Building connections that last™

ASC Engineered Solutions

Gruvlok® CTS
Copper System

GRUVLOK
An ASC Engineered Solution

GRUVLOK® CTS COPPER SYSTEM

The Gruvlok® CTS Copper System offers installers of large diameter copper tubing a faster, easier alternative to conventional soldering and brazing.

With grooved copper, temperature and weather conditions are no longer a factor when planning installations. No sweating or brazing is necessary as this system requires only a wrench for assembly on grooved end pipe.

The **flame-free** Gruvlok® CTS copper system increases safety, especially in retrofit installations, by eliminating fire hazards from hot works. The ease of assembly and disassembly saves time and labor, while providing a reliable and economical system for new construction, renovation, retrofit, or expansion.

FIG. 64
CTS SlideLOK® Coupling

BENEFITS

- Fast and easy to install
- No flame, no sweating
- No special tools required
- Each joint is a union
- Provides rigidity
- Proven joint reliability
- Accepted and approved
- Economical and reliable

As an additional benefit to our customers, our design services team can provide a design analysis at no charge to help determine the most efficient and cost-effective piping solutions for any pipe system.

Gruvlok® Full-Flow Grooved Fittings for Copper Piping Systems provide an economical and efficient method of changing direction. These copper fittings are available in sizes 2" to 8" (50 - 200mm).

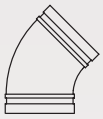


FIG. 601

45° CTS ELBOW

Nominal Size In./DN(mm)	Copper Tubing O.D. In./mm	Center to End In./mm	Approx. Wt. Ea. Lbs./Kg
2 50	2.125 54.0	2.19 55.8	1.6 0.7
2 ½ 65	2.625 66.7	2.3 58.7	2.1 1.0
3 80	3.125 79.4	2.59 65.8	2.7 1.2
4 100	4.125 104.8	3.19 81.0	5.5 2.5
5 125	5.125 130.2	3.25 82.6	7.7 3.5
6 150	6.125 155.6	3.5 88.9	10.1 4.6
8 200	8.125 206.4	4.25 108.0	16.6 7.5

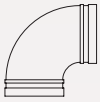


FIG. 610

90° CTS ELBOW

Nominal Size In./DN(mm)	Copper Tubing O.D. In./mm	Center to End In./mm	Approx. Wt. Ea. Lbs./Kg
2 50	2.125 54.0	2.91 73.9	1.9 0.9
2 ½ 65	2.625 66.7	3.31 84.1	2.7 1.2
3 80	3.125 79.4	3.81 96.8	3.6 1.6
4 100	4.125 104.8	4.75 120.7	7.1 3.2
5 125	5.125 130.2	5.94 150.9	11.9 5.4
6 150	6.125 155.6	6.94 176.7	16.7 7.6
8 200	8.125 206.4	7.75 196.9	25.3 11.5

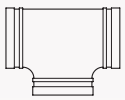


FIG. 619

CTS TEE

Nominal Size In./DN(mm)	Copper Tubing O.D. In./mm	Center to End In./mm	Approx. Wt. Ea. Lbs./Kg
2 50	2.125 54.0	2.69 68.3	2.5 1.1
2½ 65	2.625 66.7	3.20 81.3	3.8 1.7
3 80	3.125 79.4	3.52 89.4	4.7 2.1
4 100	4.125 104.8	4.25 108.0	9.0 4.1
5 125	5.125 130.2	5.94 150.9	17.7 8.0
6 150	6.125 155.6	6.94 176.3	24.8 11.3
8 200	8.125 206.4	7.75 196.9	46.2 21.0

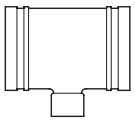
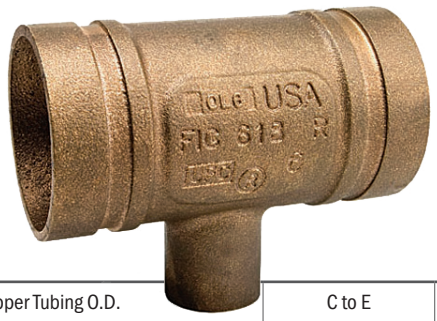


FIG. 618

CTS Reducing Tee



Nominal Size In./DN(mm)	Copper Tubing O.D. In./mm	C to E In./mm	C to RE In./mm	Cup In./mm	Approx. Wt. Ea. Lbs./Kg
2 x 2 x ¾ 50 x 50 x 20	2.125 x 2.125 x 0.825 54.0 x 54.0 x 21.0	2.20 55.9	2.04 51.8	0.75 19.0	1.6 0.7
2 x 2 x 1 50 x 50 x 25	2.125 x 2.125 x 1.125 54.0 x 54.0 x 25.4	2.33 59.1	2.26 57.4	0.91 23.1	1.8 0.8
2 x 2 x 1 ¼ 50 x 50 x 32	2.125 x 2.125 x 1.375 54.0 x 54.0 x 34.9	2.48 63.0	2.41 61.2	0.97 24.6	2.0 0.9
2 x 2 x 1 ½ 50 x 50 x 40	2.125 x 2.125 x 1.625 54.0 x 54.0 x 38.1	2.55 64.7	2.34 59.4	1.09 27.7	2.0 0.9
2 ½ x 2 ½ x ¾ 65 x 65 x 20	2.625 x 2.625 x 0.875 66.7 x 66.7 x 21.0	2.27 57.7	2.24 57.0	0.75 19.0	2.2 1.0
2 ½ x 2 ½ x 1 65 x 65 x 25	2.625 x 2.625 x 1.125 66.7 x 66.7 x 25.4	2.40 61.0	2.46 62.5	0.91 23.1	2.3 1.0
2 ½ x 2 ½ x 1¼ 65 x 65 x 32	2.625 x 2.625 x 1.375 66.7 x 66.7 x 34.9	2.52 64.0	2.63 66.8	0.97 24.6	2.5 1.1
2 ½ x 2 ½ x 1 ½ 65 x 65 x 40	2.625 x 2.625 x 1.625 66.7 x 66.7 x 38.1	2.70 68.6	2.74 69.6	1.09 27.7	2.7 1.2
3 x 3 x ¾ 80 x 80 x 20	3.125 x 3.125 x 0.875 79.4 x 79.4 x 21.0	2.45 62.2	2.64 67.1	0.75 19.0	2.9 1.3
3 x 3 x 1 80 x 80 x 25	3.125 x 3.125 x 1.125 79.4 x 79.4 x 25.4	2.54 64.5	2.85 72.4	0.91 23.1	3.0 1.4
3 x 3 x 1 ¼ 80 x 80 x 32	3.125 x 3.125 x 1.375 79.4 x 79.4 x 34.9	2.63 66.8	2.95 74.9	0.97 24.6	3.1 1.4
3 x 3 x 1 ½ 80 x 80 x 40	3.125 x 3.125 x 1.625 79.4 x 79.4 x 38.1	2.85 72.4	3.06 77.7	1.09 27.7	3.4 1.5
4 x 4 x ¾ 100 x 100 x 20	4.125 x 4.125 x 0.875 104.8 x 104.8 x 21.0	2.95 74.9	3.06 77.7	0.75 19.0	5.2 2.4
4 x 4 x 1 100 x 100 x 25	4.125 x 4.125 x 1.125 104.8 x 104.8 x 25.4	3.10 78.7	3.28 83.3	0.91 23.1	5.5 2.6
4 x 4 x 1 ¼ 100 x 100 x 32	4.125 x 4.125 x 1.375 104.8 x 104.8 x 34.9	3.25 82.5	3.53 89.7	0.97 24.6	5.7 2.6
4 x 4 x 1 ½ 100 x 100 x 40	4.125 x 4.125 x 1.625 104.8 x 104.8 x 38.1	3.35 85.1	3.71 94.2	1.09 27.7	6.1 2.8

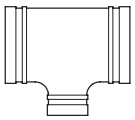


FIG. 621

Reducing Tee

Nominal Size In./DN(mm)	Copper Tubing O.D. In./mm	C to E In./mm	C to RE In./mm	Approx. Wt. Ea. Lbs./Kg
2½ x 2½ x 2 65 x 65 x 50	2.625 x 2.625 x 2.125 66.7 x 66.7 x 54.0	3.28 83.3	3.38 85.9	3.5 1.6
3 x 3 x 2 80 x 80 x 50	3.125 x 3.125 x 2.125 79.4 x 79.4 x 54.0	3.00 76.2	3.38 85.9	3.8 1.7
3 x 3 x 2½ 80 x 80 x 65	3.125 x 3.125 x 2.625 79.4 x 79.4 x 66.7	3.25 82.6	3.5 88.9	4.3 2.0
4 x 4 x 2 100 x 100 x 50	4.125 x 4.125 x 2.125 104.8 x 104.8 x 54.0	3.66 93.0	4.13 104.9	6.9 3.2
4 x 4 x 2½ 100 x 100 x 65	4.125 x 4.125 x 2.625 104.8 x 104.8 x 66.7	3.94 100.1	4.06 103.1	7.5 3.4
4 x 4 x 3 100 x 100 x 80	4.125 x 4.125 x 3.125 104.8 x 104.8 x 79.4	4.19 106.4	4.16 105.7	8.7 4.0
5 x 5 x 3 125 x 125 x 80	5.125 x 5.125 x 3.125 130.2 x 130.2 x 79.4	3.75 95.3	4.63 117.6	10.0 4.5
5 x 5 x 4 125 x 125 x 100	5.125 x 5.125 x 4.125 130.2 x 130.2 x 104.8	4.25 108.0	4.56 115.8	11.4 5.2
6 x 6 x 2½ 150 x 150 x 65	6.125 x 6.125 x 2.625 155.6 x 155.6 x 66.7	3.63 92.2	5.13 130.3	11.5 5.2
6 x 6 x 3 150 x 150 x 80	6.125 x 6.125 x 3.125 155.6 x 155.6 x 79.4	3.69 93.7	5.19 131.8	11.9 5.4
6 x 6 x 4 150 x 150 x 100	6.125 x 6.125 x 4.125 155.6 x 155.6 x 104.8	4.19 106.4	5.13 130.3	13.7 6.2
6 x 6 x 5 150 x 150 x 125	6.125 x 6.125 x 5.125 155.6 x 155.6 x 130.2	4.69 119.1	5.19 131.8	15.9 7.2

Dimensional information in this chart is for cast fittings.

Nominal Size In./DN(mm)	Copper Tubing O.D. In./mm	End to End In./mm	Cup	Approx. Wt. Ea. Lbs./Kg
2 x 1 50 x 25	2.125 x 1.125 54.0 x 25.4	2.70 68.6	0.91 23.1	0.5 0.2
2 x 1 ¼ 50 x 32	2.125 x 1.375 54.0 x 34.9	3.00 76.2	0.97 24.6	0.4 0.2
2 x 1 ½ 50 x 40	2.125 x 1.625 54.0 x 38.1	2.94 74.7	1.09 27.7	0.4 0.2
2 ½ x 1 65 x 25	2.625 x 1.125 66.7 x 25.4	3.25 82.6	0.91 23.1	0.5 0.2
2 ½ x 1 ¼ 65 x 32	2.625 x 1.375 66.7 x 34.9	3.52 89.4	0.97 24.6	0.6 0.3
2 ½ x 1 ½ 65 x 40	2.625 x 1.625 66.7 x 38.1	3.45 87.6	1.09 27.7	0.6 0.3
2 ½ x 2 65 x 50	2.625 x 2.125 66.7 x 54.0	3.38 85.9	1.34 34.0	0.6 0.3
3 x 1 ½ 80 x 40	3.125 x 1.625 79.4 x 38.1	3.68 93.5	1.09 27.7	0.7 0.3
3 x 2 80 x 50	3.125 x 2.125 79.4 x 54.0	4.10 104.1	1.34 34.0	1.0 0.5
4 x 2 100 x 50	4.125 x 2.125 104.8 x 54.0	4.10 120.7	1.34 34.0	1.4 0.6

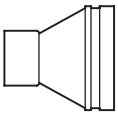
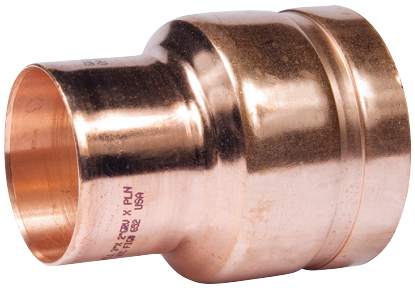


FIG. 652

CTS Concentric Reducer



Nominal Size In./DN(mm)	Copper Tubing O.D. In./mm	End to End In./mm	Approx. Wt. Ea. Lbs./Kg
2 ½ x 2 65 x 50	2.625 x 2.125 66.7 x 54.0	3.29 83.6	1.4 0.6
3 x 2 80 x 50	3.125 x 2.125 79.4 x 54.0	2.50 63.5	1.4 0.6
3 x 2 ½ 80 x 65	3.125 x 2.625 79.4 x 66.7	2.50 63.5	1.4 0.6
4 x 2 100 x 50	4.125 x 2.125 104.8 x 54.0	4.75 120.7	3.0 1.4
4 x 2 ½ 100 x 65	4.125 x 2.625 104.8 x 66.7	3.00 76.2	2.3 1.1
4 x 3 100 x 80	4.125 x 3.125 104.8 x 79.4	3.00 76.2	2.3 1.1
5 x 3 125 x 80	5.125 x 3.125 130.2 x 79.4	3.88 98.6	3.7 1.7
5 x 4 125 x 100	5.125 x 4.125 130.2 x 104.8	3.38 85.9	3.7 1.7
6 x 3 150 x 80	6.125 x 3.125 155.6 x 79.4	4.38 111.3	5.1 2.3
6 x 4 150 x 100	6.125 x 4.125 155.6 x 104.8	3.88 98.6	5.2 2.4
6 x 5 150 x 125	6.125 x 5.125 155.6 x 130.2	3.38 85.9	4.8 2.2
8 x 6 200 x 150	8.125 x 6.125 206.4 x 155.6	5.00 127.0	9.7 4.4

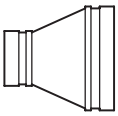


FIG. 650

CTS Concentric Reducer

Nominal Size In./DN(mm)	Copper Tubing O.D. In./mm	End to End In./mm	Approx. Wt. Ea. Lbs./Kg
2 50	2.125 54.0	0.92 23.4	0.6 0.3
2½ 65	2.625 66.7	0.92 23.4	1.0 0.4
3 80	3.125 79.4	0.92 23.4	1.3 0.6
4 100	4.125 104.8	0.92 23.4	2.2 1.0
5 125	5.125 130.2	0.92 23.4	5.8 2.6
6 150	6.125 155.6	0.92 23.4	8.1 3.7
8 200	8.125 206.4	1.03 26.2	14.1 6.4

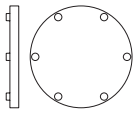


FIG. 660

CTS Cap

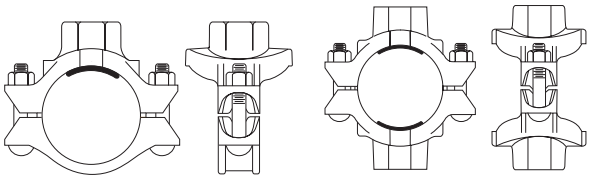
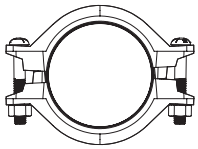


FIG. 6045 & 6047

CTS Mechanical Tees and Crosses

Gruvlok® CTS Mechanical Tees and Crosses provide a quick and easy outlet at any location along copper tube. A hole drilled or cut in the tube to receive the locating collar of the CTS Mechanical Tee is all that is required. The full, smooth outlet area provides for optimum flow characteristics.

Nominal Size	O.D.	Hole Dimensions		Max. Working Pressure		CTS Outlet Dimensions						Bolt Size	Specifie Torque §		Approx. Wt. Each	
		Min. Diameter	Max. Diameter	K, L	M	T	U	V Threaded	W	Y	Z		Min.	Max.	6045	6047
In./mm	In./mm	In./mm	In./mm	PSI/bar		In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	Ft.-Lbs/N-m		Lbs./Kg	Lbs./Kg
2 ½ x ¾ 65 x 20	2.625 x 1.050 66.7 x 26.7	1 ½ 38	1 ⅝ 41	300 20.7	250 17.2	1 15/16 49	1 ⅜ 35	2 ½ 64	1 ⅝ 41	6 ⅛ 156	3 76	½ x 3 -	60 80	80 110	3.3 1.5	4.3 1.9
2 ½ x 1 65 x 25	2.625 x 1.315 66.7 x 33.7	1 ½ 38	1 ⅝ 41	300 20.7	250 17.2	1 13/16 46	1 ⅜ 35	2 ½ 64	1 ⅝ 41	6 ⅛ 156	3 76	½ x 3 -	60 80	80 110	3.2 1.5	4.3 1.9
2 ½ x 1 ½ 65 x 40	2.625 x 1.900 66.7 x 48.3	2 51	2 ⅛ 54	300 20.7	250 17.2	2 51	1 ⅜ 35	2 11/16 68	1 ⅝ 41	6 ⅛ 156	3 76	½ x 3 -	60 80	80 110	3.7 1.7	5.0 2.3
3 x ¾ 80 x 20	3.125 x 1.050 79.4 x 26.7	1 ½ 38	1 ⅝ 41	300 20.7	250 17.2	2 3/16 56	1 ½ 38	2 ¾ 70	1 ⅞ 48	6 ⅝ 168	3 11/16 94	½ x 3 -	60 80	80 110	4.3 1.9	5.6 2.5
3 x 1 80 x 25	3.125 x 1.315 79.4 x 33.7	1 ½ 38	1 ⅝ 41	300 20.7	250 17.2	2 1/16 52	1 ½ 38	2 ¾ 70	1 ⅞ 48	6 ⅝ 168	3 11/16 94	½ x 3 -	60 80	80 110	4.2 1.9	5.3 2.4
3 x 1 ½ 80 x 40	3.125 x 1.900 79.4 x 48.3	2 51	2 ⅛ 54	300 20.7	250 17.2	2 3/16 56	1 ½ 38	2 ⅞ 73	1 ⅞ 48	6 ⅝ 168	3 11/16 94	½ x 3 -	60 80	80 110	4.1 1.9	5.3 2.4
4 x ¾ 100 x 20	4.125 x 1.050 104.8 x 26.7	1 ½ 38	1 ⅝ 41	300 20.7	250 17.2	2 11/16 68	1 13/16 46	3 ¼ 83	2 ⅜ 60	7 ¼ 184	3 ⅝ 92	½ x 3 -	60 80	80 110	4.3 1.9	5.8 2.6
4 x 1 100 x 25	4.125 x 1.315 104.8 x 33.7	1 ½ 38	1 ⅝ 41	300 20.7	250 17.2	2 9/16 65	1 13/16 46	3 ¼ 83	2 ⅜ 60	7 ¼ 184	3 ⅝ 92	½ x 3 -	60 80	80 110	4.1 1.9	5.5 2.5
4 x 1 ½ 100 x 40	4.125 x 1.900 104.8 x 48.3	2 51	2 ⅛ 54	300 20.7	250 17.2	2 11/16 68	1 13/16 46	3 ⅜ 86	2 ⅜ 60	7 ¼ 184	3 ⅝ 92	½ x 3 -	60 80	80 110	4.1 1.9	5.4 2.4



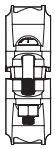


FIG. 64

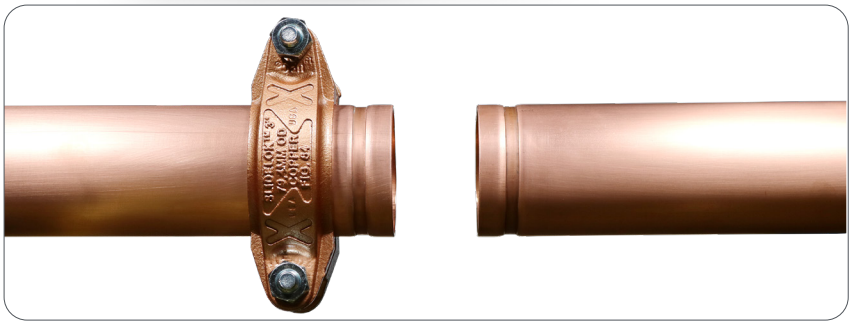
CTS SlideLOK® Coupling

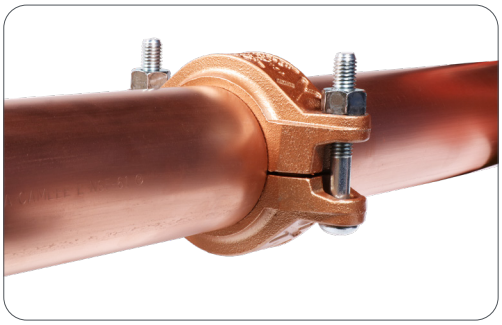
The CTS SlideLOK® coupling is a ready for installation coupling designed to reduce installation time. The slide action allows for a smooth trouble free installation. The patented gasket provides four separate sealing surfaces for added protection. The engineered predictive gap is a quick and easy indication of proper assembly.

The CTS SlideLOK is designed to be used with copper tube sizes 2" - 8" and produces a secure, rigid joint connection.The CTS SlideLOK coupling allows for a maximum working pressure of 300 psi for Type K or L. Contact an Anvil Representative for other copper tube pressure ratings.

Nominal Size In./DN(mm)	O.D. In./mm	Max. Working Pressure PSI/bar	Max. End Load Lbs./kN	Range of Pipe End Separation In./mm	Coupling Dimensions				Coupling Bolts		Approx. Wt. Ea. Lbs./kg
					Xa In./mm	Xb In./mm	Y In./mm	Z In./mm	Qty.	Size In./mm	
2 50	2.125 54.0	300 20.7	1,064 4.73	0-0.08 0-2.0	3½ 89	3¼ 83	5½ 140	1 15/16 49	2	½ x 2¾ M12 X 70	2.5 1.1
2½ 65	2.625 66.7	300 20.7	1,624 7.22	0-0.08 0-2.0	4 102	3 3/4 95	6 152	1 15/16 49	2	½ x 2¾ M12 X 70	2.8 1.3
3 80	3.125 79.4	300 20.7	2,301 10.24	0-0.08 0-2.0	4⅝ 117	4¼ 108	6¾ 171	1 15/16 49	2	½ x 3½ M12 X 89	3.2 1.5
4 100	4.125 104.8	300 20.7	4,009 17.83	0-0.13 0-3.3	5½ 140	5 1/8 130	8 203	2 51	2	½ x 3½ M12 X 89	4.5 2.0
5 125	5.125 130.2	300 20.7	6,189 27.53	0-0.13 0-3.3	6⅝ 168	6¼ 159	9¼ 235	2 51	2	⅝ x 3½ M16 X 89	4.5 2.0
6 150	6.125 155.6	300 20.7	8,839 39.32	0-0.13 0-3.3	7¾ 159	7¼ 184	10¼ 203	2 51	2	⅝ x 3½ M16 X 89	4.5 2.0
8 200	8.125 206.4	300 20.7	15,555 69.19	0-0.13 0-3.3	9¾ 248	9¼ 235	12¼ 311	2 51	2	½ x 7½ M16 X 110	4.5 2.0

Ready for installation - right out of the box





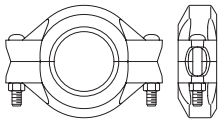


FIG. 616

Reducing Coupling

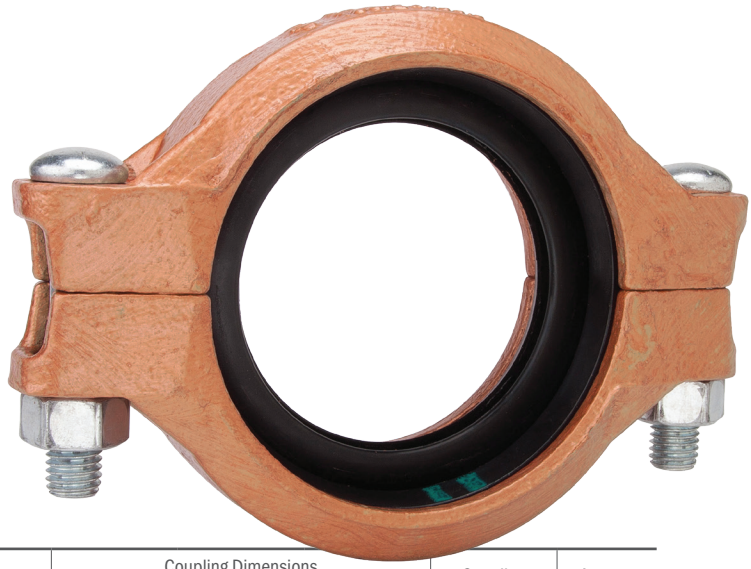


Figure 616 Reducing Coupling is for Joining Copper Tubing Systems. The Gruvlok Figure 616 Reducing Coupling allows a direct reduction between two different CTS copper tubing sizes and eliminates the need for a concentric reducer and couplings. The epoxy coated ductile iron coupling housings help to eliminate 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.

Nominal Size In./DN(mm)	O.D. In./mm	Max. Working Pressure (CWP*) PSI/bar	Max.* Gap In./mm	Deflection from ℄		Coupling Dimensions			Coupling Bolt Size In./mm	Approx. Wt. Ea. Lbs./kg
				Per Coupling Degrees(°)-Minutes(')	of Pipe In./ft-mm/m	X In./mm	Y In./mm	Z In./mm		
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	⅝ 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	⅝ x 3¼	7.3 3.3

The Gruvlok Fig. 7091 DI-LOK Fitting prevents the formation of a galvanic cell between grooved end steel pipe and copper tube. The separation of copper from steel by the fitting virtually eliminates the galvanic cell created by the dissimilar metals.

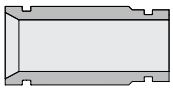


FIG. 7091

Gruvlok® DI-LOK™ CTS Groove x IPS Groove Dielectric Fitting

FIGURE 7091 DI-LOK NIPPLE

Nominal Size IPS	Copper (CTS) D Actual In./mm	Steel (IPS) D Actual In./mm	End to End In./mm	Approx.Wt. Ea. Lbs./Kg
2 50	2.125 53.98	2.375 60.33	4.0 101.60	1.76 0.80
2½ 65	2.625 66.68	2.875 73.03	6.0 152.40	3.66 1.66
3 80	3.125 79.38	3.500 88.90	6.0 152.40	5.23 2.37
4 100	4.125 104.78	4.500 114.30	6.0 152.40	6.88 3.12
6 150	6.125 155.58	6.625 168.28	6.0 152.40	13.80 6.26
8 200	8.125 206.38	8.625 219.07	6.0 152.40	18.91 8.58

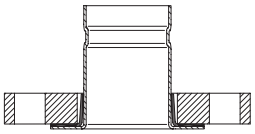
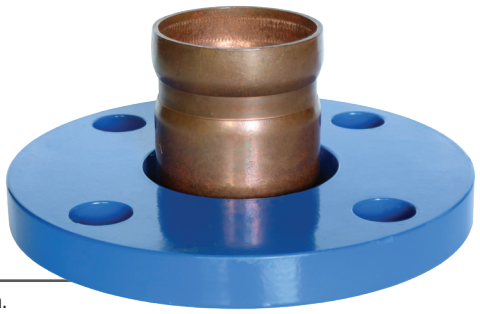


FIG. 6084

Flange Adapter



The Gruvlok® Fig. 6084 Flange Adapter allows for direct connection of Class 125 or Class 150 flanged components to the CTS Copper System. The CTS Copper Flange Adapter (Sizes 2" thru 6") conforms to ANSI class 125/150 bolt patterns and is rated at 300 PSIG (20.7 bar). The flange adapter is a dielectric union, utilizing the epoxy coating as a suitable replacement for flange dielectric insulation kits.

Nominal Size In.	Copper Tube Diameter In./mm	E to E In./mm	Approx. Wt. Ea. Lbs./kg
2	2.125 54.0	2.63 66.8	0.85 0.39
2½	2.625 66.7	2.00 50.8	1.34 0.61
3	3.125 79.4	2.44 62.0	1.73 0.78
4	4.125 104.8	2.88 73.2	2.43 1.10
5	5.125 130.2	3.94 100.1	3.27 1.48
6	6.125 155.6	4.31 109.5	4.78 2.17

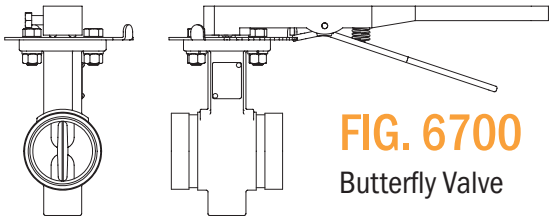


FIG. 6700

Butterfly Valve

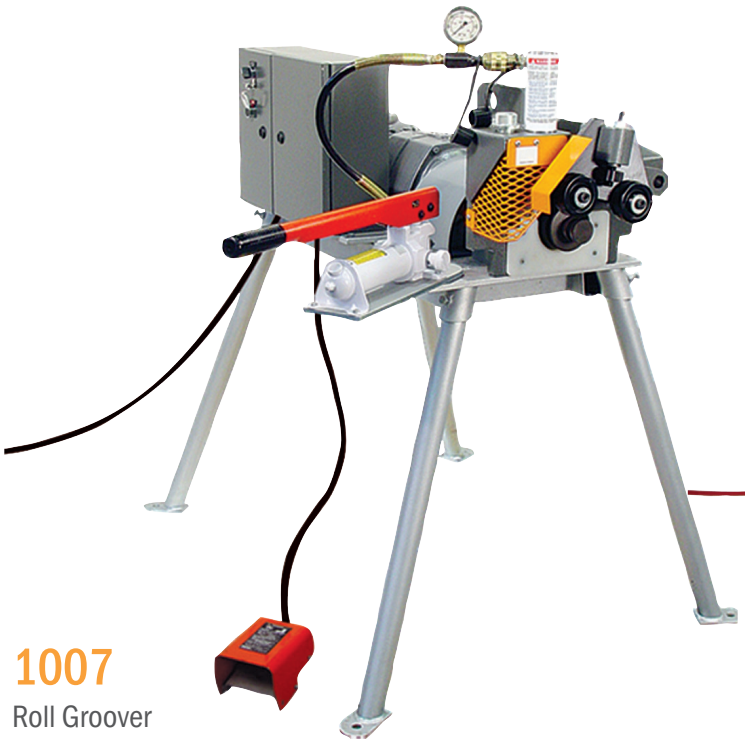
The lever handle bronze body butterfly valve is designed for use with grooved copper tubing (CTS), fittings and couplings. This valve features a 10 position lever handle, bronze body and EPDM rubber encapsulated disc. Both bronze valve body and the EPDM rubber disc obtained certification to ANSI/NSF 61 for use in potable water systems and is rated to 300 PSI.

Nominal Size In.	Copper Tube Diameter In./mm	Dimensions									Weight Lbs./kg
		A In./mm	B In./mm	C In./mm	D In./mm	E In./mm	F In./mm	G In./mm	H In./mm	J In./mm	
2½	2.625 66.7	3.77 95.8	2.22 56.4	2.63 66.7	3.83 97.3	7.20 182.5	10.50 266.7	12.39 314.6	2.00 50.8	4.43 112.5	4 1.8
3	3.125 79.4	3.77 95.8	2.6 65.9	3.13 79.4	4.08 130.5	7.84 198.2	10.50 266.7	12.39 314.6	2.00 50.8	4.43 112.5	5 2.3
4	4.125 104.8	4.63 117.6	3.10 78.7	4.13 104.9	4.72 119.9	8.97 227.8	10.50 266.7	12.39 314.6	2.00 50.8	4.43 112.5	8 3.8
5	5.125 130.2	5.88 149.4	3.85 97.8	5.13 130.2	5.22 132.6	10.27 260.9	10.50 266.7	12.39 314.6	2.00 50.8	4.43 112.5	14 6.4
6	6.125 155.6	5.88 149.4	4.36 110.8	6.13 155.6	5.75 146.2	11.31 2.87.3	10.50 266.7	12.39 314.6	2.00 50.8	4.43 112.5	18 8.1

GRUVLOK CTS COPPER BUTTERFLY VALVE SERIES 6700 (ORDERING INFORMATION)

Sample Part Number 4" AN6721-3 –->	4" Size	A Body Style	N Body Type	67 Series	2 Disc Coating	1 - Operator	3 Shaft
	2 ½" - 6"	A	Bronze	6700	2 - EPDM (Grade EP)	1 - 10 Pos. Handlever	3 - Stainless Steel Type 17-4PH

GRUVLOK® ROLL GROOVERS



1007
Roll Groover

3007
Roll Groover

CTS COPPER SYSTEM:

- 2"- 8" CTS Copper System Grooving Rolls, 2"- 4" CTS Depth Gauge, and 5"- 8" CTS Depth Gauge.

GROOVER CAPABILITY

Pipe Material	Pipe Size/Wall Thickness (Schedule)										
In. DN(mm)	2 50	2½ 65	3 80	4 100	5 125	6 150	8 200	10 250	12 300	14 350	16 400
Steel	Schedule 10, 40									Std.	Std.
Stainless	Steel Schedule 10S, 40S									n/a	n/a
Copper	K, L, M & DWV							n/a	n/a	n/a	n/a

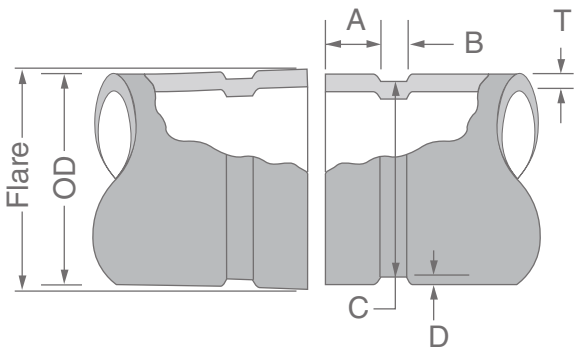
NOTES:

(1) All wall thickness shown are the maximum wall thickness for the indicated pipe material. (2) Minimum wall thickness for each pipe materials and size is 2" - 2½" – Type M, 3" - 8" – Type DWV

MODEL 1007 & MODEL 3007 STEEL PIPE GROOVING TIMES (MIN: SEC.)

Pipe Size (In./DN(mm)) – Sch. 40 (Std. Wall) Steel Pipe										
2	2½	3	4	5	6	8	10	12	14	16
50	65	80	100	125	150	200	250	300	350	400
0:20	0:20	0:25	0:30	1:00	1:20	1:35	1:50	2:20	2:40	3:00

This chart shows approximate grooving times with the groover setup for the proper size and groove diameter and the pipe properly positioned on the groover. The times shown are average times from the start of rotation of the pipe in the grooving rolls to completed groove.



GRUVLOK CTS COPPER SYSTEM – ROLL GROOVE SPECIFICATIONS

-1-	-2-			-3-	-4-	-5-		-6-	-7-	-8-
Nominal Size	Tubing Outside Diameter			Gasket Seat "A" +/– 0.03 in. +/– 0.76mm	Groove Width "B" +0.03/–0.00 in. +0.76/–0.00mm	Groove Diameter "C"		Nominal Groove Depth "D"	Min. Wall "T"	Max. Flare Diam.
	Actual	Tolerance				Actual	Tolerance +0.000			
In.	In./mm	+ In./mm	– In./mm	In./mm	In./mm	In./mm	– In./mm	In./mm	In./mm	In./mm
2	2.125 54.0	0.002 0.05	0.002 0.05	0.610 15.5	0.300 7.6	2.029 51.54	-0.020 -0.51	0.048 1.2	0.058 1.6	2.220 56.4
2½	2.625 66.7	0.002 0.05	0.002 0.05	0.610 15.5	0.300 7.6	2.525 64.14	-0.020 -0.51	0.050 1.3	0.065 1.7	2.720 69.1
3	3.125 79.4	0.002 0.05	0.002 0.05	0.610 15.5	0.300 7.6	3.025 76.84	-0.020 -0.51	0.050 1.3	DWV	3.220 81.8
4	4.125 104.8	0.002 0.05	0.002 0.05	0.610 15.5	0.300 7.6	4.019 102.08	-0.020 -0.51	0.053 1.3	DWV	4.220 107.2
5	5.125 130.2	0.002 0.05	0.002 0.05	0.610 15.5	0.300 7.6	4.999 126.97	-0.020 -0.51	0.053 1.3	DWV	5.220 132.6
6	6.125 155.6	0.002 0.05	0.002 0.05	0.610 15.5	0.300 7.6	5.999 152.37	-0.020 -0.51	0.063 1.6	DWV	6.220 158.0
8	8.125 206.4	0.002 0.05	0.004 0.10	0.610 15.5	0.300 7.6	7.959 202.16	-0.020 -0.51	0.083 2.1	DWV	8.220 208.8

COLUMN 1 - Nominal tubing size ASTM B88

COLUMN 2 - Outside diameter of copper tubing per ASTM B88. Allowable tolerance from square cut ends is 0.030"/0.76mm for sizes 2"-3"; 0.045"/1.14mm for sizes 4-8"

COLUMN 3 - Gasket seat must be free from scores, roll marks, indentations, grease and dirt which may interfere with gasket sealing.

COLUMN 4 - Groove width is to be free from chips, dirt, etc. which may interfere with proper coupling assembly.

COLUMN 5 - Groove diameter must be of uniform depth for the entire circumference of the tubing. (See column 6).

COLUMN 6 - Groove depth is for reference only; the groove diameter must conform to column 5.

COLUMN 7 - DWV (Drain, Waste and Vent Piping) per ASTM B306.

COLUMN 8 - Maximum flare diameter is the OD at the most extreme tubing diameter.

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