



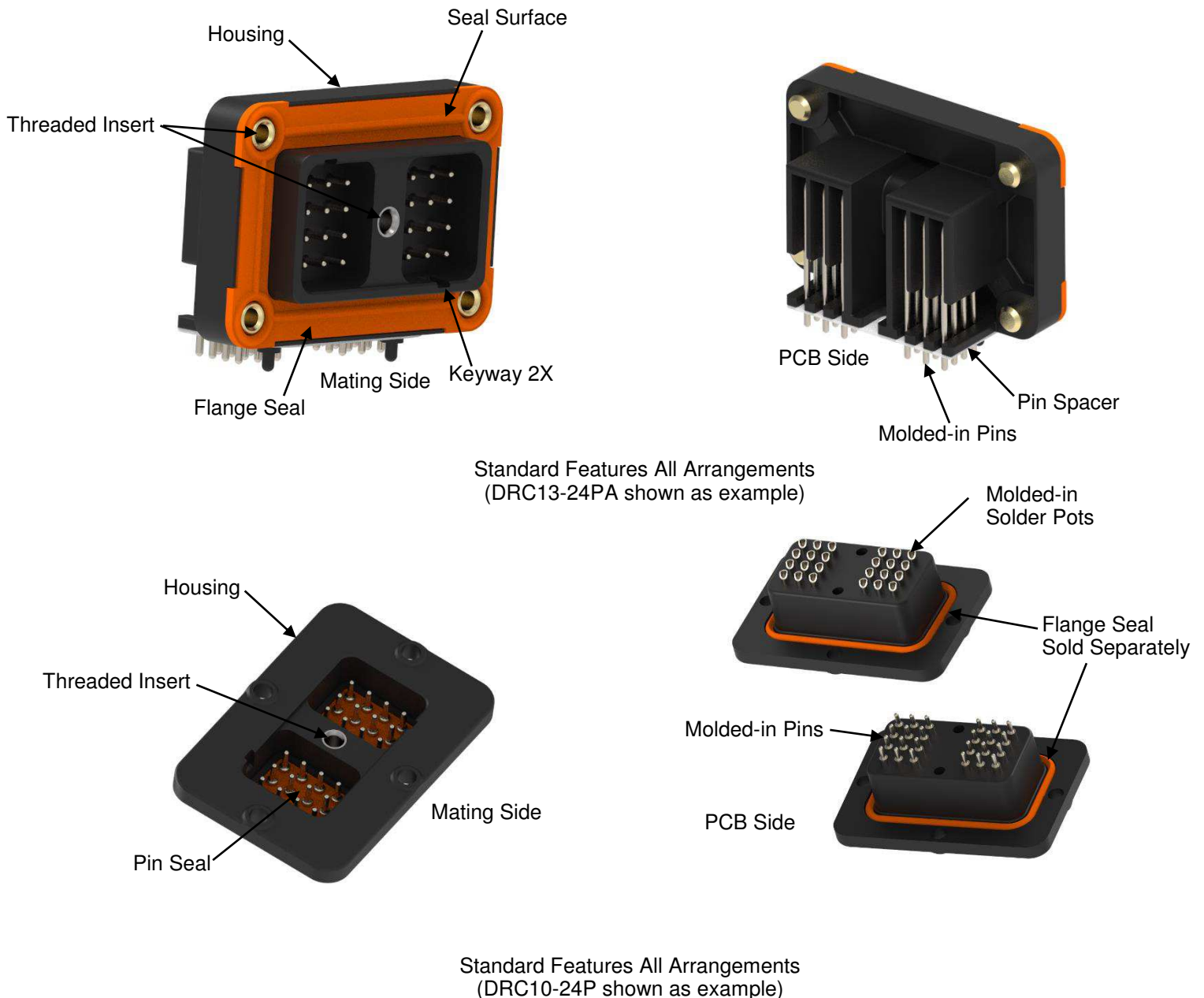
**NOTE**

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 DRC10/13 header connector to be mounted on a printed circuit board (PCB). The header is offered in 24, 40-pin arrangements which will mate to the DEUTSCH DRC16 plug connector and comes in Right Angle and Straight versions.

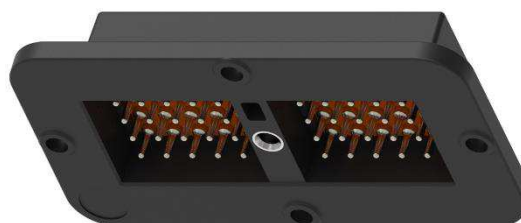
The header receptacle consist of a housing, molded-in pins, pin spacer, flange seal and threaded inserts. The header features a center threaded coupling system. Basic terms and features of this product are provided below.



### 1.1. Header Receptacle (Straight – 180°)

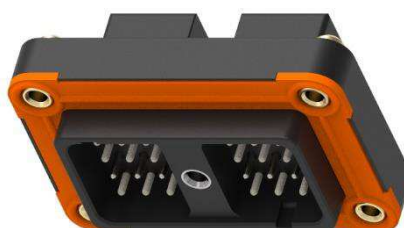


DRC10-24PX



DRC10-40P

### 1.2. Header Receptacle (Straight – 90°)



DRC13-24PX



DRC13-40PX



Note:

1) X = A, B, C, D keys

### 1.3. Product Dimensions

See connector product drawing for product dimensions. See section 2.3

## 2. REFERENCE MATERIAL

### 2.1. Revision Summary

See section 7

### 2.2. Customer Assistance

See Section 3.3A for Part Numbering System

Product Code EQ78 is representative of DEUTSCH DRC10 and DRC13 series connector system. Use of this number 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 to A,B,C,D keys.

| Product Drawing                 | Description                                     |
|---------------------------------|---|
| <a href="#">DRC10-24PX</a>      | HDR, 24P, BLK, ST, SDR CUP, SN/NI/CU, A,B,C,D   |
| <a href="#">DRC10-24PX-A004</a> | HDR, 24P, BLK, ST, PIN, SN/NI/CU, A,B,C,D       |
| <a href="#">DRC10-40P</a>       | HDR, 40P, BLK, ST, SDR CUP, SN/NI/CU            |
| <a href="#">DRC10-40P-A004</a>  | HDR, 40P, BLK, ST, PIN, SN/NI/CU                |
| <a href="#">DRC13-24PX</a>      | HDR, 24P, BLK, RA, 10-32 FLG, SN/NI/CU, A,B,C,D |
| <a href="#">DRC13-24PX-C023</a> | HDR, 24P, BLK, RA, M5 FLG, SN/NI/CU, A,B,C,D    |
| <a href="#">DRC13-24PX-CG01</a> | HDR, 24P, BLK, RA, M5 FLG, SN/NI/CU, A,B,C,D    |
| <a href="#">DRC13-24PX-G002</a> | HDR, 24P, BLK, RA, 10-32 FLG, SN/NI/CU, A,B,C,D |
| <a href="#">DRC13-40PX</a>      | HDR, 40P, BLK, RA, 10-32 FLG, SN/NI/CU, A,B,C,D |
| <a href="#">DRC13-40PX-C023</a> | HDR, 40P, BLK, RA, M5 FLG, SN/NI/CU, A,B,C,D    |
| <a href="#">DRC13-40PX-CG01</a> | HDR, 40P, BLK, RA, M5 FLG, SN/NI/CU, A,B,C,D    |
| <a href="#">DRC13-40PX-G002</a> | HDR, 40P, BLK, RA, 10-32 FLG, SN/NI/CU, A,B,C,D |

### 2.4. Specifications

- [108-151018](#) Product Specification DRC16 Series Connector System
- [114-151018](#) Application Specification DRC16 Series Connector System

### 2.5. Manuals

- [402-40](#) Solderability and Soldering

## 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        |

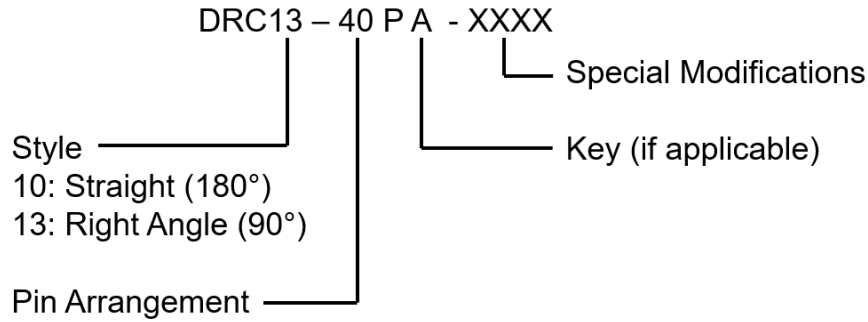


Note:

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

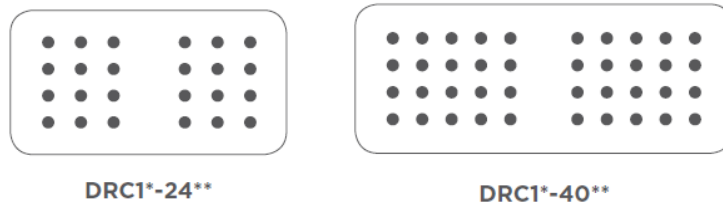
### 3.3. Characteristics

#### A. Part Numbering System



#### B. Pin Arrangement

See product drawing for contact cavity marking



#### C. Materials

|                          |   |
|--------------------------|---|
| Header Housing:          | PPS GF40 (black)  |
| Pin Spacer:              | PTFE (white)  |
| Flange Seal:             | VMQ (red-orange)  |
| Pin Seal:                | VMQ (red-orange)  |
| Pin Contact:             | Brass   |
| Pin Plating (DRC10)      | Mating Side (Sn/Ni/Cu)<br>PCB Side (Sn/Ni/Cu)                           |
| Pin Plating (DRC13)      | Mating Side (Sn/Ni/Cu or (Au/Ni/Cu)<br>PCB Side (Sn/Ni/Cu or (Au/Ni/Cu) |
| Threaded Insert (Center) | Stainless Steel   |
| Threaded Insert (Flange) | Brass   |

## D. 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.

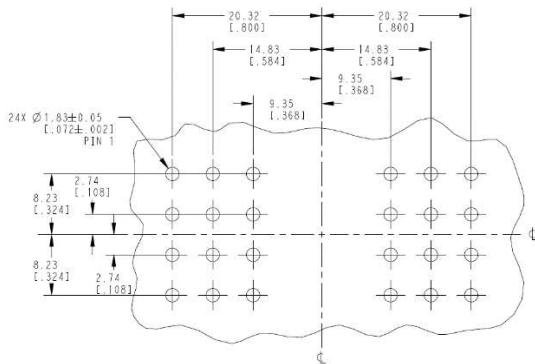
| Modification | Description   |
|--------------|---|
| A004         | Pins on PCB side  |
| C023         | M5 Threaded Inserts on Flange   |
| CG01         | M5 Threaded Inserts on Flange<br>Pins on outside rows are Gold, All other Tin |
| G002         | Pins on outside rows are Gold, All other Tin                                  |

### 3.4. Printed Circuit Board (PCB) Layout

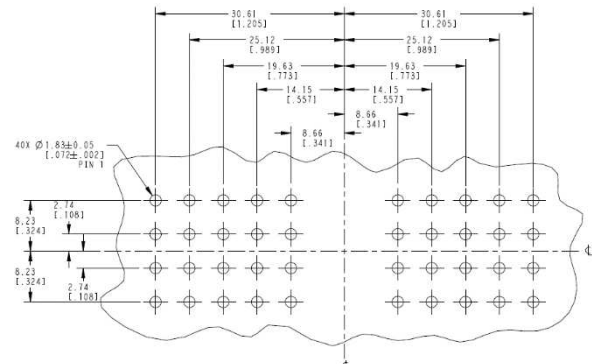
The recommended PCB layout requirement is shown below for the component side. The PCB thickness depends on application.

DRC10: Header pins extend  $4.83 \pm .13$  [ $.190 \pm .005$ ] below mounting surface.

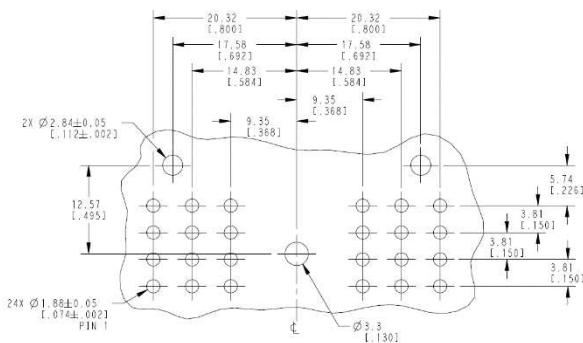
DRC13: Header pins extend  $3.20 \pm .64$  [ $.126 \pm .025$ ] below mounting surface.



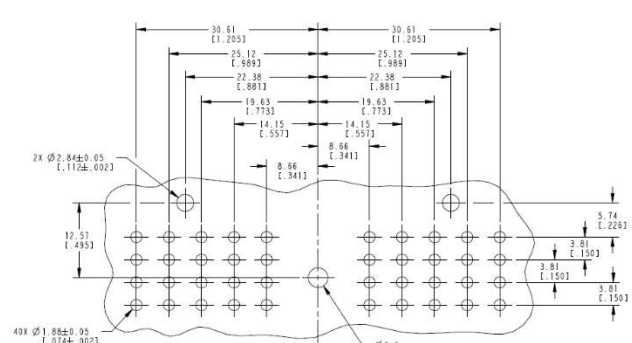
**DRC10-24P**



**DRC10-40P**



**DRC13-24P**



**DRC13-40P**

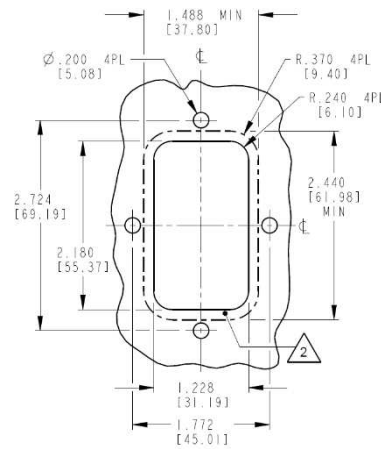


### Note:

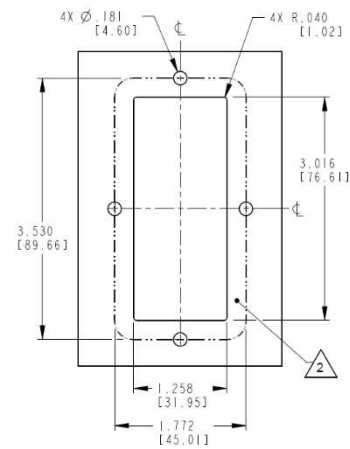
- 1) Tolerance:  $\pm .05$  [ $.002$ ].
- 2) Customer to determine finished hole diameter based on soldering process, through hole plating, etc.

### 3.5. Panel Cutout

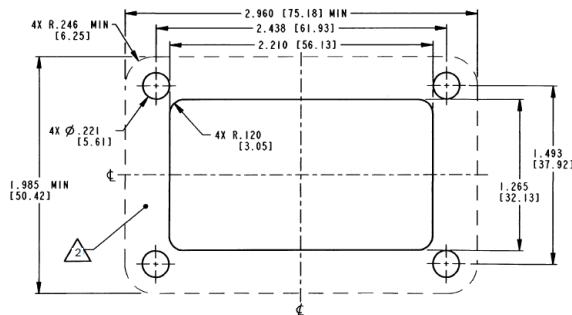
The header requires a panel cutout that allows the flange to be mounted on the inside of the panel.



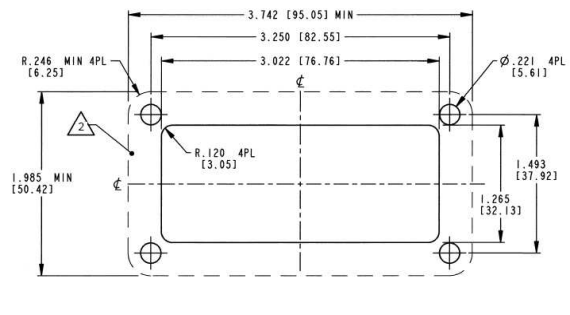
**DRC10-24P-A004**



**DRC10-40P-A004**



**DRC13-24P**



**DRC13-40P**



Note:

- 1) Tolerance:  $\pm .12$  [.005]
- 2) Sealing surface:  $0.8 Ra$  [32 RMS] or better and .13 [.005]

### 3.6. Soldering Guidelines

The header is designed to be compatible with standard soldering process (i.e. hand soldering, wave soldering, reflow soldering) which uses tin solder. The header material is capable to withstand 260°C [500°F] for 5 seconds. There must be no interruptions of the conveyor carrying the PCB through the solder bath.



**CAUTION**

Care must be taken not to leave the header exposed directly to the soldering flow during an interruption. Any header exposed to the solder flow longer than the normal soldering cycle must be rejected and replaced

Manual [402-40](#) is available to be used as a guide to soldering. This manual provides information on various flux types and characteristics with the commercial designation and flux removal procedures. A checklist is included in the manual as a guide for information on soldering problems.

After soldering, removal of fluxes, residues and activators is necessary. Cleaners must be free of dissolved flux and other contaminants. We recommend cleaning the PCB on its edge. If using an aqueous cleaner, we recommend standard equipment such as a soak-tank or an automatic in-line machine.

When drying cleaned assemblies and printed circuit boards, make certain that temperature limitations are not exceeded: -40° to 70°C [-40° to 158°F]. Excessive temperatures may cause housing degradation.

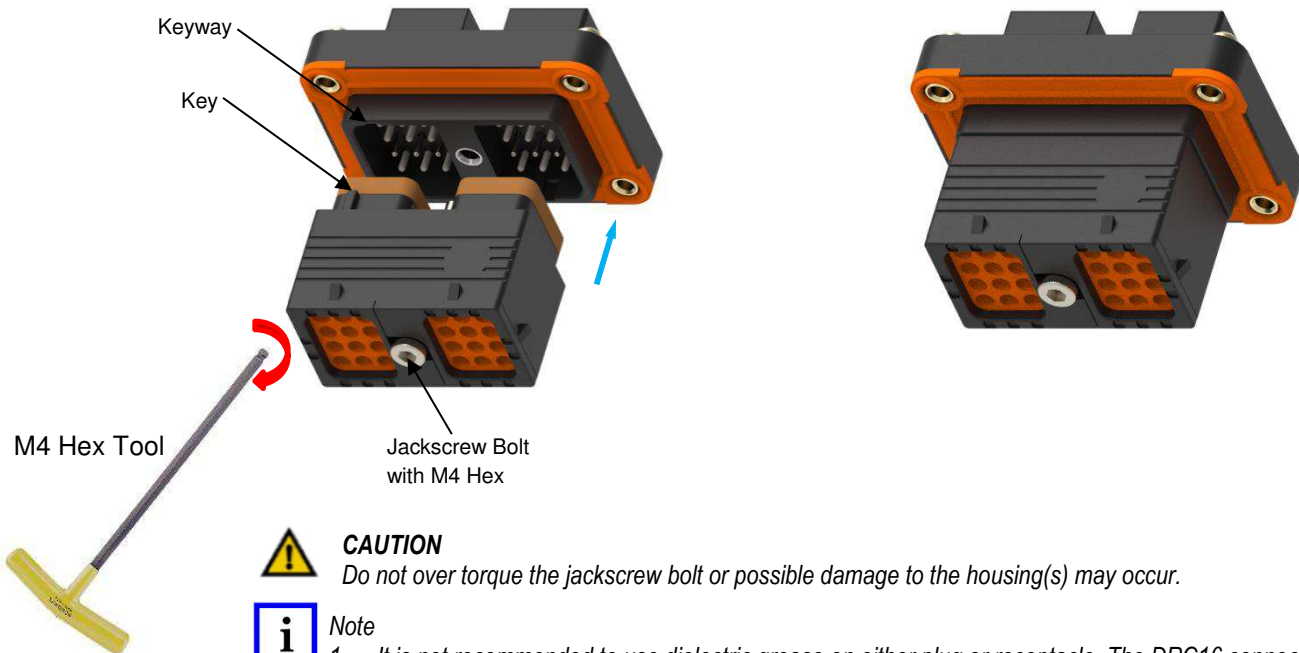
### 3.7. Plug Connector Assembly and Servicing

[114-151018](#) Application Specification DRC16 Series Connector System

### 3.8. Connector Mating

To mate the plug and receptacle, align the plug key and receptacle keyway as shown. Once aligned, use a M4 hex tool turn the jackscrew bolt clockwise until completely mated.

Recommended torque: 2.82-3.13 Nm [25-28 in-lbf].



**CAUTION**

Do not over torque the jackscrew bolt or possible damage to the housing(s) may occur.



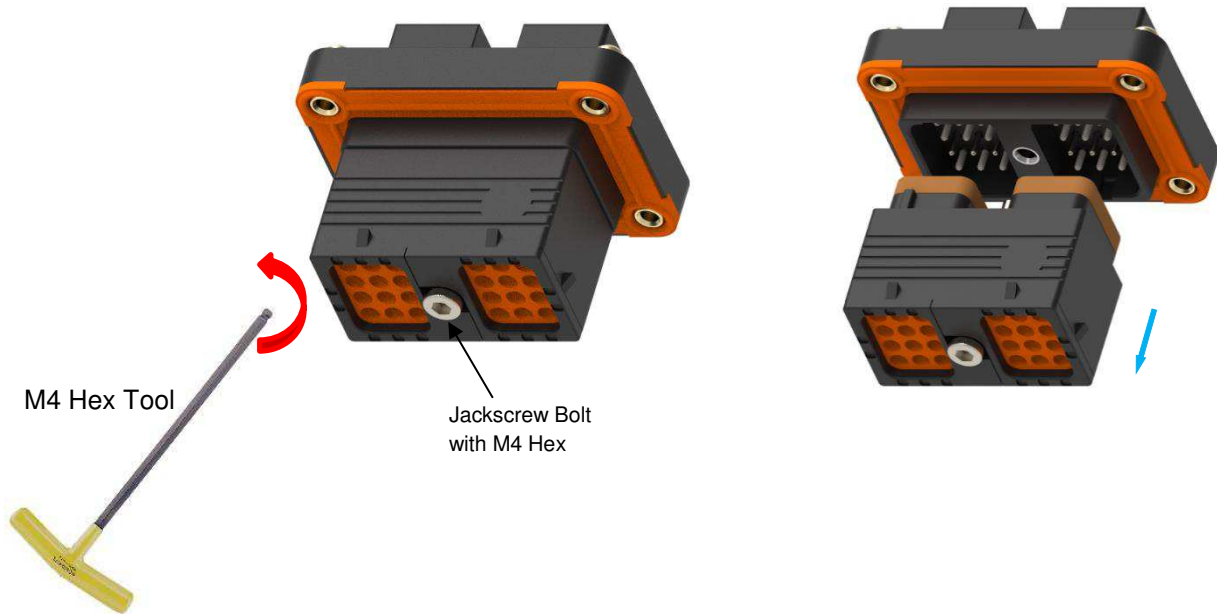
**Note**

1. It is not recommended to use dielectric grease on either plug or receptacle. The DRC16 connectors are guaranteed to seal and perform per [108-151018](#) product performance without the application of grease or other foreign substance.
2. A ball-tip M4 hex tool is recommended for ease of use.



### 3.9. Connector Unmating

To unmate the plug and receptacle, use a M4 hex tool turn the jackscrew bolt counterclockwise until completely unmated. Separate plug from receptacle.

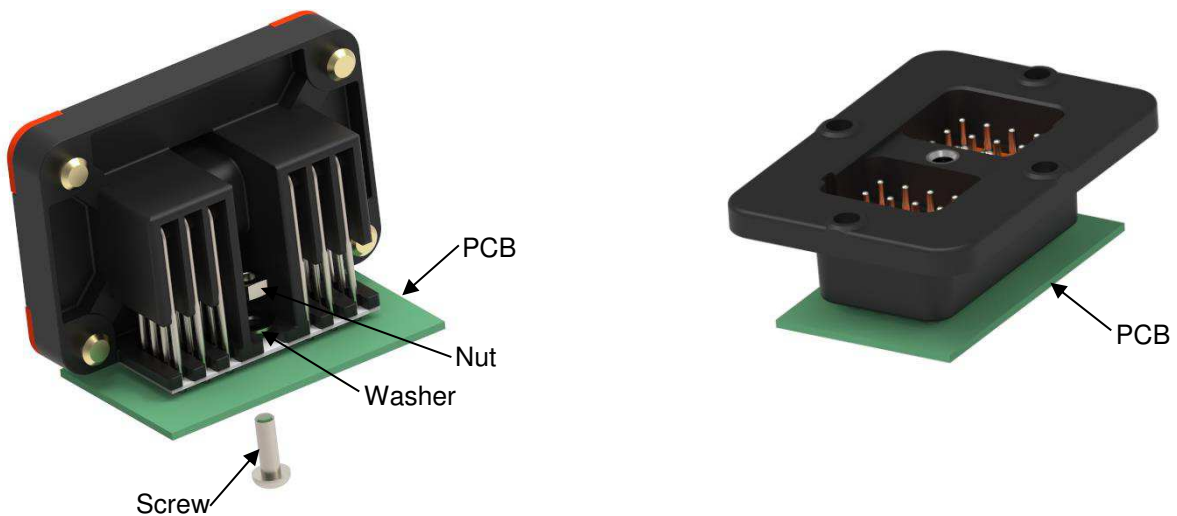


**Caution:**

Be careful not to damage the plug interface sea. Replace if necessary.

### 3.10. Printed Circuit Board Mounting

Solder the header to the PCB then secure the DRC13 header using M3 [4-40] hardware. Mounting hardware (i.e. screw, washer, nut) are customer supplied. Screw length depend on application. DRC10 does not require mounting hardware.



**Note:**

1) Mounting torque not to damage connector or PCB.

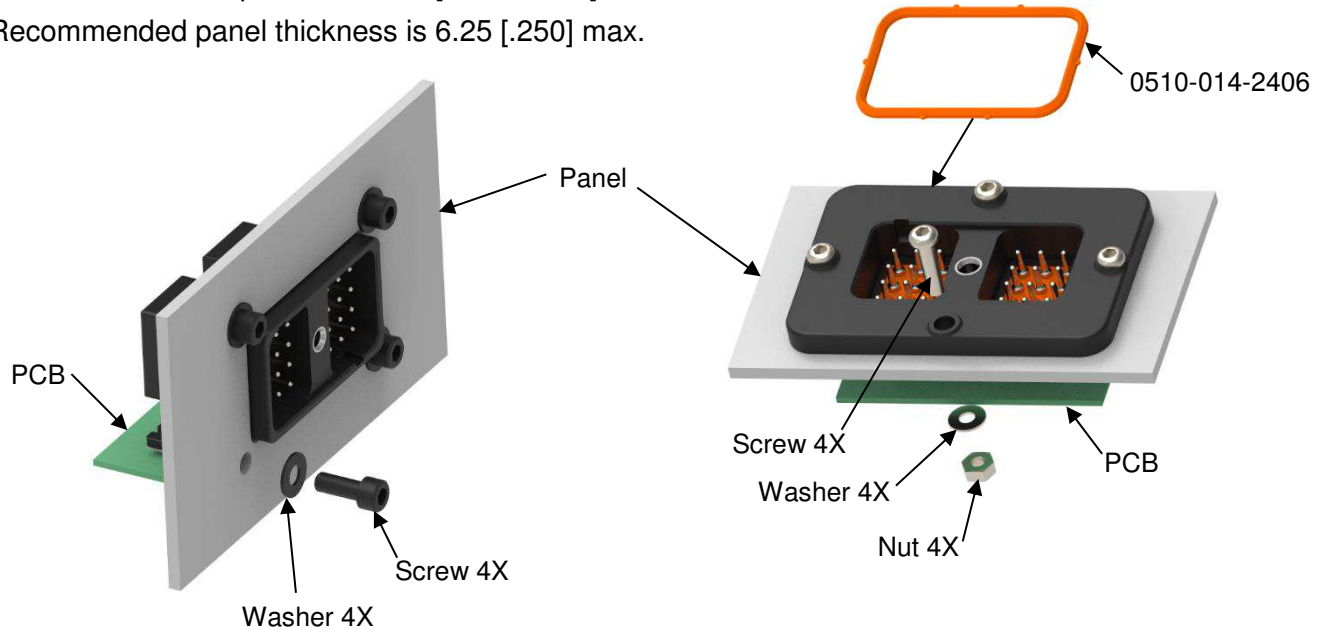


### 3.11. Panel Mounting

Insert the header through the panel cutout then secure the header using 10-32 hardware (M5 for C023 and CG01 modifications). DRC10-24P requires 0510-014-2406 flange seal (sold separately). Mounting hardware (i.e. screw, washer, nut) are customer supplied. Screw length depend on application.

Recommended torque: 2.26-2.83 [20-25 in-lbf].

Recommended panel thickness is 6.25 [.250] max.



Note:

1) Mounting torque not to damage connector or panel

### 3.12. Replacement and Repair

Damaged or defective header must not be used. It may be removed from the PCB by normal desoldering methods and replaced with a new header.

## 4. QUALIFICATION

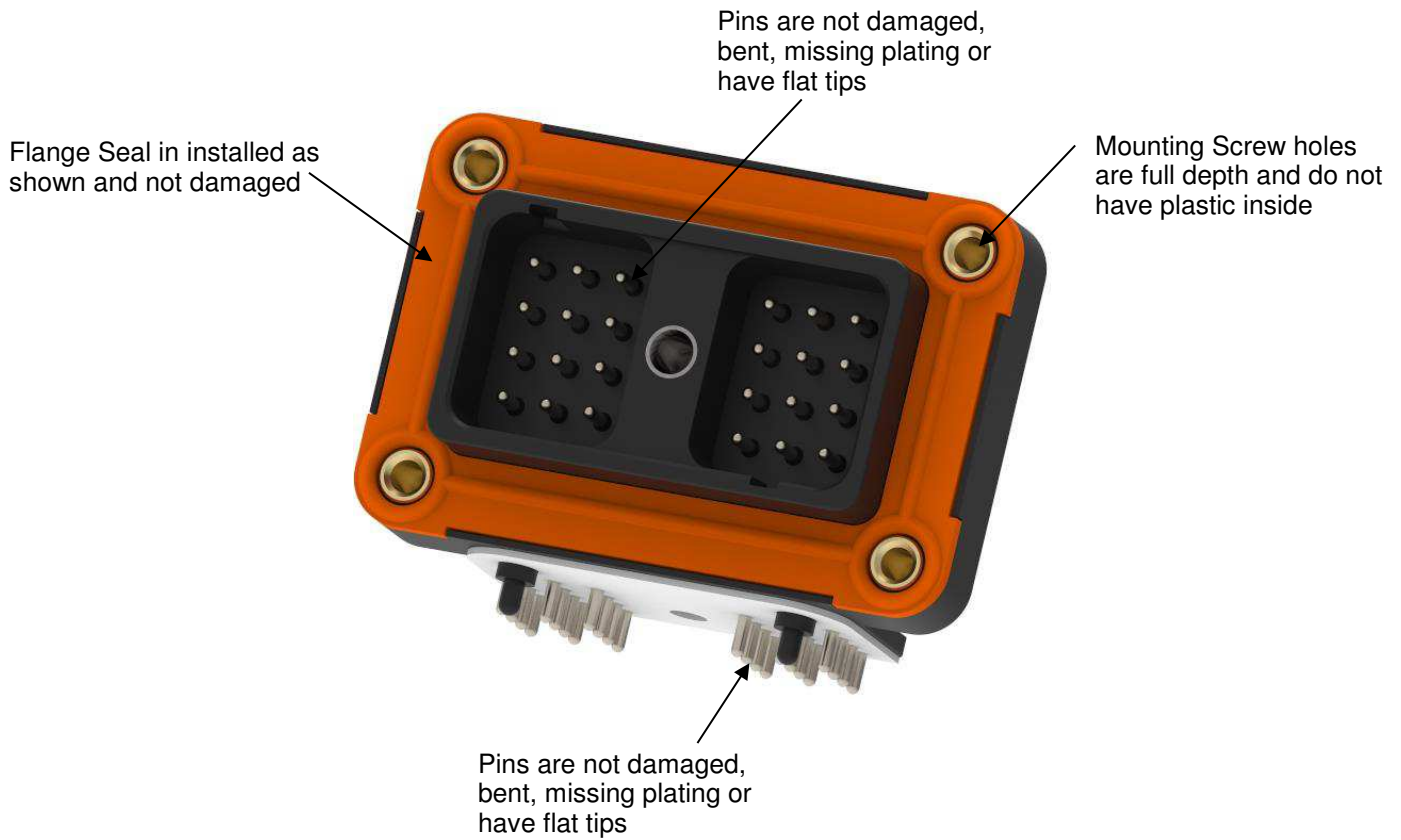
Refer to product specification [108-151018](#) for qualification and approved agency.

## 5. TOOLING

No special tooling is required for hand placement of the header onto the PCB or installation of the mating plug connector.

## 6. VISUAL AID

Below shows a typical application of the DRC16 Header 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.



## 7. REVISION HISTORY

| <b>Rev</b> | <b>Brief Description of Change</b>  | <b>Date</b> | <b>Dwn</b> | <b>Apvd</b> |
|------------|---|-------------|------------|-------------|
| A          | Initial Release   | 13 Nov 2020 | DM         | IG          |
| B          | 1) Page 5, Sec 3.4. Flipped DRC10-40P & DRC13-40P PCB layout<br>2) Page 8, Sec 3.9. Corrected red rotational arrow for unmating | 20 Mar 2024 | DM         | CB          |
|            |   |             |            |             |
|            |   |             |            |             |