FIG. 616

Reducing Coupling for Joining Copper Tubing Systems

For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

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.

MATERIAL SPECIFICATIONS

ANSI BOLTS/NUTS:
Carbon steel oval neck bolts and nuts are heat-treated and conform to the physical properties of ASTM A 183 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 A 183 Grade 2 and SAE J995 Grade 5. Bolts and nuts are zinc-electroplated conforming to ASTM B 633.

METRIC BOLTS/NUTS:
Carbon steel oval neck track head bolts (Gold color coded) are heat treated and conform to the physical properties of ASTM F 568 M with a minimum tensile strength of 760 MPa.

Carbon Steel heavy hex nuts conform to the physical properties of ASTM A 563 M Class 9. Bolts and nuts are zinc-electroplated conforming to ASTM B 633.

STAINLESS STEEL BOLTS & NUTS:
Stainless steel bolts and nuts are available upon request.

HOUSING:
Ductile Iron conforming to ASTM A 536, Grade 65-45-12

COATINGS:
Copper – Acrylic Enamel

GASKETS: Materials
Properties as designated in accordance with ASTM D 2000

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:	

FIG. 616

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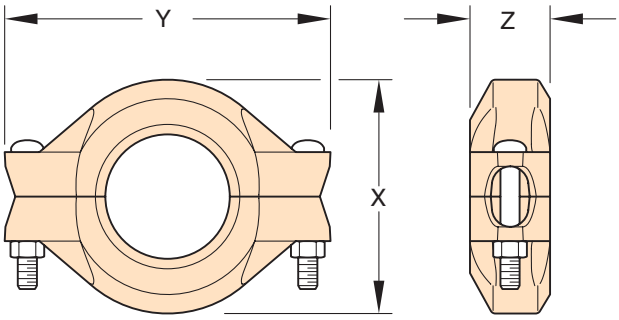


FIGURE 616 REDUCING COUPLING

Nominal Size	O.D.	Max. Working Pressure (CWP*)	Max.* Gap	Deflection from ℄		Coupling Dimensions			Coupling Bolt Size	Approx. Wt. Ea.
				Per Coupling	of Pipe	X	Y	Z		
In./DN(mm)	*In./mm*	*PSI/bar*	*In./mm*	*Degrees(°)-Minutes(')*	*In./ft-mm/m*	*In./mm*	*In./mm*	*In./mm*	*In./mm*	*Lbs./kg*
2½ x 2	2.625 x 2.125	300	0.06	1° - 22'	0.29	3.70	5.55	1.77	½ x 3	2.9
65 x 50	*66.7 x 54.0*	*20*	*1.6*		*24.0*	*94*	*141*	*45*		*1.3*
3 x 2	3.125 x 2.125	300	0.06	1° - 09'	0.24	4.21	5.98	1.77	½ x 3	3.3
80 x 50	*79.4 x 54.0*	*20*	*1.6*		*20.0*	*107*	*152*	*45*		*1.5*
3 x 2½	3.125 x 2.625	300	0.06	1° - 09'	0.24	4.21	5.98	1.77	½ x 3	3.0
80 x 65	*79.4 x 66.7*	*20*	*1.6*		*20.0*	*107*	*152*	*45*		*1.4*
4 x 2½	4.125 x 2.625	300	0.06	0° - 53'	0.18	5.20	7.20	1.77	½ x 3	4.2
100 x 65	*104.8 x 66.7*	*20*	*1.6*		*15.0*	*132*	*183*	*45*		*1.9*
4 x 3	4.125 x 3.125	300	0.06	0° - 53'	0.18	5.20	7.20	1.77	½ x 3	4.0
100 x 68	*104.8 x 79.4*	*20*	*1.6*		*15.0*	*132*	*183*	*45*		*1.8*
5 x 4	5.125 x 4.125	200	0.06	0° - 42'	0.15	6.30	8.82	1.77	⅝ x 3¼	5.5
125 x 100	*130.7 x 104.8*	*14*	*1.6*		*12.0*	*160*	*224*	*45*		*2.5*
6 x 4	6.125 x 4.125	200	0.06	0° - 36'	0.13	7.28	9.88	1.77	⅝ x 3¼	7.3
150 x 100	*155.6 x 104.8*	*14*	*1.6*		*10.3*	*185*	*251*	*45*		*3.3*

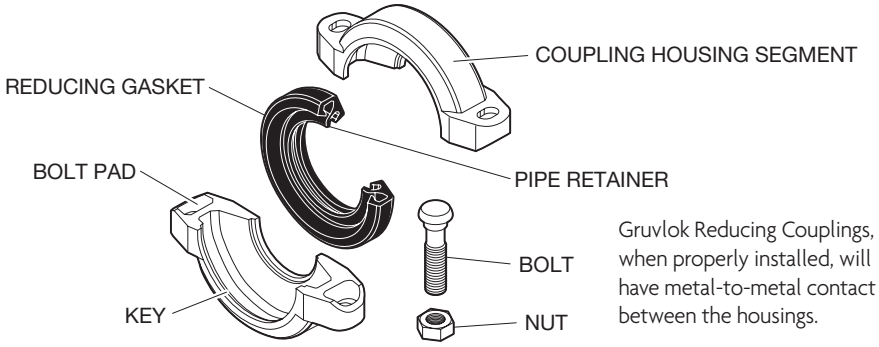
NOTE:

*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 Anvil Sales Representative.

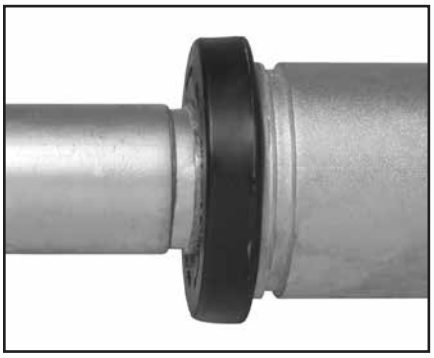
Couplings with rubber gaskets are likely to function as a insulator. Where electrical continuity is required, Gruvlok Continuity Clip will restore electrical continuity to the system. The continuity clip satisfies IEE Wiring Regualtions.

FIG. 616

Reducing Coupling for Joining Copper Tubing Systems



Gruvlok Reducing Couplings, when properly installed, will have metal-to-metal contact between the housings.



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.

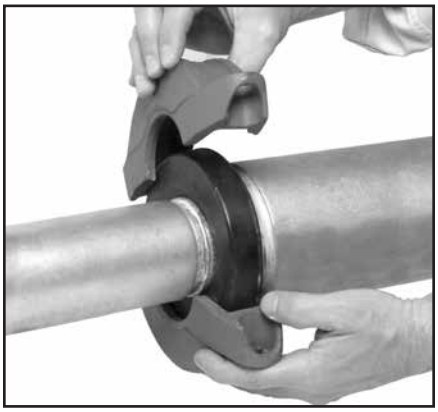
2 GASKET PREPARATION — Verify that the coupling and gasket grade are correct for the application intended.

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.

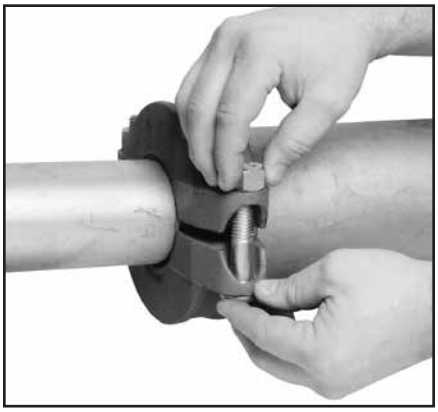
NSF Requirement: In order to retain the NSF 61 certification, an NSF 61 certified lubricant must be used for the intended service.

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.

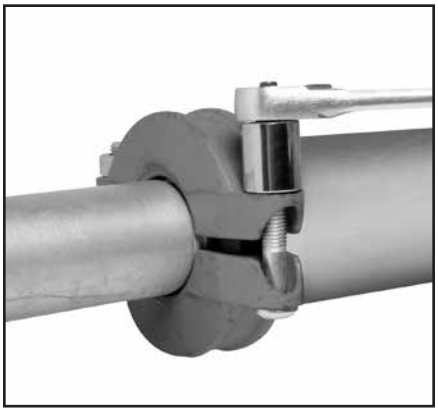
The gasket should not protrude into the grooves on either copper tube segment.



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*
½ *M12*	90-110 *135 - 175*
⅝ *M15*	100-130 *120 - 150*