



**NOTE**

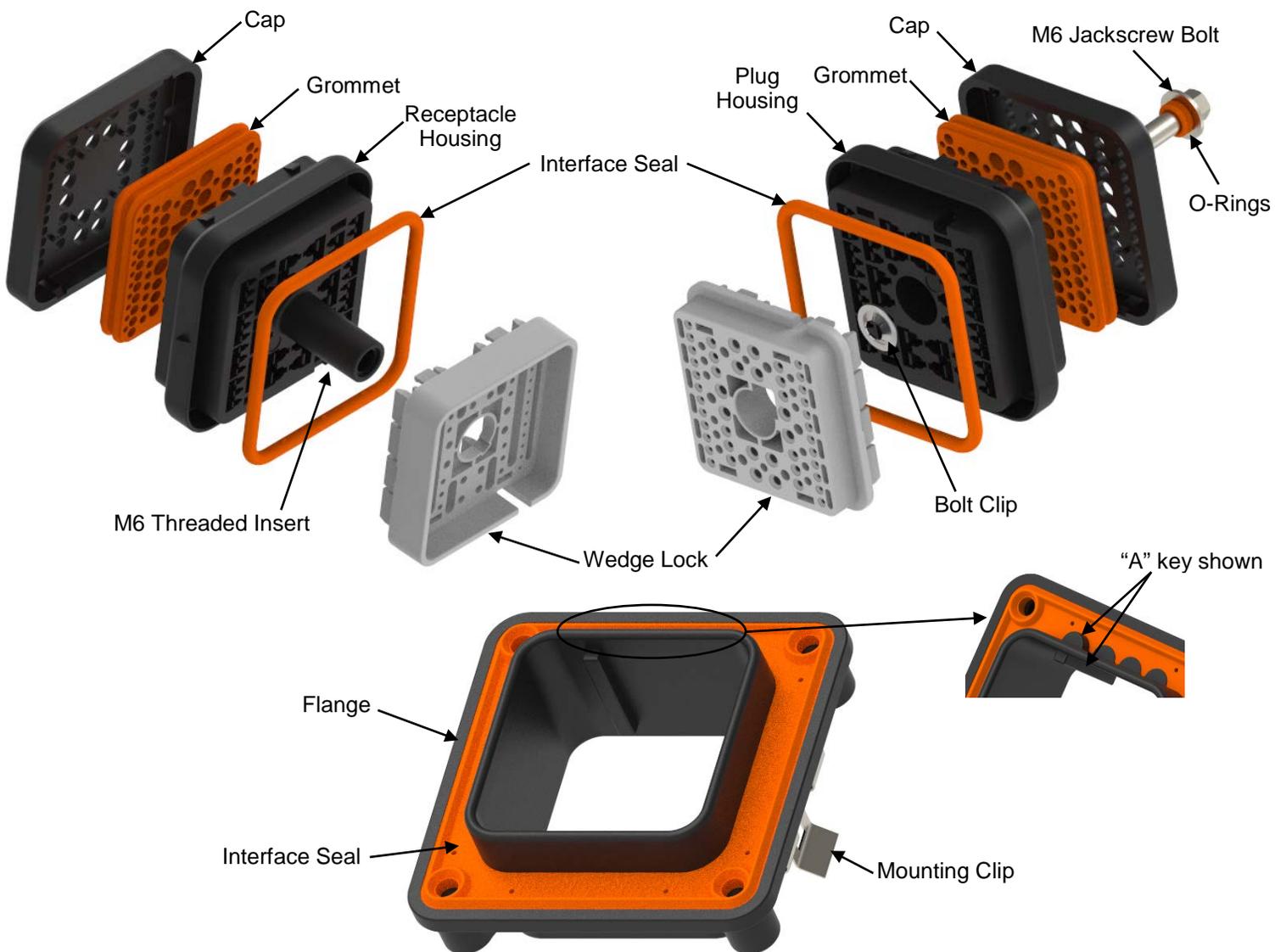
All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters [and inches]. Unless otherwise specified, dimensions have a tolerance of  $\pm 0.13$  [ $\pm .005$ ] and angles have a tolerance of  $\pm 2^\circ$ . Figures and illustrations are for identification only and are not drawn to scale.

**1. INTRODUCTION**

This specification covers the requirements for application of DEUTSCH DRB series connector system. The system features a plug and receptacle that offers 48, 60, 102, 128-pin arrangements which accept DEUTSCH solid (machined) or stamped & formed contacts.

The plug and receptacle each consist of a housing and secondary wedge lock. The secondary wedge lock is used to ensure that the contacts are fully seated and secure in the connector. The connector and the secondary wedge lock are shipped separately.

The DRB series features a mounting flange, center threaded coupling system, rear insertion and front removal contact system. Basic terms and features of this product are provided below.



Standard Features All Arrangements  
(48-pin example)

### 1.1. Receptacle



DRB12-48P-L018



DRB12-60P-L018



DRB12-102P-L018



DRB12-128P-L018

### 1.2. Plug



DRB16-48P-L018



DRB16-60P-L018



DRB16-102P-L018

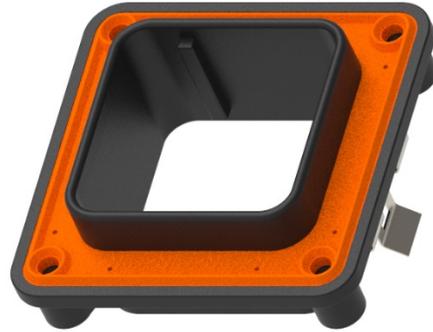


DRB16-128P-L018

### 1.3. Interface Flange



DRBF-1



DRBF-2



DRBF-3



DRBM-3

### 1.4. Product Dimensions

See connector and wedge product drawing for product dimensions. See section 2.3

## 2. REFERENCE MATERIAL

### 2.1. Revision Summary

See section 8.

### 2.2. Customer Assistance

Reference Product Base Part Numbers DRB12, DRB16 with Product Code J806 and DRBF, DRBM with Product Code EQ76 are representative of DEUTSCH DRB series connector system. Use of these numbers will identify the product line and help you to obtain product and tooling information when visiting [www.te.com](http://www.te.com) or calling the number at the bottom of page 1.

### 2.3. Drawings

Customer drawings for product part numbers are available from [www.te.com](http://www.te.com). Information contained in the customer drawing takes priority. X refers A, B, C, D key arrangements.

## CONNECTORS

Product Drawing	Description	Product Drawing	Description
<a href="#">DRB12-48PXE-L018</a>	48 pin Rcpt, Cap	<a href="#">DRB16-48SXE-L018</a>	48 pin Plug, Cap
<a href="#">DRB12-60PXE</a>	60 pin Rcpt, No Cap	<a href="#">DRB16-60SXE</a>	60 pin Plug, No Cap
<a href="#">DRB12-60PXE-L018</a>	60 pin Rcpt, Cap	<a href="#">DRB16-60SXE-L018</a>	60 pin Plug, Cap
<a href="#">DRB12-60PXNE</a>	60 pin Rcpt, No Env, No Cap	<a href="#">DRB16-102SXE-L018</a>	102 pin Plug, Cap
<a href="#">DRB12-60PXNE-L018</a>	60 pin Rcpt, No Env, Cap	<a href="#">DRB16-128SXE-L018</a>	128 pin Plug, Cap
<a href="#">DRB12-102PXE-L018</a>	102 pin Rcpt, Cap		
<a href="#">DRB12-102PXNE</a>	102 pin Rcpt, No Env, No Cap		
<a href="#">DRB12-128PXE-L018</a>	128 pin Rcpt, Cap		
<a href="#">DRB12-128PXNE-L018</a>	128 pin Rcpt, No Env, No Cap		

## WEDGES

Product Drawing	Description	Product Drawing	Description
<a href="#">WB-48PX</a>	48 pin Rcpt Wedge Lock	<a href="#">WB-48SX</a>	48 pin Plug Wedge Lock
<a href="#">WB-60PX</a>	60 pin Rcpt Wedge Lock	<a href="#">WB-60SX</a>	60 pin Plug Wedge Lock
<a href="#">WB-51PXL</a>	102 pin Rcpt Wedge Lock, Left	<a href="#">WB-51SXL</a>	102 pin Plug Wedge Lock, Left
<a href="#">WB-51PXR</a>	102 pin Rcpt Wedge Lock, Right	<a href="#">WB-51SXR</a>	102 pin Plug Wedge Lock, Right
<a href="#">WB-64PX</a>	128 pin Rcpt Wedge Lock	<a href="#">WB-64SX</a>	128 pin Plug Wedge Lock

## INTERFACE FLANGES

Product Drawing	Description
<a href="#">DRBF-1X</a>	Interface Flange, Small
<a href="#">DRBF-2X</a>	Interface Flange, Large
<a href="#">DRBF-3XX</a>	Interface Flange, Small, Dual
<a href="#">DRBM-3X</a>	Interface Flange, Large, M8, M10 Power Studs

## 2.4. Specifications

<a href="#">108-151000</a>	Product Specification for DEUTSCH Stamped and Formed Contacts
<a href="#">108-151004</a>	Product Specification for DEUTSCH Solid Contacts
<a href="#">108-151021</a>	Product Specification DRB Series
<a href="#">114-151000</a>	Application Specification for DEUTSCH Size 16 S&F Pin and Socket Contacts
<a href="#">114-151001</a>	Application Specification for DEUTSCH Size 16 S&F Pin and Socket Contacts
<a href="#">114-151002</a>	Application Specification for DEUTSCH Size 12 S&F Pin and Socket Contacts
<a href="#">114-151003</a>	Application Specification for DEUTSCH Size 20 S&F Pin and Socket Contacts
<a href="#">114-151004</a>	Application Specification for DEUTSCH size 4-20 Solid Pin & Socket
<a href="#">114-151006</a>	Application Specification for DEUTSCH Size 12 S&F Pin and Socket Contacts

## 2.5. Instructional Material

Instruction sheets (408-series) provide product assembly instructions or tooling setup, and operation procedures and customer manuals (409-series) provide machine setup and operating procedures. Instructional material that pertain to this product are:

[408-151008](#) DEUTSCH Removal Tool DT-RT1 for Front-Release Connectors

## 3. REQUIREMENTS

### 3.1. Safety

Do not stack product shipping containers so high that the containers buckle or deform.

### 3.2. Storage

#### A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the product material.

#### B. Shelf Life

The product should remain in the shipping containers until ready for use to prevent deformation to components. The product should be used on a first in, first out basis to avoid storage deterioration could adversely affect performance.

#### C. Chemical Exposure

Do not store product near any chemical listed below as they may cause stress corrosion cracking in the material.

Alkalis	Ammonia	Citrates	Phosphates	Sulfur Compounds
Acids	Amines	Carbonates	Nitrites	Sulfur Nitrites
				Tartrates



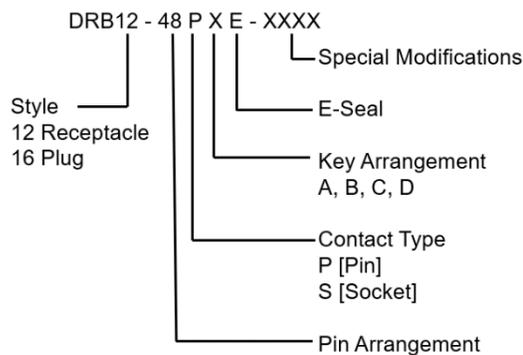
NOTE:

1) Resistance depends on chemical concentration, temperature, and exposure medium.

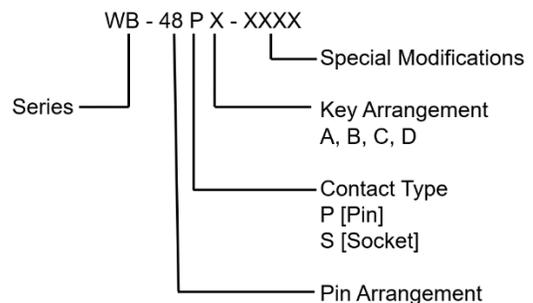
### 3.3. Characteristics

#### A. Part Numbering System

##### CONNECTOR



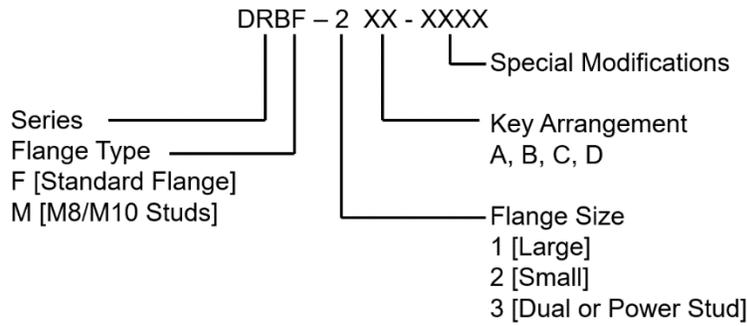
##### WEDGE



Note:

Pins used in receptacle and Sockets used in plug.

## INTERFACE FLANGE



### B. Pin Arrangement

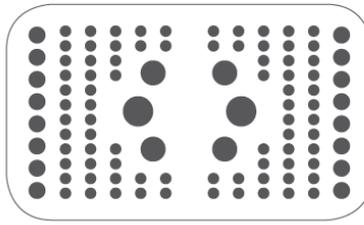
See product drawing for contact cavity marking



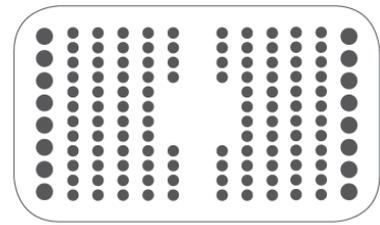
**DRB1\*-48\*\***  
 12 size 12  
 12 size 16  
 24 size 20  
 A, B, C, D



**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

### C. Materials

Receptacle and Plug Housing:	PA66 GF15 (black)
Cap:	PA66 GF15 (black)
Flange:	PA66 GF15 (black)
Wedge Lock:	PBT GF30 (Grey, Black, Green Brown)
Interface Seal:	VMQ (red-orange)
Grommets:	VMQ (red-orange)
Threaded Insert	Stainless Steel, Unplated
Jackscrew Bolt	Stainless Steel, Silver <sup>(1)</sup> <sup>(2)</sup>
Bolt Clip	Steel, Zinc
Flange Mounting Clip	Stainless Steel, Unplated



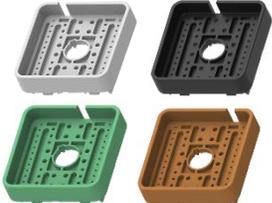
**NOTE**

1) Silver plated jackscrew bolt is coated with an anti-tarnish protective coating. This protective coating loses its protective effect after 6 months to 2 years, depending on the respective ambient conditions. This leads to oxidation (tarnish) of the silver and discoloration be yellow, tan, blue, brown or black. This discolored appearance is normal and does not affect product function.

2) Use sulfur-free gloves when handling the silver plated jackscrew bolt.

## D. Wedge Locks

## Receptacle Wedge Locks

Part Number	Description	Shape	Color
WB-48PA WB-48PB WB-48PC WB-48PD	Wedgeloock for 48 pin		Gray, Key A Black, Key B Green, Key C Brown, Key D
WB-60PA WB-60PB WB-60PC WB-60PD	Wedgeloock for 60 pin		Gray, Key A Black, Key B Green, Key C Brown, Key D
WB-51PAL WB-51PBL WB-51PCL WB-51PDL	Wedgeloock for 102 pin Left		Gray, Key A Black, Key B Green, Key C Brown, Key D
WB-51PAR WB-51PBR WB-51PCR WB-51PDR	Wedgeloock for 102 pin Right		Gray, Key A Black, Key B Green, Key C Brown, Key D
WB-64PA WB-64PB WB-64PC WB-64PD	Wedgeloock for 128 pin Left, Right		Gray, Key A Black, Key B Green, Key C Brown, Key D

**Plug Wedge Locks**

Part Number	Description	Shape	Color
WB-48SA WB-48SB WB-48SC WB-48SD	Wedgeloek for 48 pin		Gray, Key A Black, Key B Green, Key C Brown, Key D
WB-60SA WB-60SB WB-60SC WB-60SD	Wedgeloek for 60 pin		Gray, Key A Black, Key B Green, Key C Brown, Key D
WB-51SAL WB-51SBL WB-51SCL WB-51SDL	Wedgeloek for 102 pin Left		Gray, Key A Black, Key B Green, Key C Brown, Key D
WB-51SAR WB-51SBR WB-51SCR WB-51SDR	Wedgeloek for 102 pin Right		Gray, Key A Black, Key B Green, Key C Brown, Key D
WB-64SA WB-64SB WB-64SC WB-64SD	Wedgeloek for 128 pin Left, Right		Gray, Key A Black, Key B Green, Key C Brown, Key D

## E. Sealing Range

Contact Size	E-Seal
20 14-22 AWG [2.5-0.35mm <sup>2</sup> ]	.040-.095 [1.02-2.41]
16 14-20 AWG [2.0-0.5mm <sup>2</sup> ]	.053-.120 [1.35-3.05]
12 10-14 AWG [6.0-2.0mm <sup>2</sup> ]	.097-.158 [2.46-4.01]
8 8-10 AWG [10.0-5.0mm <sup>2</sup> ]	.135-.220 [3.43-5.59]
4 6 AWG [16.0-13.0mm <sup>2</sup> ]	.261-.292 [6.63-7.42]

## F. 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. See [408-151066](#) for instructions.

Part Number	Contact Size	Material	Color	Description	Sealing Plug
<a href="#">114019</a>	4	VMQ	Red-Orange		
<a href="#">114018</a>	8	PBT	White		
<a href="#">114017</a>	12, 16	PBT	White		
<a href="#">0413-217-1605</a>	16	PBT	White	Locking	
<a href="#">0413-003-1605</a>	16	PBT	Blue		
<a href="#">0413-204-2005</a>	20	PBT	Red		

## G. Keying Pins

Keying pins are solid plastic rods used to prevent mis-mating of like connectors in close proximity. 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 latch device mates the connectors, helping to prevent the mis-mating of like connectors. Proper usage requires that the corresponding mating pin to be omitted and a keying pin sealing plug be inserted in the rear cavity of the mating connector. Individual applications will vary, and testing should be done to determine the best arrangement to help prevent improper connector mating. See [408-151066](#) for instructions.

Part Number	Contact Size	Material	Color	Keying Pin
<a href="#">0413-216-2005</a>	20	PBT	Red	
<a href="#">0413-215-1605</a>	16	PBT	White	
<a href="#">0413-214-1205</a>	12	PBT	Yellow	



NOTE:

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

## H. Modification



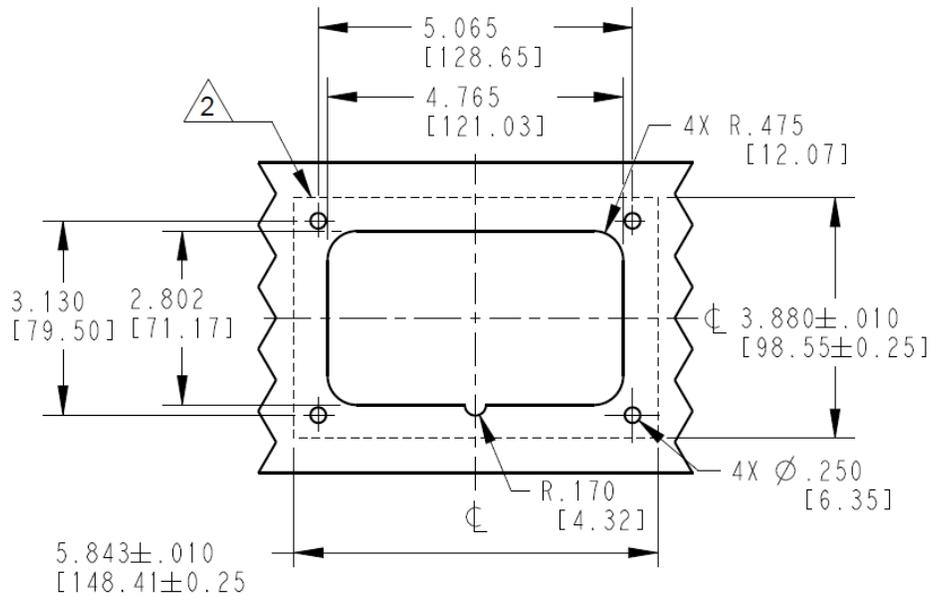
NOTES:

- 1) Modifications include but are not limited to the following list.
- 2) Modifications listed are for reference only and may not be available for every arrangement.

Modification	Description	Plug	Receptacle
L018	Color: Black Grommet Type: E-Seal Cap: Yes		

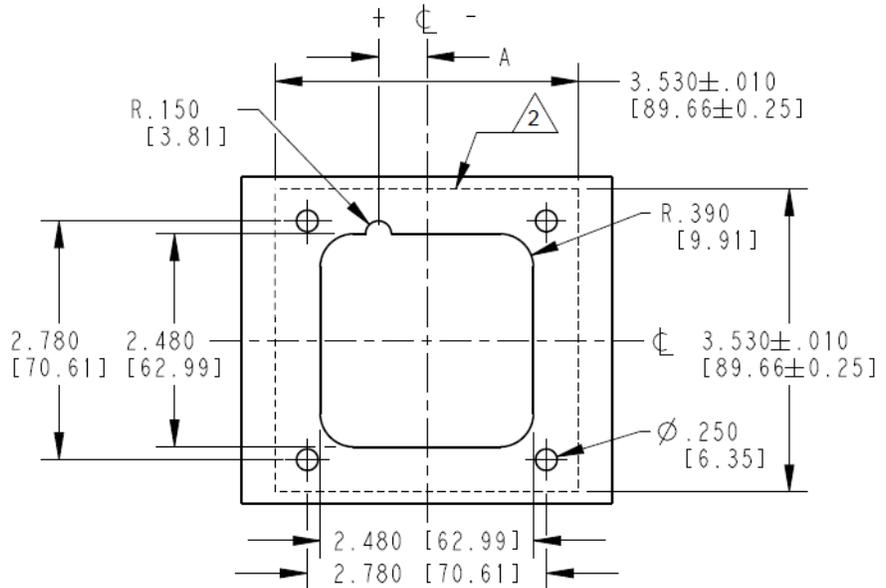
## I. Panel Mounting Layouts

The interface flange uses a panel cutout that allows the flange to be mounted in a bulkhead of panel.



DRBF-1

INTERFACE FLANGE P/N	DIMENSION "A"
DRBF-2A	.563 [14.30]
DRBF-2B	.188 [4.78]
DRBF-2C	-.188 [-4.78]
DRBF-2D	-.563 [-14.30]



DRBF-2

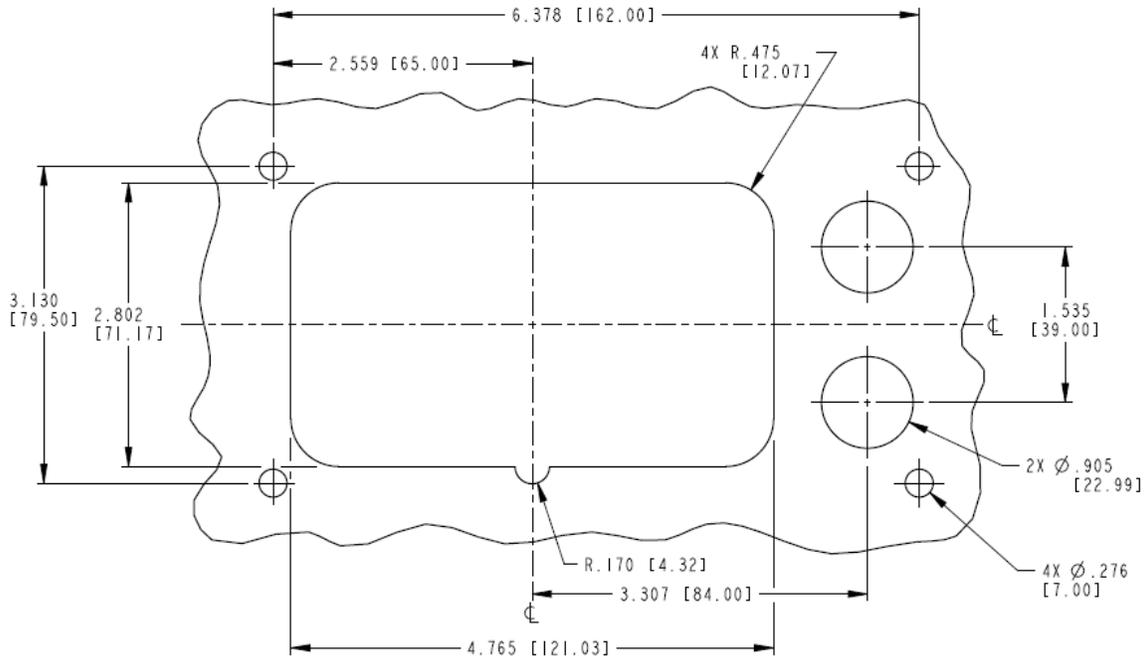
"A" key shown as example



Note:

1) Tolerance: ±.010 [0.25]

2) Surface: 0.8 Ra [32 RMS] or better and .13 [.005]



DRBM-3



Note:

- 1) Tolerance:  $\pm 0.010$  [0.25]
- 2) Surface: 0.8 Ra [32 RMS] or better and  .13 [.005]

## J. Accessories

Accessory items can be used to complement the connectors such as PVC boots. 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

Slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray and pressure washing.



Part Number	Description	Use On
<a href="#">DRB48-60-BT</a>	48/60 pin, Black	Plug & Receptacle
<a href="#">DRB102-BT</a>	102/128 pin, Black	Plug & Receptacle
<a href="#">DRB102-BT-90DEG</a>	102/128 pin, 90°, Black	Plug & Receptacle

Material: PCV

Operating temperature is -29°C to +100°C [-20° to +212°F].



NOTE:

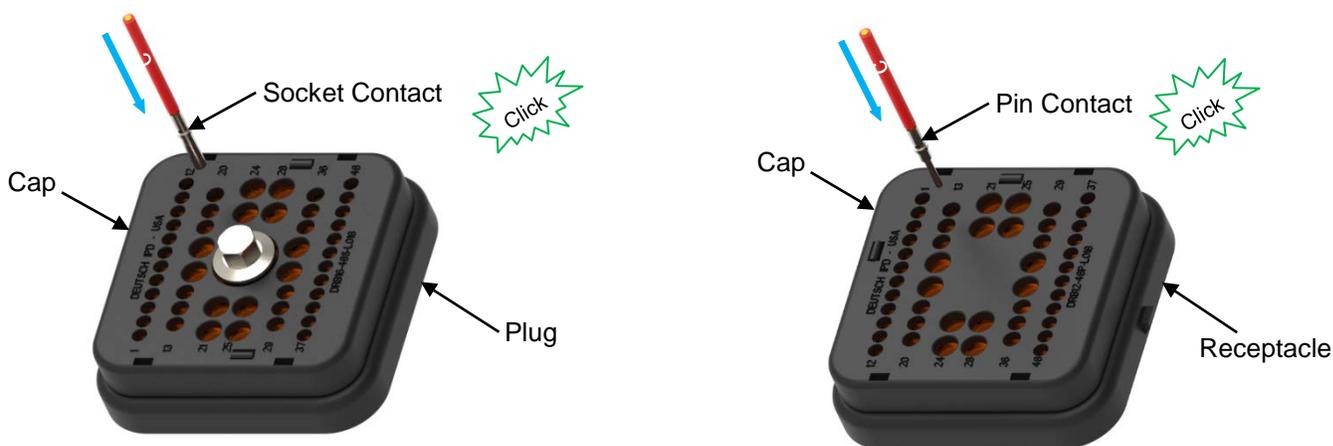
- 1) Boots are received with the end open or closed. Cut end of boot off to desired length.

### 3.4. Contact Insertion

#### 1. The crimped contact must meet these specifications:

- [114-151000](#) Application Specification for DEUTSCH Size 16 S&F Pin and Socket Contacts
- [114-151001](#) Application Specification for DEUTSCH Size 16 S&F Pin and Socket Contacts
- [114-151002](#) Application Specification for DEUTSCH Size 12 S&F Pin and Socket Contacts
- [114-151003](#) Application Specification for DEUTSCH Size 20 S&F Pin and Socket Contacts
- [114-151004](#) Application Specification for DEUTSCH size 4-20 Solid Pin & Socket
- [114-151006](#) Application Specification for DEUTSCH Size 12 S&F Pin and Socket Contacts

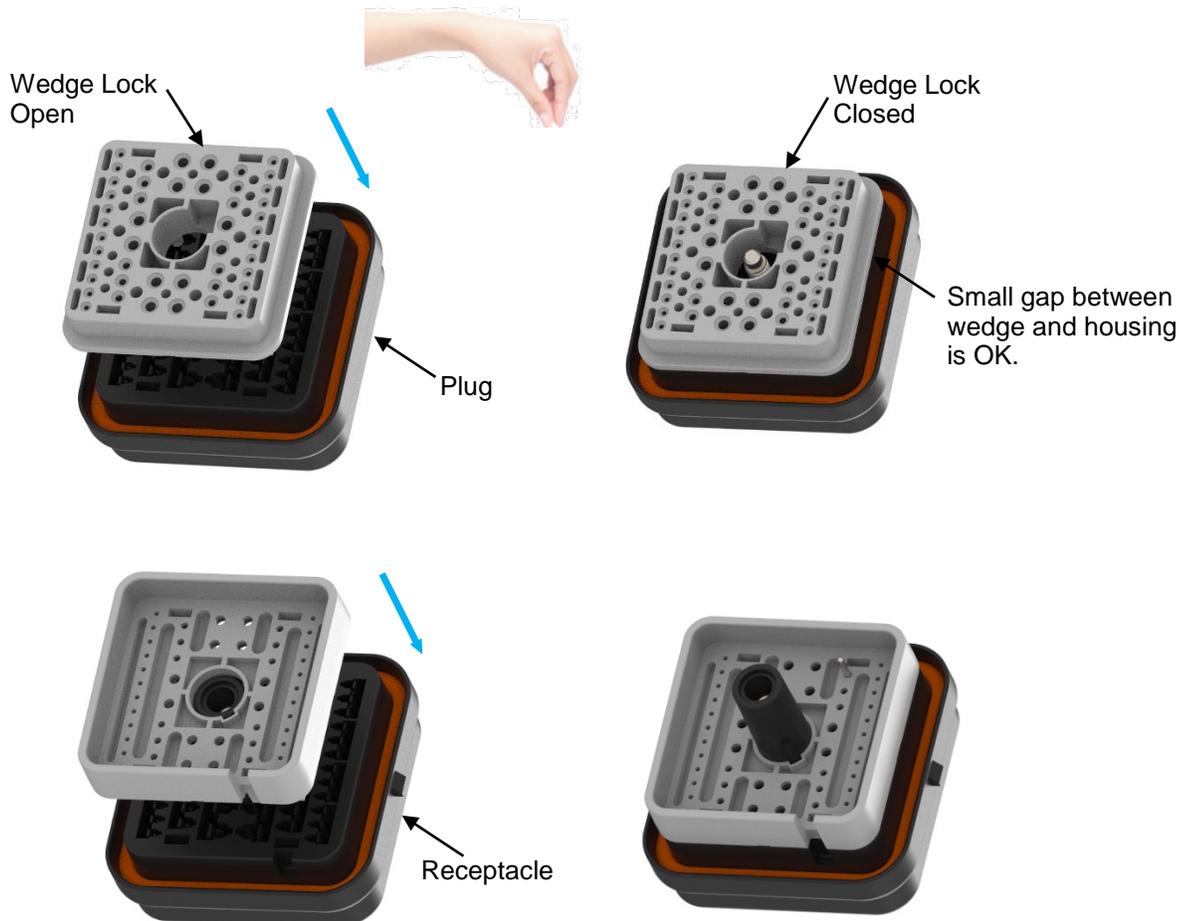
2. Ensure the correct connector configuration is being used before inserting contacts. Pins (male) used in receptacle and sockets (female) are used in plug.
3. Push contact straight into cap and through grommet until positive stop is felt. The contact will lock into place. A slight tug on wire will confirm it is properly locked in place.



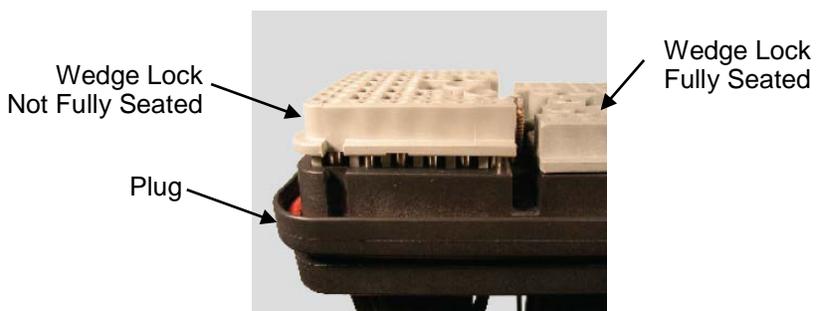
Note

1. Wire insulation outside diameter must meet connector wire sealing range per section 3.3.E.
2. Pins used in receptacle and sockets used in plug.
3. Insertion tool, [M15570-16](#) (size 16) or [M15570-20](#) (size 20) may be needed for 20 AWG [0.50mm<sup>2</sup>] wire.

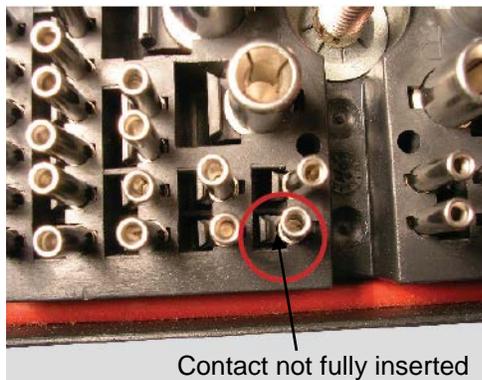
- Once all the contacts are in place, flip connector over and insert the wedge lock and press it firmly into place. There may be a small gap between wedge and housing.



- If the wedge lock does not go all the way in, check to make sure all of the contacts are properly seated.



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



### 3.5 Contact Insertion Tool

Insertion tools are used to help insert small gage wired contacts into connectors that utilize a round shoulder contact retention system. Insertion tools are compact, easy-to-use and made with durable plastic to insert wired contacts without damage to wire, insulation, rear grommet seal or connector housing.

#### USING THE TOOL

1. Insert the wired contact into the colored end wire entry slot and gently pull back until the contact locking shoulder is against tool.
2. Push the tool/wired contact assembly into the connector rear until the contact is felt snap into position within the retainer.
3. While holding the wire forward, gently pull remove tool out.
4. A slight tug on wire will confirm the contact is properly locked in place.

Contact Size	Part Number	Mil-Spec	Color Insertion	Insertion Tool
16	<a href="#">M15570-16</a>	M81969/14-03	Blue	
20	<a href="#">M15570-20</a>	M081969/14-11	Red	

 **CAUTION**  
Do not twist or insert the insertion tool at an angle; otherwise, damage to the cavity retention finger(s) will result.

### 3.6. Contact Removal

DEUTSCH [DT-RT1](#) multi-use tool has a small screwdriver on one end to help remove the wedge lock and push back the locking fingers and release the contact. The tool is designed to extract individual DEUTSCH solid and stamped and formed (S&F) pin and socket contacts from front-release connectors. See [408-151008](#) for more information.

#### A. Removing Contact (Plug shown as example)

1. First, remove wedge lock by inserting the screwdriver tip of the removal tool into the notch on the wedge lock. There are 4 notches on the wedge lock. Remove wedge lock.

2. Insert the screwdriver tip of the removal tool into the contact cavity of the contact to be removed to release the locking finger.
3. Pull back on the wire until the contact is removed. Alternatively, push the contact until removed.



**Note**

1. Use same procedure to remove contacts removal from receptacle.

### 3.7. Sealing Plug and Keying Pin Installation and Removal.

#### Sealing Plug (408-151066)

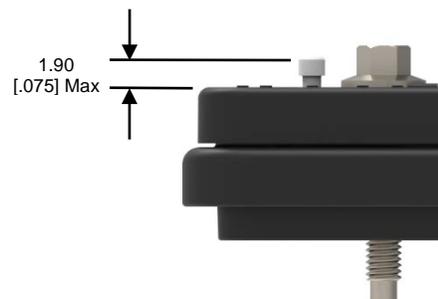
1. Hold the sealing plug with large diameter end away from the connector.



2. Apply downward pressure to the large diameter end of the sealing plug until sealing plug head is flush with the cap.

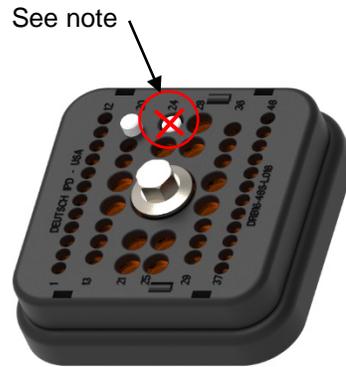


3. Visually inspect the sealing plug large diameter bottom end is flush with cap cavity opening. Do not push all the way through. Allowable distance from top of sealing plug to connector surface is shown below.





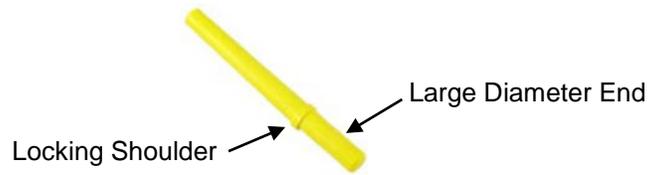
**Note:**  
Some sealing plug large diameter head can go inside cap hole. Do not push top of head flush with top of cap surface or sealing plug removal could be difficult.



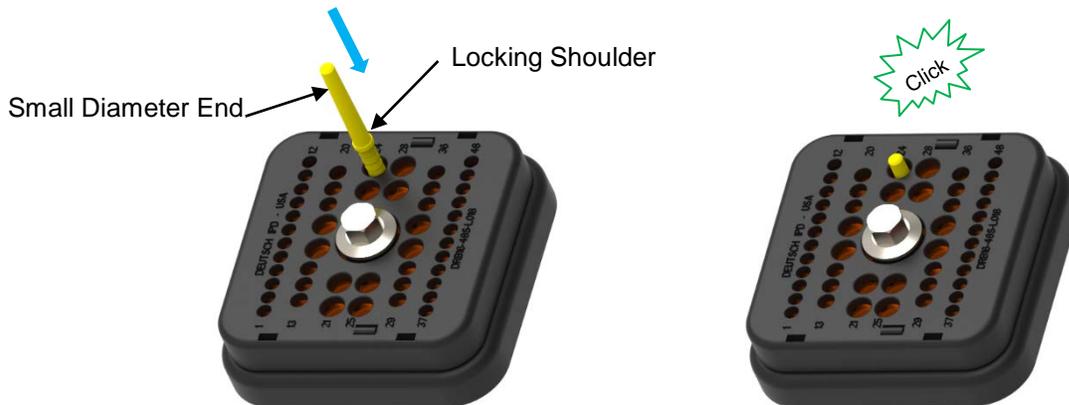
- To remove sealing plug from connector, grasp the large diameter end with fingers or small long nose pliers and pull until sealing plug is removed.

**Keying Pin - Used with Plug (408-151066)**

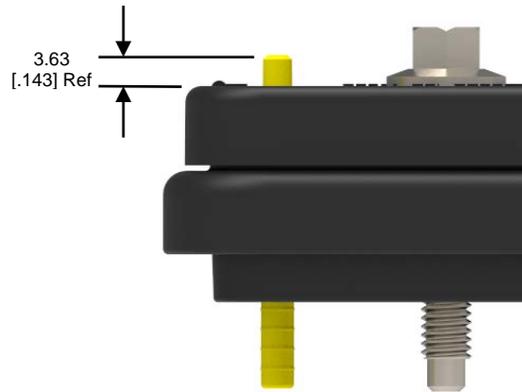
- Hold the keying pin with large diameter end towards the connector.



- Without wedge lock, install the keying pin until it locks into the cavity. A slight tug on keying pin will confirm it is properly locked in place.



3. Allowable distance from top of sealing plug to connector surface is shown below. Shown without wedge lock.



4. To remove keying pin from connector, first release the locking finger similar to step 2 of contact removal. Then, grasp the end of the keying pin with fingers or small long nose pliers and pull until it is removed.

### 3.8. Bulkhead / Panel Installation

Interface flange is mounted to a bulkhead or panel as shown. Mounting hardware are customer supplied.

Recommended screw size: #10-14 thread forming screw, single helix ([Plastite 48](#)).

Screw length: Depends on application.

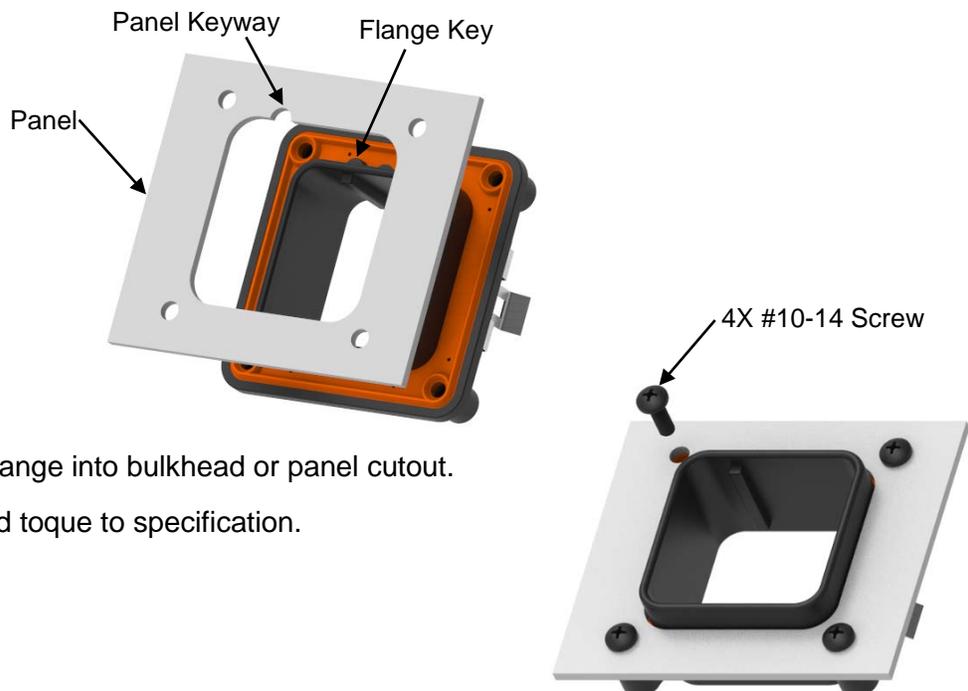
Recommended torque: 2.26-2.82 Nm [20-25 in-lbf]

Panel thickness:

3.18 [.125] max DRBF-2

6.35 [.250] max DRBF-1 and DRBM-3

1. Align interface flange key to panel cutout keyway. DRBF-2A shown as example

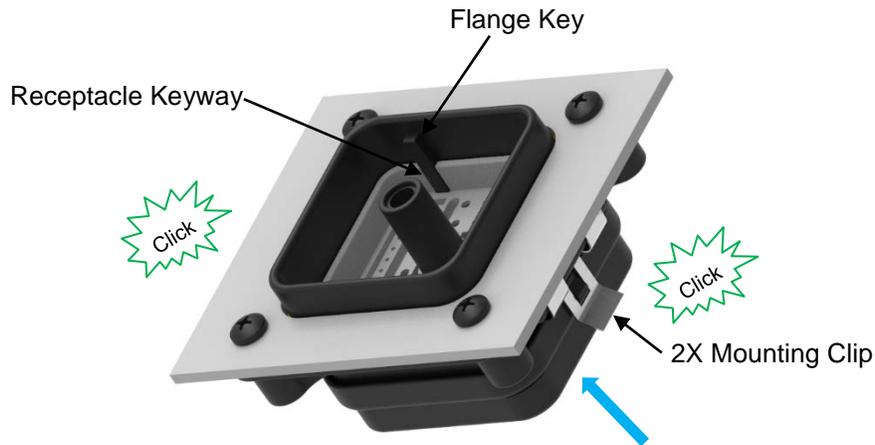


2. Install interface flange into bulkhead or panel cutout.

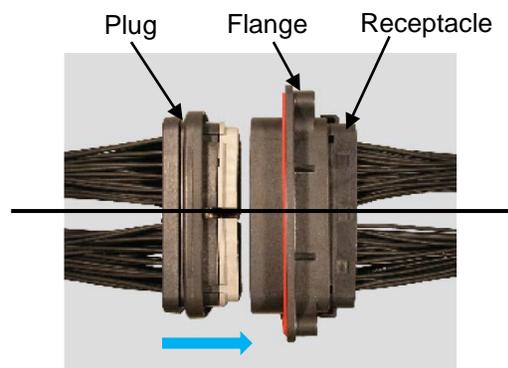
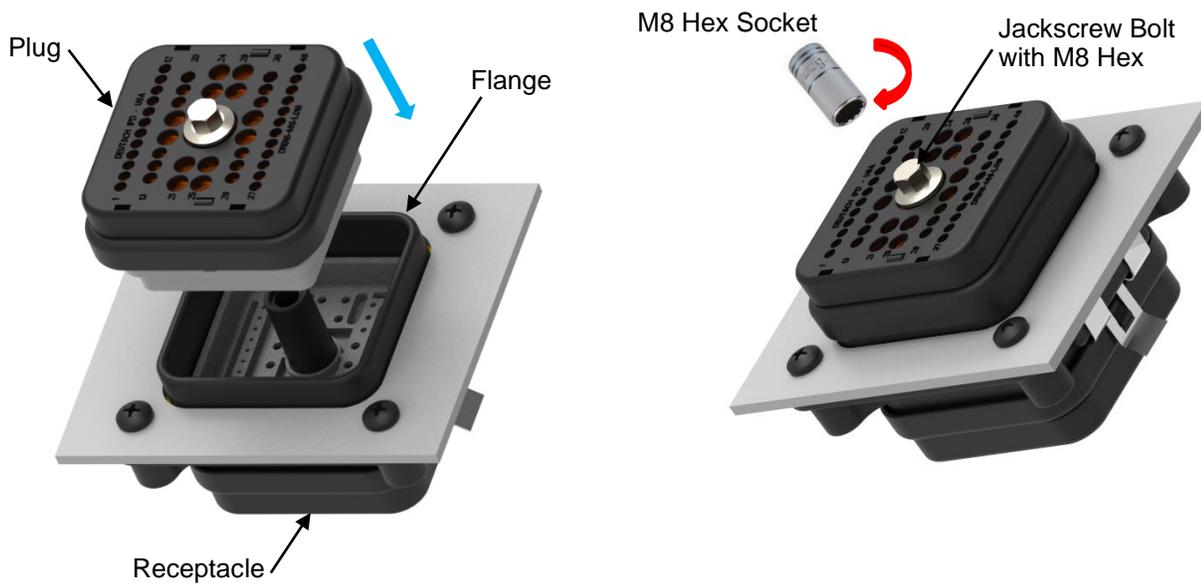
3. Install screws and torque to specification.

**CAUTION**  
Do not over torque mounting hardware.

4. Install receptacle by aligning receptacle keyway to flange key. Snap receptacle into flange mounting clip.



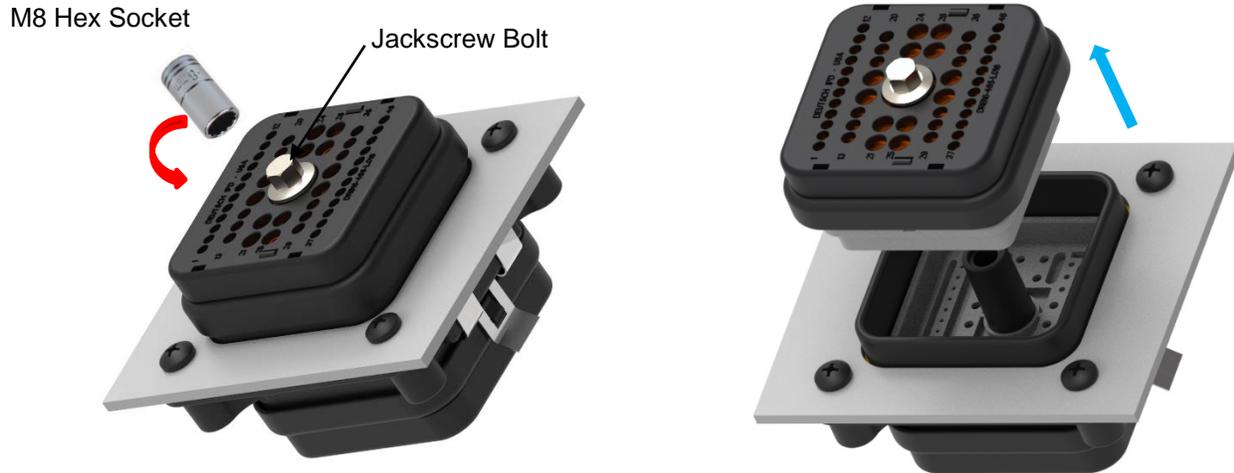
5. Install plug by aligning plug keyway to flange key. Using a M8 hex socket tool turn the jackscrew bolt clockwise until almost completely mated. Recommended torque: 3.38-3.95 Nm [30-35 in-lbf].



**i** Note: When mating the plug to the receptacle, confirm the plug is not pulled into the receptacle at an angle by the jackscrew bolt.

### 3.9. Connector Unmating

To unmate the plug and receptacle, use a M8 hex socket tool turn the jackscrew bolt counterclockwise until completely unmated. Separate plug from receptacle.

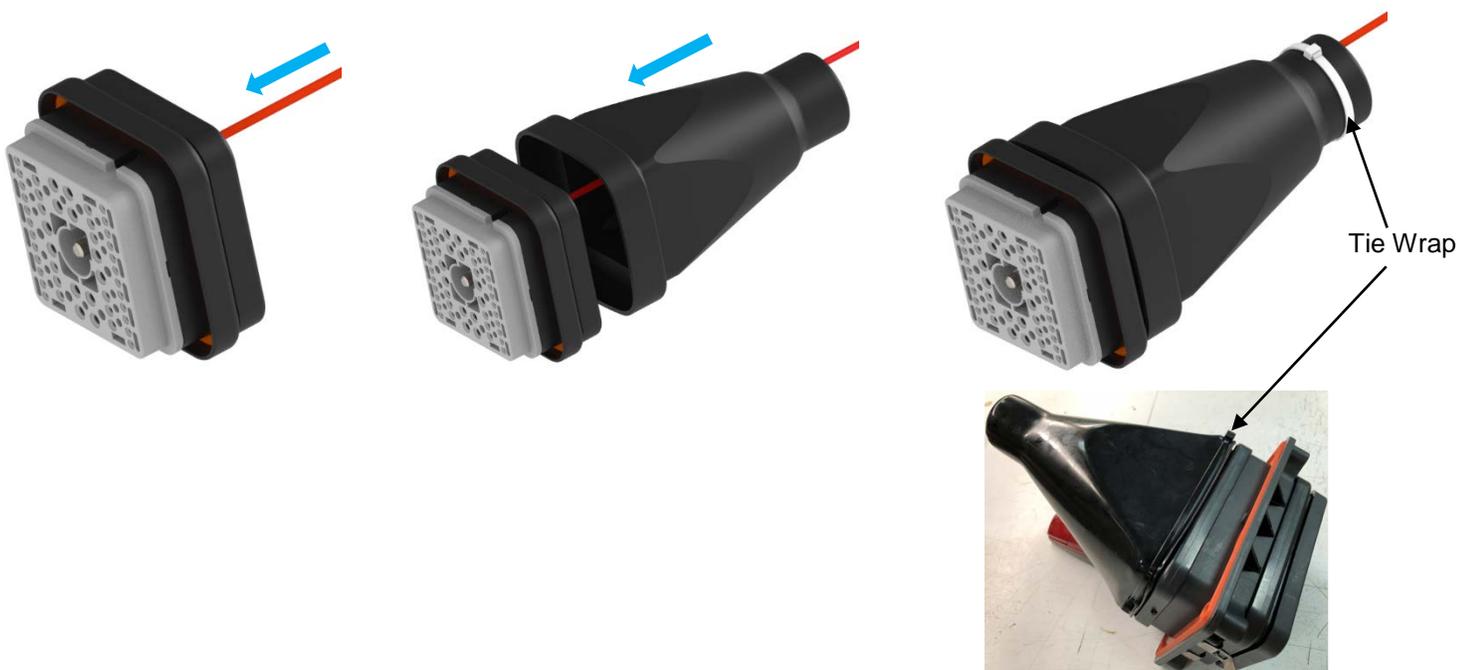


### 3.10. Boot Installation

See Section J for part numbers.

#### BOOT

First, insert the wires into the connector. Install boot over wire harness by passing the wires through the boot. Slide the boot onto the connector. If needed, attach a tie wrap on the end of the connector and boot. Trim tie wrap as needed.



### 3.11. Replacement and Repair

Damaged or defective connectors must not be used. These connectors cannot be repaired.

## 4. QUALIFICATION

Refer to product specification [108-151021](#) for qualification and approved agency.

## 5. TOOLING

Refer to the following application specifications for reference on all pin and socket contact termination tooling.

- [114-151000](#) Application Specification for DEUTSCH Size 16 S&F Pin and Socket Contacts
- [114-151001](#) Application Specification for DEUTSCH Size 16 S&F Pin and Socket Contacts
- [114-151002](#) Application Specification for DEUTSCH Size 12 S&F Pin and Socket Contacts
- [114-151003](#) Application Specification for DEUTSCH Size 20 S&F Pin and Socket Contacts
- [114-151004](#) Application Specification for DEUTSCH size 4-20 Solid Pin & Socket
- [114-151006](#) Application Specification for DEUTSCH Size 12 S&F Pin and Socket Contacts

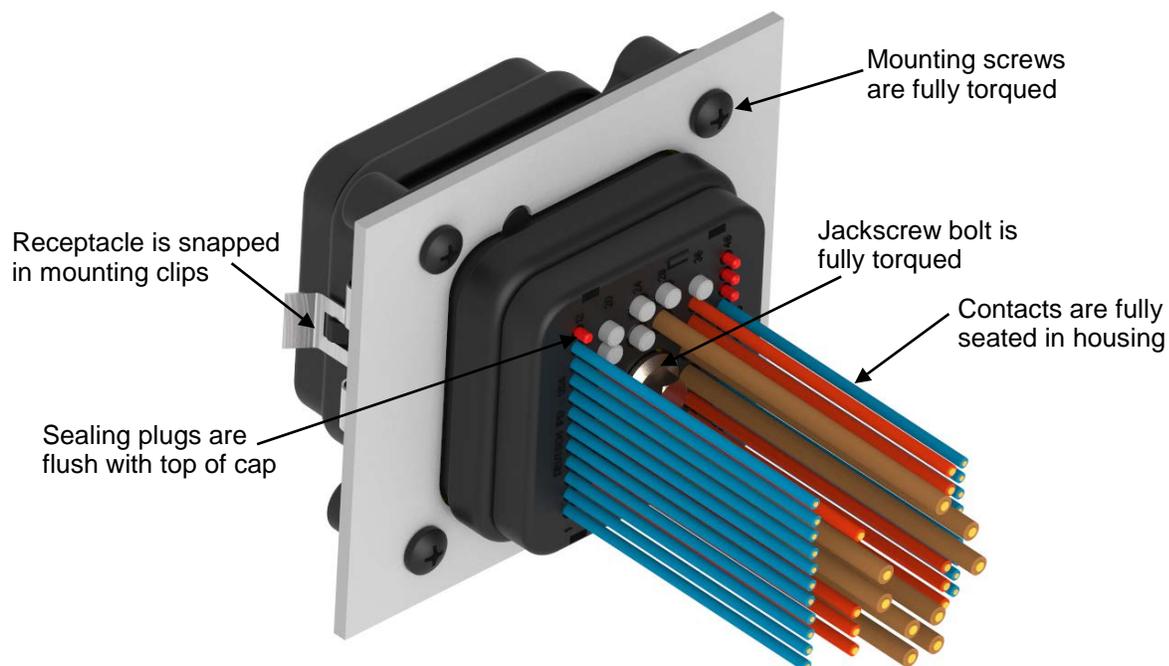
[DT-RT1](#) removal tool is designed to be used to service the connector.



DEUTSCH Removal Tool [DT-RT1](#) for Front-Release Connectors ([408-151008](#))

## 6. VISUAL AID

Below shows a typical application of the DRB Series Connector. This illustration should be used by production personnel to ensure a correctly applied product. Applications which DO NOT appear correct should be inspected using the information in the preceding pages of this specification and in the instruction, material shipped with the product or tooling.



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## 7. REVISION HISTORY

Rev	Brief Description of Change	Date	Dwn	Apvd
A	Initial Release	01-Feb-21	DM	IG