

# Contacts



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# Contacts

## Contacts Overview

Several contacts are used interchangeably across most 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 systems 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.

### ■ Design Materials and Selection

Engineers combined superior material selection with mechanical CAD/CAM designs to create stamped & formed contacts that exceed the demands of today's industrial electrical systems.

To provide exceptional durability, performance, corrosion, and oxidation resistance, contacts are made from copper alloys, finished with nickel, tin, or gold plating. To provide resistance to crimp relaxation and displacement of metal, the contacts are designed with the conductor wings formed in the direction of the crimp to achieve gas tight crimps that eliminate the need for solder.

#### **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.



In keeping with the commitment to total quality, all stamped & formed contacts are manufactured using statistical process controls and are subjected to extensive rigorous testing programs, in the lab and in actual field performance.



## 1.3 mm Contact (AMPSEAL) 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.

## HDSF 1.58 mm Contact (AMPSEAL 16) Performance Specifications

### Durability

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

### Current Rating

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

### 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

### 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.

### 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.

# Contacts

## ■ DEUTSCH Contact Performance Specifications

### Durability

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

### Current Rating (Contact current rating @ 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

### 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

### 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



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



### Contact Millivolt Drop

Contact Size	Test Current Amps	Millivolt Drop* Solids	Millivolt Drop* S&F
20	7.5	60	100
16	13	60	100
12	25	60	100
8	60	60	N/A
4	100	60	N/A

\*Less drop through wire

## ■ Typical Wire Insulation Ranges

(measured in diameter inches)

Wire Gauge	TXL	GXL	SXL
20	.065-.072	.080-.087	.092-.099
18	.073-.084	.089-.098	.103-.110
16	.082-.091	.097-.107	.116-.123
14	.098-.105	.114-.122	.138-.145
12	.120-.128	.137-.146	.159-.168
10	.146-.157	.170-.185	.190-.196
8	.178-.185	.209-.221	.222-.236
6	N/A	N/A	.287-.294

Dimensions are for reference only.

## ■ Wire Sealing Ranges

Dimensions are for reference only.

### AMPSEAL Rear Grommet Sealing Ranges

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

### AMPSEAL 16 Rear Grommet Sealing Ranges

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

### AEC, DRB, DRC, HD30, HDP20 Series Rear Grommet Sealing Ranges

Contact Size	Standard/ Normal Seal N-Seal	Thin Seal T-Seal	T-Seal Modified*	Extra Thin Seal E-Seal	E-Seal Modified*
20 16-22 AWG (1.0-0.35mm <sup>2</sup> )	.040-.095 (1.02-2.41)	.040-.095 (1.02-2.41)	N/A	.040-.095 (1.02-2.41)	.040-.083 (1.01-2.10)
16 14-20 AWG (2.0-0.5mm <sup>2</sup> )	.100-.134 (2.54-3.40)	.088-.134 (2.23-3.40)	.088-.106 (2.24-2.69)	.053-.120 (1.35-3.05)	.053-.103 (1.35-2.62)
12 10-14 AWG (5.0-2.0mm <sup>2</sup> )	.134-.170 (3.40-4.32)	.113-.170 (2.87-4.32)	N/A	.097-.158 (2.46-4.01)	.097-.158 (2.46-4.01)
8 8-10 AWG (8.0-5.0mm <sup>2</sup> )	.190-.240 (4.83-6.10)	.170-.240 (4.32-6.10)	N/A	.135-.220 (3.43-5.59)	N/A
4 6 AWG (13.0mm <sup>2</sup> )	.280-.292 (7.11-7.42)	.261-.292 (6.63-7.42)	N/A	.261-.292 (6.63-7.42)	N/A
4 4 AWG (25.0-21.0mm <sup>2</sup> )	.311-.420 (7.90-10.67)	N/A	N/A	N/A	N/A

\*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.

### DT, DTM, DTP Series Rear Grommet Sealing Ranges

Contact Size	Standard Seal	Extra Thin Seal E-Seal
20 16-22 AWG (1.0-0.35mm <sup>2</sup> )	.053-.120 (1.35-3.05)	N/A
16 14-20 AWG (2.0-0.5mm <sup>2</sup> )	.088-.145 (2.23-3.68)	.053-.120 (1.35-3.05)
12 10-14 AWG (5.0-2.0mm <sup>2</sup> )	.134-.170 (3.40-4.32)	.097-.158 (2.46-4.01)

### STRIKE Series Rear Grommet Sealing Ranges

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

### HD10 Series Rear Grommet Sealing Ranges

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



Proper wire outside diameters help provide water tight seals.



# Contacts

## ■ Solid Contacts

### Solid Contacts - DEUTSCH

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

\*\* = Plating Codes. Contact your representative for custom finish needs.

### Solid Contacts - C038 Modification

Size	Solid Contact Part Numbers		Wire Size AWG (mm <sup>2</sup> )	Recom- mended Strip Length Inches (mm)	Min. Contact Reten- tion	Ref Crimp Tensile Lbs. (N)	Max Rated Amps at 125° Con- tinuous
	Pin	Socket					
4	5960-203-04141	5962-203-04141	4 (25.0-21.0)	.430-.492 (10.92-12.50)	35 (156)	300 (1334)	100

### Solid Contact Plating Codes

Part Number Suffix (**)	Material
31	Gold
90	Nickel (Size 4 pin only)
141	Nickel



### Notice

See information drawing 0425-015-0000. Contact your representative for alternate finishes.

## ■ Stamped & Formed Contacts

### Stamped & Formed Receptacles - 1.3 mm AMPSEAL

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

## Stamped & Formed Pins - HDSF 1.58 mm AMPSEAL 16

Size	Part Numbers				Wire Size AWG (mm <sup>2</sup> )	Insulation Diameter (mm)	Wire Insulation Support	Finish
	Strip Form	Package Qty	Loose Piece	Package Qty				
HDSF 16 1.58 mm	1924463-1	4000	1924579-1	1000	18-20 (0.8-0.5)	.107-.05 (2.72-1.27)	yes	Gold
	1924463-3	4000	1924579-3	1000				Nickel
	776349-1	4000	-	-	18-20 (0.8-0.5)	.131-.089 (3.33-2.26)	yes	Gold
	776349-3	4000	-	-				Nickel
	638078-1	4000	776300-1	1000	14-18 (2.0-0.8)	.131-.089 (3.33-2.26)	yes	Gold
	638078-3	4000	776300-2	1000				Nickel
	638112-1	4000	776298-1	1000	14-18 (2.0-0.8)	.155-0.077 (3.94-1.96)	no	Gold
	638112-3	4000	776298-2	1000				Nickel
	2098250-1	4000	-	-	18 (1.5-0.8)	.118-.065 (3.00-1.65)	yes	Gold
	2098250-3	4000	-	-				Nickel
	2098252-1	4000	-	-	14 (2.0-1.5)	.128-.083 (3.25-2.10)	yes	Gold
	2098252-3	4000	-	-				Nickel

## Stamped & Formed Receptacles - HDSF 1.58 mm AMPSEAL 16

Size	Part Numbers				Wire Size AWG (mm <sup>2</sup> )	Insulation Diameter (mm)	Wire Insulation Support	Finish
	Strip Form	Package Qty	Loose Piece	Package Qty				
HDSF 16 1.58 mm	1924464-1	4000	1924580-1	1000	18-20 (0.8-0.5)	.107-.05 (2.72-1.27)	yes	Gold
	1924464-2	4000	1924580-2	1000				Nickel
	776493-1	4000	-	-	18-20 (0.8-0.5)	.131-.089 (3.33-2.26)	yes	Gold
	776493-2	4000	-	-				Nickel
	776492-1	4000	776299-1	1000	14-18 (2.0-0.8)	.131-.089 (3.33-2.26)	yes	Gold
	776492-2	4000	776299-2	1000				Nickel
	776491-1	4000	776297-1	1000	14-18 (2.0-0.8)	.155-.077 (3.94-1.96)	no	Gold
	776491-2	4000	776297-2	1000				Nickel
	2098251-1	4000	-	-	18 (1.5-0.8)	.118-.065 (3.00-1.65)	yes	Gold
	2098251-2	4000	-	-				Nickel
	2098253-1	4000	-	-	14 (2.0-1.5)	.128-.083 (3.25-2.10)	yes	Gold
	2098253-2	4000	-	-				Nickel



# Contacts

## Stamped & Formed Contacts- DEUTSCH

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

\*\* = Plating Codes. Contact your representative for custom finish needs.

† = TXL wire insulation is preferred

### Notice

See information drawing 0425-015-0000. Contact your representative for alternate finishes.

### S&F Contact Plating Codes

Part Number Suffix (**)	Material
22	Nickel
44	Gold
66	Tin/Nickel
77	Tin
88	Selective Gold



## 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

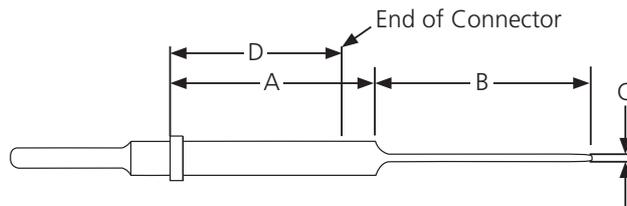
31: Gold

90: Tin

141: Nickel

### PCB Mounting

Consult factory for PCB mounting details and pin positions.



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

Contact Size	Part Number	A	B	C
20	0460-208-2031	1.305 (33.15)	.248 (6.30)	.025 (.64)
	0460-208-2090	1.305 (33.15)	.248 (6.30)	.025 (.64)
16	0460-208-16141	1.300 (33.02)	.248 (6.30)	.025 (.64)
	0460-208-1631	1.300 (33.02)	.248 (6.30)	.025 (.64)
	0460-229-16141	.545 (13.84)	.248 (6.30)	.025 (.64)
	0460-241-16141	1.305 (33.15)	.160 (4.06)	.040 (1.02)
	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)

Series	D*
HD30/HDP20	.939 (23.85)
HD10	.925 (23.50)
DT	.777 (19.74)
DT04-2P	.677 (17.20)
DT04-3P	.677 (17.20)
DRC	1.063 (27.00)

\*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**

# Contacts

## 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 a mutual flow of metal, causing a symmetrical distortion of wire strands and contact material. A proper crimp will establish mechanical strength and excellent electrical conductivity.

### ■ 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 strands 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.

#### Stamped & Formed Style



Cross-Section Across Axis

Figure 1

#### Solid Style



Indenter Crimp  
Cross-Section Across Axis

Figure 2

### ■ Benefits of Crimped Contacts

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

1. With smaller wire, the crimp is as strong as the wire itself.
2. 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 by the inspector.
3. Plating thickness is not restricted, as in solder joints, so better corrosion resistance and contact reliability are achieved.
4. 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.
5. Total installed and maintenance costs are lower.



*Solder should not be added to DEUTSCH terminals.*



#### Notice

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 ensure 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.

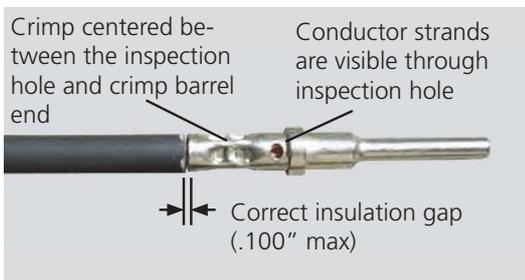
When a crimp is completed, correct termination can be visually inspected. The inspector should check for:

- 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.

Notice  
For more detailed crimp dimensions please request a drawing.

## ■ Solid Contact Crimp

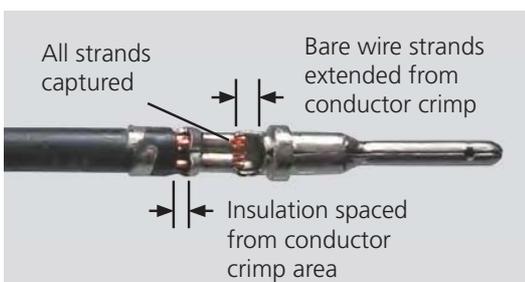


**Acceptable Crimp**

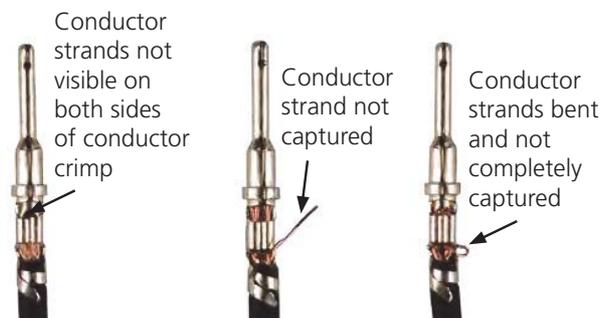


**Unacceptable Crimps**

## ■ Stamped & Formed Contact Crimp



**Acceptable Crimp**



**Unacceptable Crimps**

# Contacts

## Accessories

Additional accessories are available to aid in the design flexibility and sealing requirements of applications. Accessory items such as keying pins and sealing plugs assist in maintaining an environmental seal and preventing 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, preventing the mis-mating of like connectors. Proper usage requires that the corresponding mating pin be omitted and a sealing plug is 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 prevent improper connector mating.



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

#### *Notice*

Multiple keying pins may be required to 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

#### *Notice*

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

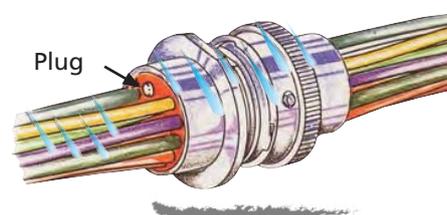
## ■ Sealing Plugs

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.

Sealing Plug	Part Number	Contact Size	Wire Gauge Range	Description
	114019	Size 4	4-6 AWG	silicone rubber, used with DEUTSCH contacts
	114018	Size 8	8-10 AWG	thermoplastic, used with DEUTSCH contacts
	114017	Size 12, 16	12-20 AWG	thermoplastic, used with DEUTSCH contacts
	0413-217-1605 (locking sealing plug)	Size 16	14-20 AWG	thermoplastic, used with DEUTSCH contacts, retained by locking fingers
	0413-003-1605	Size 16	14-20 AWG	thermoplastic, used with STRIKE Series
	770678-1	1.3 mm	16-20 AWG	nylon, used with AMPSEAL
	776363-1	1.58 mm	16-20 AWG	PBT, used with AMPSEAL 16 (standard diameter cavities)
	776364-1	Size 20	16-20 AWG	PBT, used with AMPSEAL 16 (reduced diameter cavities)
	0413-204-2005	Size 20	20 AWG	thermoplastic, used with DEUTSCH contacts



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

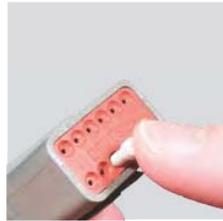


## How To Instructions

### ■ 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:** Ensure seal is not distorted.