

## Reducing Coupling for Joining Copper Tubing Systems Fig. 616

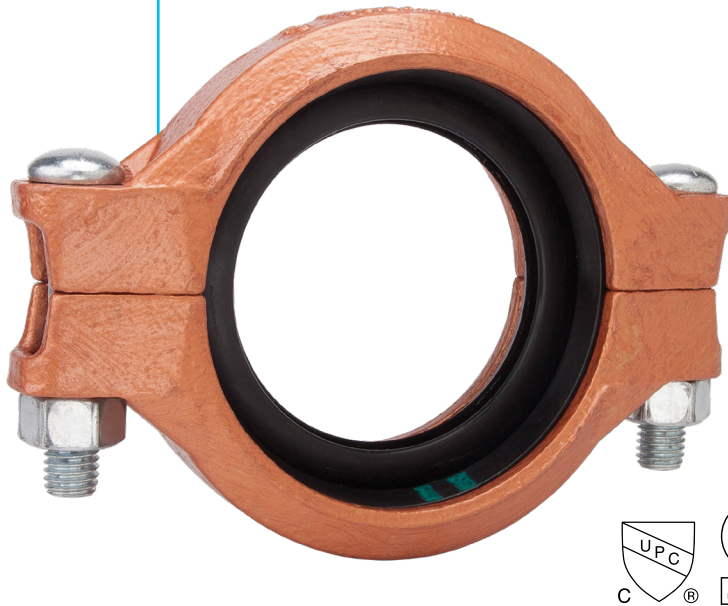


Figure 616 Reducing Coupling is for Joining Copper Tubing Systems. The Gruvlok Figure 616 Reducing Coupling allows a direct reduction between two different CTS copper tubing sizes and eliminates the need for a concentric reducer and couplings.

The epoxy coated ductile iron coupling housings help to eliminate galvanic local cell and stray current problems, and a specially designed rubber gasket prevents the smaller tube from telescoping into the larger tube during vertical installation.

For Listings/Approval Details and Limitations, visit our website at [www.asc-es.com](http://www.asc-es.com) or contact an ASC Engineered Solutions™ Sales Representative.

### Material Specifications

#### ANSI Bolts/Nuts

Carbon steel oval neck bolts and nuts are heat-treated and conform to the physical properties of ASTM A183 Grade 2 and SAE J429 Grade 5 with a minimum tensile strength of 110,000 psi (7584 bar).

Carbon Steel heavy hex nuts conform to the physical properties of ASTM A183 Grade 2 and SAE J995 Grade 5. Bolts and nuts are zinc-electroplated conforming to ASTM B633.

#### Metric Bolts/Nuts

Carbon steel oval neck track head bolts (Gold color coded) are heat treated and conform to the physical properties of ASTM F568 M with a minimum tensile strength of 760 MPa.

Carbon Steel heavy hex nuts conform to the physical properties of ASTM A563 M Class 9. Bolts and nuts are zinc-electroplated conforming to ASTM B633.

#### Stainless Steel Bolts & Nuts

Stainless steel bolts and nuts are available upon request.

#### Housing

Ductile Iron conforming to ASTM A536, Grade 65-45-12

#### Coatings

Copper – Acrylic Enamel

#### Gasket Materials

Properties as designated in accordance with ASTM D2000

#### Tri-Seal Grade “EN” EPDM (Copper color code)

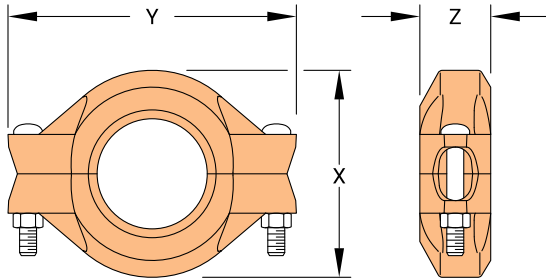
NSF61 Approved for potable water systems up to 180°F (82°C).

NOT FOR USE IN PETROLEUM APPLICATIONS.



PROJECT INFORMATION	APPROVAL STAMP
Project:	Approved
Address:	Approved as noted
Contractor:	Not approved
Engineer:	Remarks:
Submittal Date:	
Notes 1:	
Notes 2:	

## Reducing Coupling for Joining Copper Tubing Systems Fig. 616



Nominal Size	O.D.	Max. Working Pressure (CWP*)	Max. * Gap	Deflection from $\zeta$		Coupling Dimensions			Coupling Bolt Size	Approx. Wt. Ea.
				Per Coupling	of Pipe	X	Y	Z		
In./DN(mm)	In./mm	PSI/bar	In./mm	Deg.(°)-Min (')	In./ft-mm/m	In./mm	In./mm	In./mm	In./mm	Lbs./kg
2½ x 2 65 x 50	2.625 x 2.125 66.7 x 54.0	300 20	0.06 1.6	1° 22'	0.29 24.0	3.70 94	5.55 141	1.77 45	½ x 3	2.9 1.3
3 x 2 80 x 50	3.125 x 2.125 79.4 x 54.0	300 20	0.06 1.6	1° 09'	0.24 20.0	4.21 107	5.98 152	1.77 45	½ x 3	3.3 1.5
3 x 2½ 80 x 65	3.125 x 2.625 79.4 x 66.7	300 20	0.06 1.6	1° 09'	0.24 20.0	4.21 107	5.98 152	1.77 45	½ x 3	3.0 1.4
4 x 2½ 100 x 65	4.125 x 2.625 104.8 x 66.7	300 20	0.06 1.6	0° 53'	0.18 15.0	5.20 132	7.20 183	1.77 45	½ x 3	4.2 1.9
4 x 3 100 x 68	4.125 x 3.125 104.8 x 79.4	300 20	0.06 1.6	0° 53'	0.18 15.0	5.20 132	7.20 183	1.77 45	½ x 3	4.0 1.8
5 x 4 125 x 100	5.125 x 4.125 130.7 x 104.8	200 14	0.06 1.6	0° 42'	0.15 12.0	6.30 160	8.82 224	1.77 45	5/8 x 3¼	5.5 2.5
6 x 4 150 x 100	6.125 x 4.125 155.6 x 104.8	200 14	0.06 1.6	0° 36'	0.13 10.3	7.28 185	9.88 251	1.77 45	5/8 x 3¼	7.3 3.3

**Note:**

\*The maximum cold water pressure for general piping services tested to ASTM F1476 and/or AWWA C606 methods. Figures listed are based on roll-grooved Type K-ASTM B-88 copper tubing. For more information on other types, contact an ASC Engineered Solutions™ Sales Representative.

Couplings with rubber gaskets are likely to function as an insulator. Where electrical continuity is required, Gruvlok Continuity Clip will restore electrical continuity to the system. The continuity clip satisfies IEE Wiring Regulations.



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**Fig. 616** Reducing Coupling for Joining Copper Tubing Systems



Read and understand all instructions before use.

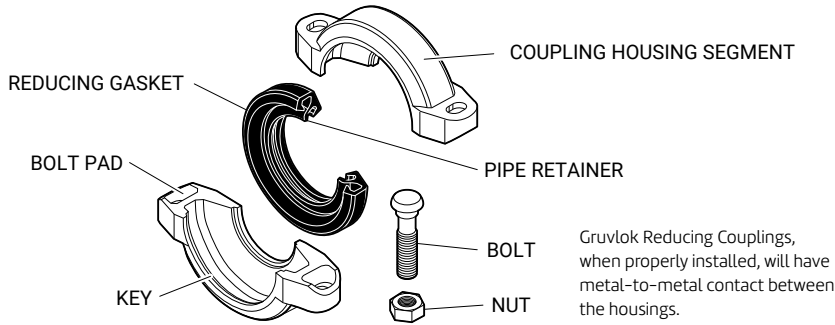
**WARNING**

Ensure system is drained and depressurized before installation or service.

Use appropriate personal protective equipment.



Failure to follow these instructions could result in serious personal injury and/or property damage.



## 1 Copper Tube Preparation

Inspect exterior groove and ends of the copper tube to verify all burrs, loose debris, dirt, chips, paint and any other foreign material such as grease are removed. Copper tube end sealing surfaces must be free from sharp edges, projections, indentations, and/or other defects.

## 2 Gasket Preparation

Verify that the coupling and gasket grade are correct for the application intended.

The sealing edges and outer surfaces of the gasket should be covered with a fine layer of lubricant. To prevent deterioration of the gasket material, a petroleum lubricant should never be used on Grade "E" EPDM. For assembly below 40°F (4°C), a petroleum-free silicone lubricant must be used to prevent freezing of the lubricant.

**NSF Requirement:** In order to retain the NSF 61 certification, an NSF 61 certified lubricant must be used for the intended service.

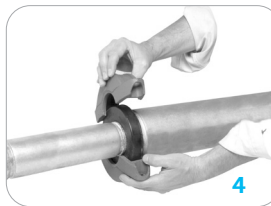
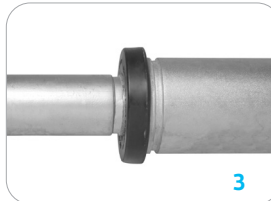
## 3 Gasket Installation

Install the gasket by placing the gasket over the copper tube that has the larger diameter. Bring the smaller copper tube end into alignment and slide the copper tube into position. Slide the gasket into position, properly centering it between the grooved portions of each copper tube.

The gasket should not protrude into the grooves on either copper tube segment.

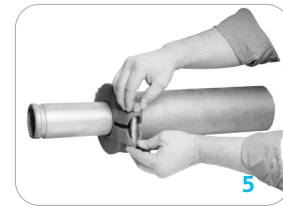
## 4 Housings

With both bolts removed, place the coupling housings over the gasket. Verify that the housings are over the gasket and that the housing keys are fully engaged into the pipe grooves.



## 5 Bolts

Insert the bolts into the coupling and rotate the nuts until finger tight. Verify that the bolt heads are fully recessed in the housing.

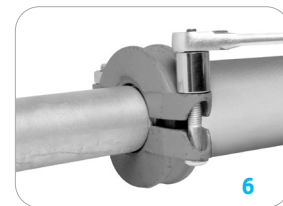


## 6 Tighten Nuts

Tighten nuts uniformly to the recommended bolt torque.

Always tighten the nut and bolt set evenly. Uneven tightening can cause the gasket to pinch or bind.

Recommended Bolt Torque	
Bolt Size	Bolt Torque Range
In./mm	Ft.-Lbs./N-m
1/2 M12	90-110 135-175
5/8 M15	100-130 120-150



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