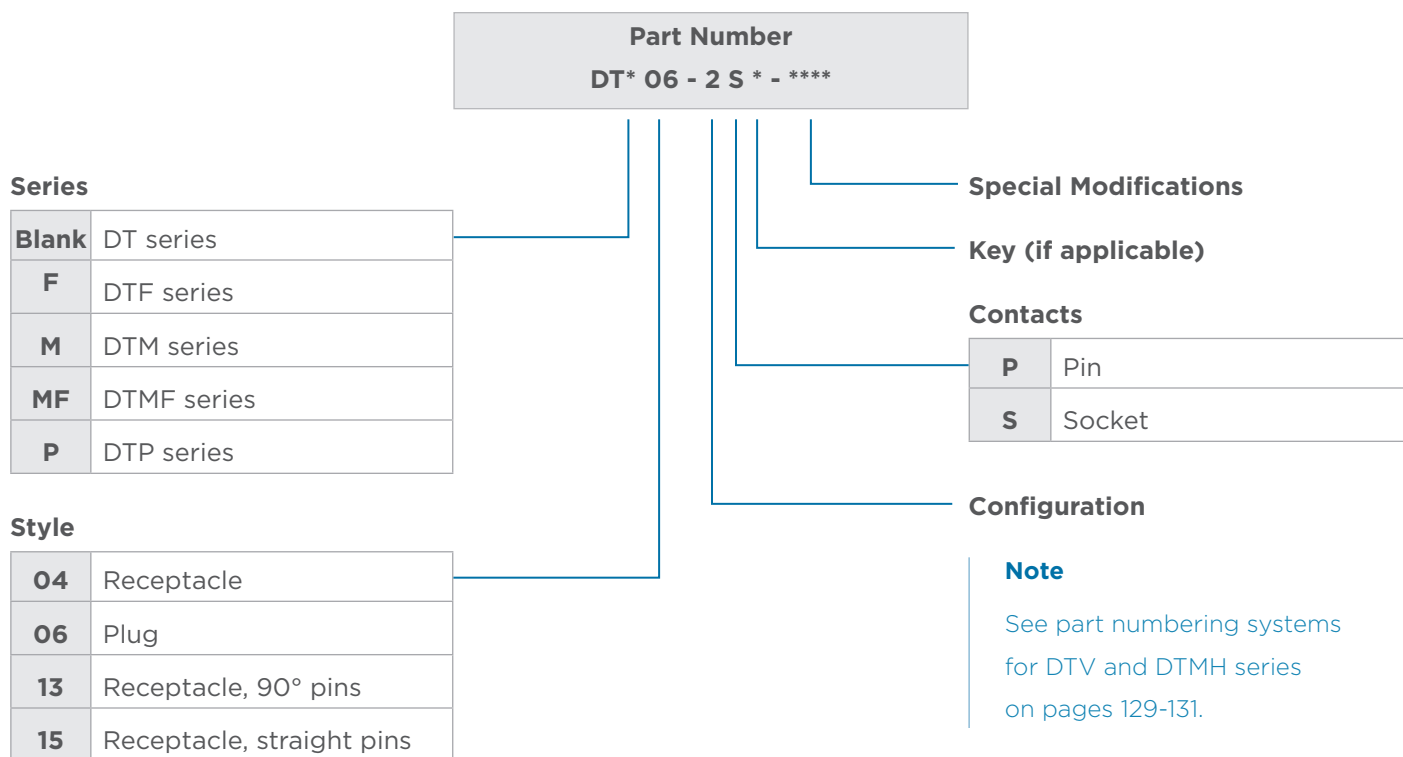


**DTP0\*-2\***  
2 size 12



**DTP0\*-4\***  
4 size 12

## PART NUMBERING SYSTEM



## DT SERIES ORDERING INFORMATION

Here are some of the common part numbers in the DT series. Several additional connectors may be available.

| Position | Keying | Plug      | Receptacle | Plug<br>Reduced Dia. Seals | Receptacle<br>Reduced Dia. Seals |
|----------|--------|-----------|------------|----------------------------|----------------------------------|
| 2        | -      | DT06-2S   | DT04-2P    | DT06-2S-C015               | DT04-2P-C015                     |
| 3        | -      | DT06-3S   | DT04-3P    | DT06-3S-C015               | DT04-3P-C015                     |
| 4        | -      | DT06-4S   | DT04-4P    | DT06-4S-C015               | DT04-4P-C015                     |
| 6        | -      | DT06-6S   | DT04-6P    | DT06-6S-C015               | DT04-6P-C015                     |
| 8        | Key A  | DT06-08SA | DT04-08PA  | DT06-08SA-C015             | DT04-08PA-C015                   |
|          | Key B  | DT06-08SB | DT04-08PB  | DT06-08SB-C015             | DT04-08PB-C015                   |
|          | Key C  | DT06-08SC | DT04-08PC  | DT06-08SC-C015             | DT04-08PC-C015                   |
|          | Key D  | DT06-08SD | DT04-08PD  | DT06-08SD-C015             | DT04-08PD-C015                   |
| 12       | Key A  | DT06-12SA | DT04-12PA  | DT06-12SA-C015             | DT04-12PA-C015                   |
|          | Key B  | DT06-12SB | DT04-12PB  | DT06-12SB-C015             | DT04-12PB-C015                   |
|          | Key C  | DT06-12SC | DT04-12PC  | DT06-12SC-C015             | DT04-12PC-C015                   |
|          | Key D  | DT06-12SD | DT04-12PD  | DT06-12SD-C015             | DT04-12PD-C015                   |

## DTM SERIES ORDERING INFORMATION

Here are some of the common part numbers in the DTM series. Several additional connectors may be available.

| Position | Keying | Plug       | Receptacle |
|----------|--------|------------|------------|
| 2        | -      | DTM06-2S   | DTM04-2P   |
| 3        | -      | DTM06-3S   | DTM04-3P   |
| 4        | -      | DTM06-4S   | DTM04-4P   |
| 6        | -      | DTM06-6S   | DTM04-6P   |
| 8        | Key A  | DTM06-08SA | DTM04-08PA |
|          | Key B  | DTM06-08SB | DTM04-08PB |
|          | Key C  | DTM06-08SC | DTM04-08PC |
|          | Key D  | DTM06-08SD | DTM04-08PD |
| 12       | Key A  | DTM06-12SA | DTM04-12PA |
|          | Key B  | DTM06-12SB | DTM04-12PB |
|          | Key C  | DTM06-12SC | DTM04-12PC |
|          | Key D  | DTM06-12SD | DTM04-12PD |

## DTP SERIES ORDERING INFORMATION

Here are some of the common part numbers in the DTP series. Several additional connectors may be available.

| Position | Plug     | Receptacle | Plug<br>Reduced Dia. Seals | Receptacle<br>Reduced Dia. Seals |
|----------|----------|------------|----------------------------|----------------------------------|
| 2        | DTP06-2S | DTP04-2P   | DTP06-2S-C015              | DTP04-2P-C015                    |
| 4        | DTP06-4S | DTP04-4P   | DTP06-4S-C015              | DTP04-4P-C015                    |

## WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

| Contact Size                                  | Standard Seal            | Extra Thin Seal<br>E-Seal |
|-----------------------------------------------|--------------------------|---------------------------|
| 20<br>14-22 AWG<br>(2.5-0.35mm <sup>2</sup> ) | .053-.120<br>(1.35-3.05) | -                         |
| 16<br>14-20 AWG<br>(2.0-0.5mm <sup>2</sup> )  | .088-.145<br>(2.23-3.68) | .053-.120<br>(1.35-3.05)  |
| 12<br>10-14 AWG<br>(6.0-2.0mm <sup>2</sup> )  | .134-.170<br>(3.40-4.32) | .097-.158<br>(2.46-4.01)  |

### Required Components

#### SECONDARY WEDGELOCKS

DEUTSCH DT style electrical connectors require secondary wedgelocks which are sold separately. The wedgelocks help confirm proper contact alignment within each connector. Secondary wedgelocks are assembled at the mating interface and press into place. If by chance the secondary wedgelocks are not properly seated during assembly, they will be pressed into locked position during the mating of the connector.

Adding to the design flexibility of the DT series, several wedgelocks offer keying options. Wedgelocks for enhanced seal retention plugs (P012) are also available.



#### DT Series Receptacle Wedgelocks

|      |                                                                |
|------|----------------------------------------------------------------|
| W2P* | Wedgelock for 2 way receptacle<br>*A, B, C, D keying available |
| W3P* | Wedgelock for 3 way receptacle<br>*J1939 keying available      |
| W4P* | Wedgelock for 4 way receptacle<br>*A, B, C, D keying available |
| W6P  | Wedgelock for 6 way receptacle                                 |
| W8P  | Wedgelock for 8 way receptacle                                 |
| W12P | Wedgelock for 12 way receptacle                                |

#### DT Series Plug Wedgelocks

|      |                                                          |
|------|----------------------------------------------------------|
| W2S* | Wedgelock for 2 way plug<br>*A, B, C, D keying available |
| W3S* | Wedgelock for 3 way plug<br>*J1939 keying available      |
| W4S* | Wedgelock for 4 way plug<br>*A, B, C, D keying available |
| W6S  | Wedgelock for 6 way plug                                 |
| W8S  | Wedgelock for 8 way plug                                 |
| W12S | Wedgelock for 12 way plug                                |

#### Note

Wedgelocks for enhanced seal retention plugs (P012) are available.



### DTM Series Receptacle Wedgelocks

|        |                                                                |
|--------|----------------------------------------------------------------|
| WM-2P* | Wedgelock for 2 way receptacle<br>*A, B, C, D keying available |
| WM-3P  | Wedgelock for 3 way receptacle                                 |
| WM-4P  | Wedgelock for 4 way receptacle                                 |
| WM-6P  | Wedgelock for 6 way receptacle                                 |
| WM-8P  | Wedgelock for 8 way receptacle                                 |
| WM-12P | Wedgelock for 12 way receptacle                                |



### DTM Series Plug Wedgelocks

|        |                                                          |
|--------|----------------------------------------------------------|
| WM-2S* | Wedgelock for 2 way plug<br>*A, B, C, D keying available |
| WM-3S  | Wedgelock for 3 way plug                                 |
| WM-4S  | Wedgelock for 4 way plug                                 |
| WM-6S  | Wedgelock for 6 way plug                                 |
| WM-8S  | Wedgelock for 8 way plug                                 |
| WM-12S | Wedgelock for 12 way plug                                |



### DTP Series Receptacle Wedgelocks

|       |                                |
|-------|--------------------------------|
| WP-2P | Wedgelock for 2 way receptacle |
| WP-4P | Wedgelock for 4 way receptacle |



### DTP Series Plug Wedgelocks

|       |                          |
|-------|--------------------------|
| WP-2S | Wedgelock for 2 way plug |
| WP-4S | Wedgelock for 4 way plug |

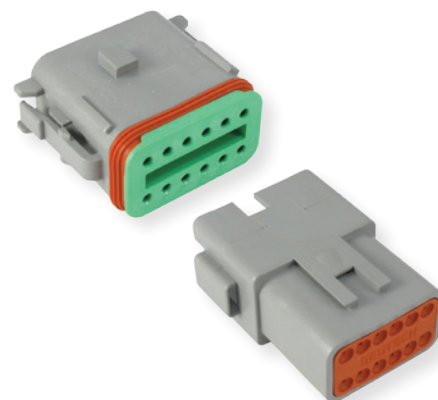
## Special Modifications

The DT series connectors offer several modifications to enhance the design flexibility and meet application specific needs. Options include enhanced seal retention, flanges, and connector body color just to mention a few. By combining the DT series connectors with the available modifications and accessories, the design possibilities are immense.

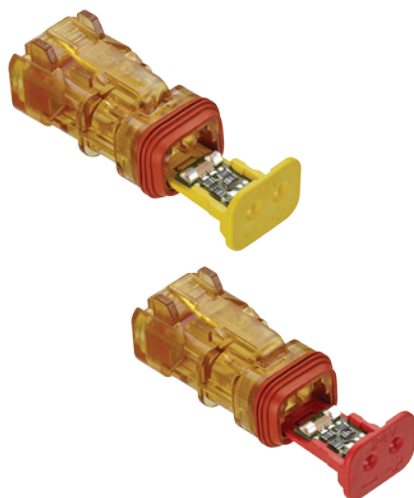
### B016 MODIFICATION

The B016 receptacle modification helps prevent mis-mating. The B016 is available for the DT 12 way connectors, DT13/15, and DTF13/15 PCB series connectors. In addition to the four keying positions (A, B, C, or D) and color coding, the B016 enhancement gives the user both visual and tactile proof of correct mating, thus helping eliminate mis-mating opportunities during assembly.

Please note the P012 plug is the required mate for the B016 receptacle to make the enhancement effective.



### DETECTOR



The Detector connector has an integrated LED used for diagnostics. The transparent housing features reduced diameter seals and may be ordered with or without an end cap. Color coded wedge locks for operating voltages, 12VDC and 24VDC are available.

| Description                                                                   | Part Number      |
|-------------------------------------------------------------------------------|------------------|
| Plug, 2 way, LED, transparent Ultem material, reduced diameter seals, end cap | DT06-2S-SDT-CE27 |
| Plug, 2 way, LED, transparent Ultem material, reduced diameter seals          | DT06-2S-SDT-CE28 |
| Wedge lock, LED, 12V, yellow                                                  | W2S-SDT-12V      |
| Wedge lock, LED, 24V, red                                                     | W2S-SDT-24V      |

### P012 MODIFICATION



The DT P012 plugs provide enhanced front seal retention resulting in an ultra tight environmental seal. The enhanced seal retention keeps the seal in place during mating and unmating. The P012 modification requires an enhanced P012 wedge lock. The DEUTSCH P012 modification is available in 2, 3, 4, 6, 8, and 12 cavity arrangements. P012 plugs have a black connector body except for the 8 and 12 cavity arrangements, where the color is based on the key.

### C015 MODIFICATION



The C015 modification offers a reduced diameter insert cavity allowing for a proper seal with smaller wire insulation. The C015 modification is also referred to as an “E” seal.

### E003 MODIFICATION



The E003 modification offers a protective end cap attached to the rear of the connector. There are holes in the cap to allow the contacts to be inserted.





### E004 MODIFICATION

The E004 modification changes the connector body color to black.



### E005 MODIFICATION

The E005 modification offers a protective end cap attached to the rear of the connector and has a black connector body.



### E007 & E008 MODIFICATION

To meet the application requirements where wires need added protection, the DT (E008) and DTM (E007) series may be supplied with shrink boot adapters. These adapters accept shrink tubing.



### FLANGE MODIFICATIONS

Designed to simplify wire routing and assembly, DT series receptacles are available in many mounting configurations and styles.

Welded flange

- Welded flange - BL04, BL08, CL03, L012, LE14
- Welded flange, end cap - LE07, LE11
- Welded flange, shrink boot adapter - LE08, LE12

Sealed flange

- Sealed flange, end cap - CL09, LE01, LE05, LE06, LE09, LE10, LE17, LE21
- Sealed flange, shrink boot adapter - BL10, CL07

#### Note

Additional modifications are available, please contact your representative.

## DT Family

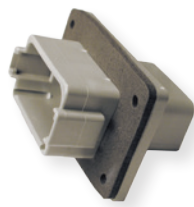
### Accessories

Several accessory items are available to complement the connectors including boots, backshells, gaskets, dust caps, and mounting clips. Accessory items cover a wide array of design requirements such as assisting with mounting, providing additional protection, and offering enhanced aesthetics.

#### GASKETS



Moisture, dirt, salt, sand, and road debris can all work their way into electrical panels through unsealed mounting flanges. Rated to operate in environments from -70°F to +225°F (-56°C to +107°C), these rugged high quality neoprene gaskets form a tight seal between the panel face and connector flange to help keep out destructive elements. The gaskets have a thickness of .125" and the material meets the UL-94-HBF, Mil-R-6130C, and FMVSS-302 flammability specifications.



| Gasket Part Number | Connector Part Number             |
|--------------------|-----------------------------------|
| DT3P-L012-GKT      | DT04-3P-L012                      |
| DT4P-L012-GKT      | DT04-4P-L012                      |
| DTP4P-L012-GKT     | DTP04-4P-L012                     |
| DT8P-L012-GKT      | DT04-08P*-L012                    |
| DT12-L012-GKT      | DT04-12P*-L012<br>DTM04-12P*-L012 |

#### DUST CAPS



The DT series dust caps are made of either thermoplastic or durable plastisol and are designed to provide protection for the connector interface when the two halves are not mated. The plastisol caps, available for plugs and receptacles, are suitable for providing temporary protection from dirt, dust, and paint overspray. The thermoplastic caps provide an environmental seal for an unmated plug.



| Thermoplastic Dust Cap Part Number | Connector Part Number           |
|------------------------------------|---------------------------------|
| 1011-344-0205                      | DT06-2S                         |
| 1011-345-0305                      | DT06-3S                         |
| 1011-346-0405                      | DT06-4S                         |
| 1011-347-0605                      | DT06-6S                         |
| 1011-348-0805                      | DT06-08S*                       |
| 1011-349-1205                      | DT06-12S*, DT16-15S*, DT16-18S* |



| Plastisol Dust Cap Part Number | Connector Part Number |
|--------------------------------|-----------------------|
| DTM3S-DC                       | DTM06-3S              |
| DT3P-DC                        | DT04-3P               |
| DT4P-DC                        | DT04-4P               |
| DT6P-DC                        | DT04-6P               |
| DTM12P-DC                      | DTM04-12P*            |
| DT12P-DC, DT12P-DC-BK          | DT04-12P*             |
| DT12S-DC                       | DT06-12S*             |

## BOOTS



Boots provide a professional looking finishing touch for DEUTSCH DT family connectors. Made of durable plastisol, these slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray, and pressure washing. The plastisol boots are rated from -20°F to +212°F (-28°C to +100°C) and offer a slip-on design making installation quick and easy.



| Receptacle Boot Description                   | Boot Part Number |              |             |
|-----------------------------------------------|------------------|--------------|-------------|
|                                               | DT Series        | DTM Series   | DTP Series  |
| 2 way receptacle boot, gray                   | DT2P-BT          | DTM2P-BT     | DTP2P-BT    |
| 2 way receptacle boot, black                  | DT2P-BT-BK       | DTM2P-BT-BK  | DTP2P-BT-BK |
| 3 way receptacle boot, gray                   | DT3P-BT          | DTM3P-BT     | -           |
| 3 way receptacle boot, black                  | DT3P-BT-BK       | DTM3P-BT-BK  | -           |
| 4 way receptacle boot, gray                   | DT4P-BT          | DTM4P-BT     | DTP4P-BT    |
| 4 way receptacle boot, gray, enhanced length  | -                | -            | DTP4P-BT-EN |
| 6 way receptacle boot, gray                   | DT6P-BT          | DTM6P-BT     | -           |
| 6 way receptacle boot, black                  | DT6P-BT-BK       | -            | -           |
| 8 way receptacle boot, gray                   | DT8P-BT          | DTM8P-BT     | -           |
| 8 way receptacle boot, black                  | DT8P-BT-BK       | DTM8P-BT-BK  | -           |
| 12 way receptacle boot, gray                  | DT12P-BT         | DTM12P-BT    | -           |
| 12 way receptacle boot, black                 | DT12P-BT-BK      | DTM12P-BT-BK | -           |
| 12 way receptacle boot, gray, enhanced length | DT12P-BT-EN      | -            | -           |

\*Distorting the boots can lessen their longevity



| Plug Boot Description                   | Boot Part Number |              |             |
|-----------------------------------------|------------------|--------------|-------------|
|                                         | DT Series        | DTM Series   | DTP Series  |
| 2 way plug boot, gray                   | DT2S-BT          | DTM2S-BT     | DTP2S-BT    |
| 2 way plug boot, black                  | DT2S-BT-BK       | DTM2S-BT-BK  | -           |
| 3 way plug boot, gray                   | DT3S-BT          | DTM3S-BT     | -           |
| 3 way plug boot, black                  | DT3S-BT-BK       | DTM3S-BT-BK  | -           |
| 4 way plug boot, gray                   | DT4S-BT          | DTM4S-BT     | DTP4S-BT    |
| 4 way plug boot, gray, enhanced length  | -                | -            | DTP4S-BT-EN |
| 6 way plug boot, gray                   | DT6S-BT          | DTM6S-BT     | -           |
| 6 way plug boot, black                  | DT6S-BT-BK       | -            | -           |
| 8 way plug boot, gray                   | DT8S-BT          | DTM8S-BT     | -           |
| 8 way plug boot, black                  | DT8S-BT-BK       | DTM8S-BT-BK  | -           |
| 12 way plug boot, gray                  | DT12S-BT         | DTM12S-BT    | -           |
| 12 way plug boot, black                 | DT12S-BT-BK      | DTM12S-BT-BK | -           |
| 12 way plug boot, gray, enhanced length | DT12S-BT-EN      | -            | -           |
| 48 way plug boot, gray                  | DT48S-BT         | -            | -           |

\*Distorting the boots can lessen their longevity

### BACKSHELLS

The DEUTSCH DT and DTM series backshells are designed to snap onto and mate with all standard (basic plug and receptacles without modifications that affect the rear of the connector) DT and DTM series connectors. The rigid, durable backshells offer a high level of protection and allow convoluted tubing to nest within the rear of the backshell. Straight (180°) and right angle (90°) versions and backshells with strain relief for jacketed cable are also available.

Since the backshells are designed to work with the standard DT and DTM connectors, tests should be conducted for fit and function of a backshell being used on any part with a modification.



#### DT Series Receptacle Backshells



| Connector | Style | Strain Relief | Tubing size (mm)    | Part Number   |
|-----------|-------|---------------|---------------------|---------------|
| DT04-2P   | 180°  |               | 6, 7.5, 8.5, and 10 | 1011-229-0205 |
|           | 180°  | X             | 6, 7.5, 8.5, and 10 | 1011-257-0205 |
|           | 90°   |               | 6, 7.5, 8.5, and 10 | 1011-230-0205 |
|           | 90°   | X             | 6, 7.5, 8.5, and 10 | 1011-258-0205 |
| DT04-3P   | 180°  |               | 6, 7.5, 8.5, and 10 | 1011-233-0305 |
|           | 180°  | X             | 6, 7.5, 8.5, and 10 | 1011-261-0305 |
|           | 90°   |               | 6, 7.5, 8.5, and 10 | 1011-234-0305 |
|           | 90°   | X             | 6, 7.5, 8.5, and 10 | 1011-262-0305 |
| DT04-4P   | 180°  |               | 6, 7.5, 8.5, and 10 | 1011-237-0405 |
|           | 180°  | X             | 6, 7.5, 8.5, and 10 | 1011-265-0405 |
|           | 90°   |               | 6, 7.5, 8.5, and 10 | 1011-238-0405 |
|           | 90°   | X             | 6, 7.5, 8.5, and 10 | 1011-266-0405 |
| DT04-6P   | 180°  |               | 8.5, 10, and 13     | 1011-241-0605 |
|           | 180°  | X             | 8.5, 10, and 13     | 1011-269-0605 |
|           | 90°   |               | 8.5, 10, and 13     | 1011-242-0605 |
|           | 90°   | X             | 8.5, 10, and 13     | 1011-270-0605 |
| DT04-08P* | 180°  |               | 8.5, 10, and 13     | 1011-245-0805 |
|           | 90°   |               | 8.5, 10, and 13     | 1011-246-0805 |
| DT04-12P* | 180°  |               | 10, 13, and 17      | 1011-249-1205 |
|           | 90°   |               | 10, 13, and 17      | 1011-250-1205 |

## DT Series Plug Backshells

| Connector      | Style | Strain Relief | Tubing size (mm)    | Part Number   |
|----------------|-------|---------------|---------------------|---------------|
| DT06-2S        | 180°  |               | 6, 7.5, 8.5, and 10 | 1011-227-0205 |
|                | 180°  | X             | 6, 7.5, 8.5, and 10 | 1011-255-0205 |
|                | 90°   |               | 6, 7.5, 8.5, and 10 | 1011-228-0205 |
|                | 90°   | X             | 6, 7.5, 8.5, and 10 | 1011-256-0205 |
| DT06-3S        | 180°  |               | 6, 7.5, 8.5, and 10 | 1011-231-0305 |
|                | 180°  | X             | 6, 7.5, 8.5, and 10 | 1011-259-0305 |
|                | 90°   |               | 6, 7.5, 8.5, and 10 | 1011-232-0305 |
|                | 90°   | X             | 6, 7.5, 8.5, and 10 | 1011-260-0305 |
| DT06-4S        | 180°  |               | 6, 7.5, 8.5, and 10 | 1011-235-0405 |
|                | 180°  | X             | 6, 7.5, 8.5, and 10 | 1011-263-0405 |
|                | 90°   |               | 6, 7.5, 8.5, and 10 | 1011-236-0405 |
|                | 90°   | X             | 6, 7.5, 8.5, and 10 | 1011-264-0405 |
| DT06-6S        | 180°  |               | 8.5, 10, and 13     | 1011-239-0605 |
|                | 180°  | X             | 8.5, 10, and 13     | 1011-267-0605 |
|                | 90°   |               | 8.5, 10, and 13     | 1011-240-0605 |
|                | 90°   | X             | 8.5, 10, and 13     | 1011-268-0605 |
| DT06-08S*      | 180°  |               | 8.5, 10, and 13     | 1011-243-0805 |
|                | 90°   |               | 8.5, 10, and 13     | 1011-244-0805 |
| DT06-12S*      | 180°  |               | 10, 13, and 17      | 1011-247-1205 |
|                | 90°   |               | 10, 13, and 17      | 1011-248-1205 |
| DT06-12S*-**** | 180°  |               | 13 and 17           | 1028-043-1205 |

Note: 1028-043-1205 backshell is designed to fit on 12 way plugs with modifications

## PULL OFF STRENGTH

| Connector             | $F_p$ [N] | $F_T$ [N] |
|-----------------------|-----------|-----------|
| DT04-2P / DT06-2S     | 50 / 50   | 50 / 10   |
| DT04-3P / DT06-3S     | 50 / 50   | 50 / 50   |
| DT04-4P / DT06-4S     | 50 / 50   | 50 / 25   |
| DT04-6P / DT06-6S     | 50 / 50   | 50 / 30   |
| DT04-08P* / DT06-08S* | 50 / 50   | 50 / 35   |
| DT04-12P* / DT06-12S* | 50 / 50   | 50 / 40   |



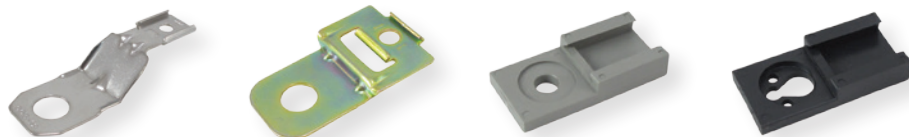
## DTM Series Backshells

| Connector                   | Style | Tubing size (mm) | Part Number   |
|-----------------------------|-------|------------------|---------------|
| DTM*04-2P                   | 180°  | 7.5 and 8.5      | 1028-021-0205 |
| DTM06-2S                    | 180°  | 7.5 and 8.5      | 1011-273-0205 |
| DTM*06-2S                   | 180°  | 8.5              | 1028-041-0205 |
| DTM*04-3P                   | 180°  | 8.5              | 1028-024-0305 |
| DTM*06-3S                   | 180°  | 8.5              | 1028-005-0305 |
| DTM*04-4P                   | 180°  | 8.5              | 1028-027-0405 |
| DTM*06-4S                   | 180°  | 8.5              | 1028-008-0405 |
| DTM06-6S                    | 180°  | 10 and 13        | 1028-011-0605 |
| DTM06-08S*                  | 180°  | 10 and 13        | 1028-013-0805 |
| DTM04-12P*                  | 180°  | 13 and 17        | 1028-034-1205 |
| DTM06-12S*                  | 180°  | 13 and 17        | 1028-015-1205 |
| Adapter for 2, 3, and 4 pin | 90°   | 7.5 and 8.5      | 1028-016-0005 |
| Adapter for 6 and 8 pin     | 90°   | 10 and 13        | 1028-017-0005 |



### MOUNTING CLIPS

Mounting clips are installed on the receptacle to mount DT series connectors. To meet design needs, the clips are available for several configurations and in plastic, stainless steel, or steel with zinc plating.



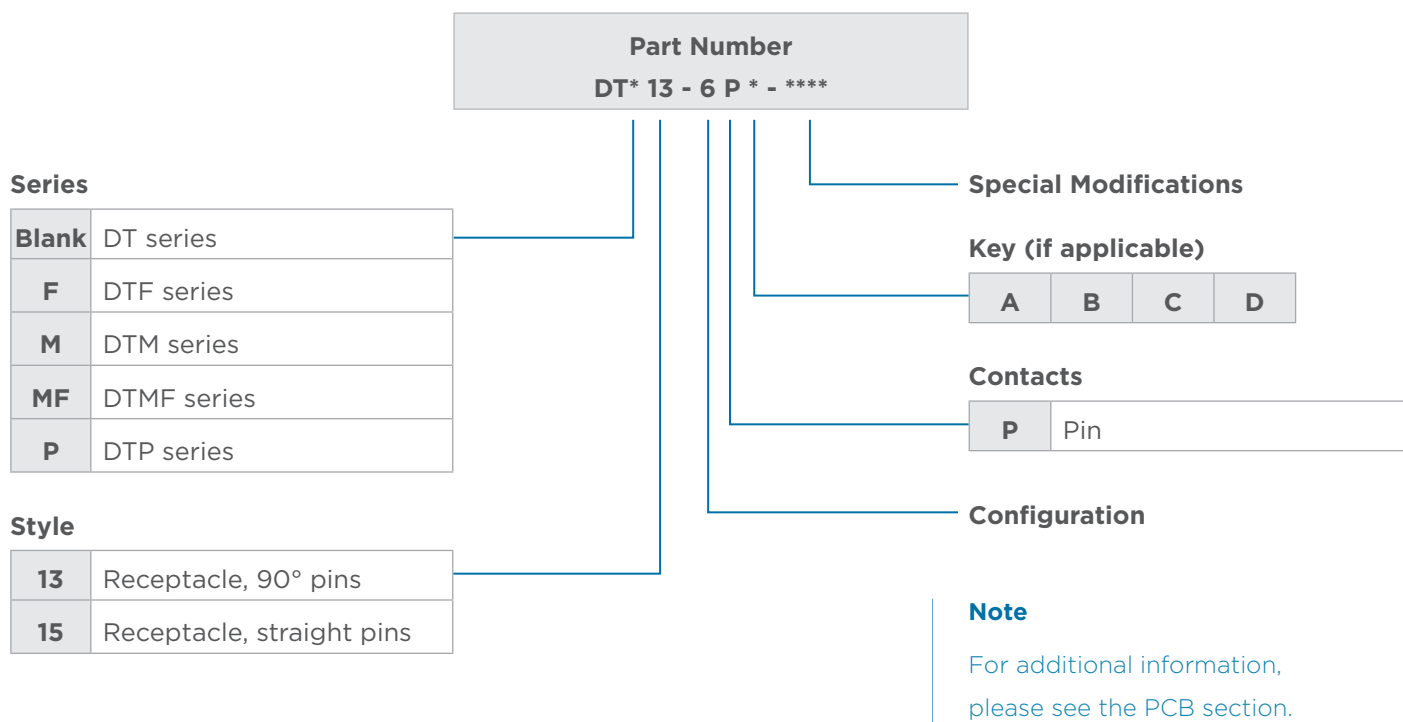
| Part Number                                               | Cavity Arrangement               | Mounting Direction | Color/Material        | Hole O.D. inches (mm) |
|-----------------------------------------------------------|----------------------------------|--------------------|-----------------------|-----------------------|
| 1027-003-1200                                             | DT 2, 3, 4, 6, 12 DTM, DTP (all) | Straight           | Stainless steel       | .433 (11.0)           |
| 1027-005-1200                                             | DT 2, 3, 4, 6, 12 DTM, DTP (all) | Straight           | Stainless steel       | .512 (13.0)           |
| 1027-004-1200                                             | DT 2, 3, 4, 6, 12 DTM, DTP (all) | Straight           | Steel w/ zinc plating | .512 (13.0)           |
| 1027-008-1200                                             | DT 2, 3, 4, 6, 12 DTM, DTP (all) | Side               | Steel w/ zinc plating | .433 (11.0)           |
| 1027-013-1200/<br>1027-017-1200                           | DT 2, 3, 4, 6, 12 DTM, DTP (all) | Side               | Steel w/ zinc plating | .323 (8.2)            |
| 1027-001-0800                                             | DT 8 cavity only                 | Straight           | Stainless steel       | .433 (11.0)           |
| 1027-006-0800                                             | DT 8 cavity only                 | Straight           | Stainless steel       | .512 (13.0)           |
| 1027-002-0800                                             | DT 8 cavity only                 | Straight           | Steel w/ zinc plating | .512 (13.0)           |
| 1027-014-0800                                             | DT 8 cavity only                 | Straight           | Steel w/ zinc plating | .323 (8.2)            |
| 1011-026-0205                                             | DT 2, 3, 4, 6, 12 DTM, DTP (all) | Straight           | Gray plastic          | .200 (5.08)           |
| 1011-030-0205                                             | DT 2, 3, 4, 6, 12 DTM, DTP (all) | Straight           | Black plastic         | ---                   |
| 1011-310-0205*<br>*Connector removeable with 50N of force | DT 2, 3, 4, 6, 12 DTM, DTP (all) | Straight           | Black plastic         | ---                   |
| 1011-027-0805                                             | DT 8 cavity only                 | Straight           | Gray plastic          | .200 (5.08)           |



### DT Family Printed Circuit Board Connectors

The DT Family offers printed circuit board (PCB) connectors that are heavy duty environmentally sealed connectors designed for wire-to-circuit board connections. Available in a variety of styles for the DT, DTM, and DTP connector series, DEUTSCH PCB connectors cover a range of pin counts from 2 to 48 and wire gauges from 10 to 22. Many of the connectors are available in straight or 90° pin options.

### PCB PART NUMBERING SYSTEM



### DT FAMILY PCB CONFIGURATIONS

| Connector Description         | Pin/Flange Style |                 |                |                     |
|-------------------------------|------------------|-----------------|----------------|---------------------|
|                               | 90° Flange       | Straight Flange | 90° Flangeless | Straight Flangeless |
| 2 way receptacle, DT series   | DT13-2P          | DT15-2P         | DTF13-2P       | -                   |
| 3 way receptacle, DT series   | -                | -               | DTF13-3P       | -                   |
| 4 way receptacle, DT series   | DT13-4P          | DT15-4P         | DTF13-4P       | -                   |
| 4 way receptacle, DTP series  | DTP13-4P         | DTP15-4P        | -              | -                   |
| 6 way receptacle, DT series   | DT13-6P          | DT15-6P         | DTF13-6P       | -                   |
| 8 way receptacle, DT series   | DT13-08P*        | DT15-08P*       | -              | -                   |
| 12 way receptacle, DT series  | DT13-12P*        | DT15-12P*       | DTF13-12P*     | DTF15-12P*          |
| 12 way receptacle, DTM series | DTM13-12P*       | DTM15-12P*      | -              | -                   |
| 48 way receptacle, DTM series | -                | -               | -              | DTMF15-48P          |

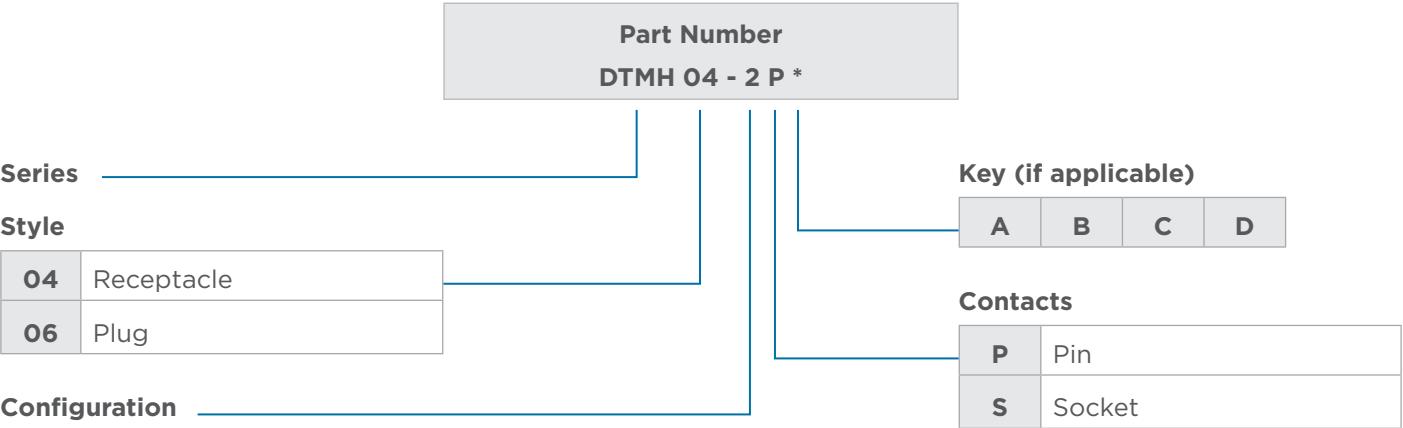
\* = Keying (A, B, C, or D)

DTMH Series & High Temperature Modification Overview

The DTMH series and DTM series EE04 modification connectors are environmentally sealed, high temperature connectors capable of operating in temperatures -55°C to +150°C. They accept size 20 contacts and carry 7.5 amps each. The DTMH connectors are available in 2-4 cavity arrangements and feature an integrated TPA for easy assembly. The EE04 connectors are available in 6, 8, and 12 cavity arrangements and require a secondary wedgelock.



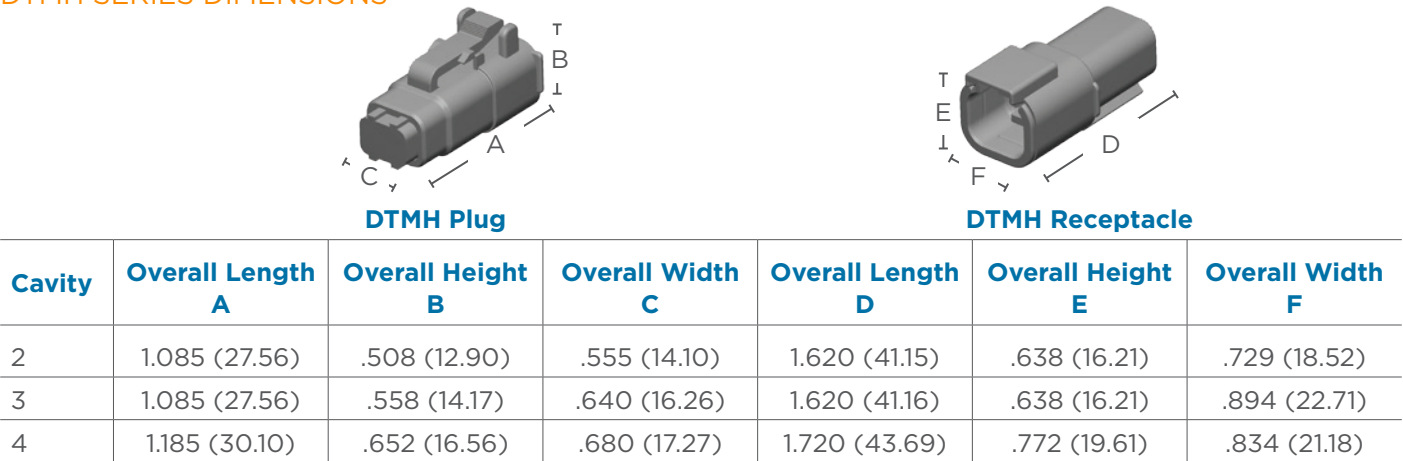
DTMH SERIES PART NUMBERING SYSTEM



DTMH SERIES CONFIGURATIONS

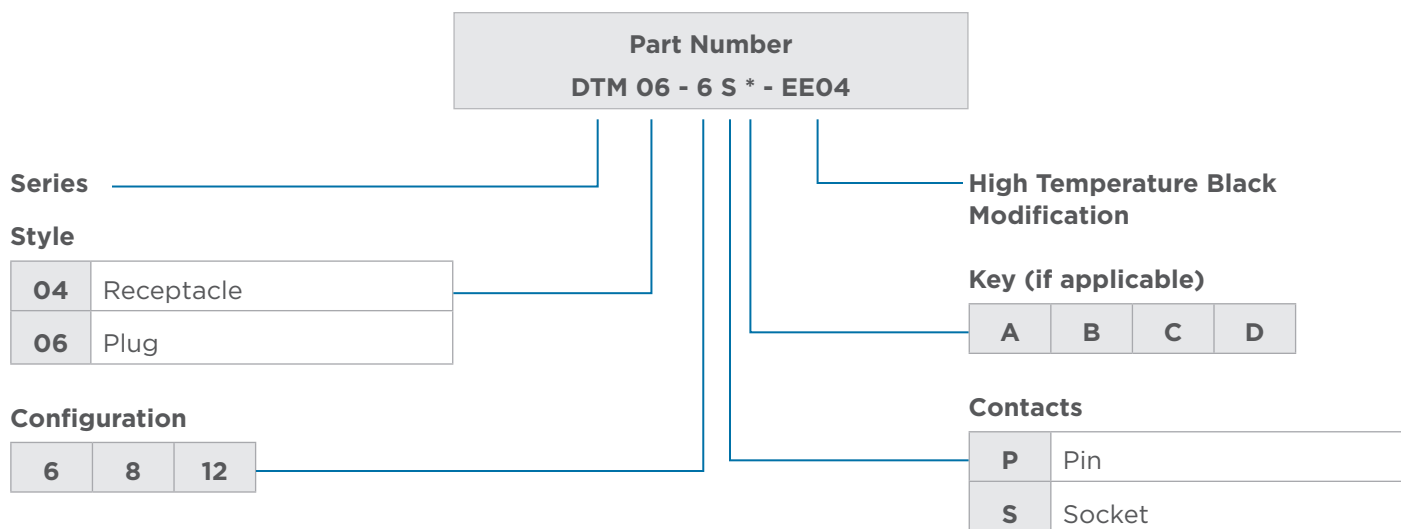


DTMH SERIES DIMENSIONS



Dimensions are for reference only.

## DTM SERIES (EE04 MOD) PART NUMBERING SYSTEM



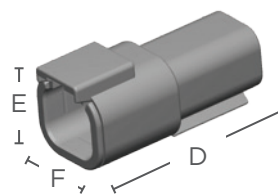
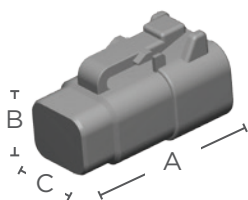
## DTM SERIES CONFIGURATIONS



### Note

DTM EE04 connectors require a secondary wedgelock that is sold separately.

## DTM SERIES DIMENSIONS



**DTM Plug**

**DTM Receptacle**

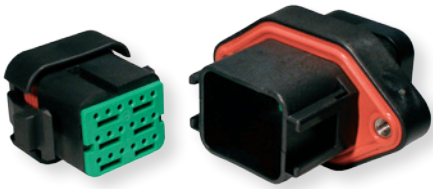
| Cavity | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|--------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| 6      | 1.185 (30.10)       | .817 (20.75)        | .600 (15.24)       | 1.720 (43.69)       | .937 (23.80)        | .756 (19.20)       |
| 8      | 1.185 (30.10)       | .600 (15.24)        | 1.245 (31.62)      | 1.720 (43.69)       | .792 (20.12)        | 1.245 (31.62)      |
| 12     | 1.185 (30.10)       | .600 (15.24)        | 1.575 (40.01)      | 1.720 (43.69)       | .796 (20.22)        | 1.575 (40.01)      |

Dimensions are for reference only.

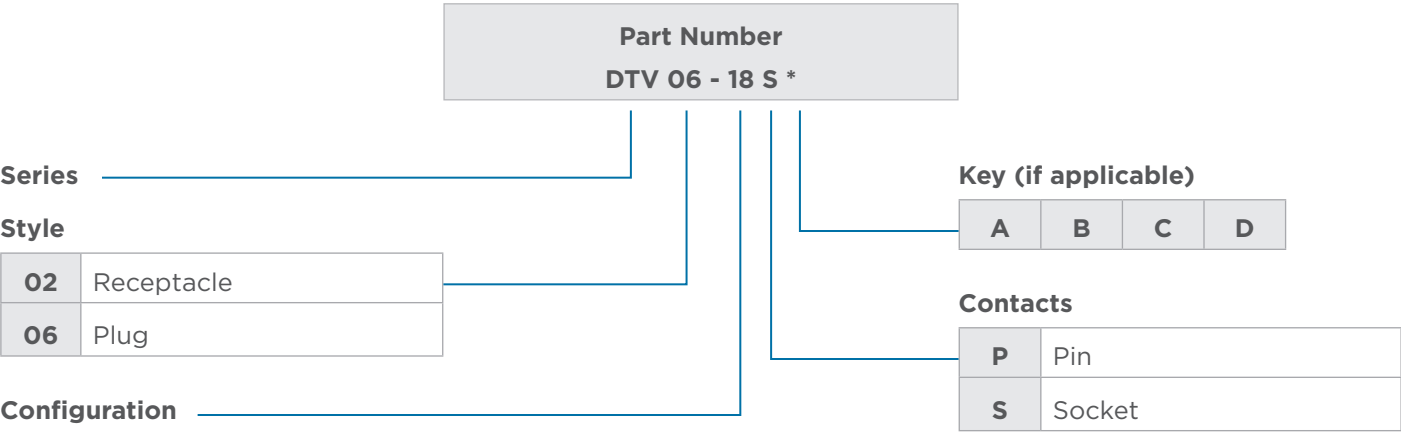
# DT Family

## DTV Series Overview

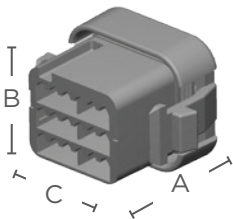
The DEUTSCH DTV series connectors offer the same time tested reliability and performance as the DT series, with the added flexibility of an 18 cavity flanged design.



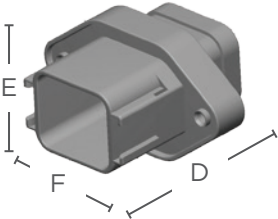
## DTV SERIES PART NUMBERING SYSTEM



## DTV SERIES DIMENSIONS



DTV Plug



DTV Receptacle

| Cavity | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|--------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| 18     | 1.405 (35.69)       | 1.059 (26.90)       | 1.450 (36.83)      | 2.495 (63.37)       | 1.786 (45.36)       | 3.194 (81.12)      |

Dimensions are for reference only.

## SECONDARY WEDGELOCKS



### DTV Series Receptacle Wedgelock

|        |                                 |
|--------|---------------------------------|
| WV-18P | Wedgelock for 18 way receptacle |
|--------|---------------------------------|

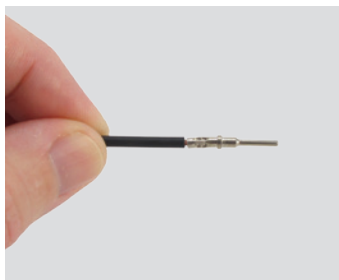


### DTV Series Plug Wedgelock

|        |                           |
|--------|---------------------------|
| WV-18S | Wedgelock for 18 way plug |
|--------|---------------------------|

### How To Instructions

#### CONTACT INSERTION

**Step 1:**

Grasp crimped contact approximately one inch behind the contact barrel.

**Step 2:**

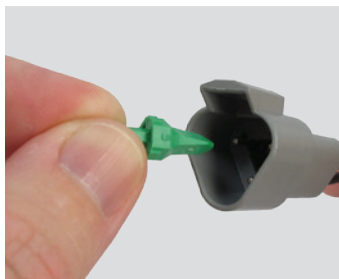
Hold connector with rear grommet facing you.

**Step 3:**

Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.

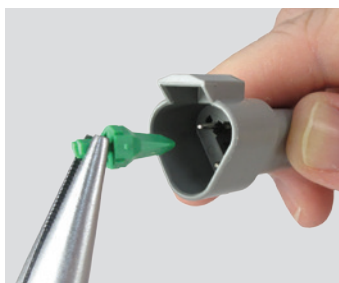
**Note**

The receptacle is shown, use the same procedure for the plug.

**Step 4:**

Once all contacts are in place, insert green wedge. The green wedge will snap into place.

#### CONTACT REMOVAL

**Step 1:**

Remove green wedge using needle-nose pliers to pull wedge straight out.

**Step 2:**

To remove the contacts, gently pull wire backwards, while at the same time releasing the locking finger by moving it away from the contact with a screwdriver.

**Step 3:**

Hold the rear seal in place, as removing the contact will displace the seal.

# Contents

HD10 Series Overview ..... 134

Performance Specifications ..... 134

Material Specifications ..... 134

Dimensions ..... 135

Configurations ..... 136

Ordering Information ..... 137

Special Modifications ..... 138

Accessories ..... 139-142

How To Instructions ..... 143

### HD10 Series Overview

The HD10 series is an environmentally sealed, thermoplastic, and cylindrical connector series. With arrangements from 3 to 9 cavities, HD10 connectors accept size 4, 12, or 16 contacts and are available either in-line or flanged. HD10 connectors are heavily used for diagnostic applications and are available with or without a coupling ring.



### DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

|                                         |                                                                                                                                                                                                                                                  |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Temperature:</b>                     | Operating at temperatures -55°C to +125°C                                                                                                                                                                                                        |
| <b>Durability:</b>                      | No electrical or mechanical defects after 100 cycles of engagement and disengagement.                                                                                                                                                            |
| <b>Vibration:</b>                       | No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond. |
| <b>Fluid Resistance:</b>                | Connectors show no damage when exposed to most fluids used in industrial applications.                                                                                                                                                           |
| <b>Insulation Resistance:</b>           | 1000 megohms minimum at 25°C.                                                                                                                                                                                                                    |
| <b>Immersion:</b>                       | IP68 rating                                                                                                                                                                                                                                      |
| <b>Moisture Resistance:</b>             | Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.                                                                                                         |
| <b>Dielectric Withstanding Voltage:</b> | Current leakage less than 2 milliamps at 1500 volts AC.                                                                                                                                                                                          |
| <b>Thermal Cycle:</b>                   | No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.                                                                                                                                                                      |

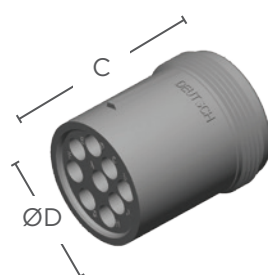
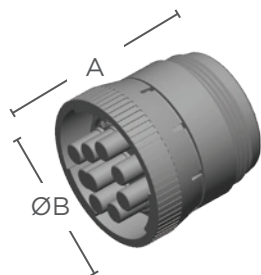
### MATERIAL SPECIFICATIONS

|                          |                 |
|--------------------------|-----------------|
| <b>Grommet:</b>          | Silicone rubber |
| <b>Insert Retainer:</b>  | Thermoplastic   |
| <b>Receptacle</b>        |                 |
| <b>Interfacial Seal:</b> | Silicone rubber |
| <b>Shell:</b>            | Thermoplastic   |



HD10 Series

DIMENSIONS



HD10 Plug

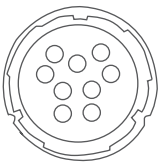
HD10 Receptacle

| Cavity | Overall Length<br>A | Overall Height<br>ØB | Overall Length<br>C | Overall Height<br>ØD |
|--------|---------------------|----------------------|---------------------|----------------------|
| 3      | 1.609 (40.87)       | 1.069 (27.15)        | 1.639 (41.63)       | .851 (21.62)         |
| 4      | 1.639 (41.63)       | 1.595 (40.51)        | 1.639 (41.63)       | 1.281 (32.54)        |
| 5      | 1.609 (40.87)       | 1.218 (30.94)        | 1.639 (41.63)       | 1.001 (25.43)        |
| 6      | 1.619 (41.12)       | 1.453 (36.91)        | 1.639 (41.63)       | 1.141 (28.98)        |
| 9      | 1.609 (40.87)       | 1.593 (40.47)        | 1.639 (41.63)       | 1.281 (32.54)        |

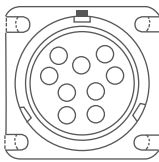
Dimensions are for reference only.

CONNECTOR STYLES

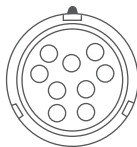
Plug  
HD16



Square Flange  
Receptacle  
HD10

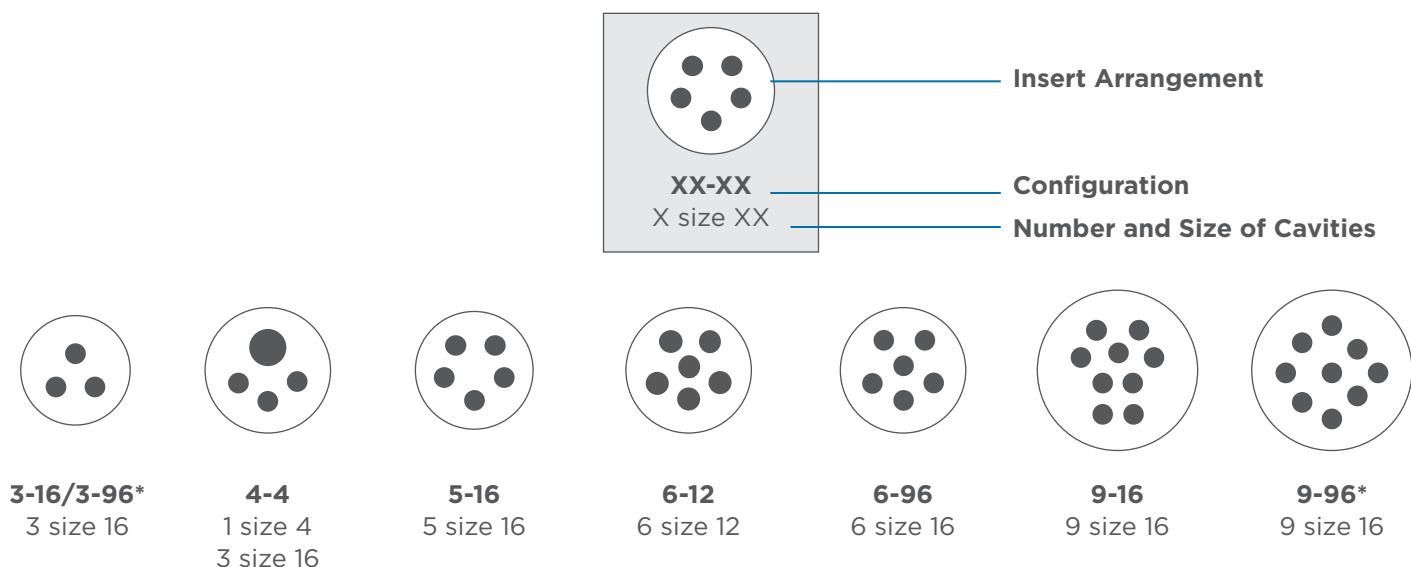


In-line  
Receptacle  
HD14



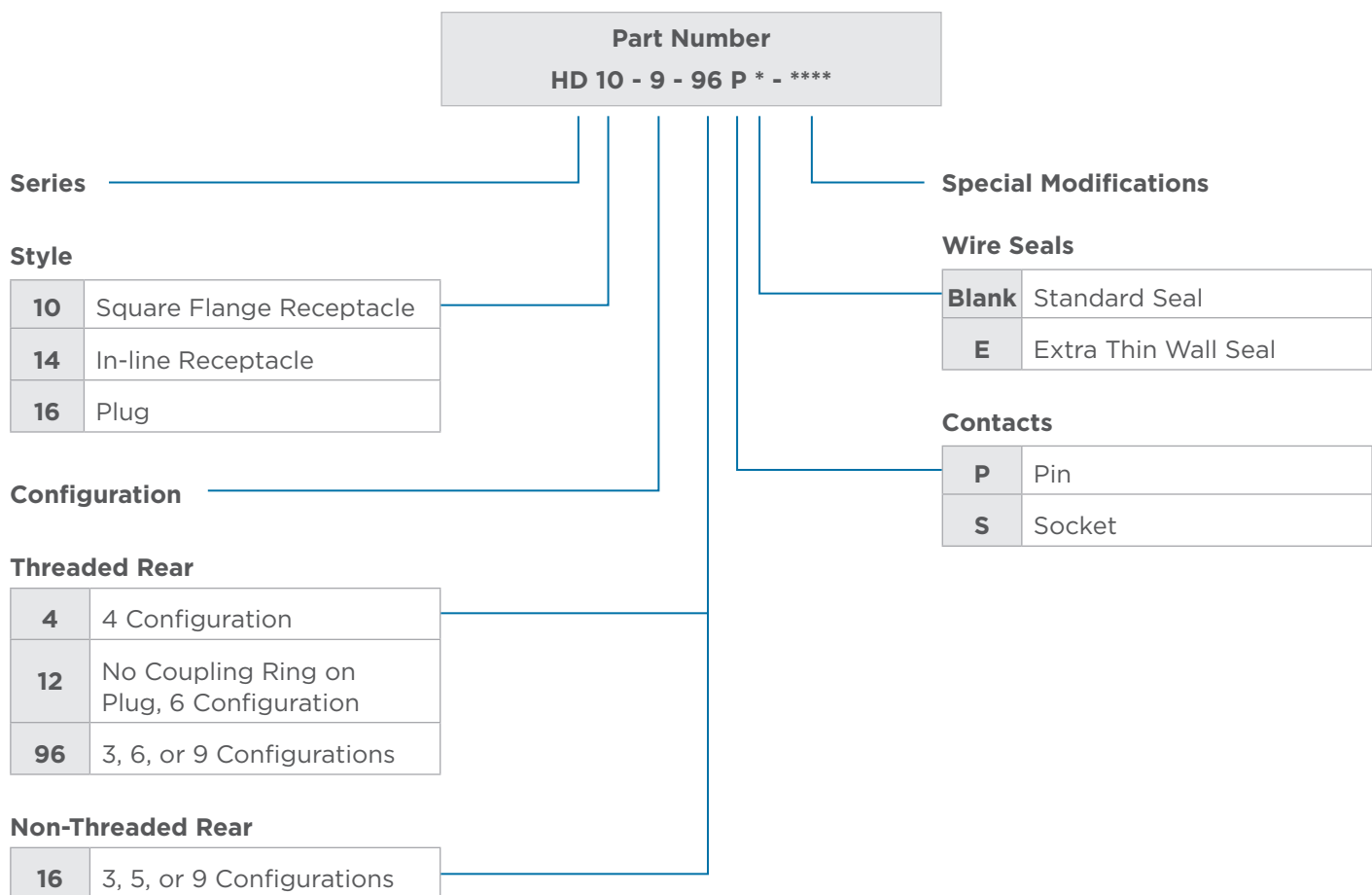


## CONFIGURATIONS



\*Also available in an "E" seal

## PART NUMBERING SYSTEM



## HD10 Series

### ORDERING INFORMATION

Here are some of the common part numbers in the HD10 series. Several additional connectors may be available.

| Position | Contact Size | Rear Threads | Plug            | Receptacle Inline | Receptacle Flange |
|----------|--------------|--------------|-----------------|-------------------|-------------------|
| 3        | 16           | no           | HD16-3-16S      | HD14-3-16P        | -                 |
|          |              | yes          | HD16-3-96S      | HD14-3-96P        | HD10-3-96P        |
| 4        | 4/16         | yes          | HD16-4-4S       | -                 | HD10-4-4P         |
| 5        | 16           | no           | HD16-5-16S      | HD14-5-16P        | HD10-5-16P        |
| 6        | 16           | yes          | HD16-6-96S      | HD14-6-96P        | HD10-6-96P        |
| 6        | 12           | yes          | HD16-6-12S-B010 | HD14-6-12P        | HD10-6-12P        |
| 9        | 16           | no           | HD16-9-16S      | HD14-9-16P        | HD10-9-16P        |
|          |              | yes          | HD16-9-96S      | HD14-9-96P        | HD10-9-96P        |
| 9 (1939) | 16           | yes          | HD16-9-1939S    | HD14-9-1939P      | HD10-9-1939P      |

### WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

| Contact Size                                 | Standard Seal            | Extra Thin Seal<br>E-Seal |
|----------------------------------------------|--------------------------|---------------------------|
| 16<br>14-20 AWG<br>(2.0-0.5mm <sup>2</sup> ) | .100-.150<br>(2.54-3.81) | .053-.120<br>(1.35-3.05)  |
| 12<br>10-14 AWG<br>(5.0-2.0mm <sup>2</sup> ) | .134-.170<br>(3.40-4.32) | -                         |
| 4<br>6 AWG<br>(13.0mm <sup>2</sup> )         | .280-.292<br>(7.11-7.42) | -                         |

### Special Modifications

HD10 series connectors offer several modifications to enhance the design flexibility and meet application specific needs. Options include the addition of a coupling ring and connector body color, just to mention a few. By combining the HD10 series connectors with the available modifications and accessories, the design possibilities are increased.



#### B010 MODIFICATION

The B010 modification provides the addition of a coupling ring used for mating. The B010 modification is only available on the HD16-6-12S-B010 connector.



#### E004 MODIFICATION

The E004 modification changes the HD10 series connector from the standard gray to a black connector body.



#### J1939 MODIFICATIONS (BP03, P080)

The P080 modification changes the HD10 series connector body color from the standard gray to green and meets the J1939 Type II requirements. The BP03 modification is similar to the P080 modification, but features a panel mount.



#### N005 MODIFICATION

The N005 modification is an HD10 series receptacle with molded-in, straight PCB pins.

## HD10 Series

### Accessories

Several accessory items are available to complement HD10 series connectors including boots, backshells, gaskets, and protective caps. Accessory items cover a wide array of design requirements such as assisting with mounting, providing additional protection, and offering enhanced aesthetics.

### BACKSHELLS



DEUTSCH HD10 series backshells are designed to screw onto all threaded HD10 connectors. Rated for temperatures from -40°C to +134°C, the rigid, durable backshells offer a high level of protection, provide strain relief, and improve aesthetics.



| Connector Part Number    | Cable Diameter | Backshell Part Number | Compression Nut Part Number |
|--------------------------|----------------|-----------------------|-----------------------------|
| HD1*-3-96*               | .187-.300      | M902-2131             | M902-2041                   |
|                          | .300-.430      | M902-2132             | M902-2042                   |
| HD1*-6-96*/HD1*-6-12*    | .187-.300      | M902-2161             | M902-2041                   |
|                          | .300-.430      | M902-2162             | M902-2042                   |
|                          | .430-.570      | M902-2163             | M902-2053                   |
|                          | .570-.710      | M902-2164             | M902-2054                   |
| HD1*-9-96*/HD1*-9-1939** | .187-.300      | M902-2191             | M902-2041                   |
|                          | .300-.430      | M902-2192             | M902-2042                   |
|                          | .430-.570      | M902-2193             | M902-2053                   |
|                          | .570-.710      | M902-2194             | M902-2054                   |

Backshell Technical Specifications:

Material - PC/PET Polyester Blend, UV-Stabilized, Flame Retardant, Black

Flammability - UL94-VO rated material, Weatherability - UL746C

### STRAIN RELIEF

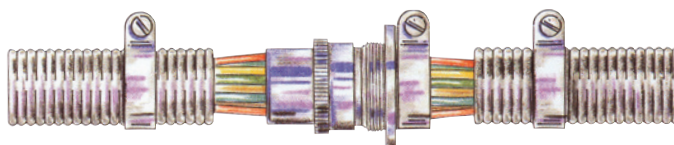
DEUTSCH HD10 series strain reliefs are designed to screw onto threaded 3, 4, 6, and 9 cavity HD10 connectors. The rigid, durable strain reliefs offer a high level of protection, provide tie wrap holders to reduce strain from the wires, and improve aesthetics.



| Part Number | Description                 |
|-------------|-----------------------------|
| HD18-003    | 3 cavity strain relief      |
| HD18-006    | 6 cavity strain relief      |
| HD18-009    | 4 or 9 cavity strain relief |

#### helpful hint

Attaching the connector to a structure eliminates straining the electrical system in service.



### BOOTS



Boots provide a professional looking finishing touch for DEUTSCH HD10 series connectors. Made of durable plastisol, these slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray, and pressure washing. The plastisol boots are rated from -20°F to +212°F (-28°C to + 100°C) and offer a slip-on design making installation quick and easy.



| Part Number | Description          |
|-------------|----------------------|
| HD10-3BT    | 3 cavity boot, gray  |
| HD10-5BT    | 5 cavity boot, gray  |
| HD10-5BT-BK | 5 cavity boot, black |
| HD10-6BT    | 6 cavity boot, gray  |
| HD10-6BT-BK | 6 cavity boot, black |
| HD10-9BT    | 9 cavity boot, gray  |
| HD10-9BT-BK | 9 cavity boot, black |

\*Distorting the boots can lessen their longevity

### GASKETS



Moisture, dirt, salt, sand, and road debris can all work their way into electrical panels through unsealed mounting flanges. Rated to operate in environments from -70°F to +225°F (-56°C to +107°C), these rugged high quality neoprene gaskets form a tight seal between the panel face and connector flange to help keep out destructive elements. The gaskets have a thickness of .125" and the material meets the UL-94-HBF, Mil-R-6130C, and FMVSS-302 flammability specifications.



| Gasket<br>Part Number | Connector<br>Part Number |
|-----------------------|--------------------------|
| HD10-3-GKT            | HD10-3-****              |
| HD10-5-GKT            | HD10-5-****              |
| HD10-6-GKT            | HD10-6-****              |
| HD10-9-GKT            | HD10-9-****              |

### PROTECTIVE DUST CAPS

HD10 series protective dust caps provide an environmental seal and are used to protect the connector interface when the connector is not mated.



| Part Number  | Description                               |
|--------------|-------------------------------------------|
| HDC14-3      | 3 cavity plug protective cap              |
| HDC14-6      | 6 cavity plug protective cap              |
| HDC14-9      | 9 cavity plug protective cap              |
| HDC16-3      | 3 cavity receptacle protective cap        |
| HDC16-5      | 5 cavity receptacle protective cap        |
| HDC16-6      | 6 cavity receptacle protective cap        |
| HDC16-6-E004 | 6 cavity receptacle protective cap, black |
| HDC16-9      | 9 cavity receptacle protective cap        |
| HDC16-9-E004 | 9 cavity receptacle protective cap, black |

## LANYARDS



Lanyards are available in nitrile or nylon coated steel and designed for use with protective dust caps.



HDC9-JDL082397  
(DEUTSCH HDC16-9-E004 dust cap assembled with JDL082397)



HDC16-9-L47N  
(DEUTSCH HDC16-9 dust cap assembled with L47N-600-1)

| Lanyard                                                                                         | Material                                                   | Material Diameter | Length      | Min. Breaking Strength |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------|-------------------|-------------|------------------------|
| <br>JDL082397  | Nitrile o-ring, 3M heat shrink with thermoplastic adhesive | .07 inches        | 5.31 inches | ---                    |
| <br>L47N-600-1 | 7 x 7 galvanized steel cable coated with clear nylon       | .047 inches       | 6 inches    | 270 lbs.               |

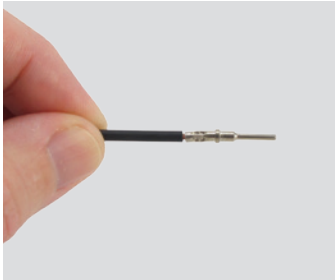
Dimensions are for reference only.

| Dust Cap/Lanyard Assembly Part Number* | Used On    | Connector Cavities | Lanyard Material | Dust Cap Color |
|----------------------------------------|------------|--------------------|------------------|----------------|
| HDC14-3-JDL                            | Plug       | 3                  | Nitrile          | Gray           |
| HDC14-6-JDL                            | Plug       | 6                  | Nitrile          | Gray           |
| HDC14-6-LA                             | Plug       | 6                  | Steel            | Gray           |
| HDC14-9-JDL                            | Plug       | 9                  | Nitrile          | Gray           |
| HDC16-3-JDL                            | Receptacle | 3                  | Nitrile          | Gray           |
| HDC16-3-LA                             | Receptacle | 3                  | Steel            | Gray           |
| HDC16-5-LA                             | Receptacle | 5                  | Steel            | Gray           |
| HDC16-6-JDL                            | Receptacle | 6                  | Nitrile          | Gray           |
| HDC16-6-LA                             | Receptacle | 6                  | Steel            | Gray           |
| HDC16-9-JDL                            | Receptacle | 9                  | Nitrile          | Gray           |
| HDC9-JDL082397                         | Receptacle | 9                  | Nitrile          | Black          |
| HDC16-9-L47N                           | Receptacle | 9                  | Steel            | Gray           |
| HDC16-9-E004-L47N                      | Receptacle | 9                  | Steel            | Black          |

\*Other dust cap/lanyard assemblies may be available

### How To Instructions

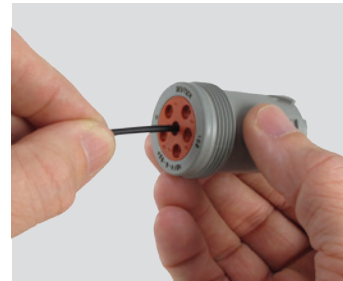
#### CONTACT INSERTION



**Step 1:**  
Grasp crimped contact approximately one inch behind the contact barrel.

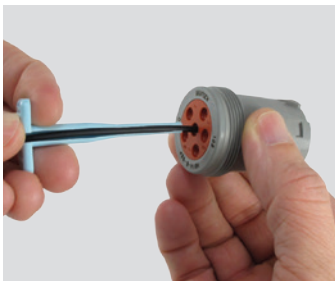


**Step 2:**  
Hold connector with rear grommet facing you.

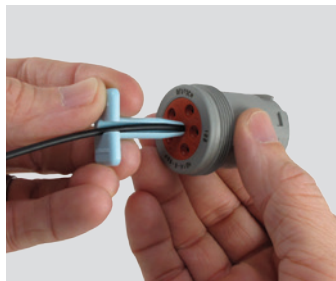


**Step 3:**  
Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.

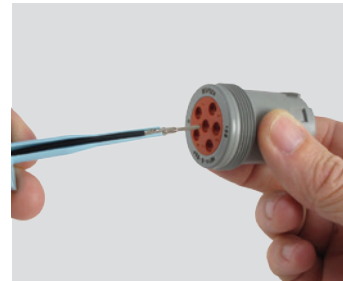
#### CONTACT REMOVAL



**Step 1:**  
With rear insert toward you, snap appropriate size removal tool over the wire of contact to be removed.



**Step 2:**  
Slide tool along the wire into the insert cavity until it engages contact and resistance is felt.



**Step 3:**  
Pull contact wire assembly out of connector.



NOTES:

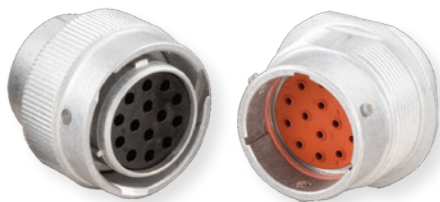
# Contents

|                                    |         |
|------------------------------------|---------|
| HD30 & HDP20 Series Overview ..... | 145     |
| Performance Specifications .....   | 146     |
| Material Specifications.....       | 147     |
| Dimensions .....                   | 147     |
| Configurations.....                | 148-149 |
| Ordering Information.....          | 150-151 |
| Special Modifications.....         | 153-154 |
| Accessories.....                   | 154-158 |
| Mounting .....                     | 158-159 |
| How To Instructions .....          | 159-160 |

## HD30 & HDP20 Series

### HD30 & HDP20 Series Overview

Designed specifically for the truck, bus, and off-highway industry, the HD30 & HDP20 series connectors are heavy duty, environmentally sealed, multi-pin circular connectors. Available in metal or thermoplastic housings, these connectors offer multiple pin configurations that accept contact sizes 4 through 20.



#### HD30 SERIES OVERVIEW

The DEUTSCH HD30 series connectors are constructed from a metal shell developed to meet the needs of the heavy duty equipment and transportation industries. The HD30 features include quick connect-disconnect bayonet coupling, single hole bulkhead mounting, silicone seals, and a rear insertion/rear removal contact system.



#### HDP20 SERIES OVERVIEW

The HDP20 series connectors are heavy duty rated, environmentally sealed, composite shell, multi-pin connectors. The composite thermoplastic shell is suited for applications where chemicals can damage a connector housing. HDP20 features quick connect-disconnect bayonet coupling, single hole bulkhead mounting, silicone seals, and a rear insertion/rear removal contact system.

### DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

|                                         |                                                                                                                                                                                                                                                  |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Temperature:</b>                     | Operating at temperatures -55°C to +125°C                                                                                                                                                                                                        |
| <b>Durability:</b>                      | No electrical or mechanical defects after 100 cycles of engagement and disengagement.                                                                                                                                                            |
| <b>Vibration:</b>                       | No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond. |
| <b>Fluid Resistance:</b>                | Connectors show no damage when exposed to most fluids used in industrial applications.                                                                                                                                                           |
| <b>Insulation Resistance:</b>           | 1000 megohms minimum at 25°C.                                                                                                                                                                                                                    |
| <b>Immersion:</b>                       | IP68 rating                                                                                                                                                                                                                                      |
| <b>Moisture Resistance:</b>             | Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.                                                                                                         |
| <b>Dielectric Withstanding Voltage:</b> | Current leakage less than 2 milliamps at 1500 volts AC.                                                                                                                                                                                          |
| <b>Thermal Cycle:</b>                   | No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.                                                                                                                                                                      |

# HD30 & HDP20 Series

## MATERIAL SPECIFICATIONS

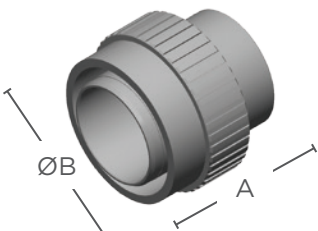
### HD30 Series

**Grommet:** Silicone rubber  
**Insert Retainer:** Unfilled PEI  
**Plug Coupling Ring:** Aluminum  
**Shell:** Aluminum

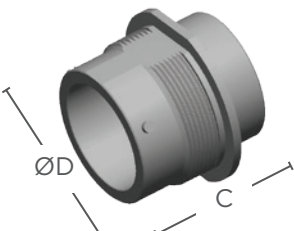
### HDP20 Series

**Grommet:** Silicone rubber  
**Insert Retainer:** Unfilled PEI  
**Plug Coupling Ring:** Glass filled PA  
**Shell:** Glass filled PA

## DIMENSIONS



HD/HDP Plug



HD/HDP Receptacle

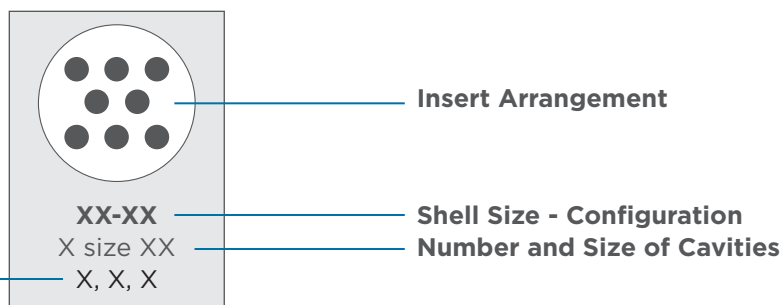
| Shell Size | Overall Length<br>A | Overall Height<br>ØB | Overall Length<br>C | Overall Height<br>ØD |
|------------|---------------------|----------------------|---------------------|----------------------|
| 18         | 1.521 (38.63)       | 1.700 (43.17)        | 1.648 (41.86)       | 1.750 (44.45)        |
| 24         | 1.521 (38.63)       | 1.950 (49.53)        | 1.648 (41.86)       | 2.000 (50.80)        |

Dimensions are for reference only.

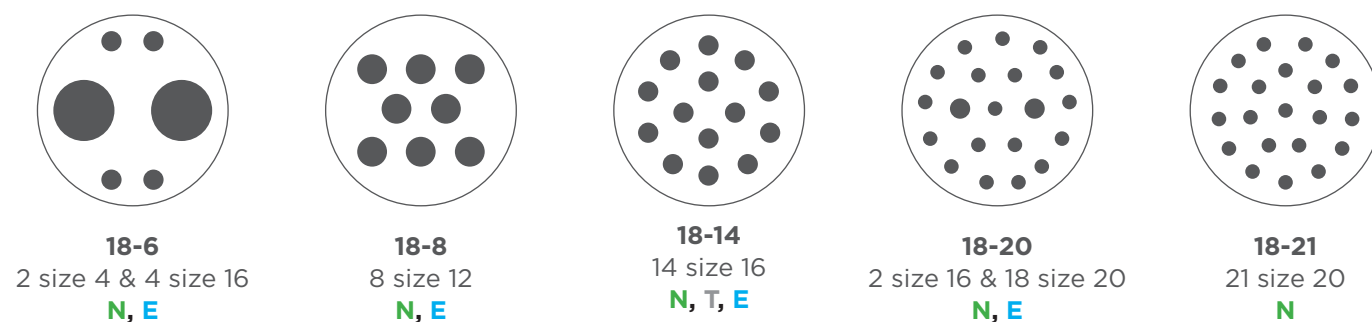
## CONFIGURATIONS

### Wire Seal Options

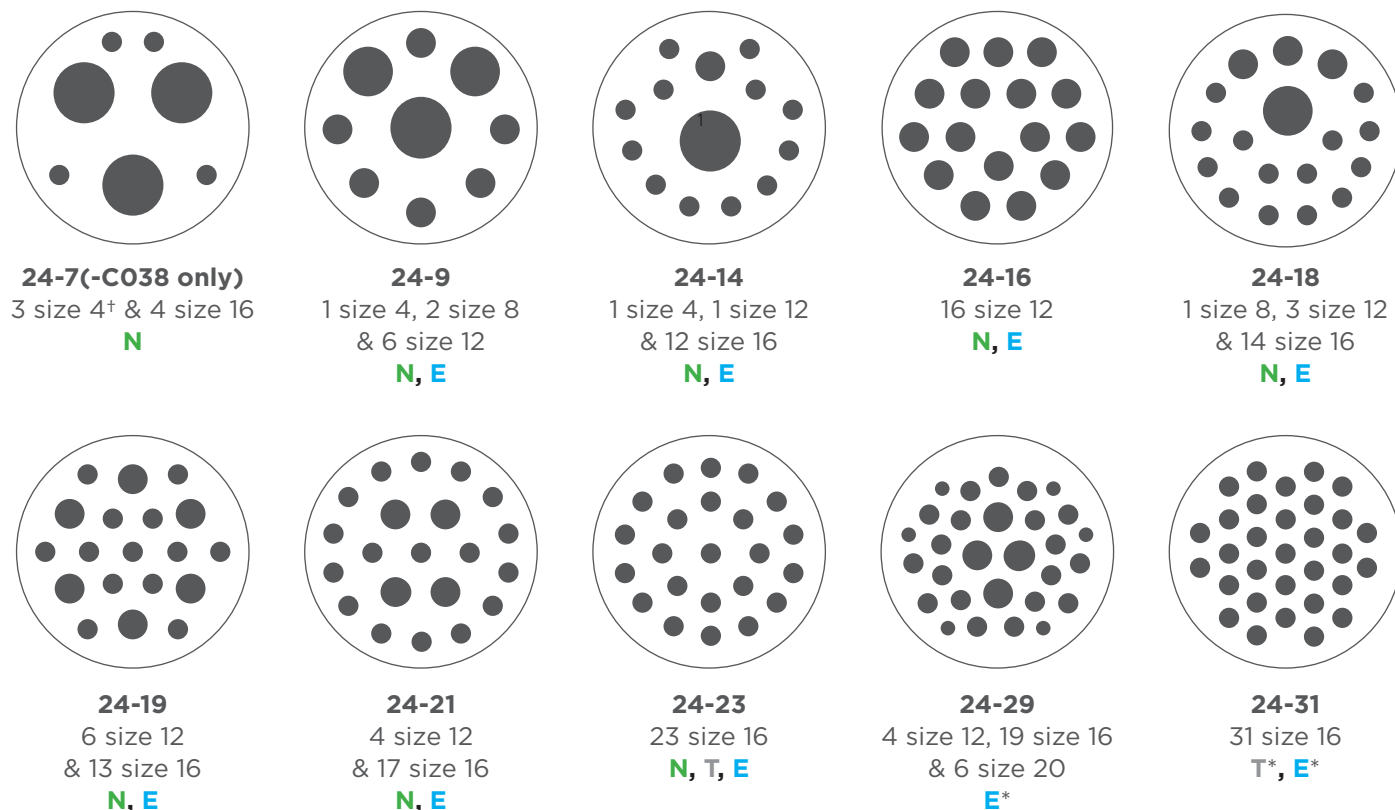
|          |                                        |
|----------|----------------------------------------|
| <b>N</b> | Normal wire seals (green ring)         |
| <b>T</b> | Thin wall wire seals (gray ring)       |
| <b>E</b> | Extra thin wall wire seals (blue ring) |



## 18 SHELL SIZE CONFIGURATIONS

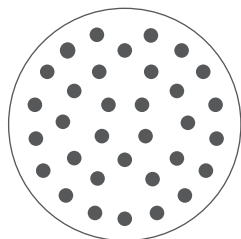


## 24 SHELL SIZE CONFIGURATIONS

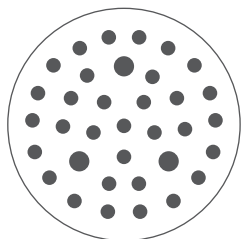


<sup>†</sup>Requires size 4 contact part numbers, 5960-203-04\*\*(pin) and 5962-203-04\*\*(socket) \*Modified seal, see drawing.

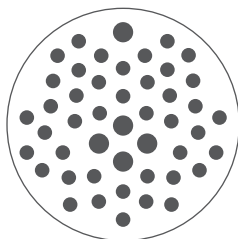
## HD30 & HDP20 Series



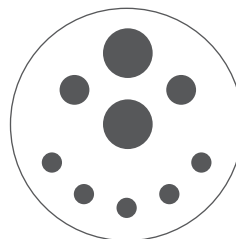
**24-33**  
33 size 20  
**N**



**24-35**  
3 size 16 & 32 size 20  
**N, E**



**24-47**  
5 size 16 & 42 size 20  
**E\***

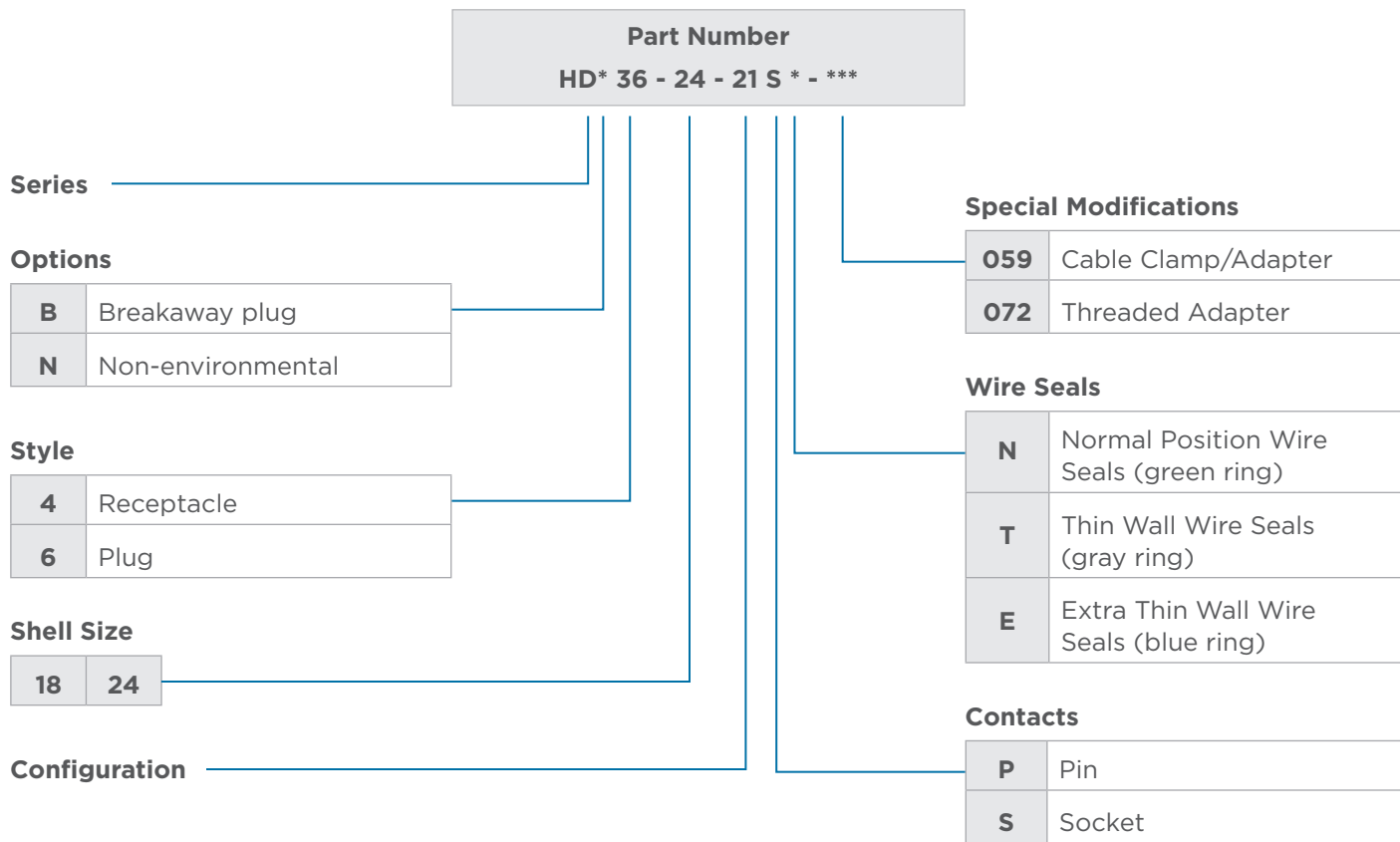


**24-91-P064**‡  
2 size 8, 2 size 12 & 5 size 16  
**N, E**

\*Modified seal, see drawing

‡Without P064 modification, plug cavities 4 and 5 are internally connected

## HD30 SERIES PART NUMBERING SYSTEM

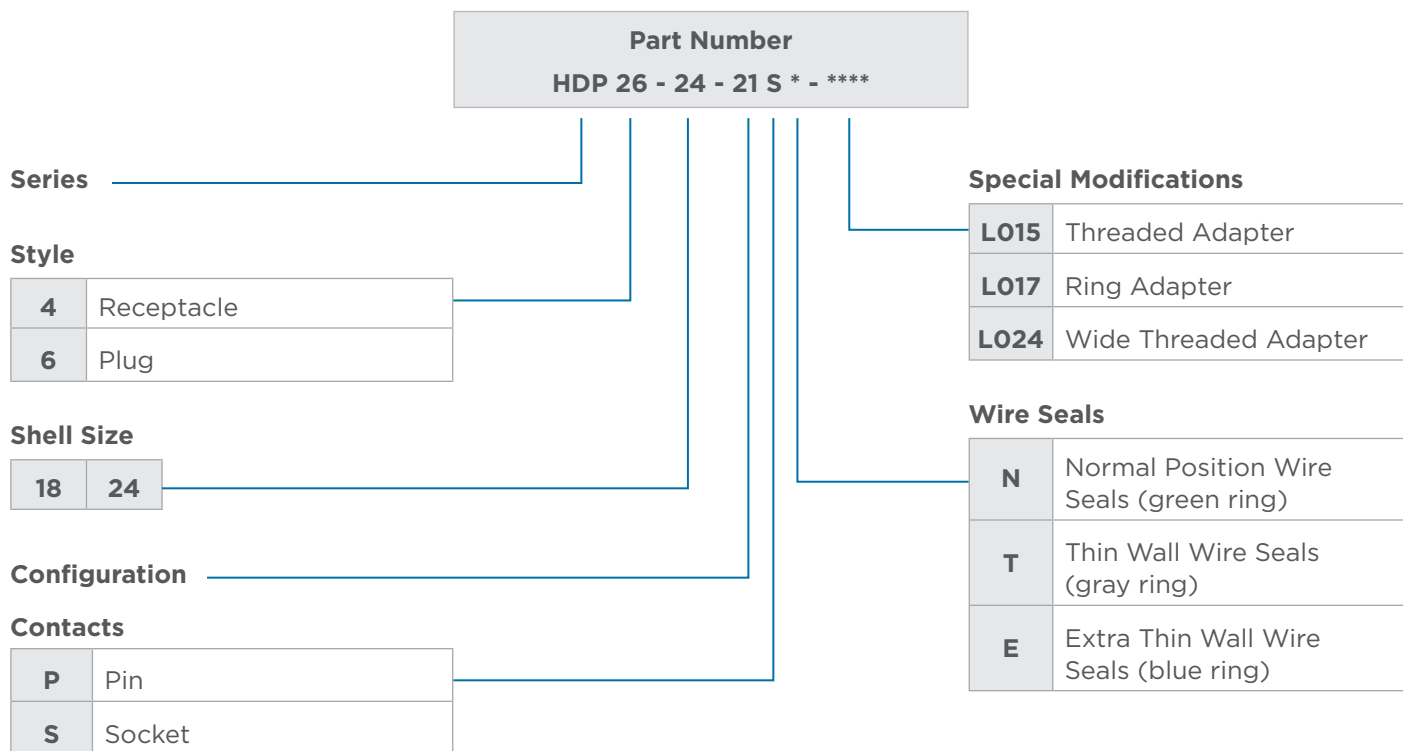


### Note

Reverse arrangements are available as a keying option for the HD30 & HDP20 series connectors.

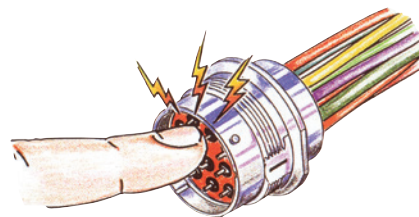
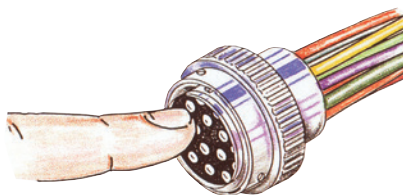
## HD30 & HDP20 Series

### HDP20 SERIES PART NUMBERING SYSTEM



#### helpful hint

Making the socket contact side the “hot side” can reduce the danger of electric shock.



### ORDERING INFORMATION

Here are some of the common part numbers in the HD30 & HDP20 series. Several additional connectors may be available.

| Shell Sz-<br>Position | Series | Plug<br>Standard Dia. Seal | Receptacle<br>Standard Dia. Seal | Plug<br>Reduced Dia. Seal | Receptacle<br>Reduced Dia. Seal |
|-----------------------|--------|----------------------------|----------------------------------|---------------------------|---------------------------------|
| 18-6                  | HDP20  | HDP26-18-6SN               | HDP24-18-6PN                     | HDP26-18-6SE              | HDP24-18-6PE                    |
|                       | HD30   | HD36-18-6SN                | HD34-18-6PN                      | HD36-18-6SE               | HD34-18-6PE                     |
| 18-8                  | HDP20  | HDP26-18-8SN               | HDP24-18-8PN                     | HDP26-18-8SE              | HDP24-18-8PE                    |
|                       | HD30   | HD36-18-8SN                | HD34-18-8PN                      | HD36-18-8SE               | HD34-18-8PE                     |
| 18-14                 | HDP20  | HDP26-18-14SN              | HDP24-18-14PN                    | HDP26-18-14SE             | HDP24-18-14PE                   |
|                       | HD30   | HD36-18-14SN               | HD34-18-14PN                     | HD36-18-14SE              | HD34-18-14PE                    |
| 18-20                 | HDP20  | HDP26-18-20SN              | HDP24-18-20PN                    | HDP26-18-20SE             | HDP24-18-20PE                   |
|                       | HD30   | HD36-18-20SN               | HD34-18-20PN                     | HD36-18-20SE              | HD34-18-20PE                    |

## HD30 & HDP20 Series

### ORDERING INFORMATION (CONTINUED)

| Shell Sz-<br>Position | Series | Plug<br>Standard Dia. Seal | Receptacle<br>Standard Dia. Seal | Plug<br>Reduced Dia. Seal | Receptacle<br>Reduced Dia. Seal |
|-----------------------|--------|----------------------------|----------------------------------|---------------------------|---------------------------------|
| 18-21                 | HDP20  | HDP26-18-21SN              | HDP24-18-21PN                    | HDP26-18-21SE             | HDP24-18-21PE                   |
|                       | HD30   | HD36-18-21SN               | HD34-18-21PN                     | HD36-18-21SE              | HD34-18-21PE                    |
| 24-7                  | HDP20  | HDP26-24-7SN               | HDP24-24-7PN                     | HDP26-24-7SE              | HDP24-24-7PE                    |
|                       | HD30   | HD36-24-7SN                | HD34-24-7PN                      | HD36-24-7SE               | HD34-24-7PE                     |
| 24-91-<br>P064        | HDP20  | HDP26-24-<br>91SN-P064     | HDP24-24-<br>91PN-P064           | -                         | -                               |
| 24-9                  | HDP20  | HDP26-24-9SN               | HDP24-24-9PN                     | HDP26-24-9SE              | HDP24-24-9PE                    |
|                       | HD30   | HD36-24-9SN                | HD34-24-9PN                      | HD36-24-9SE               | HD34-24-9PE                     |
| 24-14                 | HDP20  | HDP26-24-14SN              | HDP24-24-14PN                    | HDP26-24-14SE             | HDP24-24-14PE                   |
|                       | HD30   | HD36-24-14SN               | HD34-24-14PN                     | HD36-24-14SE              | HD34-24-14PE                    |
| 24-16                 | HDP20  | HDP26-24-16SN              | HDP24-24-16PN                    | HDP26-24-16SE             | HDP24-24-16PE                   |
|                       | HD30   | HD36-24-16SN               | HD34-24-16PN                     | HD36-24-16SE              | HD34-24-16PE                    |
| 24-18                 | HDP20  | HDP26-24-18SN              | HDP24-24-18PN                    | HDP26-24-18SE             | HDP24-24-18PE                   |
|                       | HD30   | HD36-24-18SN               | HD34-24-18PN                     | HD36-24-18SE              | HD34-24-18PE                    |
| 24-19                 | HDP20  | HDP26-24-19SN              | HDP24-24-19PN                    | HDP26-24-19SE             | HDP24-24-19PE                   |
|                       | HD30   | HD36-24-19SN               | HD34-24-19PN                     | HD36-24-19SE              | HD34-24-19PE                    |
| 24-21                 | HDP20  | HDP26-24-21SN              | HDP24-24-21PN                    | HDP26-24-21SE             | HDP24-24-21PE                   |
|                       | HD30   | HD36-24-21SN               | HD34-24-21PN                     | HD36-24-21SE              | HD34-24-21PE                    |
| 24-23                 | HDP20  | HDP26-24-23SN              | HDP24-24-23PN                    | HDP26-24-23SE             | HDP24-24-23PE                   |
|                       | HD30   | HD36-24-23SN               | HD34-24-23PN                     | HD36-24-23SE              | HD34-24-23PE                    |
| 24-29                 | HDP20  | HDP26-24-29SN              | HDP24-24-29PN                    | HDP26-24-29SE             | HDP24-24-29PE                   |
|                       | HD30   | HD36-24-29SN               | HD34-24-29PN                     | HD36-24-29SE              | HD34-24-29PE                    |
| 24-31                 | HDP20  | HDP26-24-31SN              | HDP24-24-31PN                    | HDP26-24-31SE             | HDP24-24-31PE                   |
|                       | HD30   | HD36-24-31SN               | HD34-24-31PN                     | HD36-24-31SE              | HD34-24-31PE                    |
| 24-33                 | HDP20  | HDP26-24-33SN              | HDP24-24-33PN                    | HDP26-24-33SE             | HDP24-24-33PE                   |
|                       | HD30   | HD36-24-33SN               | HD34-24-33PN                     | HD36-24-33SE              | HD34-24-33PE                    |
| 24-35                 | HDP20  | HDP26-24-35SN              | HDP24-24-35PN                    | HDP26-24-35SE             | HDP24-24-35PE                   |
|                       | HD30   | HD36-24-35SN               | HD34-24-35PN                     | HD36-24-35SE              | HD34-24-35PE                    |
| 24-47                 | HDP20  | HDP26-24-47SN              | HDP24-24-47PN                    | HDP26-24-47SE             | HDP24-24-47PE                   |
|                       | HD30   | HD36-24-47SN               | HD34-24-47PN                     | HD36-24-47SE              | HD34-24-47PE                    |

#### Note

Undersize wire insulation is a major cause for leakage.



### WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

| Contact Size                                  | N-Seal<br>Green Ring      | T-Seal<br>Gray Ring      | T-Seal<br>Modified*      | E-Seal<br>Blue Ring      | E-Seal<br>Modified*      |
|-----------------------------------------------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 20<br>14-22 AWG<br>(2.5-0.35mm <sup>2</sup> ) | .040-.095<br>(1.02-2.41)  | .040-.095<br>(1.02-2.41) | -                        | .040-.095<br>(1.02-2.41) | .040-.083<br>(1.01-2.10) |
| 16<br>14-20 AWG<br>(2.0-0.5mm <sup>2</sup> )  | .100-.134<br>(2.54-3.40)  | .088-.134<br>(2.23-3.40) | .088-.106<br>(2.24-2.69) | .053-.120<br>(1.35-3.05) | .053-.103<br>(1.35-2.62) |
| 12<br>10-14 AWG<br>(6.0-2.0mm <sup>2</sup> )  | .134-.170<br>(3.40-4.32)  | .113-.170<br>(2.87-4.32) | -                        | .097-.158<br>(2.46-4.01) | .097-.158<br>(2.46-4.01) |
| 8<br>8-10 AWG<br>(10.0-5.0mm <sup>2</sup> )   | .190-.240<br>(4.83-6.10)  | .170-.240<br>(4.32-6.10) | -                        | .135-.220<br>(3.43-5.59) | -                        |
| 4<br>6 AWG<br>(16.0-13.0mm <sup>2</sup> )     | .280-.292<br>(7.11-7.42)  | .261-.292<br>(6.63-7.42) | -                        | .261-.292<br>(6.63-7.42) | -                        |
| 4<br>4 AWG<br>(25.0-21.0mm <sup>2</sup> )     | .311-.420<br>(7.90-10.67) | -                        | -                        | -                        | -                        |

\*DEUTSCH cavity arrangements 24-29, 24-47, and 24-31 are only available with the modified seals. Arrangement 24-31 Modified E Seal = .053-.106. Please see drawings 0425-016-0000 and 0425-021-0000 for full specifications.

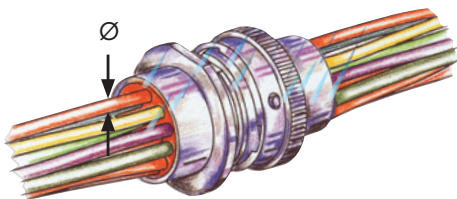
Color code is visible from the rear of the receptacle or plug.

**Green:** Normal Seal  
**Gray:** Thin Wall Seal  
**Blue:** Extra Thin Wall Seal



#### helpful hint

Proper wire outside diameters help provide water tight seals.



## HD30 & HDP20 Series

### Special Modifications

The HD30 & HDP20 series connectors offer several modifications to enhance design flexibility and meet application specific needs. Options include breakaway plugs, adapters, and high amperage options just to mention a few. By combining the HD30 & HDP20 series connectors with the available modifications and accessories, the design possibilities are greatly expanded.



#### HDB - BREAKAWAY PLUG (HD30 SERIES ONLY)

The HDB breakaway plug is designed to provide an emergency disconnect between farm tractors and implements that require power connections. The HDB breakaway plug is designed to break the connection before damaging the wiring system. These plugs can be specified with pin or socket contacts and connect only with the HD30 series receptacles. As an added design convenience, the HDB breakaway plug is also available with an optional cable clamp (059 mod). Breakaway function occurs at an axial load of 50-100 lbs.



L015  
Threaded  
Adapter



L017  
Ring Adapter



L024  
Wide Threaded  
Adapter

#### L015/L017/L024 MODIFICATIONS

The L015/L024 threaded adapters and L017 ring adapter modifications are available for the DEUTSCH HDP20 series connectors. These adapter modifications provide simple, low cost assembly solutions for applications that require a backshell or conduit. The adapters are designed to be used with the backshell of your choice.

- The L015 threaded adapter is available on size 24 shells in the HDP20 series.
- The L017 ring adapter is available on size 24 or size 18 shells in the HDP20 series.
- The L024 wide threaded adapter is available on size 24 or size 18 shells in the HDP20 series.



#### C030 MODIFICATION

Originally designed for multiplexing and battery cable applications, the DEUTSCH C030 modification is an environmentally sealed, heavy duty two cavity connector that accepts size 4 solid contacts rated up to 100 amps for each cavity.



The C030 modification is available in size 18 shell in both metal (HD30 series) and thermoplastic (HDP20 series) to meet your heavy wire gauge application needs.

## HD30 & HDP20 Series



### C041/CL20 MODIFICATIONS

The C041 and CL20 modifications are available for the DEUTSCH HDP20 series 14 pin connector. The C041 modification features a data link key and reduced diameter seals on the receptacle. The CL20 modification includes a ring adapter, reduced diameter seals, and a data link key on the plug.

### CABLE CLAMP/BACKSHELL MODIFICATIONS



DEUTSCH cable clamps provide positive support to the wire bundle while reducing strain on the connector. The backshell is available with or without drain holes.

| Part Number<br>Suffix | Description                                          |
|-----------------------|------------------------------------------------------|
| -072                  | Adapter only                                         |
| -059                  | Adapter and cable clamp assembly with drain holes    |
| -L006                 | Adapter and cable clamp assembly without drain holes |

## Accessories

Several accessory items can be used to complement the connectors. The HD30 & HDP20 family accessories include items such as boots, backshells, gaskets, and protective caps. Accessories are designed to complete the application and meet a wide array of design requirements such as solutions for mounting, providing additional protection, and offering increased aesthetics.

## BOOTS



Boots provide a professional looking finishing touch for the DEUTSCH HD30 & HDP20 family of connectors. Made of durable plastisol, these slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray, and pressure washing. The plastisol boots are rated from -20°F to +212°F (-28°C to +100°C) and offer a slip-on design making installation quick and easy.



| Part Number     | Description                                                     |
|-----------------|-----------------------------------------------------------------|
| HD30-18BT       | 18 shell size boot, gray                                        |
| HD30-18BT-BK    | 18 shell size boot, black                                       |
| HD30-18BT-90-BK | 18 shell size boot, 90° bend, black                             |
| LC-90BT-HT      | 18 shell size boot, 90° bend, high temperature material, yellow |
| HD30-24BT       | 24 shell size boot, gray                                        |
| HD30-24BT-BK    | 24 shell size boot, black                                       |
| HD30-24BT-90-BK | 24 shell size boot, 90° bend, black                             |
| MT-90BT-HT-24   | 24 shell size boot, 90° bend, high temperature material, yellow |

\*Distorting the boots can lessen their longevity

## HD30 & HDP20 Series

### PROTECTIVE DUST CAPS

Protective caps are available for both plug and receptacle halves of the connectors. The metal caps, for use with the HD30 series, come with a mounting chain and are used to protect the connector while not mated. The thermoplastic caps, for use with the HDP20 series, are available with or without a lanyard.

#### HDP20 Series Dust Caps



| Shell Size | Part Number | Description                                                |
|------------|-------------|------------------------------------------------------------|
| 18         | HDC26-18    | Plug cap for receptacle protection, environmentally sealed |
| 24         | HDC26-24    |                                                            |

#### HD30 Series Dust Caps



| Shell Size | Part Number | Description                        |
|------------|-------------|------------------------------------|
| 18         | HDC36-18    | Plug cap for receptacle protection |
| 24         | HDC36-24    |                                    |
| 18         | HDC34-18    | Receptacle cap for plug protection |
| 24         | HDC34-24    |                                    |

\*To order HD30(HD3\*-\*\*) protective caps without the mounting chain, add -1E to the end of the part number

### STRAIN RELIEF

The DEUTSCH HD30 & HDP20 series connectors offer several backshell options to meet your design needs. Backshell options include straight or 90° and plastic or metal. The metal backshells work best with the HD30 series. It is attached to the rear of the connector using an adjustable screw and is secured to the wire bundle with the use of a tie wrap. The plastic backshells work best with the HDP20 series and attach to the rear of the connector with either a clamshell snap closure or by screwing them on to a threaded adapter. The rigid, durable backshells offer a high level of protection, provide strain relief, and improve aesthetics.



| Shell Size | Orientation | HD30 Series Backshell Part Number |
|------------|-------------|-----------------------------------|
| 18         | Straight    | WHDS-18-1                         |
| 24         |             | WHDS-24-1                         |
| 18         | 90°         | WHDS-18-2                         |
| 24         |             | WHDS-24-2                         |

## HD30 & HDP20 Series



| Shell Size | Orientation | HDP20 Series L017 Backshell Part Number |  | Conduit Size           |
|------------|-------------|-----------------------------------------|--|------------------------|
|            |             |                                         |  |                        |
| 18         | Straight    | 2428-016-1805                           |  | 13, 17, 19 (mm) NW     |
|            | 90°         | 2428-015-1805                           |  | 13, 17, 19 (mm) NW     |
| 24         | Straight    | 2428-008-2405                           |  | 1"                     |
|            | 90°         | 2428-004-2405                           |  | 1"                     |
| 24         | Straight    | 2428-010-2405                           |  | 17, 19, 23, 26 (mm) NW |
|            | 90°         | 2428-011-2405                           |  | 17, 19, 23, 26 (mm) NW |

NW = Nominal Width of the conduit's inside diameter. See drawings for full specifications.

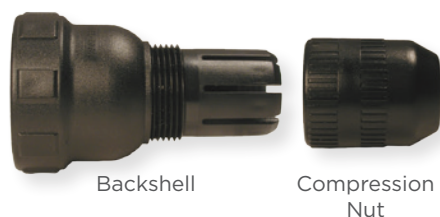


| Shell Size | HDP20 Series L015 Conduit Adapter Part Number |                 | Conduit Size |
|------------|-----------------------------------------------|-----------------|--------------|
|            |                                               |                 |              |
| 24         | Seal Ring<br>SRN21                            | Cap Nut<br>CN21 | 22 (mm) NW   |

## BACKSHELLS FOR L015 MODIFICATION



The DEUTSCH HDP20 series backshells are designed to screw onto connectors with the L015 modification, which adds a threaded adapter. Rated for temperatures from -40°C to +134°C, the rigid, durable backshells offer a high level of protection, provide strain relief, and improve aesthetics.



| Shell Size | Cable Diameter | HDP20 Series L015     |                             |
|------------|----------------|-----------------------|-----------------------------|
|            |                | Backshell Part Number | Compression Nut Part Number |
| 24         | .430-.570      | M902-2243             | M902-2053                   |
|            | .570-.710      | M902-2244             | M902-2054                   |

Backshell Technical Specifications:  
Material - PC/PET Polyester Blend, UV-Stabilized, Flame Retardant, Black  
Flammability - material meets UL94-VO, Weatherability - UL746C

## HD30 & HDP20 Series

### BACKSHELLS FOR L024 MODIFICATION

The DEUTSCH HDP20 series backshells are designed to screw onto connectors with the L024 modification, which adds a wide threaded adapter. The rigid, durable backshells offer a high level of protection, provide strain relief, and improve aesthetics.

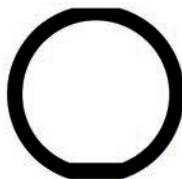


| Shell Size | Orientation | HDP20 Series L024 Backshell Part Number |
|------------|-------------|-----------------------------------------|
| 18         | Straight    | 2428-025-1805                           |
| 24         |             | 2428-024-2405                           |

### GASKETS



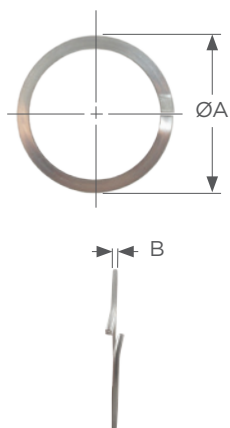
Moisture, dirt, salt, sand, and road debris can all work their way into electrical panels through unsealed mounting flanges. Rated to operate in environments from -70°F to +225°F (-56°C to +107°C), these rugged high quality neoprene gaskets form a tight seal between the panel face and connector flange to help keep out destructive elements. The gaskets have a thickness of .125" and the material meets the UL-94-HBF, Mil-R-6130C, and FMVSS-302 flammability specifications.



| Receptacle Shell Size | Gasket Part Number |
|-----------------------|--------------------|
| 18                    | 16-04978           |
| 24                    | 16-04477           |

### MOUNTING HARDWARE

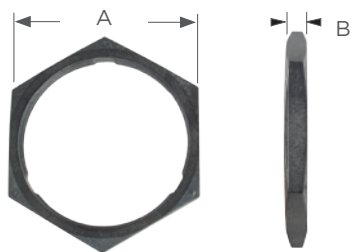
DEUTSCH lockwashers and panel nuts are available to aid in mounting the HD30 and HDP20 series connectors. The lockwashers are used to add tension between the threads and the nut to provide a secure mount. The lockwasher and the panel nut should be used together.



| Shell Size | Series | Panel Lockwasher Part Number | ØA            | B           |
|------------|--------|------------------------------|---------------|-------------|
| 18         | HDP20  | 2414-002-1886                | 1.892 (48.06) | -           |
|            | HD30   | 114021                       | 1.699 (43.15) | .062 (1.57) |
| 24         | HDP20  | 2414-001-2486                | 2.080 (52.83) | -           |
|            | HD30   | 112264                       | 1.887 (47.93) | .062 (1.57) |

Dimensions are for reference only

## HD30 & HDP20 Series



### Panel Nut Mounting Torque

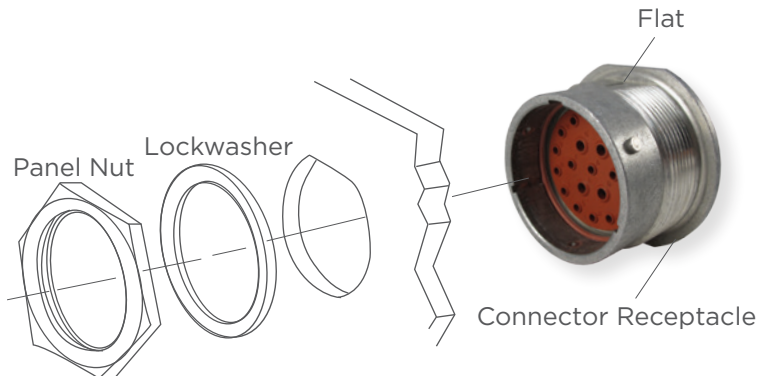
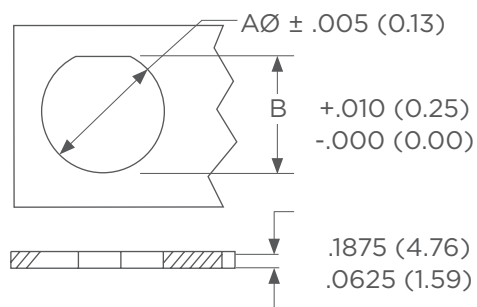
|                               |                                     |
|-------------------------------|-------------------------------------|
| HD30 series<br>18 shell size  | 260-280 IN. LB.<br>(29.4-31.6 N.M.) |
| HDP20 series<br>18 shell size | 45-55 IN. LB.<br>(5.1-6.1 N.M.)     |
| HD30 series<br>24 shell size  | 350-375 IN. LB.<br>(39.5-42.6 N.M.) |
| HDP20 series<br>24 shell size | 65-75 IN. LB.<br>(7.4-8.4 N.M.)     |

| Shell Size | Series | Panel Nut<br>Part Number | Material | A             | B           |
|------------|--------|--------------------------|----------|---------------|-------------|
| 18         | HDP20  | 2411-002-1805            | Plastic  | 1.685 (42.80) | .250 (6.35) |
|            | HD30   | 114020-90                | Metal    |               | .178 (4.52) |
| 24         | HDP20  | 2411-001-2405            | Plastic  | 1.875 (47.63) | .250 (6.35) |
|            | HD30   | 112263-90                | Metal    |               | .178 (4.52) |

Dimensions are for reference only

## Mounting

### RECEPTACLE MOUNTING



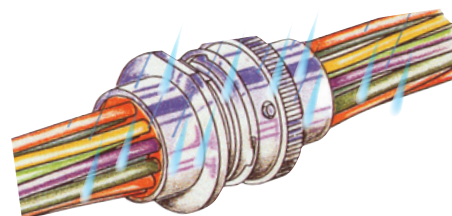
Recommended Size of Mounting Hole

| Shell Size | ØA            | B             |
|------------|---------------|---------------|
| 18         | 1.507 (38.28) | 1.442 (36.63) |
| 24         | 1.696 (43.08) | 1.632 (41.45) |

Dimensions are for reference only

### helpful hint

Mounting connectors horizontally allows proper water drainage.

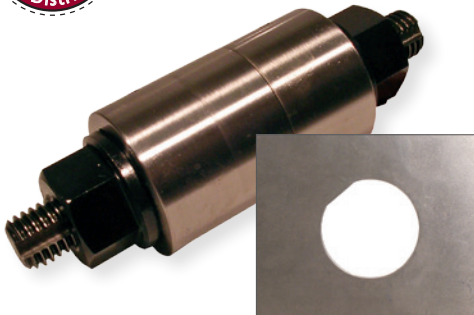




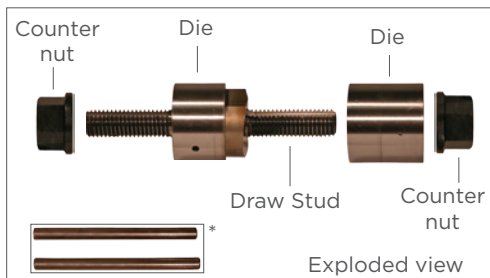
### D HOLE PUNCH



The D hole punch is a hand tool used to cut a D shaped hole. The D shaped hole allows the connector to be securely mounted and helps prevent the connector from spinning.



- Punchable Material: Up to .078" mild steel or aluminum. Up to .1875" plastic, wood, paneling, or other soft material.
- Tool Material: A2 material heat treated to a Rockwell hardness of 60 to 62.
- Tool Size: (rough dimensions) 5.5"L x 2"H x 2"D
- Sharpening: The tool can be sharpened as needed.
- Usability: A .625" minimum pilot hole is required to accommodate the draw stud. Air tools can be used.



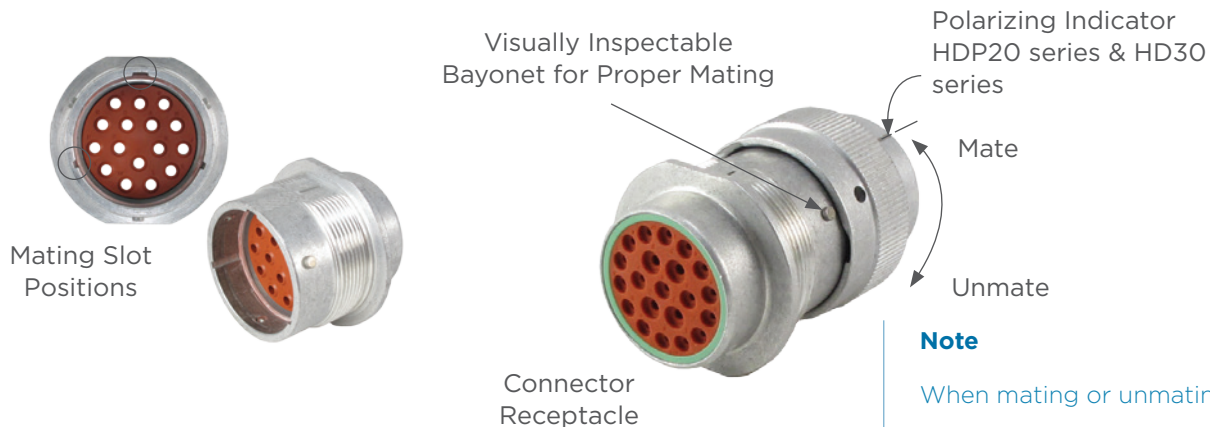
\*The rods included with the "D" hole punch are used to remove the cutout and are not used in the cutting process.

| Shell Size | D Hole Punch Part Number |
|------------|--------------------------|
| 18         | 18-D-PUNCH               |
| 24         | 24-D-PUNCH               |

### How To Instructions

#### MATING INSTRUCTIONS

To mate the plug and the receptacle, line up the index groove on the plug with the flat surface on the receptacle, turn 1/4 turn clockwise. You will feel and hear the pieces snap into the locked position. To unmate the plug and receptacle, release the coupling ring by turning it counter-clockwise.

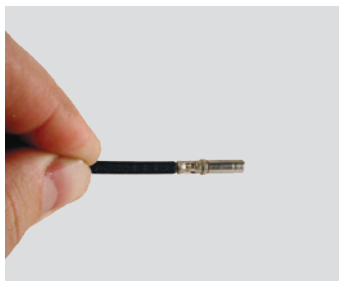


#### Note

When mating or unmating connectors, disassemble by hand. Do not use pliers or any other tool.

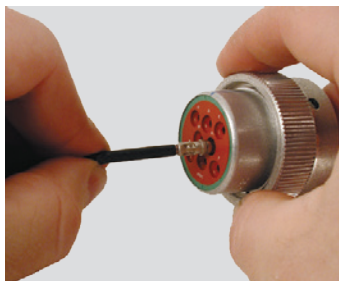


### CONTACT INSERTION



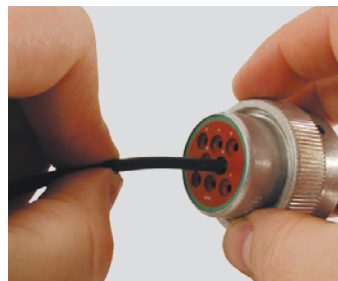
#### Step 1:

Grasp contact approximately one inch behind the contact crimp barrel.



#### Step 2:

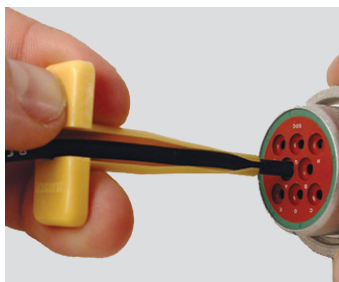
Hold connector with the rear grommet facing you.



#### Step 3:

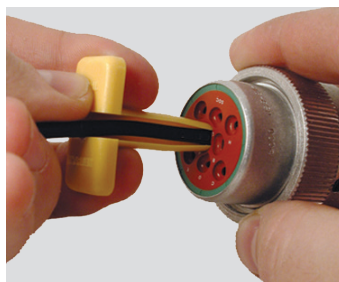
Push contact straight into connector grommet until a positive stop is felt. A slight tug will confirm that it is properly locked in place.

### CONTACT REMOVAL



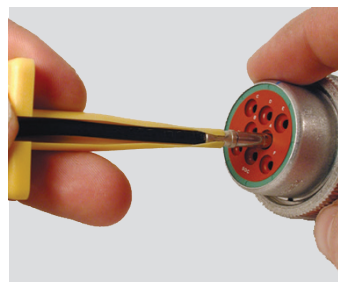
#### Step 1:

With rear insert toward you, snap appropriate size removal tool over the wire of contact to be removed.



#### Step 2:

Slide tool along the wire into the insert cavity until it engages contact and resistance is felt.



#### Step 3:

Pull contact wire assembly out of connector.

#### Note

Do not twist or insert tool at an angle.

# Contents

|                                  |         |
|----------------------------------|---------|
| STRIKE Series Overview .....     | 162     |
| Performance Specifications ..... | 162     |
| Material Specifications.....     | 162     |
| Dimensions .....                 | 163     |
| Configurations.....              | 163     |
| Ordering Information.....        | 164     |
| Accessories.....                 | 165     |
| How To Instructions .....        | 166-167 |

### STRIKE Series Overview

The STRIKE connector series features a lever lock system and is designed for heavy duty equipment applications. The environmentally sealed series offers two different size rugged housings that accept contacts from size 20 to 16 with arrangements of 32 and 64 cavities.



### DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

|                                         |                                                                                                                                                                                                                                                  |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Temperature:</b>                     | Operating at temperatures -55°C to +125°C                                                                                                                                                                                                        |
| <b>Durability:</b>                      | No electrical or mechanical defects after 100 cycles of engagement and disengagement.                                                                                                                                                            |
| <b>Vibration:</b>                       | No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond. |
| <b>Fluid Resistance:</b>                | Connectors show no damage when exposed to most fluids used in industrial applications.                                                                                                                                                           |
| <b>Insulation Resistance:</b>           | 1000 megohms minimum at 25°C.                                                                                                                                                                                                                    |
| <b>Immersion:</b>                       | IP68 rating                                                                                                                                                                                                                                      |
| <b>Moisture Resistance:</b>             | Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.                                                                                                         |
| <b>Dielectric Withstanding Voltage:</b> | Current leakage less than 2 milliamps at 1500 volts AC.                                                                                                                                                                                          |
| <b>Thermal Cycle:</b>                   | No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.                                                                                                                                                                      |

### MATERIAL SPECIFICATIONS

**Flange Seal:** Silicone rubber

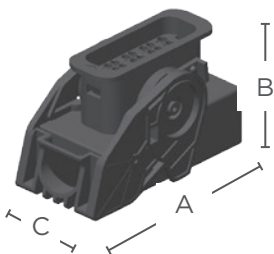
**Plug Grommet:** Silicone rubber

**Receptacle  
Threaded  
Inserts:** Brass

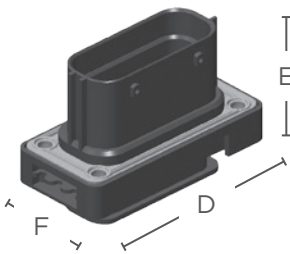
**Shell:** Glass filled PBT

**TPA:** Glass filled PBT

DIMENSIONS



STRIKE Plug



STRIKE Receptacle

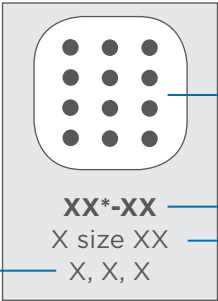
| Cavity | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|--------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| MD     | 3.189 (81.00)       | 1.909 (84.50)       | 1.531 (38.90)      | 3.228 (82.00)       | 2.205 (56.00)       | 1.575 (40.00)      |
| FL     | 3.358 (85.28)       | 1.913 (48.60)       | 2.780 (70.60)      | 3.228 (82.00)       | 2.205 (56.00)       | 2.953 (75.00)      |

Dimensions are for reference only.

CONFIGURATIONS

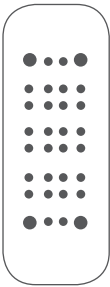
Connector Styles

|   |                         |
|---|-------------------------|
| I | In-line                 |
| F | Flange Mount Receptacle |
| P | PCB Receptacle          |

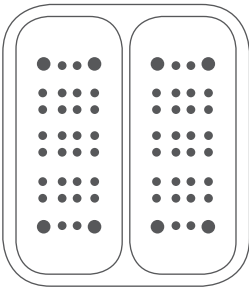


Insert Arrangement

Shell Size/Key - Configuration Number and Size of Cavities

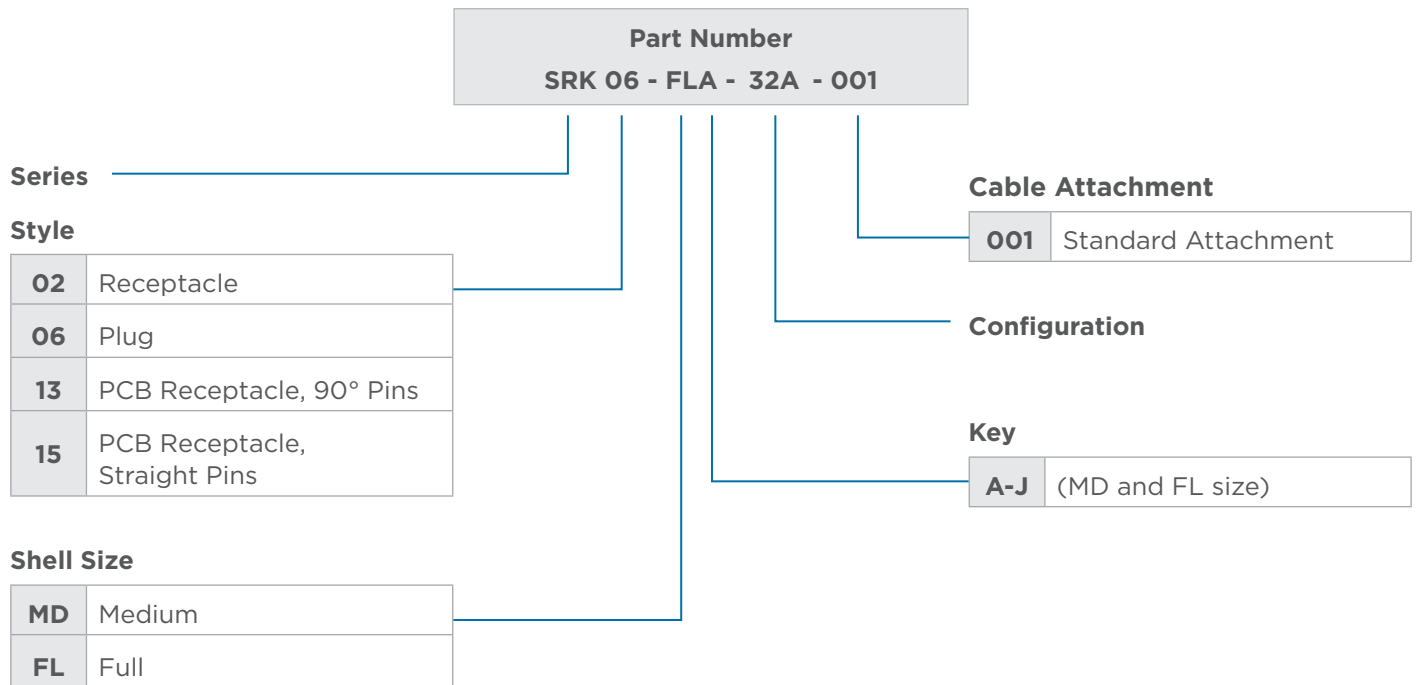


**MD\*-32A**  
4 Size 16  
28 Size 20  
I, F, P



**FL\*-64A**  
8 Size 16  
56 Size 20  
I, F

### PART NUMBERING SYSTEM



### ORDERING INFORMATION

Here are some of the common part numbers of the STRIKE connectors. Several additional connectors may be available.

| Position | Keying | Plug              | Receptacle        |
|----------|--------|-------------------|-------------------|
| 32       | A      | SRK06-MDA-32A-001 | SRK02-MDA-32A-001 |
|          | B      | SRK06-MDB-32A-001 | SRK02-MDB-32A-001 |
|          | C      | SRK06-MDC-32A-001 | SRK02-MDC-32A-001 |
| 64       | A      | SRK06-MDA-64A-001 | SRK02-MDA-64A-001 |
|          | B      | SRK06-MDB-64A-001 | SRK02-MDB-64A-001 |
|          | C      | SRK06-MDC-64A-001 | SRK02-MDC-64A-001 |

## STRIKE Series

### WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

| Contact Size                               | Standard Seal            |
|--------------------------------------------|--------------------------|
| 20<br>16-22 AWG (1.0-0.35mm <sup>2</sup> ) | .061-.095<br>(1.55-2.41) |
| 16<br>14-20 AWG (2.0-0.5mm <sup>2</sup> )  | .061-.120<br>(1.55-3.05) |

### Accessories

Backshells can be used to complement STRIKE connectors. The backshells are designed to snap onto the connectors and accept convoluted tubing. The backshells assist with wire routing to ease engagement and disengagement of the lever lock.



| Part Number                          | Size   | Orientation | Convoluted Tubing             | Description                                                              |
|--------------------------------------|--------|-------------|-------------------------------|--------------------------------------------------------------------------|
| SRK-BS-MD-90-001<br>SRK-BS-MD-90-002 | Medium | 90°         | NW17 & 22(-001)<br>NW22(-002) | 90° plastic backshell for medium or full size plugs and receptacles      |
| SRK-BS-FL-90-001<br>SRK-BS-FL-90-002 | Full   |             | NW22 & 26(-001)<br>NW26(-002) |                                                                          |
| SRK-BS-MD-ST-001<br>SRK-BS-MD-ST-002 | Medium | Straight    | NW17(-001)<br>NW22(-002)      | Straight plastic backshell for medium or full size plugs and receptacles |
| SRK-BS-FL-ST-001<br>SRK-BS-FL-ST-002 | Full   |             | NW22(-001)<br>NW26(-002)      |                                                                          |

### How To Instructions

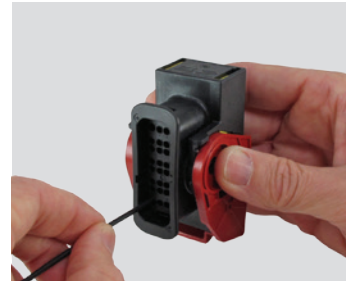
#### CONTACT INSERTION



**Step 1:**  
Confirm TPA locking is open.



**Step 2:**  
Hold connector with rear seal retainer facing you.

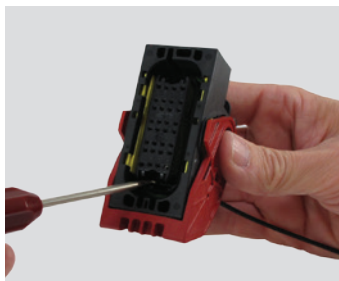


**Step 3:**  
Push contact straight into the grommet until a positive stop is felt. A slight tug will confirm that it is properly locked in place.

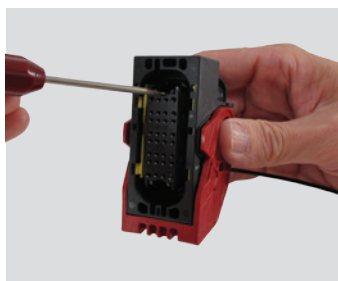


**Step 4:**  
Push to close the TPA.  
TPA will not close unless all contacts are fully seated in connector.

### CONTACT REMOVAL



**Step 1:**  
Use DT-RT1 to gently pry the locking clip and release the TPA.



**Step 2:**  
Repeat step 1 on the other side of the TPA.



**Step 3:**  
Remove the TPA.



**Step 4:**  
Unlock the contacts and pull on the wire.



## STRIKE Series

---

NOTES:

# Contents

|                                  |         |
|----------------------------------|---------|
| Common Contacts Overview .....   | 170     |
| Performance Specifications ..... | 171     |
| Wire Sealing Ranges .....        | 101     |
| Solid Contact Part Numbers ..... | 172     |
| Stamped & Formed Contacts        |         |
| Part Numbers .....               | 173     |
| PCB Pins .....                   | 174     |
| Crimping .....                   | 175     |
| Crimp Inspection .....           | 176     |
| Accessories .....                | 177-178 |
| How To Instructions .....        | 179-180 |

### DEUTSCH Common Contacts Overview

Several contacts are used interchangeably across most DEUTSCH connector product lines. This commonality improves performance, reliability, and maintainability by reducing changes in the assembly of the wire harness. The use of the same contact system helps eliminate many of the failures reported in harnesses where hundreds of different terminations are used.

### CONTACT STYLES

Two styles of contacts are available: solid and stamped & formed. Both contact types use a crimp style termination, eliminating the need for solder. The variations in the contact system are those dictated by wire gauge and contact style.

#### Solid

The solid contacts are designed for use with larger wire size and heavy duty applications. Solid contacts are manufactured using a cold heading process with solid copper alloy wire and are available with either a nickel or gold plating finish.

Solid contacts terminate wire from 4 AWG to 20 AWG (25 - 0.5mm<sup>2</sup>) and are available in 5 sizes each of the pin and socket. The applicable contact is determined by the size of the conductor only.



#### Stamped & Formed

Stamped & formed contacts are designed for use where wire termination costs are of primary concern without sacrificing reliability of electrical circuits. The stamped & formed contacts are made on a precision stamping machine using flat strip stock, then a durable and corrosion proof nickel, tin, or optional gold plating is applied.

The stamped & formed style contacts terminate wire from 10 AWG to 22 AWG (6.0 - 0.35mm<sup>2</sup>) and are available in multiple sizes to accommodate a wide range of wire insulation. The specific contact is determined by the outside diameter of wire insulation and conductor size.



### DEUTSCH CONTACT PERFORMANCE SPECIFICATIONS

#### Durability

No electrical or mechanical defects after 100 cycles of engagement and disengagement.

#### Current Rating (Contact current rating at 125° C continuous)

| Contact Size | Max. Current |
|--------------|--------------|
| Size 20      | 7.5 amps     |
| Size 16      | 13 amps      |
| Size 12      | 25 amps      |
| Size 8       | 60 amps      |
| Size 4       | 100 amps     |

#### Contact Retention (Solid and Stamped & Formed)

Contacts withstand a minimum load of:

20 lbs (89 N) for size 20  
 25 lbs (111 N) for size 16  
 30 lbs (133 N) for size 12  
 35 lbs (156 N) for size 8  
 35 lbs (156 N) for size 4

#### Contact Millivolt Drop

| Contact Size | Test Current Amps | Millivolt Drop* (Solid) | Millivolt Drop* (S&F) |
|--------------|-------------------|-------------------------|-----------------------|
| 20           | 7.5               | 60                      | 100                   |
| 16           | 13                | 60                      | 100                   |
| 12           | 25                | 60                      | 100                   |
| 8            | 60                | 60                      | -                     |
| 4            | 100               | 60                      | -                     |

\*Less drop through wire

#### Crimp Tensile Strength (Solid)

| Contact Size | Tensile Strength |
|--------------|------------------|
| Size 20      | 20 lbs           |
| Size 16      | 25 lbs           |
| Size 12      | 70 lbs           |
| Size 8       | 90 lbs           |
| Size 4       | 300 lbs          |

#### Crimp Tensile Strength (Stamped & Formed)

| Contact Size | Tensile Strength |
|--------------|------------------|
| Size 20      | 20 lbs           |
| Size 16      | 25 lbs           |
| Size 12      | 70 lbs           |

#### helpful hint

A crimp tensile test easily and rapidly identifies a proper crimp.



## SOLID CONTACT PART NUMBERS

| Size        | Solid Contact Part Numbers |                | Wire Size<br>AWG<br>(mm <sup>2</sup> ) | Recommended<br>Strip Length<br>Inches (mm) | Min.<br>Contact<br>Retention | Ref Crimp<br>Tensile<br>Lbs. (N) | Max Rated<br>Amps at<br>125° C<br>Continuous |
|-------------|----------------------------|----------------|----------------------------------------|--------------------------------------------|------------------------------|----------------------------------|----------------------------------------------|
|             | Pin                        | Socket         |                                        |                                            |                              |                                  |                                              |
| 20          | 0460-202-20**              | 0462-201-20**  | 20<br>(0.50)                           | .156-.218<br>(3.96-5.54)                   | 20<br>(89)                   | 20<br>(89)                       | 7.5                                          |
| 20          | 0460-010-20**              | 0462-005-20**  | 16-18<br>(1.0-0.75)                    | .156-.218<br>(3.96-5.54)                   | 20<br>(89)                   | 20<br>(89)                       | 7.5                                          |
| 16          | 0460-202-16**              | 0462-201-16**  | 16-20<br>(1.5-0.50)                    | .250-.312<br>(6.35-7.92)                   | 25<br>(111)                  | 35-20<br>(156-89)                | 13                                           |
| 16          | 0460-215-16**              | 0462-209-16**  | 14<br>(2.0)                            | .250-.312<br>(6.35-7.92)                   | 25<br>(111)                  | 70<br>(311)                      | 13                                           |
| 12          | 0460-204-12**              | 0462-203-12**  | 12-14<br>(3.0-2.0)                     | .222-.284<br>(5.64-7.21)                   | 30<br>(134)                  | 75-70<br>(334-311)               | 25                                           |
| 8           | 0460-204-08**              | 0462-203-08**  | 8-10<br>(10.0-5.0)                     | .430-.492<br>(10.92-12.50)                 | 35<br>(156)                  | 125-90<br>(556-400)              | 60                                           |
| 4           | 0460-204-04**              | 0462-203-04**  | 6<br>(16.0-13.0)                       | .430-.492<br>(10.92-12.50)                 | 35<br>(156)                  | 300<br>(1334)                    | 100                                          |
| 4<br>(C038) | 5960-203-04141             | 5962-203-04141 | 4<br>(25.0-21.0)                       | .430-.492<br>(10.92-12.50)                 | 35<br>(156)                  | 300<br>(1334)                    | 100                                          |

\*\* = Plating codes

### Solid Contact Plating Codes

| Part Number<br>Suffix | Plating Material            |
|-----------------------|-----------------------------|
| 31                    | Gold                        |
| 90                    | Nickel (size<br>4 pin only) |
| 141                   | Nickel                      |

### Note

See information drawing  
0425-015-0000.



## STAMPED & FORMED CONTACT PART NUMBERS

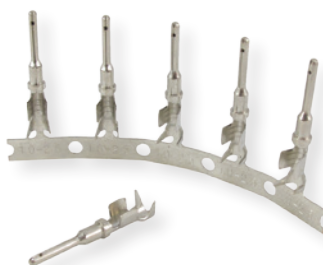
| Size | S&F Contact Part Numbers |                            | Carrier Strip | Wire Size<br>AWG<br>(mm <sup>2</sup> ) | Wire<br>Insulation<br>O.D. Range | Recommended<br>Strip Length<br>Inches (mm) | Min.<br>Contact<br>Retention | Max Rated<br>Amps at<br>125° C<br>Continuous |
|------|--------------------------|----------------------------|---------------|----------------------------------------|----------------------------------|--------------------------------------------|------------------------------|----------------------------------------------|
|      | Pin                      | Socket                     |               |                                        |                                  |                                            |                              |                                              |
| 20   | 1060-20-01**             | 1062-20-01**               | 20-01         | 16-22<br>(1.5-0.35)                    | .075-.125<br>(1.91-3.18)         | .150-.200<br>(3.81-5.08)                   | 20<br>(89)                   | 7.5                                          |
| 20   | 1060-20-02**             | 1062-20-02**               | 20-02         | 16-22<br>(1.5-0.35)                    | .051-.085<br>(1.30-2.16)         | .150-.200<br>(3.81-5.08)                   | 20<br>(89)                   | 7.5                                          |
| 20   | -                        | 1062-20-03**<br>sleeveless | 20-03         | 16-22<br>(1.5-0.35)                    | .075-.125<br>(1.91-3.18)         | .150-.200<br>(3.81-5.08)                   | 20<br>(89)                   | 7.5                                          |
| 20   | 1060-20-06**             | 1062-20-06**               | 20-06         | 14-16<br>(2.5-1.0)                     | .075-.125<br>(1.91-3.18)         | .150-.200<br>(3.81-5.08)                   | 20<br>(89)                   | 7.5                                          |
| 16   | 1060-14-01**             | 1062-14-01**               | 14-16         | 14-18<br>(2.0-.75)                     | .095-.150<br>(2.41-3.81)         | .150-.200<br>(3.81-5.08)                   | 25<br>(111)                  | 13                                           |
| 16   | 1060-14-10**             | 1062-14-10**               | 14-16         | 14-18<br>(2.0-.75)                     | .095-.150<br>(2.41-3.81)         | .150-.200<br>(3.81-5.08)                   | 25<br>(111)                  | 13                                           |
| 16   | 1060-16-01**             | 1062-16-01**               | 16-18         | 14-18<br>(2.0-.75)                     | .075-.140<br>(1.90-3.55)         | .150-.200<br>(3.81-5.08)                   | 25<br>(111)                  | 13                                           |
| 16   | 1060-16-06**             | 1062-16-06**               | 0.5-1.0       | 16-20<br>(1.0-.50)                     | .055-.100<br>(1.40-2.54)         | .150-.200<br>(3.81-5.08)                   | 25<br>(111)                  | 13                                           |
| 16   | 1060-16-09**             | 1062-16-09**               | 16-18         | 14-18<br>(2.0-.75)                     | .075-.140<br>(1.90-3.55)         | .150-.200<br>(3.81-5.08)                   | 25<br>(111)                  | 13                                           |
| 16   | 1060-16-12**             | 1062-16-12**               | 1.0-2.5       | 12-16<br>(2.5-1.0)                     | .075-.140<br>(1.90-3.55)         | .175-.225<br>(4.45-5.72)                   | 25<br>(111)                  | 13                                           |
| 16   | -                        | 1062-16-14**<br>sleeveless | 14-16         | 12-16<br>(2.5-1.0)                     | .075-.140<br>(1.90-3.55)         | .175-.225<br>(4.45-5.72)                   | 25<br>(111)                  | 13                                           |
| 12   | 1060-12-01**             | 1062-12-01**               | 12-14         | 12-14<br>(4.0-2.0)                     | .113-.176<br>(2.87-4.47)         | .225-.275<br>(5.72-6.99)                   | 30<br>(134)                  | 25                                           |
| 12   | 1060-12-02**             | 1062-12-02**               | 10-12         | 10 <sup>†</sup><br>(6.0-4.0)           | .140-.204<br>(3.56-5.18)         | .225-.275<br>(5.72-6.99)                   | 30<br>(134)                  | 25                                           |

\*\* = Plating codes

† = TXL wire insulation is preferred

### S&F Contact Plating Codes

| Part Number<br>Suffix | Plating Material |
|-----------------------|------------------|
| 22                    | Nickel           |
| 44                    | Gold             |
| 66                    | Tin/Nickel       |
| 77                    | Tin              |
| 88                    | Selective Gold   |



### Note

See information drawing  
0425-015-0000.

## DEUTSCH Common Contacts

### PCB PINS

Straight reduced diameter extended pins are available for installation in the DEUTSCH family of connectors. The use of removable contacts provides design flexibility and a low cost alternative to meet application needs. These solid copper alloy pins may be specified in various platings and assembled in HD30, HDP20, HD10, DRC, or DT receptacles.

#### Material

Copper alloy

#### Plating Codes

31: Gold

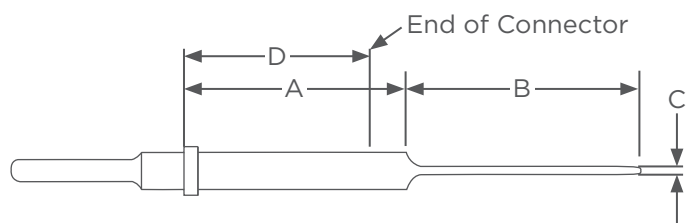
90: Tin

141: Nickel



#### PCB Mounting

Consult factory for PCB mounting details and pin positions.



#### Note

See information drawing 0425-202-0000 for full specifications.

#### Contact Size

|    | Part Number    | A             | B            | C           | Series     | D*            |
|----|----------------|---------------|--------------|-------------|------------|---------------|
| 20 | 0460-208-2031  | 1.305 (33.15) | .248 (6.30)  | .025 (.64)  | HD30/HDP20 | .939 (23.85)  |
|    | 0460-208-2090  | 1.305 (33.15) | .248 (6.30)  | .025 (.64)  | HD10       | .925 (23.50)  |
| 16 | 0460-208-16141 | 1.300 (33.02) | .248 (6.30)  | .025 (.64)  | DT         | .777 (19.74)  |
|    | 0460-208-1631  | 1.300 (33.02) | .248 (6.30)  | .025 (.64)  | DT04-2P    | .677 (17.20)  |
|    | 0460-229-16141 | .545 (13.84)  | .248 (6.30)  | .025 (.64)  | DT04-3P    | .677 (17.20)  |
|    | 0460-241-16141 | 1.305 (33.15) | .160 (4.06)  | .040 (1.02) | DRC        | 1.063 (27.00) |
|    | 0460-244-16141 | .976 (24.79)  | .400 (10.16) | .041 (1.04) |            |               |
|    | 0460-244-1631  | .976 (24.79)  | .400 (10.16) | .041 (1.04) |            |               |
|    |                |               |              |             |            |               |
| 12 | 0460-208-12141 | 1.305 (33.15) | .248 (6.30)  | .025 (.64)  |            |               |
|    | 0460-245-1231  | 1.024 (26.01) | .500 (12.70) | .041 (1.04) |            |               |
|    | 0460-245-1290  | 1.024 (26.01) | .500 (12.70) | .041 (1.04) |            |               |

\*D is equal to the distance from the contact shoulder to the end of the connector.

Dimensions are for reference only.



HD10 Series



HDP20 Series



HD30 Series

### Crimping

Crimping is defined as the act of joining a conductor to a pin or socket contact using a mechanical tool to compress and displace metal. In a good crimp joint, there is mutual flow of metal, causing a symmetrical distortion of wire strands.

### CRIMPING CONFIGURATIONS

Stamped & formed contacts use a folded type of crimp (Fig. 1) while solid contacts use a 1, 2, or 4 indent crimp (Fig. 2). In both styles of crimps, the wire strands and the contact material are formed together in a solid mass creating a reduction of the wire strand area. The reduced wire strand area creates a minimum of voids allowing for excellent conductivity. Crimping may be accomplished with hand tools or power tools.

### BENEFITS OF CRIMPED CONTACTS

Mechanically crimping contacts is the leading wire termination method for some very good reasons:

- With smaller wire, the crimp is as strong as the wire itself.
- The joint can be visually inspected. Viewing the wire through an inspection hole in the contact makes inspection quick and easy, both by the operator and the inspector.
- Plating thickness is not restricted, as in solder joints, so better corrosion resistance and contact reliability are achieved.
- Crimping can be done anywhere, without special preparation. Terminations are replaced or modified in the field exactly the same as in the shop, using the same tools and the same techniques, and with the same ease of operation and certainty of results.
- Total installed and maintenance costs are lower.

#### helpful hint

Solder should not be added to DEUTSCH terminals.



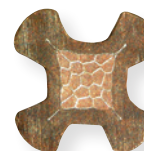
#### Stamped & Formed Style



Cross-Section Across Axis

Figure 1

#### Solid Style



Indenter Crimp

Cross-Section Across Axis

Figure 2

#### Note

The use of dielectric grease is not recommended.



### CRIMP INSPECTION

Crimping tools provide lower total installation and maintenance costs. However, controls are required to help confirm that the proper crimp tools designed for the type and size contact are used, the pin or socket is properly inserted into the tool, the wire insulation is stripped properly, and the wire fully inserts into the contact.

When a crimp is completed, correct termination can be visually inspected. The inspector should check for:

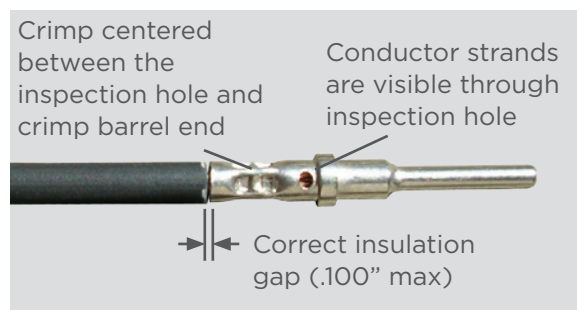
- The removed insulation should expose a conductor length that will pass beyond the inspection hole in the contact and still reveal the appropriate length of conductor between the contact and the insulation on the wire.
- Wire strands intact.
- All wire strands enter the contact barrel.
- Wire inserted to the proper depth in the contact.

When the correct crimp tool and process are used, a good termination results.

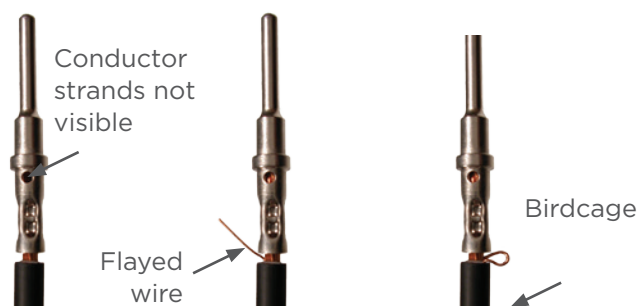
#### Note

For more detailed crimp dimensions please request a drawing.

### SOLID CONTACT CRIMP

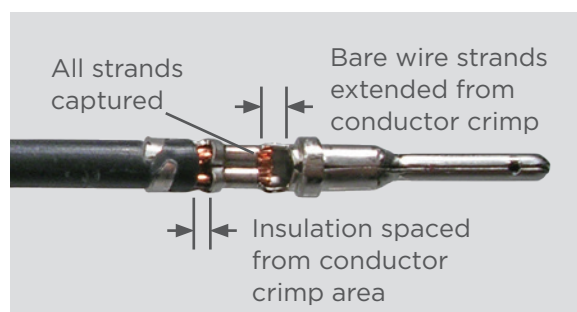


**Acceptable Crimp**

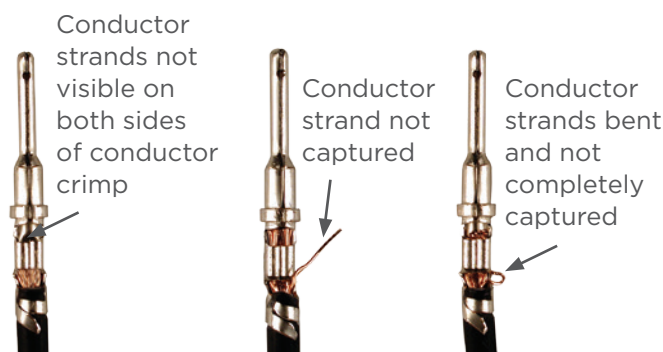


**Unacceptable Crimps**

### STAMPED & FORMED CONTACT CRIMP



**Acceptable Crimp**



**Unacceptable Crimps**

### Accessories

Additional accessories are available to aid in the design flexibility and sealing requirements of applications. Accessory items such as sealing plugs and keying pins help to maintain an environmental seal and prevent mis-mating.

### KEYING PINS

Keying pins are solid plastic rods used to help prevent mis-mating of like connectors in close proximity. Applicable DEUTSCH product lines include HD10, HD30, HDP20, DT, and DTM series.

Keying pins are inserted into the retention fingers of an empty socket cavity. Once installed, the keying pin blocks a mating contact pin from being inserted. The contact pin will be blocked before the coupling device mates the connectors, helping to prevent the mis-mating of like connectors. Proper usage requires that the corresponding mating pin be omitted and a sealing plug inserted in the rear cavity of the mating connector. Individual applications will vary, and testing should be done to determine the best pattern arrangement to help prevent improper connector mating.



| Part Number   | Contact Size | Color  |
|---------------|--------------|--------|
| 0413-216-2005 | 20           | Red    |
| 0413-215-1605 | 16           | White  |
| 0413-214-1205 | 12           | Yellow |

#### Note

Multiple keying pins may be required to help prevent unintentional forced mating.

### CONTACT CRIMP SLEEVE REDUCER

A crimp sleeve reducer is available to allow DEUTSCH size 4 solid contacts to accept 8-10 AWG wire. When populating a connector using a contact with a reducer sleeve, be sure the insert seal penetrates the rear grommet. The use of the crimp sleeve reducer requires no extra crimp tools and provides an easy transition and increased flexibility.



Insert Seal  
0410-241-0406



Crimp Sleeve  
0421-203-04141

#### Note

TXL wire insulation with 10 AWG is not recommended because it may not provide an environmental seal against the insert seal.

### SEALING PLUGS

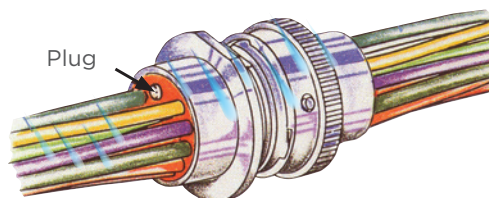
Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.



| Part Number                                | Contact Size | Description                                   |
|--------------------------------------------|--------------|-----------------------------------------------|
| 114019                                     | Size 4       | Silicone rubber                               |
| 114018                                     | Size 8       | Thermoplastic                                 |
| 114017                                     | Size 12, 16  | Thermoplastic                                 |
| 0413-217-1605<br>(locking<br>sealing plug) | Size 16      | Thermoplastic, retained<br>by locking fingers |
| 0413-003-1605                              | Size 16      | Thermoplastic, used<br>with STRIKE series     |
| 0413-204-2005                              | Size 20      | Thermoplastic                                 |

#### helpful hint

Sealing plugs are used to seal the connector when all the cavities are not used by wires.



### How To Instructions

#### SEALING PLUG INSTALLATION



**Step 1:**

Holding the sealing plug with large diameter end away from the connector, gently apply downward pressure to force the sealing plug into the cavity.



**Step 2:**

With perpendicular motion, apply downward pressure to the large diameter end of the sealing plug.



**Step 3:**

Apply pressure until sealing plug is forced to stop by contact with rear grommet. Visually inspect the sealing plug to confirm it is flush with cavity opening.

#### LOCKING SEALING PLUG INSTALLATION



**Step 1:**

Holding the sealing plug with large diameter end towards the connector, gently apply downward pressure to force the sealing plug into the cavity.



**Step 2:**

With perpendicular motion, apply downward pressure to the small diameter end of the sealing plug.



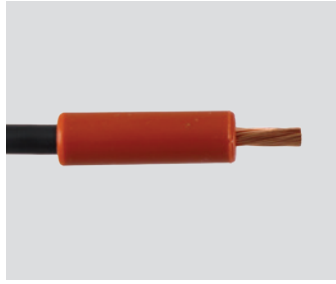
**Step 3:**

Apply pressure until sealing plug locks into place. A slight tug on the sealing plug will confirm it is locked into place.

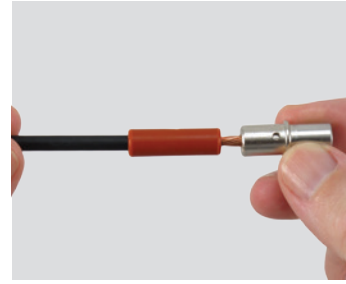
### CONTACT CRIMP SLEEVE REDUCER ASSEMBLY



**Step 1:**  
Place crimp sleeve reducer into contact barrel.



**Step 2:**  
Slide insert seal onto 8-10 AWG wire stopping just at the edge of the stripped insulation.



**Step 3:**  
Insert wire into barrel of contact and crimp using designated tooling.



**Step 4:**  
Confirm seal is not distorted.

# Contents

|                           |         |
|---------------------------|---------|
| Tooling Overview .....    | 182     |
| Automated Tooling.....    | 182-184 |
| Hand Tools .....          | 185-186 |
| Removal Tools .....       | 187     |
| How To Instructions ..... | 188-190 |

### Crimp Tool Overview

The two types of DEUTSCH contacts are solid and stamped & formed. Both styles of contacts are designed for crimp style terminations - no solder is required or recommended. A crimp style termination displaces the wire strands creating a superior bond between the wire and the contact.

Several tools are available for hand and production wire crimping, wire insertion and removal, and wedgelock/terminal position assurance removal. The tools are specific to the solid contacts or the stamped & formed contacts. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

### Automated Tooling Overview

For higher production volumes, a pneumatic power crimp tool is available for the DEUTSCH solid contacts, and applicator dies for stamped & formed contacts. The HDP-400, a pneumatic solid crimp tool, is a fast, bench-top tool that crimps most DEUTSCH contacts. The HDP-400 has a foot control, and easy-to-change dies and locators for each contact size. TE's stamped & formed OCEAN applicator dies are heavy duty mini-dies that work in many industry standard presses. The OCEAN applicator dies offer simple adjustments and the flexibility to accept different sized contacts and wire gauge.

### AUTOMATED TOOLING FOR SOLID CONTACTS



| Tool Part Number | Contact Size | Contact Part Number              |
|------------------|--------------|----------------------------------|
| HDP-400          | 4            | 0460-204-0490<br>0462-203-04141  |
|                  | 8            | 0460-204-08141<br>0462-203-08141 |
|                  | 12           | 0460-204-12**<br>0462-203-12**   |
|                  | 16           | 0460-202-16**<br>0462-201-16**   |
|                  |              | 0460-215-16**<br>0462-209-16**   |
|                  | 20           | 0460-202-20**<br>0462-201-20**   |

For the appropriate die and locator, see drawing 0425-205-0000

## HDP-400 TOOLING ACCESSORIES

The Go-No-Go gauge is used to determine if the HDP-400 tool is calibrated within the recommended specifications to produce a proper crimp.



| Part Number  | Go-No-Go Gauges |
|--------------|-----------------|
| GA20N        | HDP-400 Size 20 |
| 450GA-16N    | HDP-400 Size 16 |
| 450GA-12N    | HDP-400 Size 12 |
| GA8-SPEC     | HDP-400 Size 8  |
| 450GA-4-SPEC | HDP-400 Size 4  |

## AUTOMATED TOOLING FOR STAMPED & FORMED CONTACTS



|                  | Pin P/N                                      | Socket P/N                                   | Insulation Range<br>O.D. (mm) | Applicator P/N<br>Conversion Kit P/N |
|------------------|----------------------------------------------|----------------------------------------------|-------------------------------|--------------------------------------|
| Size 12 -Group 1 | 1060-12-0144<br>1060-12-0166                 | 1062-12-0144<br>1062-12-0166                 | .151-.176<br>(3.83-4.47)      | 2266124-1<br>7-2266124-8             |
|                  |                                              |                                              | .130-.154<br>(3.30-3.91)      | 2266125-1<br>7-2266125-8             |
|                  |                                              |                                              | .113-.135<br>(2.87-3.43)      | 2266126-1<br>7-2266127-8             |
| Size 12 -Group 2 | 1060-12-0222<br>1060-12-0244                 | 1062-12-0222<br>1062-12-0244                 | .185-.204<br>(4.70-5.18)      | 2266127-1<br>7-2266127-8             |
|                  |                                              |                                              | .155-.190<br>(3.94-4.83)      | 2266128-1<br>7-2266128-8             |
|                  |                                              |                                              | .140-.160<br>(3.56-4.06)      | 2266129-1<br>7-2266129-8             |
| Size 16 -Group 1 | 1060-14-0122<br>1060-14-0144<br>1060-14-0177 | 1062-14-0122<br>1062-14-0144<br>1062-14-0177 | .120-.150<br>(3.05-3.81)      | 2266100-1<br>7-2266100-8             |
|                  |                                              |                                              | .105-.125<br>(2.67-3.18)      | 2266101-1<br>7-2266101-8             |
|                  | 1060-16-0122<br>1060-16-0144<br>1060-16-0177 | 1062-16-0122<br>1062-16-0144<br>1062-16-0177 | .105-.125<br>(2.67-3.18)      | 2266101-1<br>7-2266101-8             |
|                  |                                              |                                              | .085-.111<br>(2.16-2.82)      | 2266102-1<br>7-2266102-8             |
|                  | 1060-16-0722<br>1060-16-0744<br>1060-16-0777 | 1062-16-0722<br>1062-16-0744<br>1062-16-0777 | .075-.105<br>(1.91-2.67)      | 2266103-1<br>7-2266103-8             |
|                  |                                              |                                              | .063-.094<br>(1.60-2.39)      | 2266104-1<br>7-2266104-8             |
|                  | 1060-16-0977<br>1060-16-0988                 | 1062-16-0977<br>1062-16-0988                 |                               |                                      |
|                  |                                              |                                              |                               |                                      |

The -1 suffix on the applicator p/n represents a mechanical feed, for other feed options contact your representative. The conversion kit is to convert applicators within the same group. For more information, please reference TE catalog 1-1773730-8 or contact your representative.



**AUTOMATED TOOLING FOR STAMPED & FORMED CONTACTS (CONTINUED)**

|                         | Pin P/N      | Socket P/N   | Insulation Range<br>O.D. (mm) | Applicator P/N<br>Conversion Kit P/N |
|-------------------------|--------------|--------------|-------------------------------|--------------------------------------|
| <b>Size 16 -Group 2</b> | 1060-16-0622 | 1062-16-0622 | .063-.094<br>(1.60-2.39)      | 2266110-1<br>7-2266110-8             |
|                         | 1060-16-0644 | 1062-16-0644 |                               |                                      |
|                         | 1060-16-0677 | 1062-16-0677 | .050-.075<br>(1.27-1.91)      | 2266111-1<br>7-2266111-8             |
|                         | 1060-16-0688 | 1062-16-0688 |                               |                                      |
| <b>Size 16 -Group 3</b> | 1060-16-1222 | 1062-16-1222 | .120-.140<br>(3.05-3.56)      | 2266112-1<br>7-2266112-8             |
|                         | 1060-16-1244 | 1062-16-1244 | .105-.125<br>(2.67-3.18)      | 2266113-1<br>7-2266113-8             |
|                         | 1060-16-1277 | 1062-16-1277 |                               |                                      |
|                         | -            | 1062-16-1422 | .090-.110<br>(2.29-2.79)      | 2266114-1<br>7-2266114-8             |
|                         | -            | 1062-16-1444 |                               |                                      |
|                         | -            | 1062-16-1477 | .075-.095<br>(1.91-2.41)      | 2266115-1<br>7-2266115-8             |
|                         |              |              |                               |                                      |
| <b>Size 20 -Group 1</b> | 1060-20-0122 | 1062-20-0122 | .105-.125<br>(2.67-3.18)      | 2266116-1<br>7-2266116-8             |
|                         | 1060-20-0144 | 1062-20-0144 |                               |                                      |
|                         | 1060-20-0177 | 1062-20-0177 | .085-.111<br>(2.16-2.82)      | 2266117-1<br>7-2266117-8             |
|                         | -            | 1062-20-0322 |                               |                                      |
|                         | -            | 1062-20-0344 | .075-.105<br>(1.91-2.67)      | 2266118-1<br>7-2266118-8             |
|                         | -            | 1062-20-0377 |                               |                                      |
|                         | 1060-20-0222 | 1062-20-0222 | .063-.085<br>(1.62-2.16)      | 2266119-1<br>7-2266119-8             |
|                         | 1060-20-0244 | 1062-20-0244 |                               |                                      |
|                         | 1060-20-0277 | 1062-20-0277 | .050-.075<br>(1.27-1.91)      | 2266120-1<br>7-2266120-8             |

The -1 suffix on the applicator p/n represents a mechanical feed, for other feed options contact your representative. The conversion kit is to convert applicators within the same group. For more information, please reference TE catalog 1-1773730-8 or contact your representative.

### Hand Tool Overview

For field service, prototype, and low-volume production, there are several easy-to-use hand crimp tools for both solid barrel and stamped & formed contacts. All hand crimp tools provide a tight, complete crimp with minimal effort. The HDT-48-00, the most commonly used tool for solid contacts, crimps a wide range of contact sizes. It provides a symmetrical four indent crimp, is compact and easy-to-use for field service, yet sturdy and reliable enough for low volume production. Hand crimp tools for DEUTSCH stamped & formed contacts are wire gauge specific and simultaneously crimp the insulation and conductor, saving time and effort during field service.

### HAND TOOLS FOR SOLID CONTACTS



| Contact Size | Contact Part Number                                              | Tool Part Number | Crimp Type        |
|--------------|------------------------------------------------------------------|------------------|-------------------|
| 4            | 0460-204-0490<br>0462-203-04141                                  | HDT-04-08        | Two indent crimp  |
| 8            | 0460-204-08141<br>0462-203-08141                                 | HDT-04-08        | Two indent crimp  |
| 12           | 0460-204-12**<br>0462-203-12**                                   | HDT-48-00        | Four indent crimp |
|              |                                                                  | HDT-1561         | Two indent crimp  |
|              |                                                                  | HDT-50-00        | One indent crimp  |
| 16           | 0460-202-16**<br>0462-201-16**<br>0460-215-16**<br>0462-209-16** | HDT-48-00        | Four indent crimp |
|              |                                                                  | HDT-1561         | Two indent crimp  |
|              |                                                                  | HDT-50-00        | One indent crimp  |
| 20           | 0460-202-20**<br>0462-201-20**                                   | HDT-48-00        | Four indent crimp |
|              |                                                                  | HDT-1561         | Two indent crimp  |
|              |                                                                  | HDT-50-00        | One indent crimp  |

### HDT-48-00 TOOLING ACCESSORIES

Replacement parts, such as adjustment screws, locking nuts, and inspection tools are available for the HDT-48-00 hand tool.



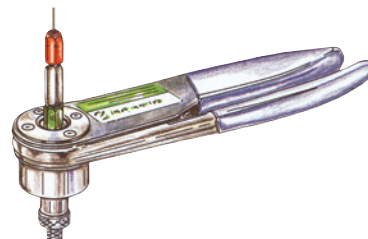
| Part Number   | Crimp Tool Replacement Part      |
|---------------|----------------------------------|
| 0426-209-0000 | Adjustment screw and locking nut |
| M2700-395-10  | Locking nut                      |

#### helpful hint

Go-no-go gauges are used to inspect crimp tooling. The G454 gauge is used with the HDT-48-00 hand tool.



| Part Number | Description              |
|-------------|--------------------------|
| G454        | HDT-48-00 Go-No-Go Gauge |



### HAND TOOLS FOR DEUTSCH STAMPED & FORMED CONTACTS



DTT-12-00



DTT-12-01



DTT-16-00  
DTT-16-01  
DTT-20-00  
DTT-20-02

| Contact Size | Contact Part Number          | Tool Part Number         |
|--------------|------------------------------|--------------------------|
| 12           | 1060-12-01**<br>1062-12-01** | DTT-12-00                |
|              | 1060-12-02**<br>1062-12-02** | DTT-12-01                |
| 16           | 1060-16-01**<br>1062-16-01** | DTT-16-00<br>(14-16 AWG) |
|              | 1060-16-06**<br>1062-16-06** | DTT-16-01<br>(18 AWG)    |
| 20           | 1060-20-01**<br>1062-20-01** | DTT-20-00                |
|              | 1060-20-02**<br>1062-20-02** | DTT-20-02                |

## MULTI-USE REMOVAL TOOL



| Part Number | Description                                                                                                                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DT-RT1      | Multi-use tool with a small hook on one end for wedgelock removal, and a small screwdriver on the other end to push back the locking fingers and release the contact. For use with the DT, DTM, DTP, DTV, DRB, and STRIKE series. |

## REMOVAL TOOLS

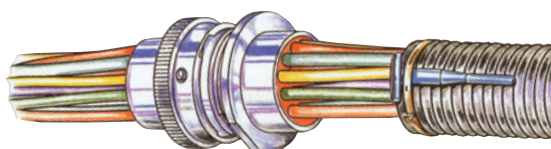
DEUTSCH removal tools are designed to simplify contact removal and field service repair in connectors that utilize a round shoulder contact retention system. Removal tools are compact, easy-to-use, and manufactured of heavy duty plastic to remove contacts without damage to the wire, insulation, connector seals, or connector body. The removal tools are required for wire removal in the DTHD, Jiffy Splices, HD10, HDP20, HD30, DRC, AEC, and WT series.



| Part Number   | Contact Size         | Wire Gauge Range                         | Color             |
|---------------|----------------------|------------------------------------------|-------------------|
| 0411-027-0405 | Size 4               | 4 AWG                                    | Black             |
| 114009        | Size 4               | 6 AWG                                    | White             |
| 114008        | Size 8               | 8-10 AWG                                 | Green             |
| 0411-353-0805 | Size 8<br>for HD Box | 8-10 AWG                                 | Green<br>Extended |
| 114010        | Size 12              | 12 AWG                                   | Yellow            |
| 0411-337-1205 | Size 12              | 12-14 AWG<br>Extra Thin Wall<br>(E-Seal) | Orange            |
| 0411-291-1405 | Size 16              | 14-16 AWG                                | Green             |
| 0411-310-1605 | Size 16              | 16-20 AWG                                | Light Blue        |
| 0411-336-1605 | Size 16              | 16-18 AWG<br>Extra Thin Wall<br>(E-Seal) | Dark Blue         |
| 0411-240-2005 | Size 20              | 20-22 AWG                                | Red               |

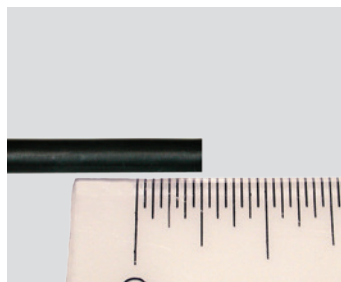
### helpful hint

A contact removal tool taped or tie wrapped to the harness will make it easily available, should repairs be needed.



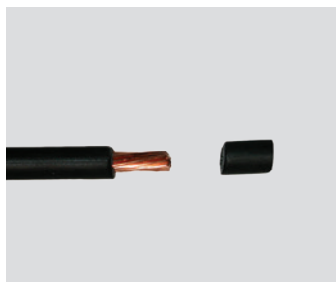
## How To Instructions

### WIRE STRIPPING



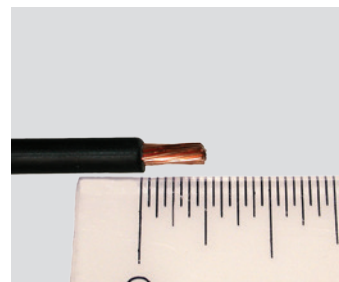
#### Step 1:

1. Choose the correct AWG for the contact being used.
2. Measure from the end of the wire the recommended strip length according to the contact size.
3. Place the wire into a stripping tool at the recommended strip length. Strip the wire according to stripping tool instructions.



#### Step 2:

1. After stripping, a small piece of the insulation should come off.
2. Check for any broken strands or for a dent in the wire. If either exist, the wire is damaged and should be cut and stripped again.

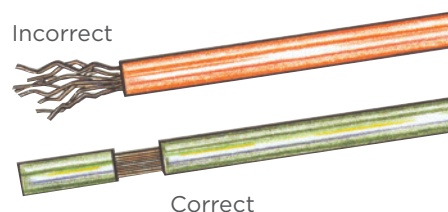


#### Step 3:

- Measure the exposed strands to be sure the crimp length is correct.

#### helpful hint

Leaving the stripped portion of the insulation on the wire until crimping will avoid frayed wire strands.



### CRIMPING WITH THE HDT-48-00 HAND TOOL



#### Step 1:

1. Strip insulation from wire.
2. Raise selector knob and rotate until arrow is aligned with wire size to be crimped.
3. Loosen locknut, turn adjusting screw in until it stops.



#### Step 2:

- Insert contact with barrel up. Turn adjusting screw counterclockwise until contact is flush with indenter cover. Tighten locknut.



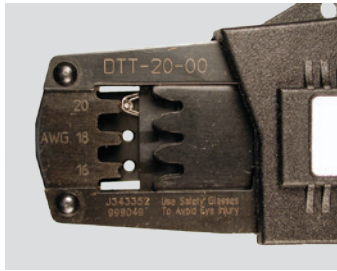
#### Step 3:

1. Insert wire into contact. Contact must be centered between indentors. Close handles until crimp cycle is completed.
2. Release handles and remove crimped contact.

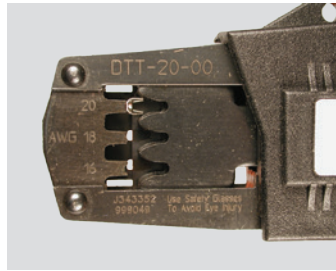
#### Note

Tool must be adjusted for each type/size of contact.

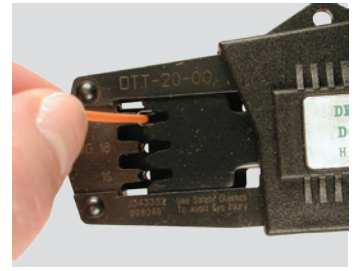
### CRIMPING WITH DTT STYLE HAND TOOLS (SIZE 16 & 20)



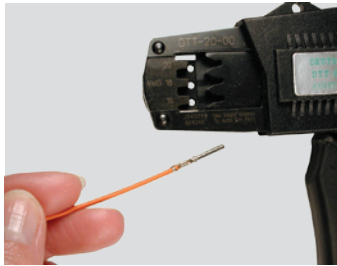
**Step 1:**  
Cycle the hand tool to the open position. Place the contact into the correct die nest.



**Step 2:**  
Partially close the tool until the contact is held in place.

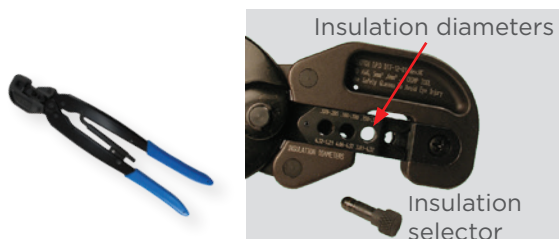


**Step 3:**  
Insert the prestripped wire into the crimp area of the contact.



**Step 4:**  
Close the tool until the ratchet releases. The ratchet is released when a loud click is heard and crimp is complete.

## CRIMPING WITH DTT-12-01 HAND TOOL

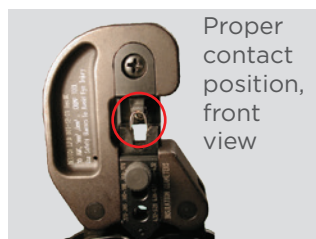


### Step 1:

Cycle handles to release ratchet and fully open crimp jaws. Pull out insulation selector and push into proper diameter using the chart below.

### Wire Type    Insulation Selector

|                     |           |
|---------------------|-----------|
| 10 TXL              | .150-.170 |
| 10 GXL              | .160-.180 |
| 10 SXL              | .170-.205 |
| 5.0 mm <sup>2</sup> | .160-.180 |
| 6.0 mm <sup>2</sup> | .170-.205 |



### Step 2:

1. Insert contact into locator. Adjust alignment and width of crimp wings if necessary to help confirm capture by crimp jaws.
2. Insert stripped wire into the contact. Close crimp tool until full-cycle ratchet control releases.

# Contents

|                                |     |
|--------------------------------|-----|
| Bussed Feedback Overview ..... | 192 |
| Bussed Examples .....          | 192 |
| Dimensions .....               | 193 |
| Ordering Information.....      | 194 |



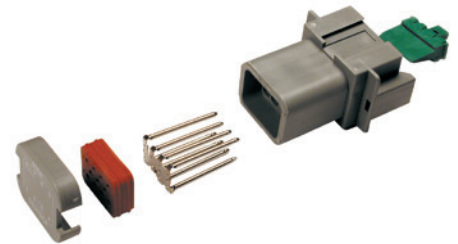
### Bussed Overview

DEUTSCH industrial bussed feedback receptacles are environmentally sealed connectors designed for use in heavy duty applications where multiple circuits require a common electrical pathway. Available in the DT Series, DEUTSCH bussed connectors feature integrated bussbars with standard DEUTSCH contacts.

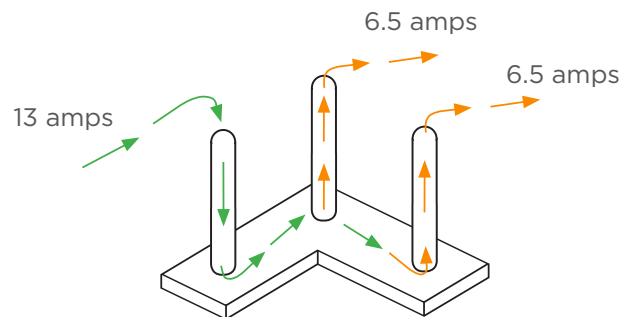
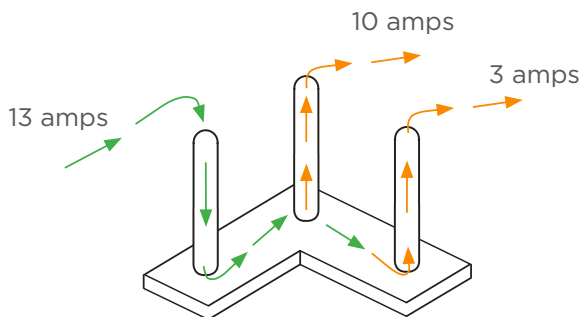
A bussbar, or buss, is a thin conductive strip connecting two or more contacts within the body of a connector. Bussbars allow power or data to be fed into a connector through one or more terminals and drawn out as needed through the other contacts on the same buss. Connectors can carry one or more bussbars, creating multiple independent electrical circuits within the same connector body and distributing power or data to many components. A single bussed connector can replace several standard connectors or splices, saving space, wiring, and weight.

### DT SERIES BUSSED FEEDBACK RECEPTACLES

DT bussed feedback receptacles are a compact economical bussing option housed in rugged, field-proven DT receptacle bodies. The bussed DTs mate with standard DT plugs and meet all the performance specifications for the DT series. The connectors are available in multiple buss configurations using standard size 16 contacts, with plating options in nickel or gold.



### BUSSED EXAMPLES

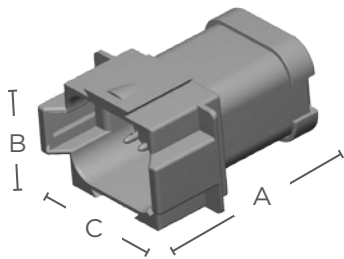


In the examples, there are three size 16 pins each rated for 13 amps mounted to the buss. A total of 13 amps can be pulled into one pin and going out the 13 amps are split between the remaining two pins. No more than 13 amps can go through any single pin.

#### Note

The maximum current rating is the total amount of current for the entire buss. Current can be distributed in many combinations, but cannot exceed 13 amps per contact.

DIMENSIONS

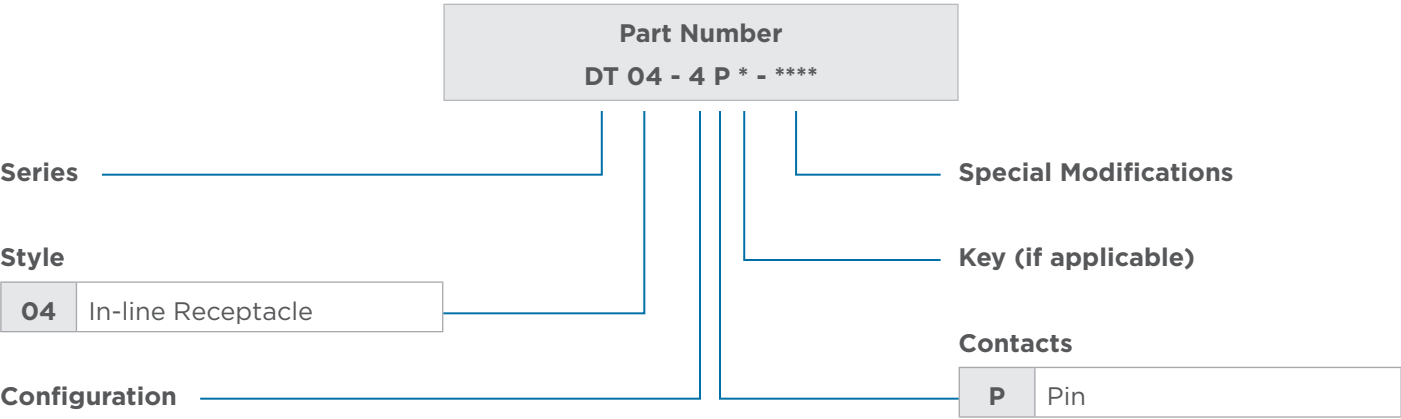


DT Receptacle

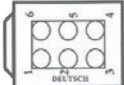
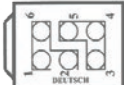
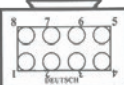
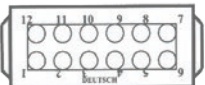
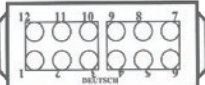
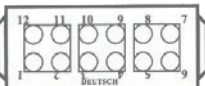
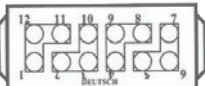
| Cavity | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C |
|--------|---------------------|---------------------|--------------------|
| 2      | 1.818 (46.18)       | .670 (17.15)        | .675 (17.15)       |
| 4      | 1.868 (47.45)       | .797 (20.24)        | .820 (20.83)       |
| 6      | 1.858 (47.19)       | .972 (24.69)        | .820 (20.83)       |
| 8      | 1.848 (46.94)       | 1.000 (25.40)       | 1.435 (36.45)      |
| 12     | 2.043 (51.89)       | .876 (22.25)        | 1.597 (40.56)      |

Dimensions are for reference only.

DT SERIES BUSSED FEEDBACK RECEPTACLE PART NUMBERING SYSTEM



## ORDERING INFORMATION

| Bussing Arrangements                                                                                | Maximum Current Rating*                          | Buss Plating                     | Connector Color                | Receptacle Part Number                                               | Mating Plug Part Number                                              |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------|--------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|
| <br>(1) 2          | (1) 2 Pin Buss=13 amps                           | Nickel                           | Black                          | DT04-2P-P060                                                         | DT06-2S-****                                                         |
| <br>(1) 4          | (1) 4 Pin Buss=26 amps                           | Nickel<br>Nickel                 | Black<br>Gray                  | DT04-4P-EP13<br>DT04-4P-P021                                         | DT06-4S-****<br>DT06-4S-****                                         |
| <br>(1) 6          | (1) 6 Pin Buss=39 amps                           | Nickel<br>Nickel                 | Black<br>Gray                  | DT04-6P-EP13<br>DT04-6P-P021                                         | DT06-6S-****<br>DT06-6S-****                                         |
| <br>(2) 3's        | (2) 3 Pin Busses=13<br>amps each                 | Nickel                           | Black                          | DT04-6P-EP14                                                         | DT06-6S-****                                                         |
| <br>(1) 8          | (1) 8 Pin Buss=52 amps                           | Nickel<br>Nickel                 | Gray<br>Black                  | DT04-08PA-P021<br>DT04-08PB-P021                                     | DT06-08SA-****<br>DT06-08SB-****                                     |
| <br>(1) 3, (1) 5 | (1) 3 Pin Buss=13 amps<br>(1) 5 Pin Buss=26 amps | Nickel<br>Nickel                 | Gray<br>Black                  | DT04-08PA-P028<br>DT04-08PB-P028                                     | DT06-08SA-****<br>DT06-08SB-****                                     |
| <br>(2) 4's      | (2) 4 Pin Busses=26<br>amps each                 | Nickel<br>Nickel                 | Gray<br>Black                  | DT04-08PA-P026<br>DT04-08PB-P026                                     | DT06-08SA-****<br>DT06-08SB-****                                     |
| <br>(1) 12       | (1) 12 Pin Buss=78<br>amps                       | Gold<br>Gold<br>Nickel<br>Nickel | Gray<br>Black<br>Gray<br>Black | DT04-12PA-P016<br>DT04-12PB-P016<br>DT04-12PA-P021<br>DT04-12PB-P021 | DT06-12SA-****<br>DT06-12SB-****<br>DT06-12SA-****<br>DT06-12SB-**** |
| <br>(2) 6's      | (2) 6 Pin Busses=39<br>amps each                 | Nickel<br>Nickel<br>Gold         | Gray<br>Black<br>Black         | DT04-12PA-P026<br>DT04-12PB-P026<br>DT04-12PB-P027                   | DT06-12SA-****<br>DT06-12SB-****<br>DT06-12SB-****                   |
| <br>(3) 4's      | (3) 4 Pin Busses=26<br>amps each                 | Nickel                           | Gray                           | DT04-12PA-P075                                                       | DT06-12SA-****                                                       |
| <br>(4) 3's      | (4) 3 Pin Busses=13<br>amps each                 | Nickel<br>Nickel<br>Gold<br>Gold | Gray<br>Black<br>Gray<br>Black | DT04-12PA-P030<br>DT04-12PB-P030<br>DT04-12PA-P031<br>DT04-12PB-P031 | DT06-12SA-****<br>DT06-12SB-****<br>DT06-12SA-****<br>DT06-12SB-**** |

\*Maximum current rating is the total amperage for the buss

# Contents

## Controller Area Networks (CAN)

Overview .....196

ISO Box .....196

J1939/11 9-pin Diagnostic.....198-199

J1939/13 Connector Options .....200-201

J1939/15 Connector Options ..... 202-203

### CAN Overview

Controller Area Networks, or CAN, are multiplex data systems. Multiplexing allows multiple data signals to travel on the same wires, integrating separate electronic systems and applications to a single point control and monitoring system. Using signals sent over a serial network, CAN systems provide instantaneous monitoring of diagnostic and control systems allowing early detection of potential problems. Early detection of problems leads to lower repair costs and reduced downtime. CAN systems allow an operator to use a single command station to control diagnostic systems and receive such varied information as brake and transmission temperature, tire pressure, fuel efficiency, and emissions levels. Anything that can be measured and controlled electronically can be monitored and directed by a CAN system.

### ISO/CD 11783-2 ISO BOX AND ASSOCIATED CONNECTORS

Originally designed for agricultural applications, the DEUTSCH ISO Box creates a communication pathway between an on-board CAN system and the electronic components on an attached implement. The HDBox, which holds two DT13 connectors and an HD30 series receptacle, mounts on the vehicle and mates with an HD30 plug connector that features a breakaway coupling ring. DEUTSCH breakaway couplings are designed to help prevent damage to the vehicle or the attached implement by fragmenting and separating from the vehicle in the event of a drive-away disconnect.



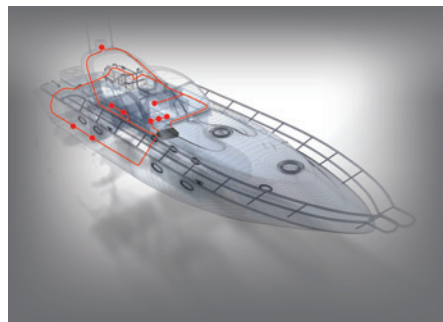
| Part Number       | Description                                                       |
|-------------------|-------------------------------------------------------------------|
| HDBOX-24-91PN     | ISO Box assembly                                                  |
| HDBOX-24-91PE     | ISO Box assembly, reduced wire seal                               |
| HD36-24-91SN-059  | Plug, cable clamp assembly                                        |
| HD36-24-91SE-059  | Plug, cable clamp assembly, reduced wire seal                     |
| HDB36-24-91SN-059 | Plug, breakaway coupling, cable clamp assembly                    |
| HDB36-24-91SE-059 | Plug, breakaway coupling, cable clamp assembly, reduced wire seal |
| DT06-4S-EP06*     | Plug, black, end cap                                              |
| DT06-2S-EP06*     | Plug, black, end cap                                              |
| W4S-P012          | Wedgelock, green                                                  |
| W2S-P012          | Wedgelock, green                                                  |
| 0460-204-08141    | Pin, solid, size 8                                                |
| 0460-204-12141    | Pin, solid, size 12                                               |
| 0460-202-1631     | Pin, solid, size 16, gold                                         |
| 0462-203-08141    | Socket, solid, size 8                                             |
| 0462-203-12141    | Socket, solid, size 12                                            |
| 0462-201-1631     | Socket, solid, size 16, gold                                      |

\*DT series receptacles are molded in the HDBox

### CAN PRODUCT OPTIONS

Whether you're building a Controller Area Network for anything from on/off-highway, construction, material handling, agriculture machines, to your OEM fleet of fire engines, there is a DEUTSCH solution for your CAN needs. Options include several configurations: 2-wire, 3-wire, and 4-wire, with in-line and flange mount, along with splitters, heavy duty breakaway connectors, and an off-board 9-pin diagnostic connector.

SAE J1939 is a specific type of CAN that defines the communications pathways for vehicle networks. Improved electrical systems as defined under SAE J1939 allow electrical devices to communicate with each other. Communication occurs using a Controlled Area Network between intelligent sensors over a serial network. Through a series of microprocessors a CAN interconnects every device establishing a common link between each.



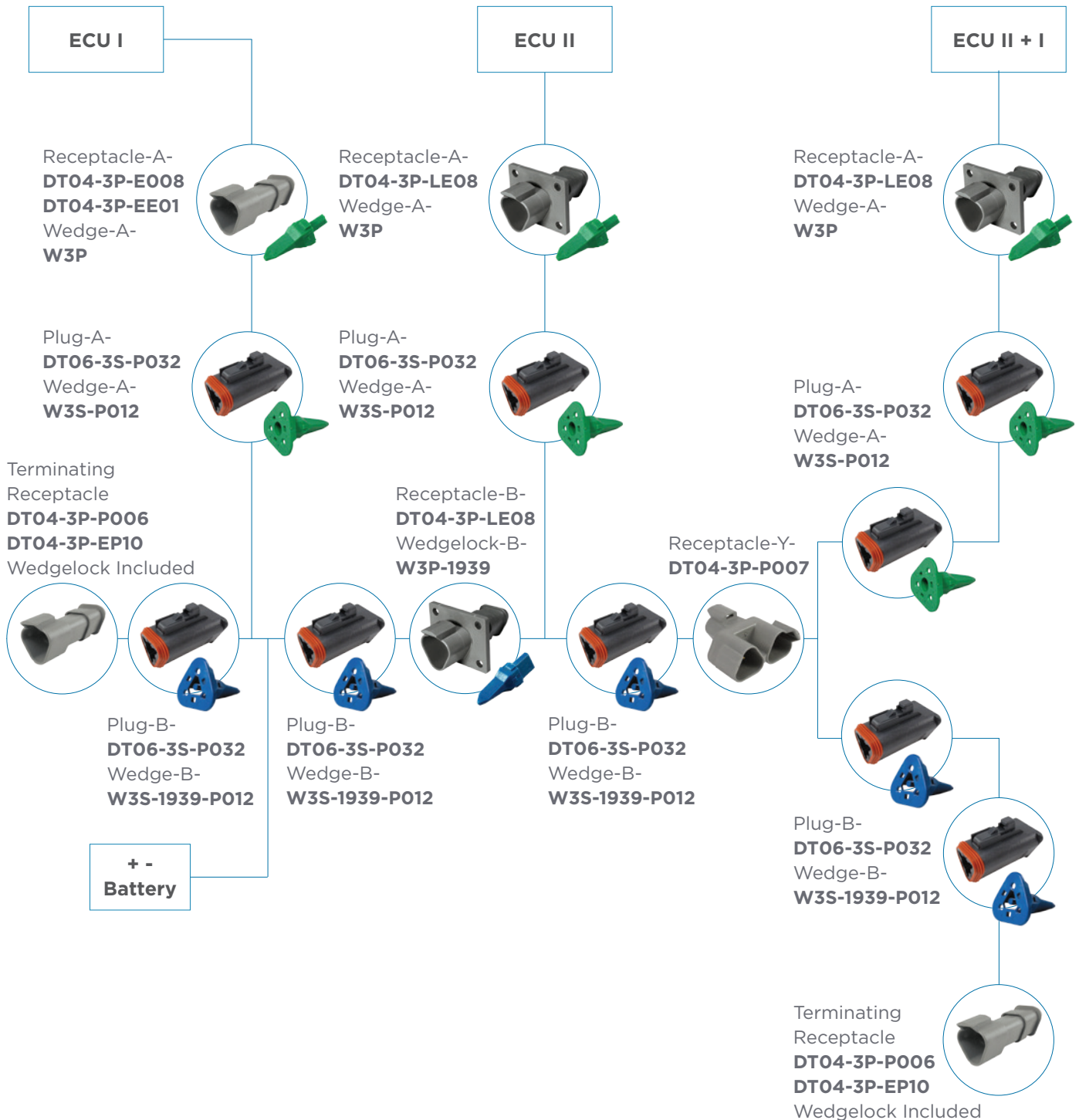
There are three main electrical interconnect subsets of J1939 including /11, /13, and /15:

- J1939/11 is a 3-wire system that uses the DEUTSCH DT series connectors primarily for truck and bus. The DT series accepts size 16 contacts and 14-20 AWG. Connector options include in-line, bulkhead, "Y" splitter, and terminating resistors.
- J1939/13 is a system that uses the DEUTSCH HD10 series connectors for on-board diagnostics. The HD10 series accepts size 16 contacts and 14-20 AWG.
- J1939/15 is a 2-wire system that uses the DEUTSCH DTM series connectors. The DTM series accepts size 20 contacts and 16-22 AWG. Connector options include in-line, "Y" splitter, and terminating resistors.

The sophistication of equipment design is demanding increased response of electrical systems. The application of J1939 allows designers to improve the quantity and the quality of the options offered along with increased electrical system reliability.

### J1939/11 3 WIRE SYSTEM SCHEMATIC

DEUTSCH J1939/11 connectors are rugged field proven DT 3 pin connectors designed to meet the SAE requirements for 3-wire CAN applications linking ECUs for serial data communications. The DT 3 way connectors accommodate the CAN\_HI, CAN\_LO and shield wires with a variety of options including “Y” receptacles, connectors with mounting flanges, keyed wedgelocks to prevent mis-mating, and network terminating connectors with molded-in 120Ω resistors.



### J1939/11 DEUTSCH CONNECTOR OPTIONS

| Part Number   | Description                                   |
|---------------|-----------------------------------------------|
| DT04-3P-P007  | Receptacle, “y” connector                     |
| DT04-3P-E008  | Receptacle, gray, shrink boot adapter         |
| DT04-3P-P006  | Receptacle, gray, 120Ω resistor               |
| DT04-3P-EE01  | Receptacle, black, shrink boot adapter        |
| DT04-3P-EP10  | Receptacle, black, 120Ω resistor              |
| DT06-3S-E008  | Plug, gray, shrink boot adapter               |
| DT06-3S-P006  | Plug, gray, 120Ω resistor                     |
| DT06-3S-EP11  | Plug, black, shrink boot adapter              |
| DT06-3S-PP01  | Plug, black, 120Ω resistor                    |
| DT06-3S-PE01  | Plug, black, 120Ω resistor, latch guard       |
| DT06-3S-P032  | Plug, black, single piece shrink boot adapter |
| W3P-1939      | Wedgelock, blue                               |
| W3S           | Wedgelock, orange                             |
| W3S-P012      | Wedgelock, green                              |
| W3S-1939      | Wedgelock, blue                               |
| W3S-1939-P012 | Wedgelock, blue                               |
| 0460-202-1631 | Pin, solid, size 16, gold                     |
| 1060-16-0144  | Pin, stamped & formed, size 16, gold          |
| 0460-247-1631 | Pin, solid, size 16, gold, extended           |
| 0462-201-1631 | Socket, solid, size 16, gold                  |
| 1062-16-0144  | Socket, stamped & formed, size 16, gold       |
| 0462-221-1631 | Socket, solid, size 16, gold, extended        |





### J1939/13 UNIVERSAL 9-PIN DIAGNOSTIC

DEUTSCH J1939/13, HD10 9 pin connector is a standard diagnostic tool interface for on- and off-highway OEMs. The HD10-9-1939P is a data port connector designed to allow an on-board CAN system to mate with a diagnostic computer. The connectors are for use with the 250 kbps network. The DEUTSCH HD10 J1939/13 connectors offer several mounting options for the receptacle, and a mating plug that is available with or without a coupling ring.



| Part Number        | Description                                         |
|--------------------|-----------------------------------------------------|
| HD10-9-1939P       | Receptacle                                          |
| HD10-9-1939P-B022  | Receptacle, panel nut mount                         |
| HD10-9-1939PE-B022 | Receptacle, panel nut mount, reduced wire seal      |
| HD10-9-1939PE      | Receptacle, reduced wire seal                       |
| HD16-9-1939S       | Plug, coupling ring                                 |
| HD16-9-1939SE      | Plug, coupling ring, reduced wire seal              |
| HD17-9-1939S       | Plug, no coupling ring (slip-on)                    |
| HD17-9-1939SE      | Plug, no coupling ring (slip-on), reduced wire seal |
| 0460-202-1631      | Pin, solid, size 16, gold                           |
| 0460-247-1631      | Pin, solid, size 16, gold, extended                 |
| 0462-201-1631      | Socket, solid, size 16, gold                        |
| 0462-221-1631      | Socket, solid, size 16, gold, extended              |

### J1939/13 TYPE II UNIVERSAL 9-PIN DIAGNOSTIC

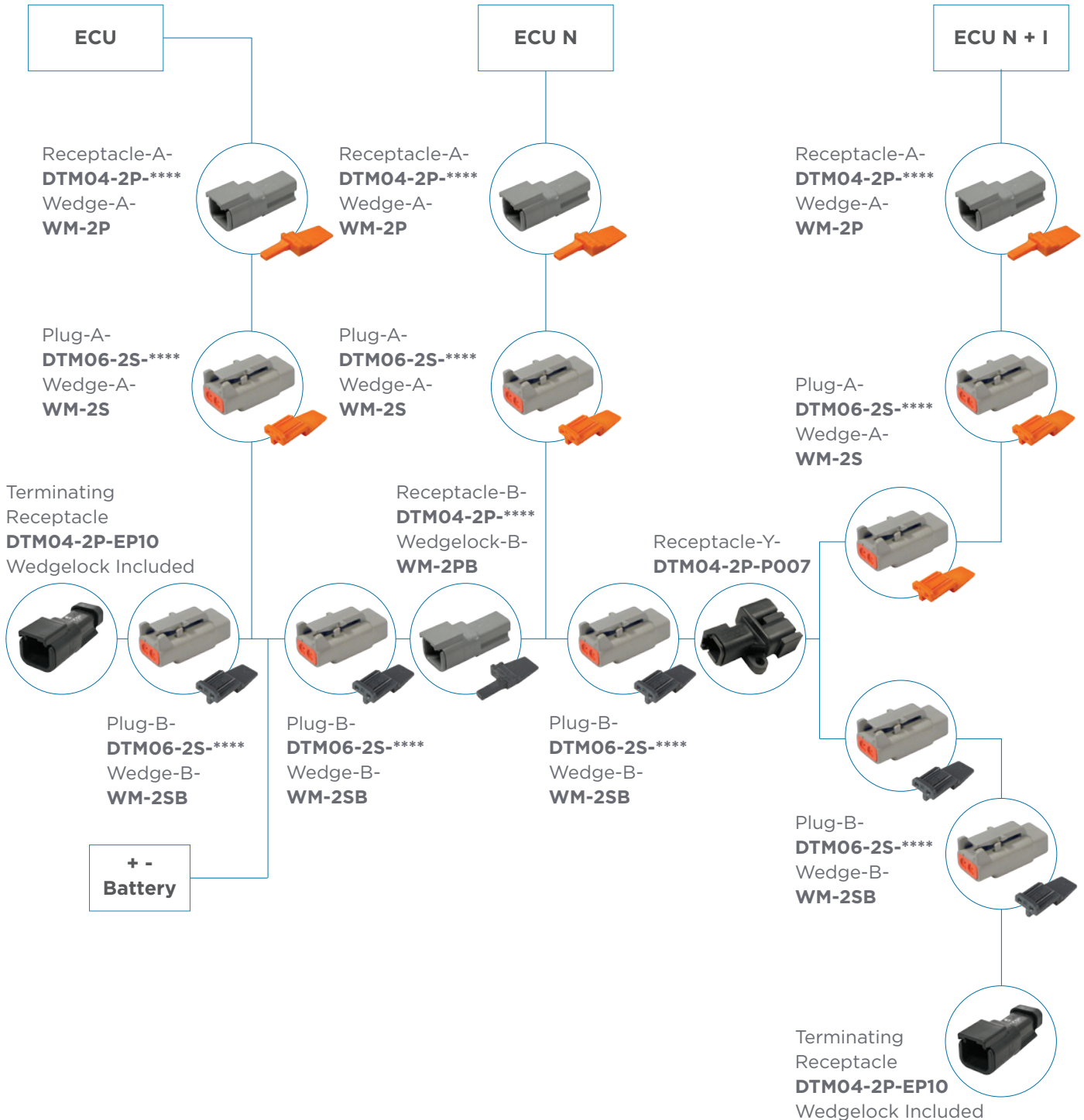
DEUTSCH J1939/13, HD10 9 pin connector is a standard diagnostic tool interface for on- and off-highway OEMs. The HD10-9-1939P\*-P080 is a data port connector designed to allow an on-board CAN system to mate with a diagnostic computer. The green, Type II connectors, HD10-9-1939P-P080, are for use with the 500 kbps network. The DEUTSCH HD10 J1939/13 connectors offer several mounting options for the receptacle, and a mating plug that is available with or without a coupling ring.



| Part Number        | Description                                                  |
|--------------------|--------------------------------------------------------------|
| HD10-9-1939P-P080  | Receptacle, flange mount, type II                            |
| HD10-9-1939PE-P080 | Receptacle, flange mount, type II, reduced wire seal         |
| HD10-9-1939P-BP03  | Receptacle, panel nut mount, type II                         |
| HD10-9-1939PE-BP03 | Receptacle, panel nut mount, type II, reduced wire seal      |
| HD14-9-1939P-P080  | Receptacle, type II                                          |
| HD14-9-1939PE-P080 | Receptacle, type II, reduced wire seal                       |
| HD16-9-1939S-P080  | Plug, coupling ring, type II                                 |
| HD16-9-1939SE-P080 | Plug, coupling ring, type II, reduced wire seal              |
| HD17-9-1939S-P080  | Plug, no coupling ring (slip-on), type II                    |
| HD17-9-1939SE-P080 | Plug, no coupling ring (slip-on), type II, reduced wire seal |
| 0460-202-1631      | Pin, solid, size 16, gold                                    |
| 0460-247-1631      | Pin, solid, size 16, gold, extended                          |
| 0462-201-1631      | Socket, solid, size 16, gold                                 |
| 0462-221-1631      | Socket, solid, size 16, gold, extended                       |

### J1939/15 2 WIRE SYSTEM SCHEMATIC

SAE J1939/15 defines the requirements for reduced physical layer 2-wire CAN systems consisting of an unshielded twisted pair of wires. DEUTSCH DTM 2 way connectors are offered in several modifications to meet the requirements of this standard. DTM connectors for serial data communications include “Y” receptacles, connectors with end caps and shrink boot adapters, and receptacles with molded-in 120Ω resistors for network terminations.



### J1939/15 DEUTSCH CONNECTOR OPTIONS

| Part Number   | Description                             |
|---------------|-----------------------------------------|
| DTM04-2P-P007 | Receptacle, “y” connector               |
| DTM04-2P-E007 | Receptacle, gray, shrink boot adapter   |
| DTM04-2P-P006 | Receptacle, gray, 120Ω resistor         |
| DTM04-2P-EE03 | Receptacle, black, shrink boot adapter  |
| DTM06-2S-E007 | Plug, gray, shrink boot adapter         |
| DTM06-2S-P006 | Plug, gray, 120Ω resistor               |
| DTM06-2S-EE03 | Plug, black, shrink boot adapter        |
| DTM06-2S-EP10 | Plug, black, 120Ω resistor              |
| WM-2P         | Wedgelock, orange                       |
| WM-2PA        | Wedgelock, gray                         |
| WM-2PB        | Wedgelock, black                        |
| WM-2S         | Wedgelock, orange                       |
| WM-2SA        | Wedgelock, gray                         |
| WM-2SB        | Wedgelock, black                        |
| 0460-202-2031 | Pin, solid, size 20, gold               |
| 1060-20-0144  | Pin, stamped & formed, size 20, gold    |
| 0462-201-2031 | Socket, solid, size 20, gold            |
| 1062-20-0144  | Socket, stamped & formed, size 20, gold |



NOTES:

# Contents

|                                        |         |
|----------------------------------------|---------|
| Diodes & Resistors Overview.....       | 206     |
| Configurations.....                    | 206     |
| Diodes & Resistor Characteristics..... | 207-208 |

### Diodes & Resistors Overview

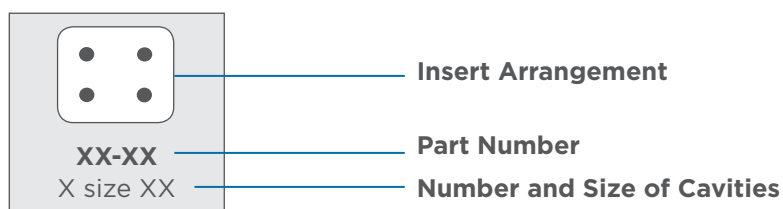
DEUTSCH DT connectors with diodes and resistors are useful anywhere you need to regulate power or protect a device against a potential power surge.

A diode allows current to flow in one direction only. By preventing current from traveling a circuit in the wrong direction, a diode can protect an electronic device from damage. Devices with batteries will often use diodes to prevent power from flowing in reverse if the battery is not installed correctly.

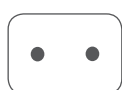
A resistor limits or blocks current flow in both directions. Resistors protect sensitive electronics by limiting the amount of electricity that can flow to the device through the resistor, and therefore preventing power spikes. For example, resistors are used to prevent power surges from burning out an LED by restricting current flow to the light.

DEUTSCH diode and resistor connectors are easily added to an application after the fact if unwanted power surges are discovered.

### DIODE & RESISTOR CONFIGURATIONS



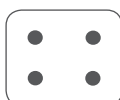
### DT SERIES CONFIGURATIONS



**DT0\*-2\*-\*\*\*\***  
2 size 16



**DT0\*-3\*-\*\*\*\***  
3 size 16



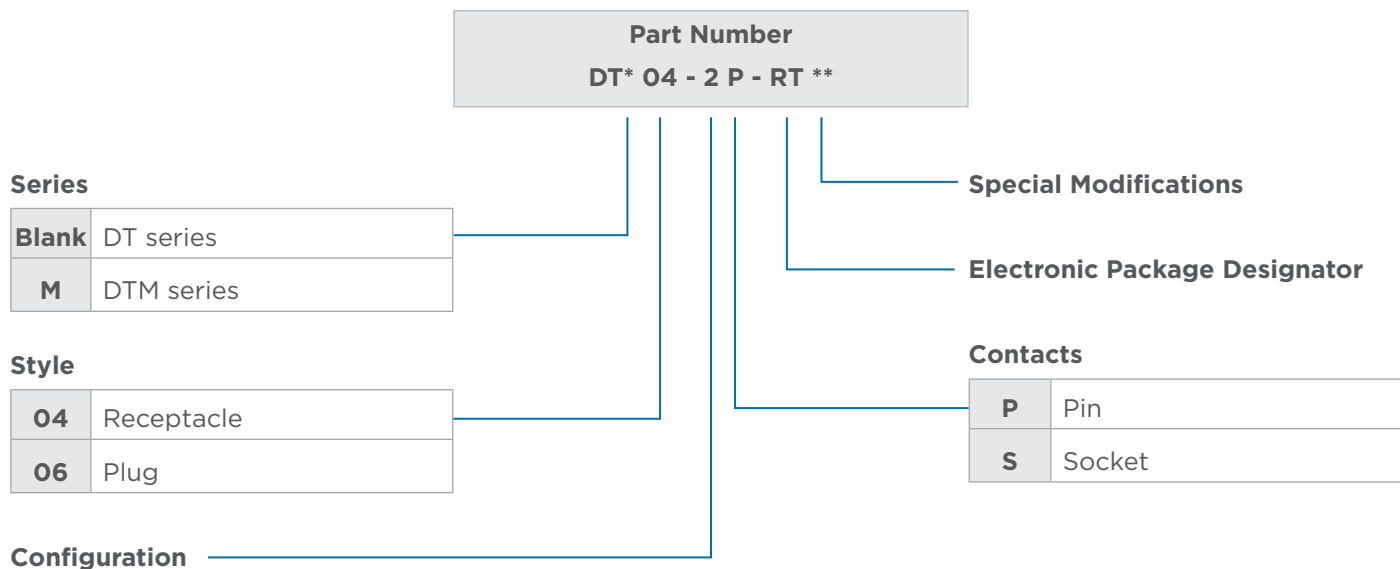
**DT0\*-4\*-\*\*\*\***  
4 size 16

### DTM SERIES CONFIGURATIONS



**DTM0\*-2\*-\*\*\*\***  
2 size 20

## PART NUMBERING SYSTEM



## DIODE CHARACTERISTICS

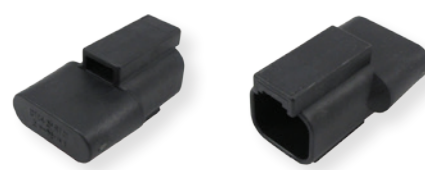
| DT Series | Part Number  | Plug or Receptacle | Diode Part Number | Peak Reverse Volts | Peak Forward Volts | Avg. Forward Current | Color |
|-----------|--------------|--------------------|-------------------|--------------------|--------------------|----------------------|-------|
|           | DT04-2P-RT01 | Receptacle         | MUR460            | 600 V max.         | 1.28 V max.        | 4.0 A max.           | Black |
|           | DT04-2P-RT02 | Receptacle         | 1N5625GP          | 400 V max.         | 1.0 V max.         | 3.0 A max.           | Black |
|           | DT04-4P-RT01 | Receptacle         | MUR460 (3)        | 600 V max.         | 1.28 V max.        | 4.0 A max.           | Black |
|           | DT04-4P-RT03 | Receptacle         | MUR460 (2)        | 600 V max.         | 1.28 V max.        | 4.0 A max.           | Gray  |



## RESISTOR CHARACTERISTICS

| DTM Series                                                                        | Part Number   | Plug or Receptacle | Resistor Ohms | Resistor Watts | Color                              |
|-----------------------------------------------------------------------------------|---------------|--------------------|---------------|----------------|------------------------------------|
|  | DTM04-2P-EP10 | Receptacle         | 120           | 0.4            | Black (B keyed wedgelock included) |
|  | DTM04-2P-P006 | Receptacle         | 120           | 0.4            | Gray (A keyed wedgelock included)  |
|  | DTM06-2S-EP10 | Plug               | 120           | 0.4            | Black (B keyed wedgelock included) |
|  | DTM06-2S-P006 | Plug               | 120           | 0.4            | Gray (A keyed wedgelock included)  |

| DT Series                                                                           | Part Number  | Plug or Receptacle | Resistor Ohms | Resistor Watts | Color                                  |
|-------------------------------------------------------------------------------------|--------------|--------------------|---------------|----------------|----------------------------------------|
|    | DT04-2P-RT25 | Receptacle         | 27k           | 0.5            | Black                                  |
|  | DT04-3P-EP10 | Receptacle         | 120           | 0.4 min.       | Black (J1939 keyed wedgelock included) |
|  | DT04-3P-P006 | Receptacle         | 120           | 0.4 min.       | Gray (J1939 keyed wedgelock included)  |
|  | DT06-3S-EP10 | Plug               | 120           | 0.4 min.       | Black (J1939 keyed wedgelock included) |
|  | DT06-3S-P006 | Plug               | 120           | 0.4 min.       | Gray (J1939 keyed wedgelock included)  |



# Contents

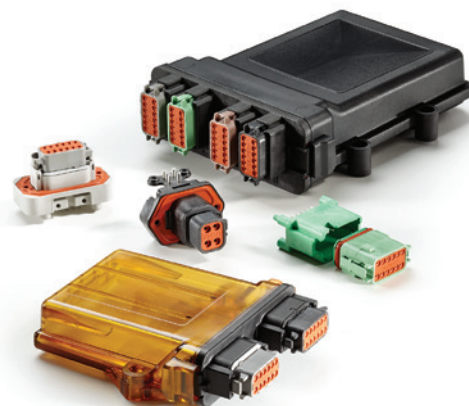
|                                      |         |
|--------------------------------------|---------|
| Printed Circuit Board Overview ..... | 210     |
| PCB Connector Options .....          | 210     |
| AMPSEAL Connectors .....             | 211     |
| Circular DIN Connectors .....        | 211     |
| DRC Series .....                     | 212-213 |
| DT Family .....                      | 214-216 |
| HD10 Series .....                    | 216     |
| LEAVYSEAL .....                      | 217     |
| STRIKE Series .....                  | 217     |
| Superseal 1.0 Connectors .....       | 218     |
| PCB Enclosures and Headers .....     | 218-221 |

## Printed Circuit Board Connectors

### Printed Circuit Board Overview

Printed circuit board or PCB connectors are heavy duty environmentally sealed connectors designed for wire-to-circuit board connections. TE Connectivity Industrial & Commercial Transportation's connectors are built to maintain the integrity and continuity of data and power signals in harsh environments. Developed and designed for heavy duty electronically equipped vehicles, TE's printed circuit board connector bodies will withstand dust, dirt, moisture, and vibration.

Available in a variety of styles from several different connector families, TE's printed circuit board connectors cover a range of pin counts from 2 to 76 and wire gauges from 10 to 22. Many of the connectors are available in straight, 90°, or solder pot options.



### PRINTED CIRCUIT BOARD CONNECTOR OPTIONS

| Product Line                           | Cavity Arrangements                | Mating Connector Wire Size |
|----------------------------------------|------------------------------------|----------------------------|
| AMPSEAL                                | 8, 14, 23, 35                      | 16-20 AWG                  |
| Circular DIN                           | 2, 3, 4                            | 2.50-.20 mm <sup>2</sup>   |
| DRC Series                             | 24, 40, 50, 60, 70, 76             | 14-22 AWG                  |
| DT Series                              | 2, 3, 4, 6, 8, 12                  | 14-20 AWG                  |
| DTM Series                             | 8, 12, 48 (flangeless)             | 16-22 AWG                  |
| DTP Series                             | 4                                  | 10-14 AWG                  |
| HD10 Series                            | 6,9                                | 14-20 AWG                  |
| LEAVYSEAL                              | 21, 39, 62, 92                     | 6.0-.20 mm <sup>2</sup>    |
| STRIKE                                 | 32                                 | 14-22 AWG                  |
| Superseal 1.0                          | 26, 34, 60                         | 1.25-.50 mm <sup>2</sup>   |
| EEC Enclosure and<br>Flange Receptacle | 12, 24, 36, 48 (DT series headers) | 14-20 AWG                  |
|                                        | 12, 24 (DTM series headers)        | 16-22 AWG                  |

Notes: DT series has flangeless options. Some arrangements of the DT and DTM series are available with A, B, C, and D keying options.

#### Note

See individual product line sections for part numbering system.

## Printed Circuit Board Connectors

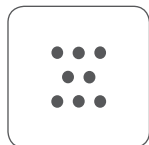
### AMPSEAL CONNECTORS 90° OR STRAIGHT

#### Materials

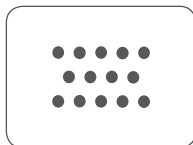
Cover: Glass filled PBT  
Wire Seal: Silicone rubber  
Contacts: Tin or gold plated brass

#### Mating Plugs

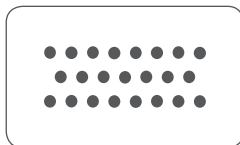
8 Position: 776286-\*  
14 Position: 776273-\*  
23 Position: 770680-\*  
35 Position: 776164-\*



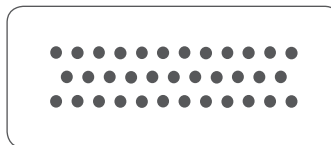
**8 Positions**  
8 size 1.3 mm



**14 Positions**  
14 size 1.3 mm



**23 Positions**  
23 size 1.3 mm



**35 Positions**  
35 size 1.3 mm

#### Note

See pages 11-20 for comprehensive AMPSEAL product information.

### CIRCULAR DIN CONNECTORS STRAIGHT

#### Materials

Housing: Glass filled PBT & PA  
Flange Seal: Silicone rubber  
Contacts: CuZn, tin plated  
CuZn, gold plated

#### Mating Plugs

2 Position: 1-967325-3, 1-968968-3 (secondary locking)  
3 Position: 1-967325-2, 1-968968-2 (secondary locking)  
4 Position: 1-967325-1, 1-968968-1 (secondary locking)



**2 Positions**  
2 size 2.5 mm



**3 Positions**  
3 size 2.5 mm



**4 Positions**  
4 size 2.5 mm

#### Note

See pages 35-44 for comprehensive Circular DIN product information.

### DRC10 SERIES STRAIGHT

#### Materials

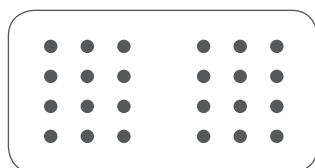
Housing: Glass filled PA and PPS  
Grommet: Silicone rubber  
Receptacle Threaded Insert:  
Stainless steel/brass  
Contacts: Molded-in copper alloy,  
tin plated solder pot standard  
(gold optional - see  
modifications)

#### Mating Plugs

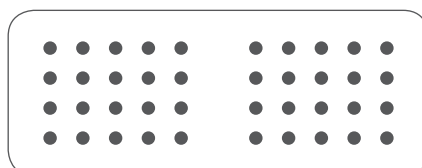
24 Pin: DRC16-24S\*  
40 Pin: DRC16-40S

#### Modifications

A004: Tin plated PCB pins  
AG02: Some terminals  
are gold plated



**DRC10-24P\***  
24 size 16



**DRC10-40P\***  
40 size 16

### DRC13 SERIES 90°

#### Materials

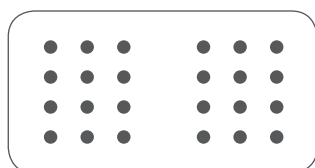
Housing: Glass filled PA and PPS  
Receptacle Threaded Insert:  
Stainless steel/brass  
Contacts: Molded-in copper alloy,  
tin plated PCB pins standard (gold  
optional - see modifications)  
Mounting Seal: Silicone rubber

#### Mating Plugs

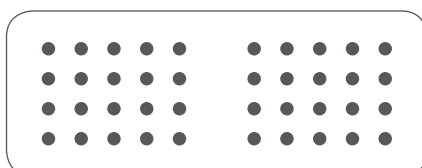
24 Pin: DRC16-24S\*  
40 Pin: DRC18-40S\*  
70 Pin: DRC16-70S\*

#### Modifications

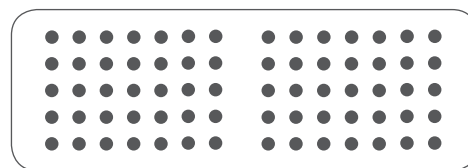
C023: 5mm<sup>2</sup> threaded insert  
mounting holes  
G002: Only outside terminal rows  
are gold plated  
N012: One piece connector design



**DRC13-24P\***  
24 size 16



**DRC13-40P\***  
40 size 16



**DRC13-70P\***  
70 size 16

## Printed Circuit Board Connectors

### DRC20/22 SERIES STRAIGHT

#### Materials

Housing: Glass filled PA and PPS  
Grommet: Silicone rubber  
Receptacle Threaded Insert:  
Stainless steel/brass  
Contacts: Molded-in copper alloy,  
gold plated mating side, tin plated  
PCB side (size 12 contacts are tin  
plated on mating and PCB sides)  
Mounting Seal: Silicone rubber

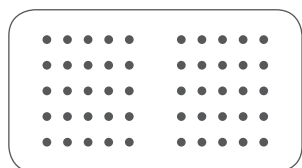
#### Mating Plugs

50 Pin: DRC26-50S\*\*  
60 Pin: DRC26-60S\*\*  
76 Pin: (2) DRC26-38S\*\*

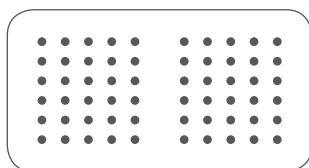


DRC20

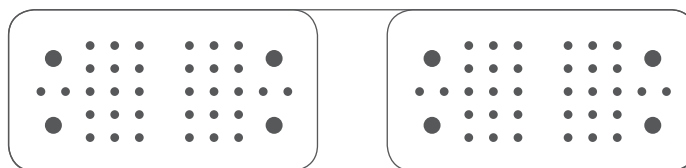
DRC22



**DRC2\*-50P\***  
50 size 20



**DRC20-60P\***  
60 size 20



**DRC20-76P\*\*\***  
68 size 20, 8 size 12

### DRC23 SERIES 90°

#### Materials

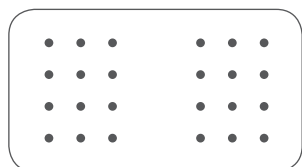
Housing: Glass filled PA and PPS  
Grommet: Silicone rubber  
Receptacle Threaded Insert:  
Stainless steel/brass  
Contacts: Molded-in copper alloy,  
gold plated PCB pins standard  
(tin optional)  
Mounting Seal: Silicone rubber

#### Mating Plugs

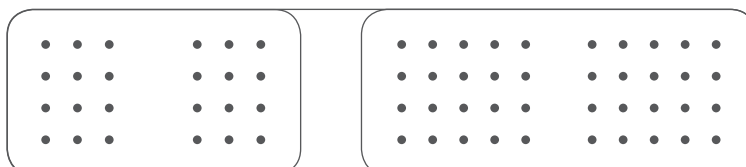
24 Pin: DRC26-24S\*  
40 Pin: DRC26-40S\*  
64 Pin: DRC26-24S\*, DRC26-40S\*

#### Modifications

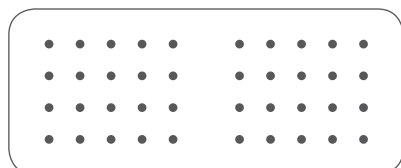
N010: Custom mount  
N012: One piece connector design



**DRC2\*-24\*\***  
24 size 20



**DRC2\*-64\*\***  
64 size 20



**DRC2\*-40\*\***  
40 size 20

#### Note

See pages 99-108 for comprehensive  
DRC series product information.

### DT13/15 SERIES 90° OR STRAIGHT

#### Materials

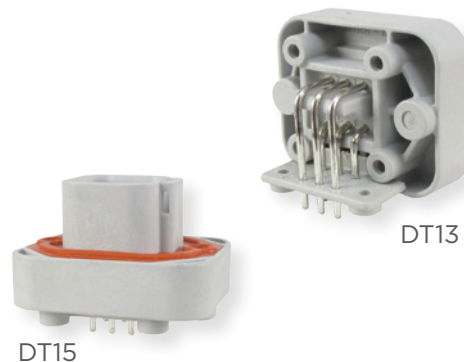
Housing: Glass filled PA  
Contacts: Molded-in copper alloy, nickel plated mating side, tin plated PCB side (gold plating optional - contact your representative)  
Mounting Seal: Silicone rubber

#### Mating Plugs

2 Pin: DT06-2S  
3 Pin: DT06-3S  
4 Pin: DT06-4S  
6 Pin: DT06-6S  
8 Pin: DT06-08S\*  
12 Pin: DT06-12S\*

#### Modifications

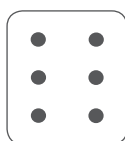
B016: Extended shell and additional keys  
G003: Gold plated pins



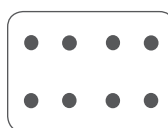
**DT1\*-2P**  
2 size 16



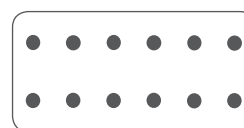
**DT1\*-4P**  
4 size 16



**DT1\*-6P**  
6 size 16



**DT1\*-08P\***  
8 size 16  
A, B, C, D



**DT1\*-12P\***  
12 size 16  
A, B, C, D

#### Note

Camcar thread forming screws are recommended. See drawing.

### DTF13 SERIES FLANGELESS 90°

#### Materials

Housing: Glass filled PA  
Contacts: Molded-in copper alloy, tin plated PCB side (gold plating optional - contact your representative)

#### Mating Plugs

2 Pin: DT06-2S  
3 Pin: DT06-3S  
4 Pin: DT06-4S  
6 Pin: DT06-6S  
12 Pin: DT06-12S\*

#### Modifications

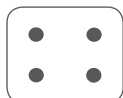
G003: Gold plated pins



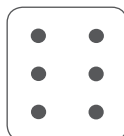
**DTF13-2P**  
2 size 16



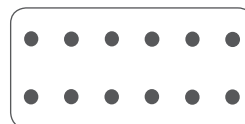
**DTF13-3P**  
3 size 16



**DTF13-4P**  
4 size 16



**DTF13-6P**  
6 size 16



**DTF13-12P\***  
12 size 16  
A, B, C, D



## Printed Circuit Board Connectors

### DTF15 SERIES FLANGELESS STRAIGHT

#### Materials

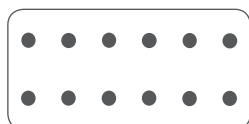
Housing: Glass filled PA  
Contacts: Molded-in copper alloy,  
tin plated PCB side (gold plating  
optional - contact your  
representative)

#### Mating Plugs

12 Pin: DT06-12S\*

#### Modifications

G003: Gold plated pins



#### DTF15-12P\*

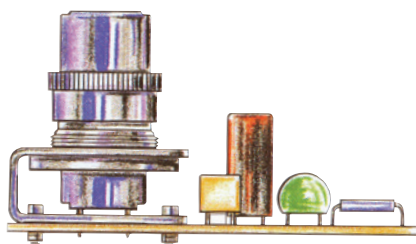
12 size 16

A, B, C, D



#### helpful hint

By fixing the connectors to the board  
prior to soldering, pressure can be  
greatly reduced at the solder joint.



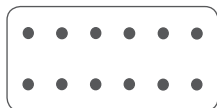
### DTM13/15 SERIES 90° OR STRAIGHT

#### Materials

Housing: Glass filled PA  
Contacts: Molded-in copper alloy,  
tin plated PCB side (gold plating  
optional - contact your  
representative)  
Mounting Seal: Silicone rubber

#### Mating Plugs

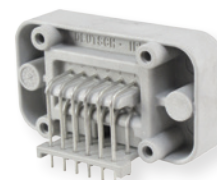
12 Pin: DTM06-12S\*



#### DTM1\*-12P\*

12 size 20

A, B, C, D



DTM13



DTM15

#### Note

See pages 109-132 for comprehensive  
DT Family product information.



### DTMF15 SERIES STRAIGHT

#### Materials

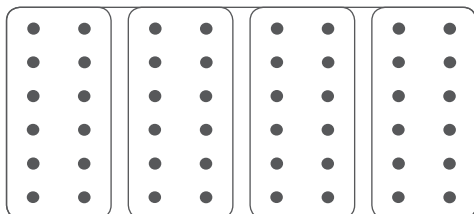
Housing: Glass filled PA  
Contacts: Molded-in copper alloy, tin plated (gold plating optional - contact your representative)

#### Mating Plugs

12 Pin: (4) DTM06-12S\*

#### Modifications

B026: Alternate keying position



**DTMF15-48P**  
(4) 12 size 20



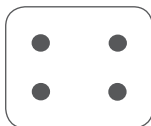
### DTP10/13/15 SERIES 90° OR STRAIGHT

#### Materials

Housing: Glass filled PA  
Contacts: Molded-in copper alloy, tin plated  
Mounting Seal: Silicone rubber

#### Mating Plugs

4 Pin: (4) DTP06-4S



**DTP1\*-4P**  
4 size 12



DTP10

DTP13

### HD10 SERIES STRAIGHT

#### Materials

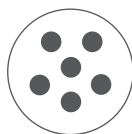
Housing: Glass filled PA  
Contacts: Molded-in copper alloy, nickel plated  
Mounting Seal: Standard  
o-rings may be used

#### Mating Plugs

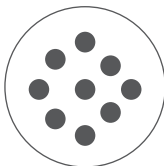
6 Pin: HD16-6-96S  
9 Pin: HD16-9-96S

#### Modifications

N005: Straight reduced diameter pins supplied as standard



**HD10-6-96P-N005**  
6 size 16



**HD10-9-96P-N005**  
9 size 16



## Printed Circuit Board Connectors

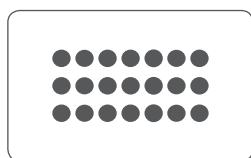
### LEAVYSEAL CONNECTORS 90° OR STRAIGHT

#### Materials

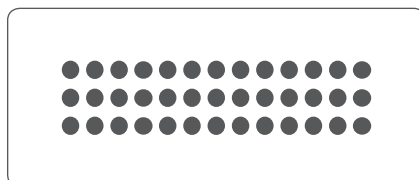
Housing: Glass filled PBT  
Contacts: CuSn, silver plated

#### Mating Plugs

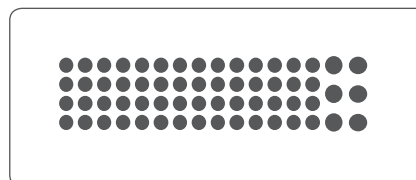
21 Pin: 1-1534127-1, 1-2208688-1 (VO rated material)  
39 Pin: 5-1718321-3, 5-2208684-3 (VO rated material)  
62 Pin: 1-1418883-1 (A key), 2-1418883-1 (B key)  
92 Pin: 1-703998-1 (NW 26 wire exit),  
3-1703998-1 (NW 29 wire exit)



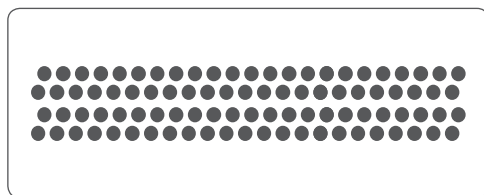
**21 Positions**  
21 size 2.8



**39 Positions**  
39 size 2.8



**62 Positions**  
56 size 1.5  
6 size 2.8



**92 Positions**  
92 size 1.5

#### Note

See pages 63-78 for comprehensive LEAVYSEAL product information.

### STRIKE13/15 SERIES 90° OR STRAIGHT

#### Materials

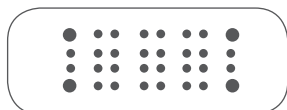
Housing: Glass filled PBT  
Contacts: Molded-in copper alloy, tin plated (gold plating optional-contact your representative)

#### Mating Plugs

32 Pin: SRK06-MD\*-32A-001

#### Modifications

G003: Gold plated pins



**SRK1\*-MD\*-32A-001-\*\*\***  
4 Size 16  
28 Size 20

#### Note

See pages 161-168 for comprehensive STRIKE series product information.

## Printed Circuit Board Connectors

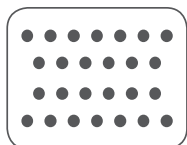
### SUPERSEAL 1.0 MM CONNECTORS 90° OR STRAIGHT

#### Materials

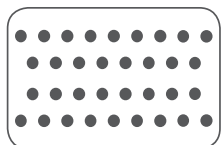
Housing: Thermoplastic  
Contacts: Gold over Ni -  
mating pins, tin-lead over  
Ni - soldering pins

#### Mating Plugs

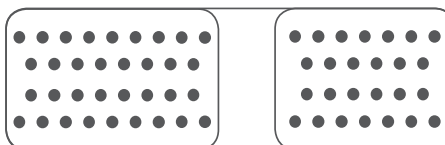
26 Pin: 3-1437290-7  
34 Pin: 4-1437290-0  
60 Pin: (1) 3-1437290-7 (26P), (1) 4-1437290-0 (34P)



**26 Positions**  
26 size 1.0 mm



**34 Positions**  
34 size 1.0 mm



**60 Positions**  
60 size 1.0 mm

#### Note

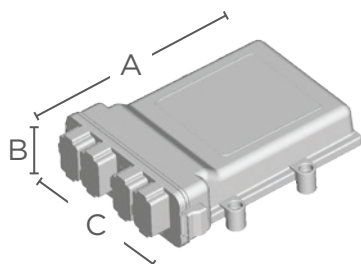
See pages 79-84 for comprehensive  
Superseal 1.0 product information.

### Printed Circuit Board Enclosures and Headers

Compact circuit board enclosures that accept snap-in headers are available. The enclosure features a through hole mounting flange on each side, as well as optional venting. Designed with space to accommodate one or more DT or DTM series interfaces, the headers feature 90° pins. A radial flange seal provides environmental sealing to the enclosure. The headers mate with the DT and DTM standard plugs.



### DT SERIES ENCLOSURE WITH HEADER DIMENSIONS



**DT Series Enclosure with Header**

| Overall Length<br>A | Overall Height<br>B | Overall Width<br>C |
|---------------------|---------------------|--------------------|
| 7.93 (201.30)       | 2.15 (54.63)        | 6.30 (160.00)      |

Dimensions are for reference only

## Printed Circuit Board Connectors

### DT SERIES HEADER CONNECTOR

#### Materials

Contacts: Molded-in tin  
(gold plating optional - contact  
your representative)

#### Mating Plugs

12 Pin: DT06-12S\*  
24 Pin: (2) DT06-12S\*  
36 Pin: (3) DT06-12S\*

#### Modifications

GR02: DT Series snap-in header with  
gold plated pins  
R015: DT Series snap-in header



**DT13-12PA-\*\*\***  
12 size 16  
**A**



**DT13-24PAB-\*\*\***  
(2) 12 size 16  
**A, B**



**DT13-36PABC-\*\*\***  
(3) 12 size 16  
**A, B, C**



**DT13-48PABCD-\*\*\***  
(4) 12 size 16  
**A, B, C, D**

#### Note

Keying position of receptacle  
must match keying position  
of mating plug(s).

### DT SERIES PCB ENCLOSURE

#### Materials

Housing: Thermoplastic

#### Board Size

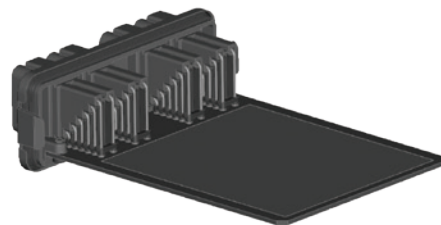
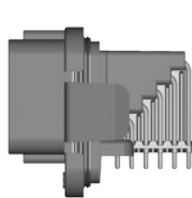
5" x 6.50"

#### Venting

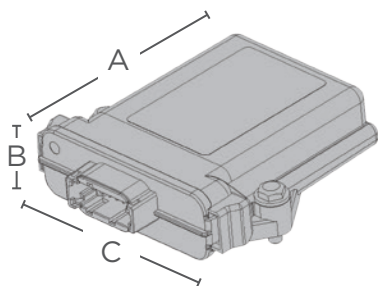
A: With vent hole  
B: Without vent hole



**EEC-5X650\***



### DTM SERIES ENCLOSURE WITH HEADER DIMENSIONS



**DTM Series Enclosure with Header**

| Overall Length<br>A | Overall Height<br>B | Overall Width<br>C |
|---------------------|---------------------|--------------------|
| 5.24 (133.03)       | 1.42 (36.00)        | 4.68 (118.80)      |

Dimensions are for reference only

### DTM SERIES HEADER CONNECTOR

#### Materials

Contacts: Molded-in nickel  
mating side, tin plated PCB side

#### Mating Plugs

12 Pin: DTM06-12S\*  
24 Pin: (2) DTM06-12S\*

#### Modifications

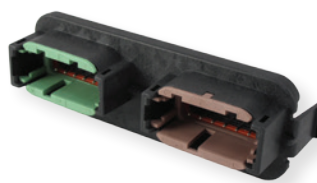
GR01: DTM Series snap-in  
header with gold plated pins



**DTM13-12P\*-\*\*\***  
12 size 20  
A, B, C, D



**DTM13-12PA-12PB-\*\*\***  
(2) 12 size 20  
A, B



**DTM13-12PC-12PD-\*\*\***  
(2) 12 size 20  
C, D

## Printed Circuit Board Connectors

### DTM SERIES PCB ENCLOSURE

#### Materials

Housing: Thermoplastic

#### Board Size

3.25" x 4"

#### Venting

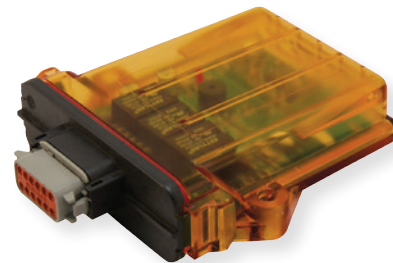
A: With vent hole

B: Without vent hole

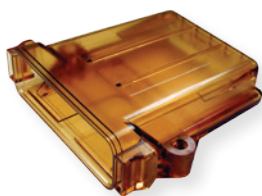
#### Modifications

E016: Molded in clear

Ultem® material



EEC-325X4\*



EEC-325X4\*-E016

NOTES:

# Contents

DTHD Series Overview..... 224

DTHD Series Material Specifications ..... 224

DTHD Series Dimensions..... 224

DTHD Series Ordering Information ..... 225

DTHD Special Modifications ..... 225

DTHD Series Accessories ..... 226

Jiffy Splice Overview ..... 227

Jiffy Splice Dimensions..... 227

Jiffy Splice How To Instructions ..... 227-228



## Single Terminal Solutions

### Single Terminal Overview

Two different solutions are available for applications that require heavy duty single terminal connections. DEUTSCH DTHD series connectors and Jiffy Splices provide environmentally sealed field-serviceable connections for the full range of wire gauges covered by DEUTSCH contacts. DTHD connectors are heavy duty power terminations for in-line and mounted applications. Jiffy Splices are lightweight in-line splices for quick connections. Both options provide easy installation and service with standard tools and contacts.

### DTHD SERIES OVERVIEW

DTHD connectors are single terminal connectors for heavy duty applications. Easy to install, environmentally sealed and compact in size, they are a simple, field serviceable alternative to a splice. DTHD connectors are available in three sizes, carry 25 to 100 amps, and can be mounted or used in-line.

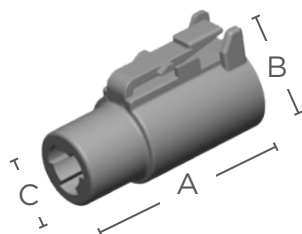


### MATERIAL SPECIFICATIONS

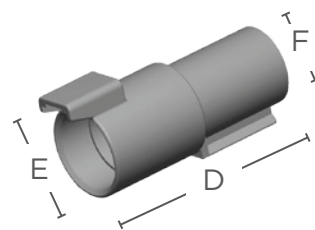
**Grommet:** Silicone rubber

**Shell:** Unfilled PEI

### DIMENSIONS



**DTHD Plug**



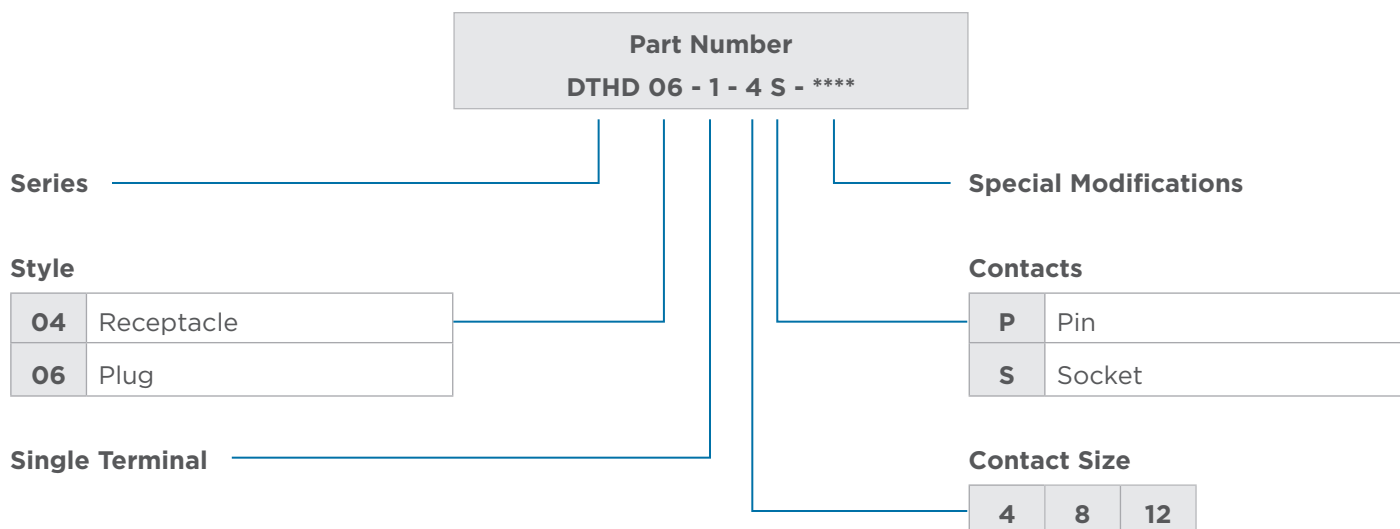
**DTHD Receptacle**

| Contact Size | Overall Length<br>A | Overall Height<br>B | Overall Width<br>C | Overall Length<br>D | Overall Height<br>E | Overall Width<br>F |
|--------------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| 12           | 1.498 (38.05)       | .771 (19.58)        | .570 (14.48)       | 2.068 (52.53)       | .850 (21.59)        | .710 (18.08)       |
| 8            | 1.498 (38.05)       | .861 (21.87)        | .660 (16.76)       | 2.068 (52.53)       | .940 (23.88)        | .800 (20.32)       |
| 4            | 1.498 (38.05)       | 1.076 (27.33)       | .875 (22.23)       | 2.068 (52.53)       | 1.170 (29.72)       | 1.045 (26.54)      |

Dimensions are for reference only.

## Single Terminal Solutions

### DTHD SERIES PART NUMBERING SYSTEM



### ORDERING INFORMATION

Here are some of the common part numbers in the DTHD series. Several additional connectors may be available.

| Position | Contact Size | Plug         | Receptacle   |
|----------|--------------|--------------|--------------|
| 1        | 12           | DTHD06-1-12S | DTHD04-1-12P |
|          | 8            | DTHD06-1-8S  | DTHD04-1-8P  |
|          | 4            | DTHD06-1-4S  | DTHD04-1-4P  |

### Special Modifications

DTHD series connectors offer modifications to enhance the design flexibility and meet application specific needs. Options include end caps and flanges.



#### E003 MODIFICATION

The E003 is an end cap modification. The end cap is a protective cap that is sonically welded to the rear of the connector.



L009



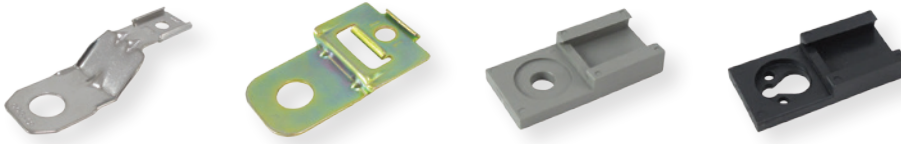
L013

#### L013 & L009 MODIFICATION

The L013 and L009 are sealed flange modifications. The L013 offers outside mounting and the L009 offers inside mounting.

### Accessories

There is a full line of mounting clips available for use with the DTHD series. The mounting clips offer straight or side mounting and several material options. The mounting clips are designed to be used on all DTHD receptacles.



| Part Number                                                     | Mounting Direction | Color/Material           | Hole O.D. inches (mm) |
|-----------------------------------------------------------------|--------------------|--------------------------|-----------------------|
| 1027-003-1200                                                   | Straight           | Stainless steel          | .433 (11.0)           |
| 1027-005-1200                                                   | Straight           | Stainless steel          | .512 (13.0)           |
| 1027-004-1200                                                   | Straight           | Steel w/<br>zinc plating | .512 (13.0)           |
| 1027-008-1200                                                   | Side               | Steel w/<br>zinc plating | .433 (11.0)           |
| 1027-013-1200/<br>1027-017-1200                                 | Side               | Steel w/<br>zinc plating | .323 (8.2)            |
| 1011-026-0205                                                   | Straight           | Gray<br>plastic          | .200 (5.08)           |
| 1011-030-0205                                                   | Straight           | Black<br>plastic         | -                     |
| 1011-310-0205*<br>*Connector<br>removeable with<br>50N of force | Straight           | Black<br>plastic         | -                     |

## Single Terminal Solutions

### JIFFY SPLICE OVERVIEW



DEUTSCH Jiffy Splices are a unique, field-serviceable alternative to permanent splices. Made from the same high quality silicone elastomer as DEUTSCH connector seals and grommets, the Jiffy Splice body houses a contact retention system that secures a mated pair of contacts in a compact environmentally sealed unit. Jiffy Splices are easy to install and service.



| Part Number | Size | A             | B (min.)     | Wire AWG | Hole O.D.<br>inches (mm) |
|-------------|------|---------------|--------------|----------|--------------------------|
| JS-04-00    | 4    | 3.437 (87.30) | .765 (19.43) | 6        | .280-.292<br>(7.11-7.42) |
| JS-12-00    | 12   | 2.500 (63.50) | .500 (12.70) | 12-14    | .134-.170<br>(3.40-4.32) |
| JS-16-00    | 16   | 2.465 (62.61) | .385 (9.78)  | 14-20    | .100-.134<br>(2.54-3.40) |

Dimensions are for reference only

#### Note

Jiffy Splices accept one pin and one socket.

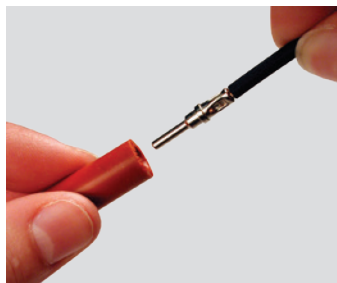
### How To Instructions

#### CONTACT INSERTION



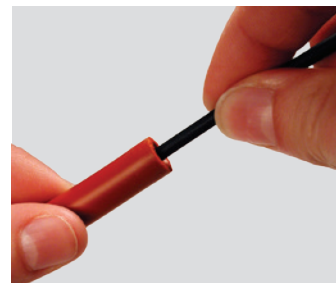
##### Step 1:

Grasp contact approximately one inch behind the contact crimp barrel.



##### Step 2:

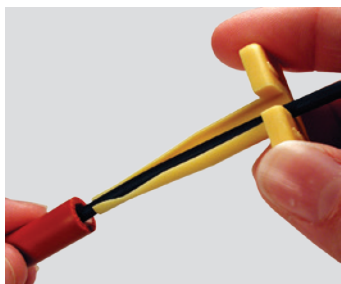
Hold Jiffy Splice between thumb and forefinger approximately one half inch behind cavity.



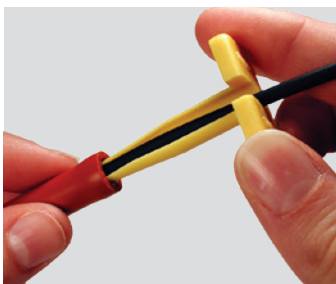
##### Step 3:

Push contact straight into Jiffy Splice until a positive stop is felt. An audible “snap” will occur when correctly mated. A light tug will confirm it is properly seated.

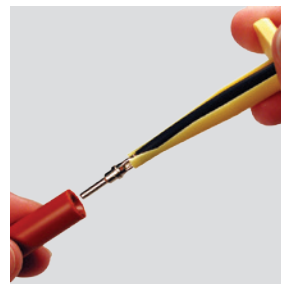
### CONTACT REMOVAL



**Step 1:**  
Snap appropriate size removal tool over the wire.



**Step 2:**  
Hold Jiffy Splice between thumb and forefinger approximately one half inch behind cavity. Slide tool into cavity until resistance is felt and retaining fingers are engaged. Do not twist or insert tool at an angle.



**Step 3:**  
Grip Jiffy Splice between thumb and forefinger and slowly pull contact wire assembly with removal tool out of cavity.

# Contents

DEUTSCH Modification List ..... 230-238

Other TE Industrial & Commercial  
Transportation Products..... 239-240

Requirements & Standards..... 241

Glossary .....242-247

Index .....248-251

### Modification List

The modification list is only applicable to the DEUTSCH product line and series listed. Modifications listed are for reference only and may not be available for every arrangement.

| Mod #     | Series      | Description                                                                                                                                               |
|-----------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A</b>  |             |                                                                                                                                                           |
| A004      | DRC         | Receptacle with molded-in PCB pins, 24 and 40 way                                                                                                         |
| A006      | DRC         | Receptacle with molded-in PCB pins, 40 way, #40 pin removed                                                                                               |
| <b>B</b>  |             |                                                                                                                                                           |
| B009      | HD10        | Receptacle with raised key removed from front of flange, no rear threads                                                                                  |
| B010      | HD10        | Plug with coupling ring added                                                                                                                             |
| B016      | DT, DT13/15 | Receptacle has extended shell and enhanced keys, plug has enhanced seal retention (P012), 12 way                                                          |
| B019      | HD30        | Custom snap ring mount                                                                                                                                    |
| B022      | HD10        | Receptacle with D-hole panel mount, rear threads, J1939, black                                                                                            |
| B025      | HD10        | Receptacle with D-hole panel mount, no rear threads, black                                                                                                |
| B026      | DTMF        | PCB receptacle with alternate keying, requires plugs with WM-12S-B026 wedgelocks                                                                          |
| B028      | DT15        | 5 P.S.I rating                                                                                                                                            |
| <b>BE</b> |             |                                                                                                                                                           |
| BE02      | DT          | Receptacle with extended shell and enhanced keys (B016), end cap                                                                                          |
| BE03      | DT          | Receptacle with extended shell and enhanced keys (B016), end cap, black                                                                                   |
| BE04      | DT          | Receptacle with extended shell and enhanced keys (B016), end cap, reduced diameter seals (E seal), black                                                  |
| BE05      | DT          | Receptacle with extended shell and enhanced keys (B016), end cap, sealed flange, reduced diameter seals (E seal), threaded stainless steel flange inserts |
| <b>BL</b> |             |                                                                                                                                                           |
| BL04      | DT          | Receptacle with extended shell and enhanced keys (B016), welded flange                                                                                    |
| BL08      | DT          | Receptacle with extended shell and enhanced keys (B016), welded flange, black                                                                             |

## Additional Resources

| Mod #     | Series       | Description                                                                                                                                                           |
|-----------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BL10      | DT           | Receptacle with extended shell and enhanced keys (B016), sealed flange, reduced diameter seals (E seal), shrink boot adapter, threaded stainless steel flange inserts |
| BL11      | DT           | Receptacle with extended shell and enhanced keys (B016), sealed flange, reduced diameter seals (E seal), end cap, threaded stainless steel flange inserts             |
| <b>BP</b> |              |                                                                                                                                                                       |
| BP03      | HD10         | Receptacle with D-hole panel mount, J1939 Type II, green                                                                                                              |
| <b>C</b>  |              |                                                                                                                                                                       |
| C003      | HDN          | Standard cavity marking identification                                                                                                                                |
| C008      | DT           | Cavity blocked (C)                                                                                                                                                    |
| C012      | HD30         | Cavities blocked (J, P)                                                                                                                                               |
| C015      | DT, DTP      | Reduced diameter seals (E seal)                                                                                                                                       |
| C016      | HD10         | Cavities blocked (H, J) - HD10 Series 9 way                                                                                                                           |
| C017      | DT, DTM, DTP | Solid rear grommet                                                                                                                                                    |
| C018      | HD30         | Cavities blocked (11, 18, 19), N/E seal options                                                                                                                       |
| C019      | HD30         | Cavities blocked (1, 2, 8, 9), N/E seal options                                                                                                                       |
| C020      | HD30         | Cavities blocked (A, D), N/E seal options                                                                                                                             |
| C021      | HD30         | Cavities blocked (A, B, C, D)                                                                                                                                         |
| C022      | HD30         | Cavities blocked (A, D, J, M), with reduced diameter seals (E seal)                                                                                                   |
| C024      | HD10         | Cavities blocked (B, C, D)                                                                                                                                            |
| C026      | DRC          | Cavities blocked, 50 way                                                                                                                                              |
| C030      | HD30, HDP20  | Four size 16 cavities blocked (1, 2, 5, 6)                                                                                                                            |
| C038      | HD30, HDP20  | Three size 4, four size 16, requires special size 4 AWG contacts                                                                                                      |
| C041      | HDP20        | Receptacle with diagnostic keying                                                                                                                                     |
| <b>CE</b> |              |                                                                                                                                                                       |
| CE01      | DT           | Reduced diameter seals (E seal), end cap                                                                                                                              |
| CE02      | DT, DTP      | Reduced diameter seals (E seal), black                                                                                                                                |
| CE03      | DT           | Reduced diameter seals (E seal), end cap, black                                                                                                                       |
| CE04      | DT           | Reduced diameter seals (E seal), shrink boot adapter                                                                                                                  |



## Additional Resources

| Mod # | Series | Description                                                                                                                                  |
|-------|--------|----------------------------------------------------------------------------------------------------------------------------------------------|
| CE05  | DT     | Plug with reduced diameter seals (E seal), enhanced seal retention (P012), end cap                                                           |
| CE06  | DT     | Plug with reduced diameter seals (E seal), enhanced seal retention (P012)                                                                    |
| CE07  | DT     | Receptacle with extended shell and enhanced keys (B016), reduced diameter seals (E seal), end cap                                            |
| CE08  | DT     | Receptacle with extended shell and enhanced keys (B016), reduced diameter seals (E seal)                                                     |
| CE09  | DT     | Reduced diameter seals (E seal), shrink boot adapter, black                                                                                  |
| CE10  | DT     | Plug with reduced diameter seals (E seal), enhanced seal retention (P012), black                                                             |
| CE11  | DT     | Plug with reduced diameter seals (E seal), enhanced seal retention (P012), end cap, black                                                    |
| CE12  | DT     | Plug with reduced diameter seals (E seal), enhanced seal retention (P012), shrink boot adapter, black                                        |
| CE13  | DT     | Plug with reduced diameter seals (E seal), enhanced seal retention (P012), shrink boot adapter                                               |
| CE14  | DT     | Plug with reduced diameter seals (E seal), enhanced seal retention (P012), latch guard end cap, black                                        |
| CE27  | DT     | Plug with reduced diameter seals (E seal), enhanced seal retention (P012), for use with integrated LED wedgelock, end cap, transparent Ultem |
| CE28  | DT     | Plug with reduced diameter seals (E seal), enhanced seal retention (P012), for use with integrated LED wedgelock, transparent Ultem          |

### CL

|      |       |                                                                         |
|------|-------|-------------------------------------------------------------------------|
| CL01 | HD30  | Cavities blocked (J, Q, R, S, X), adapter for cable clamp (072)         |
| CL03 | DT    | Reduced diameter seals (E seal), welded flange                          |
| CL07 | DT    | Reduced diameter seals (E seal), sealed flange, shrink boot adapter     |
| CL08 | DT    | Reduced diameter seals (E seal), welded flange, end cap, disabled latch |
| CL09 | DT    | Reduced diameter seals (E seal), sealed flange, end cap, black          |
| CL15 | DT    | Reduced diameter seals (E seal), welded flange, black                   |
| CL20 | HDP20 | Plug with diagnostic keying                                             |

### CG

|      |     |                                                                                |
|------|-----|--------------------------------------------------------------------------------|
| CG01 | DRC | 5mm threaded insert with silver plating, molded-in contacts, outside rows gold |
|------|-----|--------------------------------------------------------------------------------|

## Additional Resources

| Mod #     | Series             | Description                                                                                                                                                 |
|-----------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CP</b> |                    |                                                                                                                                                             |
| CP01      | DT                 | All cavities plugged, enhanced seal retention (P012), end cap                                                                                               |
| <b>E</b>  |                    |                                                                                                                                                             |
| E003      | DT, DTHD, DTM, DTP | End cap                                                                                                                                                     |
| E004      | DT, DTM, DTP, HD10 | Black                                                                                                                                                       |
| E005      | DT, DTM, DTP       | Black, end cap                                                                                                                                              |
| E007      | DTM                | Shrink boot adapter                                                                                                                                         |
| E008      | DT                 | Shrink boot adapter                                                                                                                                         |
| E009      | DRC                | 24 way and 40 way receptacle, B keys, housing is gray, flange is black                                                                                      |
| E016      | EEC                | Standard EEC box, molded-in transparent Ultem material                                                                                                      |
| E019      | AEC                | Backshell adapter                                                                                                                                           |
| <b>EE</b> |                    |                                                                                                                                                             |
| EE01      | DT                 | Shrink boot adapter, black                                                                                                                                  |
| EE03      | DTM                | Shrink boot adapter, black                                                                                                                                  |
| EE04      | DTM                | High temp, black                                                                                                                                            |
| EE05      | DT                 | High temp, enhanced seal retention (P012) on plug, end cap, black                                                                                           |
| <b>EF</b> |                    |                                                                                                                                                             |
| EF01      | DT                 | Fluorosilicone front seals, end cap                                                                                                                         |
| EF02      | DT                 | Fluorosilicone front seals, latch guard end cap                                                                                                             |
| <b>EK</b> |                    |                                                                                                                                                             |
| EK02      | DT                 | Plug, 18 cavity DT with 18 size 16 contacts, enhanced seal retention (P012), end cap, "A" key is gray, "B" key is black, "C" key is green, "D" key is brown |
| <b>EP</b> |                    |                                                                                                                                                             |
| EP04      | DT                 | End cap (same as E003 mod)                                                                                                                                  |
| EP05      | DT                 | Latch guard end cap                                                                                                                                         |

## Additional Resources

| Mod # | Series  | Description                                                            |
|-------|---------|------------------------------------------------------------------------|
| EP06  | DT      | Plug with enhanced seal retention (P012), end cap                      |
| EP07  | DT      | Plug with enhanced seal retention (P012), black                        |
| EP08  | DT      | Plug with enhanced seal retention (P012), end cap, black               |
| EP09  | DT      | Plug with enhanced seal retention (P012), latch guard end cap, black   |
| EP10  | DT, DTM | 120 ohm terminating resistor (J1939), black                            |
| EP11  | DT      | Plug with enhanced seal retention (P012), shrink boot adapter, black   |
| EP12  | DT      | Bussed receptacle, 4 and 6 way only, 1 buss, black, gold plated pins   |
| EP13  | DT      | Bussed receptacle, 4 and 6 way only, 1 buss, black, nickel plated pins |
| EP14  | DT      | Bussed receptacle, 6 way, 2 busses, black, nickel plated pins          |
| EP20  | DT      | Plug with enhanced seal retention (P012), shrink boot adapter          |

### F

|      |     |                                        |
|------|-----|----------------------------------------|
| F001 | HDN | Inserts within connector made of Ultem |
|------|-----|----------------------------------------|

### G

|      |         |                                                                     |
|------|---------|---------------------------------------------------------------------|
| G001 | DRC     | Gold plated pins                                                    |
| G002 | DRC     | Outside rows of pins are gold plated and rest are tin plated        |
| G003 | DT13/15 | Gold plated pins                                                    |
| G004 | DRC     | Interface side pins are nickel plated, PCB side pins are tin plated |
| G005 | DRCP    | Tin plated signal pins, tin plated power pins                       |

### GC

|      |      |                                                 |
|------|------|-------------------------------------------------|
| GC03 | DRCP | Gold plated signal pins, depopulated power pins |
| GC05 | DRCP | Tin plated signal pins, depopulated power pins  |

### GR

|      |                     |                                                                                        |
|------|---------------------|----------------------------------------------------------------------------------------|
| GR01 | DTM13 (EEC headers) | Snap-in DTM PCB mounted header for DTM EEC enclosure, 12 and 24 pins, gold plated pins |
|------|---------------------|----------------------------------------------------------------------------------------|

### H

|      |      |                                        |
|------|------|----------------------------------------|
| H001 | HD30 | Plated with yellow chromate conversion |
|------|------|----------------------------------------|

## Additional Resources

| Mod #     | Series       | Description                                                                                                          |
|-----------|--------------|----------------------------------------------------------------------------------------------------------------------|
| <b>HL</b> |              |                                                                                                                      |
| HL01      | HD30         | Dust cap plated with yellow chromate conversion, sash chain with eyelet for #10 screw                                |
| HL02      | HD30         | Adapter for cable clamp (-072) plated with yellow chromate conversion                                                |
| <b>J</b>  |              |                                                                                                                      |
| J001      | HD30         | Reverse cavity marking identification on grommet                                                                     |
| J059      | HD30         | Reverse cavity marking identification on grommet, cable clamp (-059)                                                 |
| <b>K</b>  |              |                                                                                                                      |
| K001      | AEC          | Molded-in shell marking, remove blue stripe, end cap                                                                 |
| K003      | DT16         | Plug, 15 cavity DT with two size 12 contacts and 13 size 16 contacts, enhanced seal retention (P012), end cap, black |
| K004      | DT16         | Plug, 18 cavity DT with 18 size 16 contacts, enhanced seal retention (P012), end cap, black                          |
| <b>KP</b> |              |                                                                                                                      |
| KP01      | DT16         | Plug, six cavity DT with six size 16 contacts, enhanced seal retention (P012), end cap, green                        |
| <b>L</b>  |              |                                                                                                                      |
| L001      | HD30         | Same as -059 (cable clamp)                                                                                           |
| L003      | HD30         | Cable clamp adapter (-072)                                                                                           |
| L005      | HD30         | Cable clamp adapter (-072) without drain holes                                                                       |
| L006      | HD30         | -059 modification using adapter without drain holes                                                                  |
| L009      | DTHD         | Sealed flange, inside mount                                                                                          |
| L011      | DRC          | Wire router                                                                                                          |
| L012      | DT, DTP, DTM | Welded flange                                                                                                        |
| L013      | DTHD         | Sealed flange, outside mount                                                                                         |
| L015      | HDP20        | Threaded adapter for backshell strain relief                                                                         |
| L017      | HDP20        | Ring adapter for backshell strain relief                                                                             |
| L018      | DRB          | Wire router                                                                                                          |
| L020      | HD30, HD50   | Removes #10 eyelet from the dust cap chain                                                                           |

## Additional Resources

| Mod #     | Series  | Description                                                                                                                                                                           |
|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L024      | HDP20   | Wide threaded adapter for backshell strain relief                                                                                                                                     |
| L072      | HD30    | Adapter ring                                                                                                                                                                          |
| <hr/>     |         |                                                                                                                                                                                       |
| <b>LE</b> |         |                                                                                                                                                                                       |
| LE01      | DT      | Sealed flange, inside mount, gasket, end cap                                                                                                                                          |
| LE03      | DT      | Sealed flange, outside mount, o-ring sold separately, end cap, NOTE: DT04-08PA-LE03 comes with shrink boot adapter and o-ring on flange                                               |
| LE05      | DT      | Sealed flange, inside mount, gasket, end cap                                                                                                                                          |
| LE06      | DT      | Sealed flange, inside mount, reduced diameter seals (E seal), end cap                                                                                                                 |
| LE07      | DT, DTP | Welded flange, end cap                                                                                                                                                                |
| LE08      | DT      | Welded flange, shrink boot adapter, gray                                                                                                                                              |
| LE09      | DT      | Sealed flange, o-ring, end cap, black                                                                                                                                                 |
| LE10      | DT      | Sealed flange, inside mount, gasket, end cap, black                                                                                                                                   |
| LE11      | DT      | Welded flange, end cap, black                                                                                                                                                         |
| LE12      | DT      | Welded flange, shrink boot adapter, black                                                                                                                                             |
| LE13      | DT      | Special adapter, round housing, end cap                                                                                                                                               |
| LE14      | DT      | Welded flange, black                                                                                                                                                                  |
| LE17      | DT      | Receptacle with extended shell and enhanced keys (B016), sealed flange, gasket sold separately, end cap, black                                                                        |
| LE21      | DT      | Receptacle with extended shell and enhanced keys (B016), sealed flange, reduced diameter seals (E seal), end cap, one piece connector design, threaded stainless steel flange inserts |
| <hr/>     |         |                                                                                                                                                                                       |
| <b>N</b>  |         |                                                                                                                                                                                       |
| N005      | HD10    | Receptacle with molded-in PCB pins, modified shell                                                                                                                                    |
| N006      | DT      | Receptacle with 90° molded-in contacts                                                                                                                                                |
| N012      | DRC     | Receptacle, one piece connector design                                                                                                                                                |
| <hr/>     |         |                                                                                                                                                                                       |
| <b>P</b>  |         |                                                                                                                                                                                       |
| P005      | AEC     | Special oversized seal on AEC Series plugs and dust caps                                                                                                                              |
| P006      | DT, DTM | 120 ohm terminating resistor (J1939)                                                                                                                                                  |
| P007      | DT, DTM | Receptacle “Y” connector (J1939)                                                                                                                                                      |

## Additional Resources

| Mod #     | Series                 | Description                                                                                                                              |
|-----------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| P012      | DT                     | Plug with enhanced seal retention, 2-6 way are black, 8 and 12 way "A" key is gray, "B" key is black, "C" key is green, "D" key is brown |
| P013      | DRC                    | Plug with bonded front seal, silicone adhesive                                                                                           |
| P016      | DT                     | Bussed receptacle, 12 way, gold plated contacts                                                                                          |
| P017      | DRC                    | Stainless steel retention clip for jackscrew                                                                                             |
| P018      | DTP                    | Receptacle with 12 AWG wires attached                                                                                                    |
| P019      | DRC                    | Zinc chromate retention clip for jackscrew                                                                                               |
| P021      | DT                     | Bussed receptacle, 6, 8, and 12 way, one buss, nickel plated pins                                                                        |
| P026      | DT                     | Bussed receptacle, 8 and 12 way, two busses, nickel plated pins                                                                          |
| P027      | DT                     | Bussed receptacle, 12 way, two busses, gold plated pins                                                                                  |
| P028      | DT                     | Bussed receptacle, 8 way, two busses, nickel plated pins                                                                                 |
| P030      | DT                     | Bussed receptacle, 12 way, four busses, nickel plated pins                                                                               |
| P031      | DT                     | Bussed receptacle, 12 way, four busses, gold plated pins                                                                                 |
| P032      | DT                     | Integrated shrink boot adapter (J1939), black                                                                                            |
| P060      | DT                     | Bussed receptacle, 2 way, one buss, nickel plated pins                                                                                   |
| P064      | HD30, HDP20            | 24-91 arrangement without internal jumper                                                                                                |
| P075      | DT                     | Bussed receptacle, 12 way, three busses, nickel plated pins                                                                              |
| P080      | HD10                   | J1939 Type II, green                                                                                                                     |
| <b>PE</b> |                        |                                                                                                                                          |
| PE01      | DT                     | Latch guard, 120 ohm terminating resistor (J1939)                                                                                        |
| <b>PP</b> |                        |                                                                                                                                          |
| PP01      | DT                     | Plug with enhanced seal retention (P012), 120 ohm terminating resistor (J1939), end cap, black                                           |
| <b>R</b>  |                        |                                                                                                                                          |
| R004      | DTM13                  | Custom enclosure header, 90° pins                                                                                                        |
| R005      | DTM13                  | Custom flange, 90° pins                                                                                                                  |
| R008      | DTM13<br>(EEC headers) | Snap-in DTM PCB mounted header for DTM EEC enclosure, 12 and 24 pins                                                                     |

## Additional Resources

| Mod # | Series                | Description                                                                 |
|-------|-----------------------|-----------------------------------------------------------------------------|
| R015  | DT13<br>(EEC headers) | Snap-in DT PCB mounted header for DT EEC enclosure, 12, 24, 36, and 48 pins |

---

### RT

|      |    |                                                        |
|------|----|--------------------------------------------------------|
| RT01 | DT | Receptacle with MUR 460 diode                          |
| RT02 | DT | Receptacle with 1N5625GP diode                         |
| RT03 | DT | Receptacle with MUR 460 diode, 4 way available         |
| RT06 | DT | Receptacle with Phillips T.V.S diode 1.5KE130CA, green |
| RT25 | DT | Receptacle with 27k ohm resistor, black                |

---

### #'s

|     |      |                                                       |
|-----|------|-------------------------------------------------------|
| 059 | HD30 | Addition of threaded adapter and cable clamp assembly |
| 072 | HD30 | Addition of threaded adapter                          |
| 1E  | HD30 | Removes rivet and chain from protective dust cap      |

---

## Additional Resources

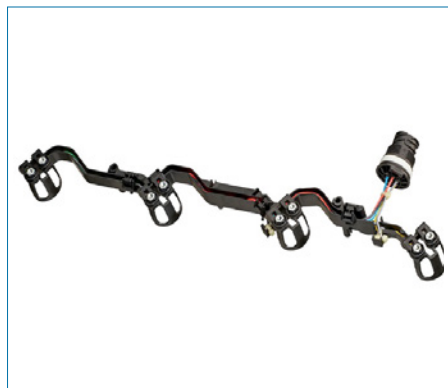
### We go to extremes to make every connection count

TE Industrial & Commercial Transportation has a product series for every harsh environment. Our time-tested, high vibration resistant products and technologies provide the right solution for your applications and requirements. In addition to our terminals and connectors, our product portfolio extends to offer sensors, cylinder head wiring, hybrid & electric mobility solutions, relays, and lighting.



#### SENSORS

TE's broad portfolio of sensor technologies is designed for a wide range of applications. TE's sensors perform under the extreme temperature, vibration, shock, durability and performance profiles required by heavy duty on- and off-highway vehicles. Sensors for engine management, aftertreatment systems, transmissions, vehicle control and management, and cabin and occupant safety are available.



#### CYLINDER HEAD WIRING

TE offers a full-range of cable products and pass-through connectors for cylinder head wiring that deliver highly integrated systems in harsh environment applications. TE's cylinder head wiring solutions are suitable for heavy duty diesel motors, common rail engines, pump nozzle engines, harness system undervalue cover for injector, and sensor to cylinder head exit connections.



#### HYBRID & ELECTRIC MOBILITY SOLUTIONS

TE has combined experience in the transportation and high-voltage industries to create safe, reliable, efficient solutions for hybrid and electric vehicles. Our solutions include AK 4.3.3, LV215-1 compliant connections and headers for electric vehicles. Also, by utilizing an integrated internal HVIL that optimizes package size and plug and header selections, multiple wire harness assembly routing options are created.





### RELAYS

TE Connectivity's 24V relay product line includes a broad range of robust and versatile relays for many diverse applications within trucks, buses, tractors, construction equipment, and other heavy duty vehicles. With increased contact gaps and other key design features, these relays are designed for use in challenging environments where they may regularly encounter extended periods of shock and vibration.



### LIGHTING

Lighting helps to better define space perception and functionality, which increases vehicle safety and human machine interface (HMI). TE offers high-performance, customized solutions for interior and exterior vehicle lighting.

## Additional Resources

### Requirements & Standards

#### IMDS

The International Material Data System (IMDS) is a collective, computer-based material data system developed as a collaborative effort by large automotive OEMs to manage environmentally relevant aspects of parts used in vehicles. It has been adopted as the global standard for reporting material content in the automotive industry. TE Connectivity recognizes IMDS and will work with customers that use the system.

#### IP Rating

The IP Rating system is a way of classifying the degree of protection provided against the intrusion of solid objects, dust, and water in electrical enclosures. The 6 in IP 67 means that the connectors have to be completely sealed from fine dust. The 7 in IP 67 means that the connector needs to be protected from the effects of a one meter submersion. AMPSEAL, AMPSEAL 16, HDSCS, and LEAVYSEAL connectors are IP 67 rated. DEUTSCH connectors are rated IP 68. The 8 in IP 68 means that the connector needs to be protected from the effects of immersion in water under pressure for long periods.

#### IP6K9K

IP6K9K is similar to the standard IP Ratings, but is commonly referred to as a pressure washing specification. The letter K is used after the numbers to denote special testing. The 6K means the connectors need to be completely sealed from fine dust. The 9K means the connector needs to be protected from the penetrating effects of water used for high pressure/steam jet cleaning purposes. Several DEUTSCH connectors in the DT, DTM, DRC, and DRB series have been through independent lab testing and pass IP6K9K, as well as AMPSEAL connectors. HDSCS and LEAVYSEAL connectors used with the appropriate accessories meet the IP6K9K standard.

#### J1939/11, J1939/13, and J1939/15

See CAN section.

#### J2030

J2030 is an SAE standard for connectors between two cables or between a cable and an electrical component. The standard primarily focuses on the connectors used to mate to the electrical component. J2030 also provides environmental test and acceptance criteria for connectors used in DC electrical systems of 50 V or less in heavy duty applications typically used in off-highway equipment. Severe applications may require more rigid test levels, or field-testing on the intended application. AMPSEAL 16 connectors meet the SAE J2030 standard.

#### RoHS

The Restriction of Hazardous Substances (RoHS) in electrical and electronic equipment is a European directive. The directive restricts the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, and polybrominated diphenyl ether in new electrical and electronic components. To verify individual product compliance, please visit <http://www.te.com/commerce/alt/product-compliance.do>.

#### UL Recognized

A UL Recognized Component is one that is to be installed within a larger assembly by a manufacturer, and this larger assembly is then expected to be tested by UL to become UL LISTED. AMPSEAL, AMPSEAL 16, and many DEUTSCH connectors are UL Recognized Components. DEUTSCH connectors that are UL Recognized Components include the AEC, DRC, DT, DTM, DTP, HD10, and HDP20 series. Not every variation and/or modification within a DEUTSCH series may be UL Recognized Components. AMPSEAL connectors are UL 94 V0 rated. LEAVYSEAL and HDSCS products constructed with a UL 94 V0 rated material are available. For additional information, visit [www.ul.com](http://www.ul.com).

## Glossary

---

**AWG (American Wire Gauge):** Standardized system of wire diameter measurement. Commonly referred to as wire gauge. (Reference: National Bureau of Standards, Copper Wire Table [Handbook 100] AVS.)

**Adapter:** Device attached to a connector to allow connection to a second device that it would not otherwise be able to attach.

**Ambient Temperature:** The temperature of a medium (gas or liquid) surrounding an object.

**Ampere (amp):** The unit of current. One ampere is the current flowing through one ohm of resistance at one volt potential.

**ARC Resistance:** Time required for an electrical current to render the surface of a material conductive due to carbonization by the arc flame. Or, the time required for an arc to establish a conductive path in a material.

**Applicator:** Tooling used in automatic machines to crimp stamped & formed contacts.

**Backshell:** A secondary attachment for the rear of a connector to provide strain relief, environmental protection, and/or improved aesthetics.

**Barrel:** (1) Conductor Barrel: the section of the terminal, splice, or contact that accommodates the stripped wire. (2) Insulation Barrel: the section of the terminal, splice, or contact that accommodates the unstripped wire.

**Barrel Chamfer:** Beveled entry at mating end of the socket contact. Reduces contact mating force for easier connector mating.

**Blocked Cavities:** Unused holes or contact positions in a connector which have been filled with sealing plugs or made inaccessible by modification to the rear grommet.

**Breakaway:** Connector with a slotted coupling ring. Coupling ring is intended to fragment and allow connectors to separate without damage to the implement in the event of an unintended pull-away.

**Boot:** Attachment for the back of a connector. Boots are typically flexible, made from plastic or plastisol, and may provide wire strain relief, environmental protection, and/or improved aesthetics.

**Bulkhead:** Dividing wall or partition. Bulkhead connectors are designed to be mounted to a dividing wall through a cutout.

**Buss (also bussbar, bus or busbar):** A thin conductive strip connecting multiple contacts within the body of a connector. Used to distribute electrical current to the branches of a circuit.

**Cable Clamp:** An attachment to provide support and strain relief to the wire bundle where it exits the connector.

**Cavity:** Hole in the connector grommet and housing, into which the contact must fit.

**Cold Heading:** Process by which contacts are formed from individual pieces of metal using dies and punches.

**Compression Nut:** Secondary backshell assembly. Threads onto rear of backshell to compact the wire bundle and provide additional support.

**Conductivity:** The capability of a material to carry an electrical current.

**Conductor:** Any material capable of carrying an electrical charge easily. The most common materials for wire and cable applications are aluminum and copper (bare or coated).

**Connector Position Assurance (CPA):** A locking mechanism on the connector that prevents the mated connectors from accidental unmating.

## Glossary

---

**Contact:** Conductive device crimped or soldered onto the end of conductor wire to allow the transfer of electricity or data to a second conductor. Contacts are most frequently used in multiples in connectors. Also commonly referred to as terminals, pins and/or sockets.

**Contact, Crimp:** Wire termination engineered to be permanently applied to conductor wire end with pressure. Does not use solder or heat.

**Contact, Insertable/Removable:** Wire termination that can be mechanically joined to or removed from the connector body.

**Contact, Pin:** Wire termination with solid mating end. Provides connection by insertion into a female or socket contact. Also referred to as male contact.

**Contact, Receptacle:** Wire termination with hollow mating end into which the pin or male terminal is inserted. Also referred to as a female contact.

**Contact, Socket:** Wire termination with hollow mating end into which the pin or male terminal is inserted. Also referred to as a female contact.

**Contact, Solder:** Wire termination joined to the wire conductor with a metal joining compound. Contacts intended for solder will typically have a cup, hollow-cylinder eyelet or hook to accept a conductor and retain the applied solder.

**Contact Area:** The area where two conductors, a wire termination and a conductor, or two wire terminations touch, permitting the flow of electricity.

**Contact Arrangement:** The number, spacing, and organization of cavities in a connector.

**Contact Rating:** The maximum recommended amperage to be passed through a wire terminal.

**Contact Resistance:** The measurement of opposition to electrical flow through a pair of mated wire terminations. Resistance may be measured in ohms or in millivolt drop at a specified current over the mated terminals.

**Contact Retention:** The axial load in either direction that a terminal can withstand without being dislodged from its correct position in the connector.

**Contact Shoulder:** A small flange or collar on a terminal that limits the contact's travel into or removal from the connector.

**Contact Size:** Overall size of barrel determined by size of wire it will accept.

**Controller Area Network (CAN):** Multiplex data systems. Multiplexing allows multiple data signals to travel on the same wires, integrating separate electronic systems and applications to a single point control and monitoring system. SAE J1939/11, J1939/13, and J1939/15 are specific types of controller area networks.

**Corrosion Resistance:** The ability of a substance to withstand corrosion.

**Coupling Ring:** Attached cylindrical ring used to lock mated connectors together.

**Crimping:** To mechanically secure a terminal or splice to a conductor by use of pressure.

**Crimping Die:** The part of a crimping tool that physically compresses the contact barrel and shapes the crimp.

**Crimp Tool:** Implement that permanently attaches a contact to a wire using pressure.

**Current (I):** The rate of transfer of electricity usually expressed in amperes.

**Current Rating:** The maximum continuous electrical flow of a current recommended for a given wire situation. Expressed in amperes.

**Dielectric Strength:** The voltage which an insulating material can withstand before breakdown occurs, usually expressed as a voltage gradient (such as volts/mil).

## Glossary

---

**Dielectric Test:** A test in which a voltage higher than the rated voltage is applied for a specific time to determine the adequacy of the insulation under normal conditions.

**Dielectric Withstanding Voltage:** The amount of leakage current that flows through the insulation.

**Diode:** Electronic component that allows electrical flow in one direction only.

**Direct Current:** An electrical current that flows in one direction only.

**Dust Cover:** Cap used to protect and conceal the interface of an unmated connector.

**“E” Seal:** Reduced diameter insert cavity in the rear grommet. Creates a proper seal with smaller than standard wire or insulation. Also referred to as extra thin or European seal. “E” seals are smaller than “N” and “T” seals.

**End Cap:** A protective cover integral to, or sonically welded onto the rear of a connector.

**Engaging and Separating Force:** Measured pull required to mate or unmate contacts or connectors.

**Enhanced Key:** Additional indexing or polarization to help prevent mis-mating.

**Enhanced Seal Retention:** Modification to the plug, front seal, and wedgelock to help prevent the seal from separating from the connector during unmating.

**Environmentally Sealed:** Maintains functionality when exposed to environmental elements.

**Extraction Tool:** An implement for removing contacts from a connector.

**Flange:** A flat, perpendicular extension of the connector body. Flanges are used for mounting and are typically found on receptacles.

**Flange Seal:** Elastomeric silicone seal used between flange and mounting surface to prevent leakage around the mounting cutout.

**Front Seal:** Elastomeric silicone seal or o-ring on the mating face of a connector. The front seal is also referred to as an interfacial seal and is usually found on the plug.

**Grommet:** Rubber or elastomeric seal. On connectors the grommet is on the rear or cable end of the connector and has the cavities through which the contact is inserted into the connector body.

**Ground:** A conducting connection between an electrical circuit and the earth or other large conducting body to serve as an earth thus making a complete electrical circuit.

**Header:** Flanged connector designed for wire to printed circuit board applications.

**Heat Seal:** In cabling, a method of sealing a tape wrap jacket by means of thermal fusion.

**Heat Shrink:** Type of tubing that shrinks to form a tight bond when heated.

**Indenter:** The part of a crimp tool or die that compresses the contact barrel onto the conductor.

**In-line:** Connectors that are not intended for use in mounted or PCB applications.

**Insertion Tool:** A device used to guide contacts into proper position within a connector.

**Inspection Hole:** An opening in a barrel contact to allow visual inspection of the conductor to verify that it has been inserted to the right depth.

**Insulation Resistance:** The measure of resistance offered by insulation material to the flow of current.

**Insulation:** A material having high resistance to the flow of electric current.

## Glossary

---

**Insulation Crimp:** (1) The physical deformation of the insulation sleeve covering a terminal or splice and the adjacent conductor insulation to hold the sleeve in place; (2) Shape combination of insulation sleeve to terminal or splice and conductor insulation after crimping.

**Insulation Resistance:** That property of an insulating material which resists electrical current flow through the insulating material when a potential difference is applied.

**Insulation Support:** The portion of the contact barrel enclosing but not crimped to the conductor insulation.

**Interface:** The surfaces of a mating pair of connectors that face each other when connected.

**Interfacial Seal:** A seal at the mating edge of the connector to prevent ingress of moisture or contaminants when a connector is properly mated.

**Internal Seal:** Waterproof form, typically made of silicone elastomer, that is inside the body of the connector. Provides moisture and fluid resistance when connectors are properly mated.

**IP Rating:** A way of classifying the degree of protection provided against the intrusion of solid objects, dust, and water in electrical enclosures.

**Jacket:** An outer nonmetallic protective covering applied over an insulated wire or cable.

**Key:** Unique pattern of corresponding notches and projections on a set of mating connectors. The projections are intended to match the notches and prevent mis-mating.

**Keying Pin:** Solid plastic rod designed to be inserted into an empty socket cavity to help prevent mis-mating.

**Locator:** A device in a crimp tool to help provide proper contact position during crimping.

**Lockwasher:** Thin metal ring used between the panel nut and mounting surface to create spring force to confirm a tight fitting mount.

**Millimeters Squared or mm<sup>2</sup>:** Unit of measure for European Wire Size Standards (ref. DIN 72551-6 and ISO 6722-3).

**Moisture Resistance:** Amount of water (in any form) that a properly wired and mated connection will withstand without loss of electronic qualities or leakage.

**Mounting Bracket:** A rectangular metal device used to attach or mount connectors in an application.

**Mounting Clip:** A plastic or metal piece that attaches to a non-flanged connector to allow surface mounting.

**“N” Seal:** Normal wire seal diameter.

**Neoprene:** Thermosetting material, chemically known as polychloroprene, with excellent flame retarding and abrasion resisting qualities.

**Nest:** The part of a crimping die that supports the barrel during crimping.

**Newton (N):** A unit of force which is based on the metric system. It is the force that produces an acceleration of 1 meter per second per second when exerted on a mass of 1 kilogram.

**O-ring:** Circular seal found around the inside diameter of a receptacle: typically made from elastomeric or silicone material. Provides an environmental seal.

**Oxidation:** The process of uniting a compound with oxygen, usually resulting in an unwanted surface degradation of the material or compound.

**Panel Nut:** A hexagonal threaded plastic or metal ring. Along with a lockwasher, a panel nut is used for mounting.

**Partial Strip:** A quantity less than a standard full reel of stamped & formed contacts.

**PCB (Printed Circuit Board) Mount:** Connectors designed for wire to printed circuit board applications.

## Glossary

---

**Peak Voltage:** The maximum instantaneous voltage.

**Pin Housing (Cap):** One half of a mated pair of connectors. AMPSEAL 16 pin housings mate with a receptacle contact housing (plug) and house pin contacts.

**Plating:** Thin overlay coating of metal on contacts or components. Can be used to improve conductivity, provide for easy soldering, and prevent corrosion.

**Plug:** One half of a mated pair of connectors. Plugs typically have the locking mechanism for the mated pair, usually house the sockets, and mate with a receptacle.

**Pre-Tinned:** Solder applied to the contact and/or conductor prior to soldering.

**Primary Latch Reinforcement (PLR):** Locking mechanism that snaps into place on the mating face of a connector after the connector is populated. A PLR holds contacts in correct alignment for mating and prevents them from being removed.

**Pull-Out Force:** Measured energy required to separate a conductor from a contact, or a contact from a termination assembly.

**Ratchet Control:** A crimping device that helps provide a full crimping cycle by allowing motion in only one direction until contact is fully crimped.

**Receptacle:** One half of a mated pair of connectors. Receptacles mate with a plug and usually house pins.

**Receptacle Housing (Plug):** One half of a mated pair of connectors. AMPSEAL and AMPSEAL 16 plugs typically have the locking mechanism for the mated pair, house the receptacle contacts, and mate with a pin housing (cap) or header.

**Reduced Diameter Seal:** Smaller than standard holes in the connector grommet.

**Removal Tool:** Device to disengage contacts from connector body.

**Retaining Bolt:** Screw used to draw and hold mating connectors together.

**Retaining Sleeve:** Lining sheath that fits into receptacle body to maintain internal seal and provide keying.

**Reverse Arrangement:** Non-standard cavity/contact assignment (eg. Plug connectors that require pin contacts, and receptacles that require socket contacts).

**Ring Adapter (HDP20):** Cylindrical rim or collar attached to the rear of a connector to allow the attachment of backshells or strain relief.

**Sealed Flange:** A flange that is molded or tooled as an integral part of the connector body to help prevent leakage at the mounting site.

**Sealing Plug:** A non-conductive dummy pin inserted to fill an open cavity in a connector. Sealing plugs are required to maintain the integrity of the environmental seal.

**Seamless Terminal or Splice:** Terminal or splice conductor barrel made from a single piece of metal, finished without lines or grooves that would typically appear where metal is joined to metal.

**Secondary Lock:** Device inserted into or onto the connector interface to position and hold contacts in correct alignment. Secondary locks are called wedge-locks or terminal position assurance.

**Self-Extinguishing:** The characteristic of a material whose flame is extinguished after the igniting flame is removed.

**Selective Plating:** Application of a thin coating of a finish metal to specific parts of a contact, but not to others. If selective plating is used, plating is typically applied to the mating surface to provide better conductivity and reduce wear and corrosion.

**Shells:** Outside case into which the insert and contacts are assembled. Shells of mating connectors usually also provide proper alignment and protection of projecting contacts. Also known as housing or body.



## Glossary

---

**Shield:** A metallic layer, commonly aluminum or copper, of tape, braid or spiral wrapped wire construction. Its primary purpose is to prevent electrostatic or electromagnetic interference between adjacent wires and external sources.

**Shielded Cable:** A cable in which the insulated conductor or conductors is/are enclosed in a conducting envelope or envelopes. Constructed so that essentially every point on the surface of the insulation is at ground potential or at some predetermined potential with respect to ground.

**Shrink Boot Adapter:** Thermoplastic rear adapter designed to provide a lip for heat shrink to form around to attach it securely to a connector.

**Signal:** An electric current used to convey information either digital, analog, audio or video.

**Sleeving:** A braided, knitted or woven tube.

**Splice:** A connection of two or more conductors or cables to provide good mechanical strength as well as good conductivity.

**Socket Contact Sleeve:** A cylindrical, protective encasement for the contact fingers or a contact spring. The socket contact sleeve holds the inner mechanism of the contact in place and provides a smooth exterior surface.

**Solderless Connection:** Joint between two metals created by pressure without the use of metallic alloy compounds or heat.

**Solid Contact:** Closed barrel terminal manufactured using a cold heading process.

**Stamped & Formed Contact:** Open barrel terminal manufactured using a precision stamping process.

**Strain Relief:** Hard plastic or metal device that attaches to the rear of a connector to provide wire support.

**Strand:** A single filament of uninsulated wire.

**Strip:** To remove insulation from a conductor.

**Swedge:** A cold-forging process to press-fit or force two metal forms into one.

**“T” Seal:** Reduced diameter insert cavity in the rear grommet. Also referred to as thin seal, a “T” seal allows for the use of smaller wire or thinner insulation diameter. A “T” seal is larger than an “E” seal and smaller than an “N” seal.

**Temperature Coefficient of Resistivity:** The change in resistance per degree of change in temperature.

**Terminal:** A device designed to attach to the end of a conductor wire to allow it to connect to another conductor wire and allow electrical current to pass between them. Also commonly referred to as a contact.

**UL Recognized Component:** One that is to be installed within a larger assembly by a manufacturer, and this larger assembly is then expected to be tested by UL to become UL Listed.



| Topic                                               | Page     | Topic                                                     | Page     |
|-----------------------------------------------------|----------|-----------------------------------------------------------|----------|
| <b>A</b>                                            |          | <b>Crimp sleeve reducer</b> .....                         | 177      |
| <b>Adapters</b>                                     |          | <b>D</b>                                                  |          |
| 072 adapter.....                                    | 154      | <b>D hole punch</b> .....                                 | 159      |
| L015 conduit adapter.....                           | 156      | <b>Dimensions</b>                                         |          |
| L015 threaded adapter.....                          | 153      | AEC series.....                                           | 87       |
| L017 ring adapter.....                              | 153      | AMPSEAL.....                                              | 13       |
| L024 wide threaded adapter.....                     | 153      | AMPSEAL 16.....                                           | 23       |
| Shrink boot adapter.....                            | 120      | Bussed feedback receptacles.....                          | 193      |
| <b>Adapters, mounting</b>                           |          | Circular DIN.....                                         | 37       |
| LEAVYSEAL.....                                      | 70       | Diodes & Resistors.....                                   | 208-208  |
| <b>AEC series</b> .....                             | 85-90    | DRB series.....                                           | 93       |
| <b>AMPSEAL</b> .....                                | 11-20    | DRC series.....                                           | 101      |
| <b>AMPSEAL 16 hybrid lever</b> .....                | 27       | DT/DTM series.....                                        | 112      |
| <b>B</b>                                            |          | DTP series.....                                           | 113      |
| <b>Backshells. See also Wire cover, Wire relief</b> |          | DTHD series.....                                          | 224      |
| Circular DIN.....                                   | 39       | DTMH series.....                                          | 129      |
| DRC series.....                                     | 106      | DTV series.....                                           | 131      |
| DTM series.....                                     | 126      | EEC enclosures.....                                       | 218, 220 |
| DT series.....                                      | 124-125  | HD10 series.....                                          | 135      |
| HD10 series.....                                    | 139      | HD30/HDP20 series.....                                    | 147      |
| HD30/HDP20 series.....                              | 156-157  | HDSCS.....                                                | 47       |
| HDSCS.....                                          | 51       | Jiffy Splices.....                                        | 227      |
| LEAVYSEAL.....                                      | 69       | LEAVYSEAL.....                                            | 65       |
| STRIKE series.....                                  | 165      | STRIKE series.....                                        | 163      |
| <b>Boots</b>                                        |          | Superseal 1.0.....                                        | 81       |
| AEC series.....                                     | 89       | <b>Diodes &amp; Resistors</b> .....                       | 205-208  |
| DRB series.....                                     | 97       | <b>DRB series</b> .....                                   | 91-98    |
| DRC series.....                                     | 107      | <b>DRC series</b> .....                                   | 99-108   |
| DT/DTM/DTP series.....                              | 122-123  | <b>DT/DTM/DTP series</b> .....                            | 109-128  |
| HD10 series.....                                    | 140      | <b>DTHD series</b> .....                                  | 224-226  |
| HD30/HDP20 series.....                              | 154      | <b>DTMH series</b> .....                                  | 129      |
| <b>Breakaway connector</b>                          |          | <b>DTV series</b> .....                                   | 131      |
| HD30 series.....                                    | 153, 196 | <b>Dust caps. See also Covers, Protection caps/covers</b> |          |
| <b>Bussing Options</b> .....                        | 191-194  | AEC series.....                                           | 89       |
| <b>C</b>                                            |          | DT/DTM series.....                                        | 131-132  |
| <b>CAN (Controller Area Network)</b> .....          | 195-200  | HD10 series.....                                          | 141      |
| <b>Contacts</b>                                     |          | HD30/HDP20 series.....                                    | 155      |
| 1.0 mm.....                                         | 83       | <b>E</b>                                                  |          |
| 1.3 mm.....                                         | 15-16    | <b>EEC enclosures</b> .....                               | 218-221  |
| 2.5 mm.....                                         | 39-41    | <b>End caps</b>                                           |          |
| AMP MCP.....                                        | 53-55    | DT Series.....                                            | 119      |
| DEUTSCH.....                                        | 169-180  | <b>“E” seal</b>                                           |          |
| HDSF 16.....                                        | 29-30    | DT Series.....                                            | 119      |
| <b>Coupling rings</b>                               |          | <b>Extraction tool. See also Removal tools</b>            |          |
| HD10 series.....                                    | 138      | Circular DIN.....                                         | 44       |
| <b>Covers</b>                                       |          | <b>F</b>                                                  |          |
| Circular DIN.....                                   | 38       | <b>Fixing slides</b>                                      |          |
| <b>Crimp</b>                                        |          | HDSCS.....                                                | 52       |
| General.....                                        | 175      |                                                           |          |
| Inspection.....                                     | 176      |                                                           |          |

| Topic                          | Page    | Topic                          | Page     |
|--------------------------------|---------|--------------------------------|----------|
| <b>Flange modifications</b>    |         | <b>K</b>                       |          |
| DTHD series.....               | 225     | <b>Keying pins</b> .....       | 177      |
| DT series.....                 | 120     | <b>L</b>                       |          |
| <b>Flanges</b>                 |         | <b>Lanyards</b>                |          |
| DRB series.....                | 96      | HD10 series.....               | 142      |
| <b>G</b>                       |         | <b>Locking slides</b>          |          |
| <b>Gaskets</b>                 |         | LEAVYSEAL.....                 | 70       |
| DRC series.....                | 107     | <b>Lockwashers</b>             |          |
| DT/DTM/DTP series.....         | 121     | HD30/HDP20 Series.....         | 157      |
| HD10 series.....               | 141     | <b>M</b>                       |          |
| HD30/HDP20 series.....         | 157     | <b>Material specifications</b> |          |
| <b>H</b>                       |         | AEC series.....                | 86       |
| <b>HD10 series</b> .....       | 133-144 | AMPSEAL.....                   | 13       |
| <b>HD30/HDP20 series</b> ..... | 145-160 | Circular DIN.....              | 36       |
| <b>I</b>                       |         | DRB series.....                | 92       |
| <b>Insert/removal tools</b>    |         | DRC series.....                | 100      |
| AMPSEAL 16.....                | 32      | DT Family.....                 | 111      |
| Circular DIN.....              | 44      | DTHD series.....               | 224      |
| DEUTSCH.....                   | 187     | HD10 series.....               | 134      |
| HDSCS.....                     | 60      | HD30/HDP20 series.....         | 147      |
| <b>Instructions (How To)</b>   |         | HDSCS.....                     | 47       |
| AEC series.....                | 89      | LEAVYSEAL.....                 | 64       |
| AMPSEAL.....                   | 18-19   | STRIKE series.....             | 162      |
| AMPSEAL 16.....                | 33      | Superseal 1.0.....             | 80       |
| Crimp sleeve reducer.....      | 180     | <b>Modifications</b>           |          |
| DRB series.....                | 97-98   | Descriptions.....              | 230-238  |
| DRC series.....                | 107     | 059.....                       | 154      |
| DT Family.....                 | 132     | 072.....                       | 154      |
| DTT style hand tools.....      | 189     | B010.....                      | 138      |
| HD10 series.....               | 143     | B016.....                      | 118      |
| HD30/HDP20 series.....         | 159-160 | BL04.....                      | 120      |
| HDSCS.....                     | 60-61   | BL08.....                      | 120      |
| HDT-48-00 hand tool.....       | 188     | BL10.....                      | 120      |
| Jiffy Splice.....              | 227-228 | BP03.....                      | 138      |
| LEAVYSEAL.....                 | 78      | C015.....                      | 119      |
| Sealing plugs.....             | 179     | C030.....                      | 153      |
| STRIKE series.....             | 166-167 | C041.....                      | 154      |
| Wire stripping.....            | 188     | CE27.....                      | 119      |
| <b>ISO box</b> .....           | 196     | CE28.....                      | 119      |
| <b>J</b>                       |         | CL03.....                      | 120      |
| <b>J1939</b>                   |         | CL07.....                      | 120      |
| J1939/11.....                  | 198-199 | CL09.....                      | 120      |
| J1939/13.....                  | 200-201 | CL20.....                      | 154      |
| J1939/15.....                  | 202-203 | Detector.....                  | 119      |
| <b>Jiffy Splices</b> .....     | 227-228 | E003.....                      | 119, 225 |
|                                |         | E004.....                      | 120, 138 |
|                                |         | E005.....                      | 120      |
|                                |         | E007.....                      | 120      |
|                                |         | E008.....                      | 120      |
|                                |         | EP13.....                      | 194      |
|                                |         | EP14.....                      | 194      |
|                                |         | L006.....                      | 154      |

| Topic                                                         | Page    | Topic                                          | Page         |
|---------------------------------------------------------------|---------|------------------------------------------------|--------------|
| L009.....                                                     | 225     | DRC series.....                                | 100          |
| L012.....                                                     | 120     | DT Family.....                                 | 111          |
| L013.....                                                     | 225     | HD10 series.....                               | 134          |
| L015.....                                                     | 153     | HD30/HDP20 series.....                         | 146          |
| L017.....                                                     | 153     | HDSCS.....                                     | 46           |
| L024.....                                                     | 153     | HDSF 16.....                                   | 29           |
| LE01.....                                                     | 120     | LEAVYSEAL.....                                 | 64           |
| LE05.....                                                     | 120     | STRIKE series.....                             | 162          |
| LE06.....                                                     | 120     | Superseal 1.0.....                             | 80           |
| LE07.....                                                     | 120     | <b>Primary latch reinforcement (PLR)</b> ..... | 24           |
| LE08.....                                                     | 120     | <b>Protection caps/covers</b>                  |              |
| LE09.....                                                     | 120     | HDSCS.....                                     | 52           |
| LE10.....                                                     | 120     | LEAVYSEAL.....                                 | 71           |
| LE11.....                                                     | 120     |                                                |              |
| LE12.....                                                     | 120     | <b>S</b>                                       |              |
| LE14.....                                                     | 120     |                                                |              |
| LE17.....                                                     | 120     | <b>Sealing plugs</b>                           |              |
| LE21.....                                                     | 120     | AMPSEAL.....                                   | 16           |
| N005.....                                                     | 138     | AMPSEAL 16.....                                | 31           |
| P012.....                                                     | 119     | Circular DIN.....                              | 42           |
| P016.....                                                     | 194     | DEUTSCH.....                                   | 178          |
| P021.....                                                     | 194     | HDSCS.....                                     | 56, 74       |
| P026.....                                                     | 194     | Superseal 1.0.....                             | 83           |
| P027.....                                                     | 194     | <b>Shrink boot adapter</b>                     |              |
| P028.....                                                     | 194     | DT/DTM series.....                             | 120          |
| P030.....                                                     | 194     | <b>Standards</b> .....                         | 241          |
| P031.....                                                     | 194     | <b>Strain relief</b>                           |              |
| P060.....                                                     | 194     | DT series.....                                 | 124          |
| P064.....                                                     | 149     | HD10 series.....                               | 140          |
| P075.....                                                     | 194     | HD30/HDP20 series.....                         | 155-156      |
| P080.....                                                     | 138     | <b>Superseal 1.0</b> .....                     | 79-84        |
| <b>Mounting clips. See also Fixing slides, Locking slides</b> |         | <b>T</b>                                       |              |
| AMPSEAL 16.....                                               | 26      |                                                |              |
| DT/DTM/DTP series.....                                        | 127     | <b>Tooling</b>                                 |              |
| DTHD series.....                                              | 226     | Automated crimp tools                          |              |
| <b>Mounting ring</b>                                          |         | AMPSEAL.....                                   | 17           |
| Circular DIN.....                                             | 39      | AMPSEAL 16.....                                | 32           |
| <b>P</b>                                                      |         | Circular DIN.....                              | 43-44        |
|                                                               |         | DEUTSCH.....                                   | 182-184      |
| <b>Panel nut</b>                                              |         | HDSCS.....                                     | 58-59, 76-77 |
| HD30/HDP20 series.....                                        | 158     | Superseal 1.0.....                             | 84           |
| <b>PCB pins</b> .....                                         | 174     | DEUTSCH.....                                   | 181-190      |
| <b>PCB (Printed Circuit Board)</b> .....                      | 209-222 | Hand crimp tools                               |              |
| <b>Performance specifications</b>                             |         | AMPSEAL.....                                   | 17           |
| 1.0 mm contacts.....                                          | 83      | AMPSEAL 16.....                                | 31           |
| 1.3 mm contacts.....                                          | 15      | Circular DIN.....                              | 42           |
| 2.5 mm contacts.....                                          | 39      | DEUTSCH.....                                   | 185-186      |
| AEC series.....                                               | 86      | HDSCS.....                                     | 57, 75       |
| AMP MCP contacts.....                                         | 53, 71  | Superseal 1.0.....                             | 84           |
| AMPSEAL.....                                                  | 12      | Removal tools                                  |              |
| AMPSEAL 16.....                                               | 22      | AMPSEAL 16.....                                | 32           |
| Circular DIN.....                                             | 36      | Circular DIN.....                              | 44           |
| DEUTSCH contacts.....                                         | 171     | DEUTSCH.....                                   | 187          |
| DRB series.....                                               | 92      | HDSCS.....                                     | 60           |

| Topic                            | Page     | Topic | Page |
|----------------------------------|----------|-------|------|
| <b>Tooling accessories</b> ..... | 183, 186 |       |      |
| <b>W</b>                         |          |       |      |
| <b>Wedgelocks</b>                |          |       |      |
| DRB series.....                  | 96       |       |      |
| DT/DTM/DTP series.....           | 117      |       |      |
| DTV series.....                  | 131      |       |      |
| <b>Wire cover</b>                |          |       |      |
| AMPSEAL 16.....                  | 28       |       |      |
| <b>Wire relief</b>               |          |       |      |
| AMPSEAL .....                    | 15       |       |      |
| <b>Wire router</b>               |          |       |      |
| DRC series.....                  | 106      |       |      |
| <b>Wire sealing ranges</b>       |          |       |      |
| AEC series.....                  | 88       |       |      |
| AMPSEAL .....                    | 15       |       |      |
| AMPSEAL 16.....                  | 25       |       |      |
| DRB series.....                  | 95       |       |      |
| DRC series.....                  | 105      |       |      |
| DT Family .....                  | 116      |       |      |
| HD10 series.....                 | 137      |       |      |
| HD30/HDP20 series.....           | 152      |       |      |
| STRIKE series.....               | 165      |       |      |
| <b>Wire seals</b>                |          |       |      |
| Circular DIN .....               | 42       |       |      |
| HDSCS .....                      | 56       |       |      |
| LEAVYSEAL.....                   | 74       |       |      |

---

NOTES:



## LET'S CONNECT

We make it easy to connect with our experts and are ready to provide all the support you need. For additional information or product assistance, please contact your field representative or our customer service department. Additional information is also available on the website <http://www.te.com/usa-en/industries/truck-bus-off-road-vehicles.html>.

## TECHNICAL SUPPORT

[te.com/support-center](http://te.com/support-center)

### Asia:

+86 400-820-6015

### Europe, Middle East, & Africa:

+49 6251-133-0

### North America:

+1-888-441-9982

## te.com

TE Connectivity, TE connectivity (logo), LADD, EVERY CONNECTION COUNTS, AMP, AMP MCP, AMPSEAL, AMPSEAL 16, CERTI-CRIMP, CERTI-LOK, DETECTOR, DEUTSCH, ERGOCRIMP, LEAVYSEAL, PRO-CRIMPER, and STRIKE, are trademarks.

USCAR is a trademark.

All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2015 TE Connectivity Ltd. family of companies All Rights Reserved.

TS-ICT-T&CCAT 08/15 Original

### TE Connectivity

4849 Hempstead Station Drive  
Kettering, OH 45429  
USA

Tel: +1-888-441-9982

Fax: +1-937-312-9731

[www.te.com](http://www.te.com)

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[TE Connectivity:](#)

[DRC13-40PA](#)