

## AK-147 Direct-Mount<sup>®</sup> Duo<sup>™</sup>

Stabilized Connector with Integral Block Valves  
Installation, Operation & Maintenance (I.O.M.) Manual



ENGINEERING YOUR SUCCESS.

# Notes

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# 1 Introduction

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## 1.1 Scope

The following information is intended to be used exclusively for the safe and proper installation of valves and manifolds manufactured by Parker PGI. This document contains information intended for qualified technical personnel to ensure that equipment is installed, operated and properly maintained as recommended by Parker PGI.

Parker PGI recommends the stack be assembled and torqued to specifications before mounting to stabilized connector for proper access to bolts to ensure torque specifications.

## 1.2 Overview

1.2.1 The following models feature slotted bolt holes to accommodate bolt spacing from 2-1/8" to 2-1/4":

- AK-147

1.2.2 Connectors adjust as needed.

1.2.3 A dielectric isolator is available to provide a nonconductive contact between the Direct-Mount<sup>®</sup> Duo<sup>™</sup> and orifice fitting. This prevents static electricity from affecting measurement.

## 2 Direct-Mount® Duo™ Installation

### 2.1 Installation without Dielectric Isolators to Jr./Sr. Orifice Fittings or Other

- 2.1.1 Inspect and clean 1/2" FNPT threads on orifice fitting. If available, use a 1/2" NPT thread chaser to clean threads.
- 2.1.2 Do not remove foot or nut from the stabilized connector.
- 2.1.3 Tape pipe threads of connectors with Teflon®/Grafoil® tape. Use a thread lubricant if Teflon®/Grafoil® tape is not available.
- 2.1.4 Tighten the connectors so that the top surfaces are on the same plane as seen in Figure 1. Do not back out connectors to align surfaces.

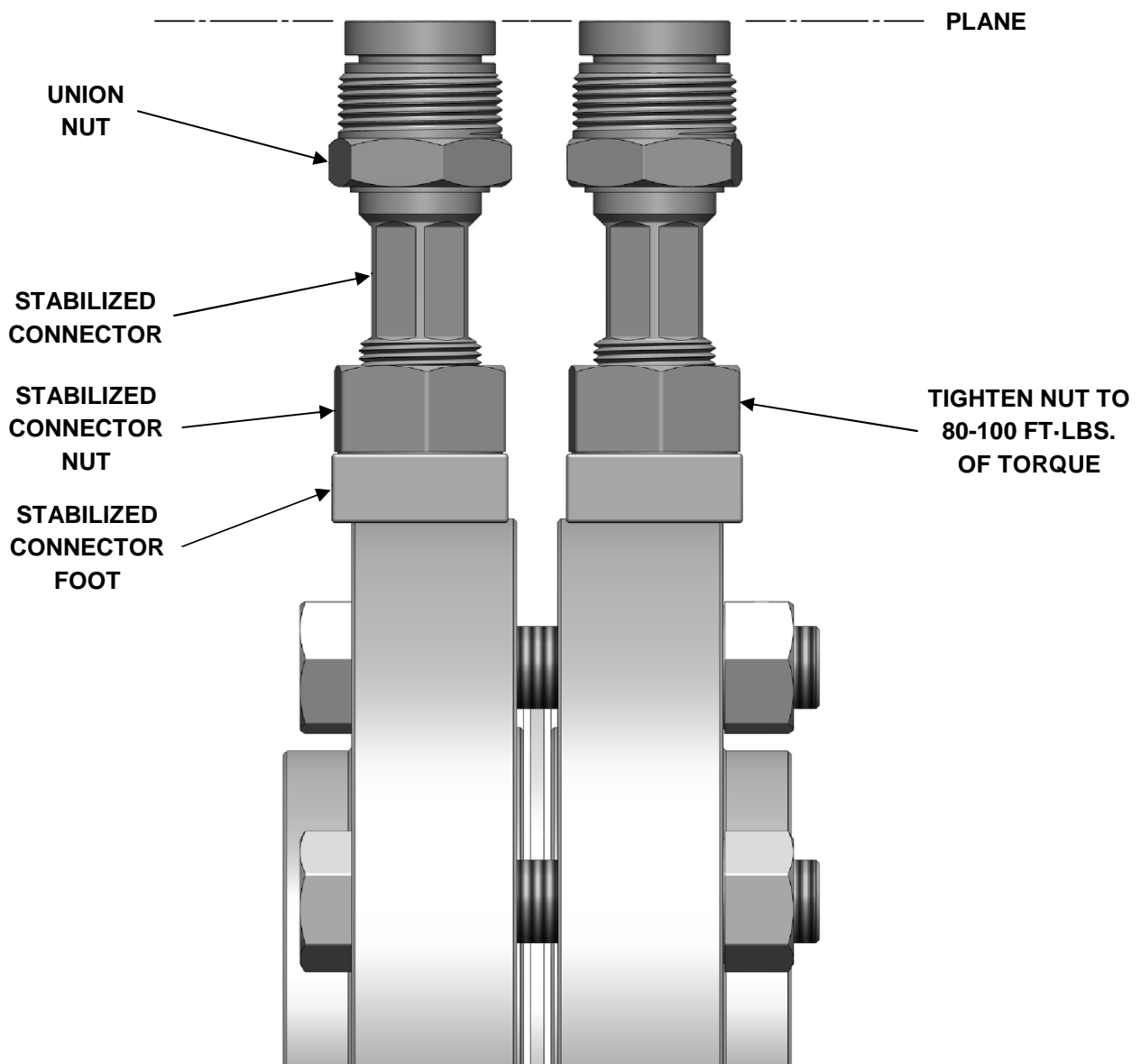


Figure 1

## 2 Direct-Mount® Duo™ Installation

2.1.5 Insert the O-rings into the grooves on the stabilized connector according to Figure 2.

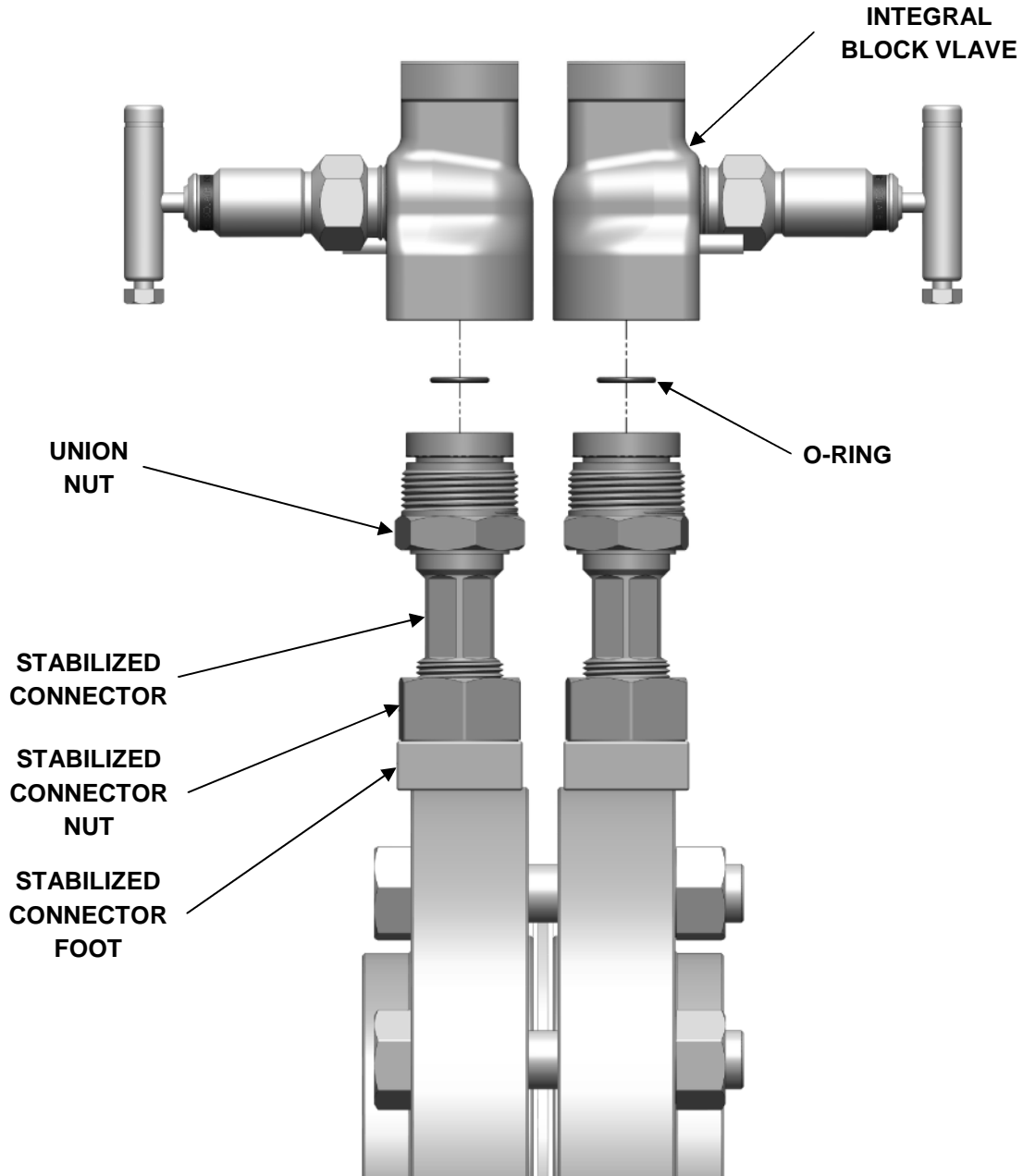


Figure 2

## 2 Direct-Mount® Duo™ Installation

- 2.1.6 Tighten stabilizing nut to 80-100 ft.-lbs. of torque per Figure 1 while keeping the foot in the correct position per Figure 4.
- 2.1.7 Install the valve bodies onto the stabilized connectors and tighten the union nut per Figure 3.
- 2.1.8 When installed vertically, the maximum allowable mounted weight is 70 lbs.
- 2.1.9 When installed horizontally, the maximum allowable moment due to weight is 150 ft.-lbs.

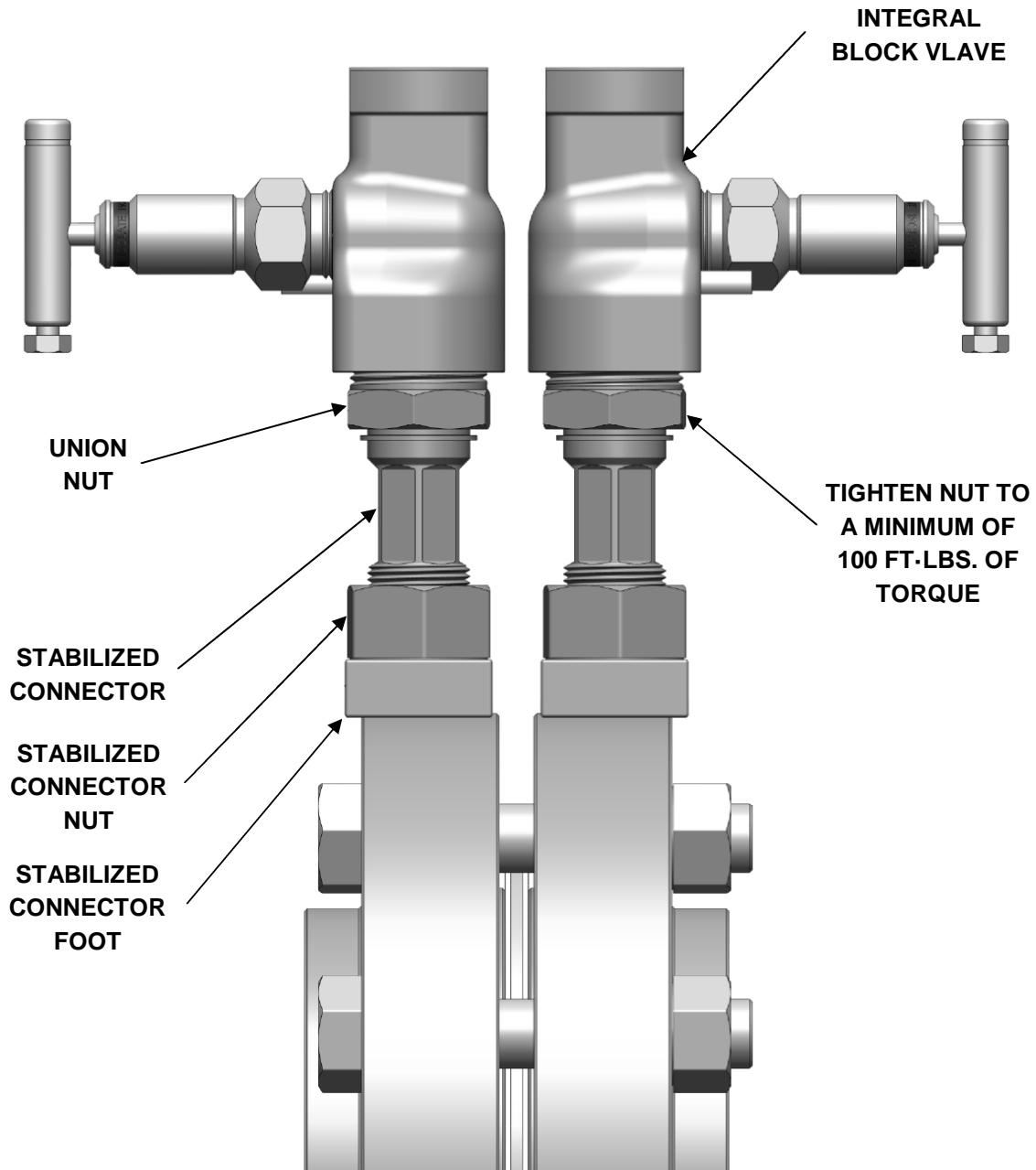


Figure 3

## 2 Direct-Mount® Duo™ Installation

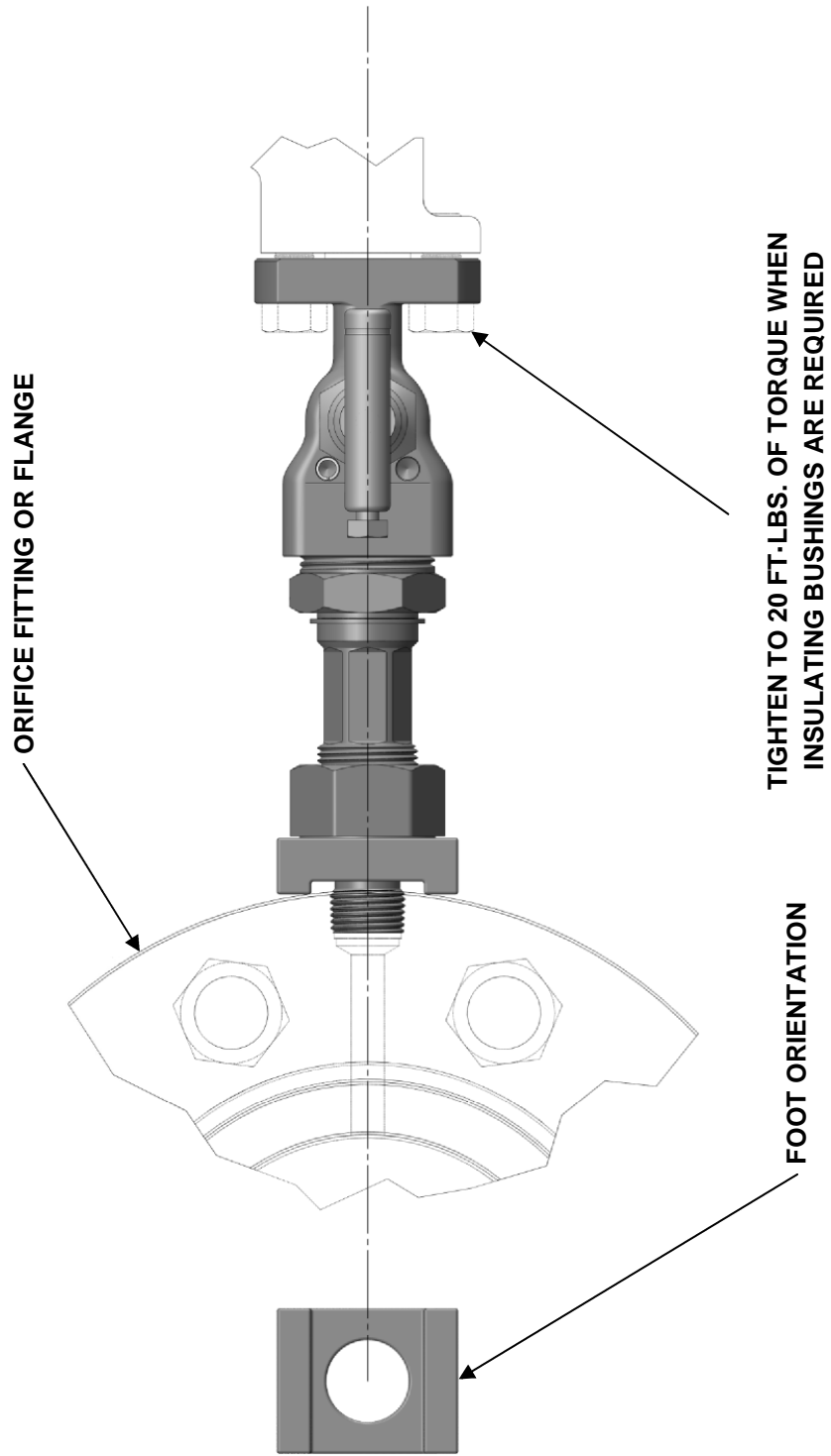


Figure 4



## 2 Direct-Mount® Duo™ Installation

### 2.2 Installation with Dielectric Isolators

2.2.1 Follow Installation Procedures 2.1.1—2.1.7, and include the dielectric isolator components in the assembly shown below (Figure 5).

2.2.2 Tighten lubricated bolts to 20 ft./lbs. of torque.

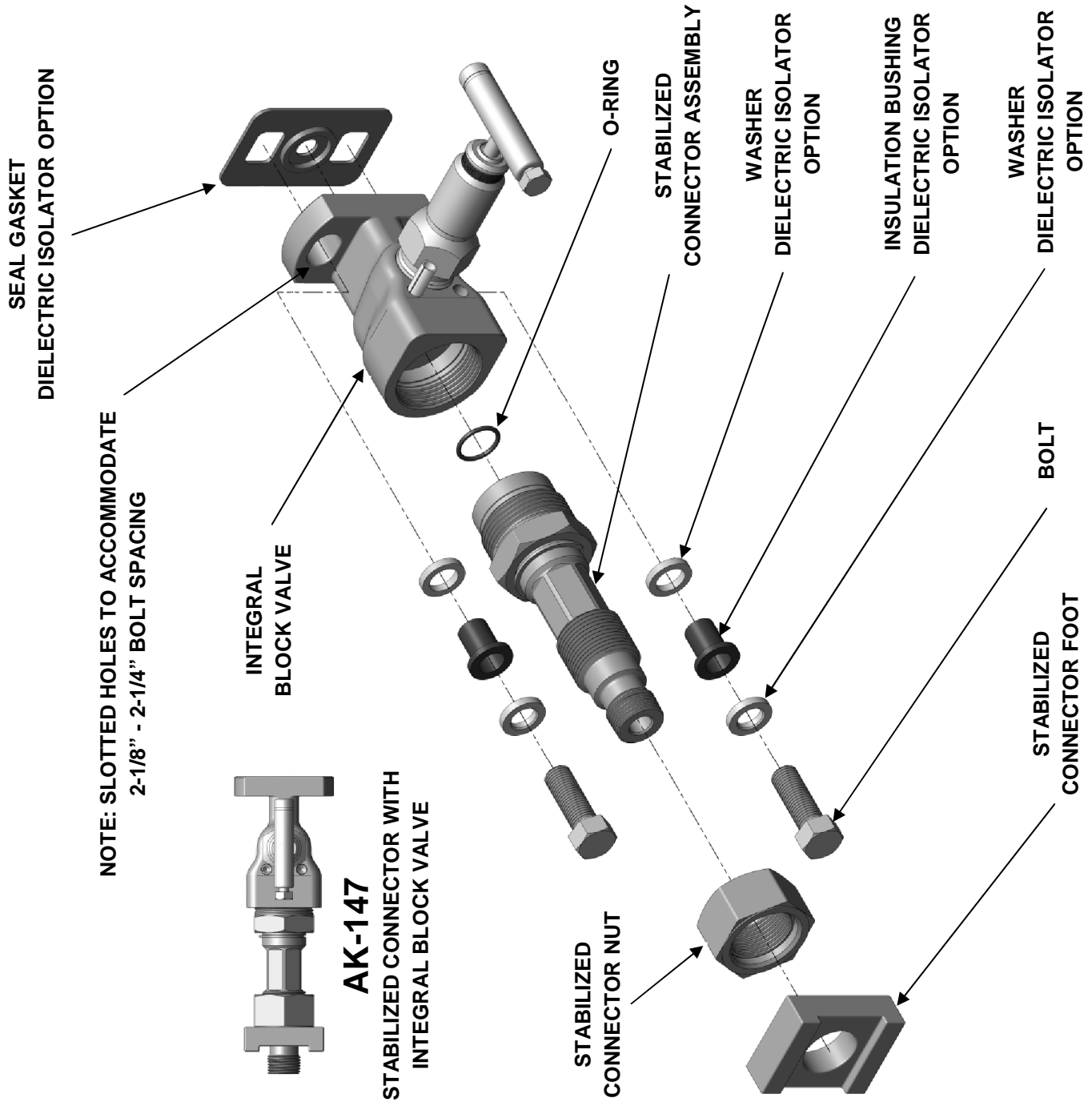


Figure 5

## 3 Manifold to Manifold Torque Recommendations

### 3.1 For Dry 7/16” 316 SS Bolts and Teflon<sup>®</sup>/Grafoil<sup>®</sup> Flange Seals

- 3.1.2 Finger-tighten the bolts.
- 3.1.3 Torque the bolts to an initial torque value of 12 to 15 ft.-lbs. using a crossing pattern (Figure 6).
- 3.1.4 Torque the bolts to the final torque value of 25 to 30 ft.-lbs. maximum, using the same crossing pattern.
- 3.1.5 At the center of the assembly, an approximate 0.015” to 0.020” gap will result between the flanges when torqued to the above values.

### 3.2 For Lubricated 7/16” 316 SS Bolts and Teflon<sup>®</sup>/Grafoil<sup>®</sup> Flange Seals

- 3.2.1 Finger-tighten the bolts.
- 3.2.2 Torque the bolts to an initial torque value of 12 ft.-lbs. using a crossing pattern (Figure 6).
- 3.2.3 Torque the bolts to the final torque value of 25 ft.-lbs. maximum, using the same crossing pattern.
- 3.2.4 At the center of the assembly, an approximate 0.015” to 0.020” gap will result between the flanges when torqued to the above values.

### 3.3 For Dry 7/16” 316 SS Bolts and O-Ring Flange Seals

- 3.3.1 Torque the bolts to the 30 ft.-lbs. maximum, using a crossing pattern (Figure 6).
- 3.3.2 The flanges should draw down metal to metal.

### 3.4 For Lubricated 7/16” 316 SS Bolts and O-Ring Flange Seals

- 3.4.1 Torque the bolts to the 25 ft.-lbs. maximum, using a crossing pattern (Figure 6).
- 3.4.2 The flanges should draw down metal to metal.

### 3.5 For Dry 7/16” Carbon Steel Bolts and Teflon<sup>®</sup>/Grafoil<sup>®</sup> Flange Seals

- 3.5.1 Finger-tighten the bolts.
- 3.5.2 Torque the bolts to an initial torque value of 25 to 15 ft.-lbs. using a crossing pattern (Figure 6).
- 3.5.3 Torque the bolts to the final torque value of 45 to 50 ft.-lbs. maximum, using the same crossing pattern.
- 3.5.4 At the center of the assembly, an approximate 0.015” to 0.020” gap will result between the flanges when torqued to the above values.

### 3.6 For Lubricated 7/16” Carbon Steel Bolts and Teflon<sup>®</sup>/Grafoil<sup>®</sup> Flange Seals

- 3.6.1 Finger-tighten the bolts.
- 3.6.2 Torque the bolts to an initial torque value of 25 ft.-lbs. using a crossing pattern (Figure 6).
- 3.6.3 Torque the bolts to the final torque value of 50 ft.-lbs. maximum, using the same crossing pattern.
- 3.6.4 At the center of the assembly, an approximate 0.015” to 0.020” gap will result between the flanges when torqued to the above values.

## 3 Manifold to Manifold Torque Recommendations

### 3.7 For Dry 7/16" Carbon Steel Bolts and O-Ring Flange Seals

- 3.7.1 Torque the bolts to the 50 ft.-lbs. maximum, using a crossing pattern (Figure 6).
- 3.7.2 The flanges should draw down metal to metal.

### 3.8 For Lubricated 7/16" Carbon Steel Bolts and O-Ring Flange Seals

- 3.8.1 Torque the bolts to the 45 ft.-lbs. maximum, using a crossing pattern (Figure 6).
- 3.8.2 The flanges should draw down metal to metal.

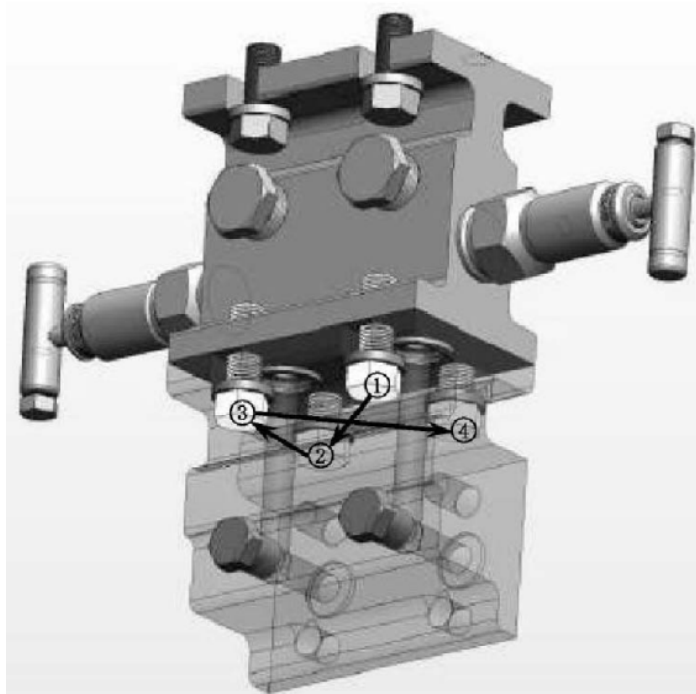


Figure 6

## 4 Additional Information

- 4.1 Due to the cold flow nature of Teflon<sup>®</sup> under pressure, the bolt torques listed in Section 3 should be re-checked periodically. This is especially true if the joint is subjected to temperatures above 200° F.
- 4.2 If the joint torque is relaxed due to high temperatures or vibration, an O-Ring of the proper elastomer according to the process, in the highest durometer obtainable, can be used to remedy this problem.



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