



GRINNELL Grooved Fittings for Copper Tubing Systems

General Description

GRINNELL Full-Flow Grooved Fittings for Copper Tubing Systems provide an economical and efficient method of changing direction. These copper fittings are available in sizes 2 inch thru 8 inch.

Cast fittings in 90° elbows, 45° elbows, tees, caps, concentric reducers, and reducing tees are cast with a copper alloy conforming to CDA C89833. Cast fittings are stronger and more durable than wrought copper fittings and are less susceptible to damage in transit or during installation.

Reducing fittings are available with Groove x Groove or Groove x Cup End configurations.

These Grooved Copper Fittings are designed for installation with the following GRINNELL Copper Tubing System products:

- Figure 672 Rigid Couplings, refer to Technical Data Sheets G510 and G960
- Figure 640 Pivot-Bolt Rigid Couplings, refer to Technical Data Sheet G512
- Figure 61 Flange Adapters, refer to Technical Data Sheets G515 and G970

NOTICE

Never remove any piping component nor correct or modify any piping deficiencies without first de-pressurizing and draining the system. Failure to do so may result in serious personal injury, property damage, and/or impaired device performance.

It is the designer's responsibility to select products suitable for the intended service and to ensure that pressure ratings and performance data are not exceeded. Material and gasket selection should be verified for compatibility with the specific application. Always read and understand the installation instructions.

The GRINNELL Full-Flow Grooved

Fittings for Copper Tubing Systems described herein must be installed and maintained in compliance with this document, in addition to the standards of any other authorities having jurisdiction. Failure to do so may result in serious personal injury or impair the performance of these devices.

Owners are responsible for maintaining their mechanical system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.

Technical Data

Approvals

UL and ULC Listed
IAPMO UPC Certified
Certified to all requirements of NSF/ANSI 61, Annex G and NSF/ANSI 372

Maximum Working Pressure

Fittings are rated at the pressure rating of the GRINNELL Couplings or Adapters in use:

Figure 672 Rigid Couplings
Figure 640 Pivot-Bolt Rigid Couplings
Figure 61 Flange Adapters

Materials

Cast Fittings:
Copper Alloy conforming to CDA C89833 or C83470

UL Classified in accordance with ANSI/NSF 61-G and bearing the UL Water Quality Mark

Wrought Fittings:
ASTM B75 C12200, wall thickness per ASTM B88 Type L (Figure 652 Groove x Cup Concentric Reducer only)

Ordering Procedure

GRINNELL Products are available globally through a network of distribution centers. For the nearest distributor, visit www.grinnell.com. When placing an order, indicate the full product name, quantity, size, and pressure rating.



For warranty terms and conditions, visit www.grinnell.com

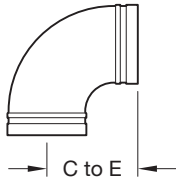


Figure 610
90° Elbow

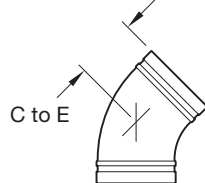


Figure 601
45° Elbow

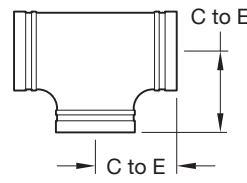


Figure 619
Tee

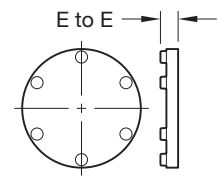
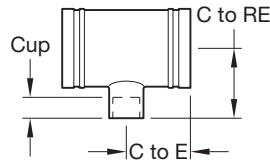


Figure 660
End Cap

Nominal Size ANSI Inches	Copper Tube O.D. Inches mm	Figure 610		Figure 601		Figure 619		Figure 660	
		Nominal C to E Inches mm	Approx. Weight Lbs. kg	Nominal C to E Inches mm	Approx. Weight Lbs. kg	Nominal C to E Inches mm	Approx. Weight Lbs. kg	Nominal E to E Inches mm	Approx. Weight Lbs. kg
2	2.125 54,0	2.91 73,9	1.88 0,9	2.19 55,6	1.6 0,7	2.69 68,3	2.5 1,13	0.92 23,4	0.62 0,28
2-1/2	2.625 66,7	3.31 84,1	2.68 1,2	2.31 58,7	2.1 1,0	3.20 81,3	3.8 1,72	0.92 23,4	0.96 0,44
3	3.125 79,4	3.81 96,8	3.60 1,6	2.59 65,8	2.7 1,22	3.52 89,4	4.7 2,13	0.92 23,4	1.28 0,58
4	4.125 104,8	4.75 120,7	7.12 3,22	3.19 81,0	5.5 2,5	4.25 108,0	9.0 4,08	0.92 23,4	2.23 1,01
5	5.125 130,2	5.94 150,9	11.87 5,38	3.25 82,6	7.7 3,5	5.94 150,9	17.7 8,03	0.92 23,4	5.77 2,62
6	6.125 155,6	6.94 176,7	16.68 7,6	3.5 88,9	10.1 4,6	6.94 176,3	24.8 11,25	0.92 23,4	8.125 3,69
8	8.125 206,4	7.75 196,9	25.34 11,5	4.25 108,0	16.6 7,5	7.75 196,9	46.2 21,0	1.03 26,2	14.125 6,41

Dimensional information in this chart is for cast fittings.
Contact your Grinnell Representative for the most current information.

TABLE 1
FIGURES 610, 601, 619 & 660
GROOVED FITTINGS
CAST COPPER



**Figure 618
Reducing Tee**

Nominal Size ANSI Inches	Nominal C to E Inches mm	Nominal C to RE Inches mm	Cup Inches mm	Approx. Weight Lbs. kg
2 x 2 x 3/4	2.20 55,9	2.04 51,8	0.75 19,1	1.6 0,7
2 x 2 x 1	2.33 59,1	2.26 57,4	0.91 23,11	1.8 0,8
2 x 2 x 1-1/4	2.48 63,0	2.41 61,2	0.97 24,6	2.0 0,9
2 x 2 x 1-1/2	2.55 64,7	2.34 59,4	1.09 27,7	2.0 0,9
2-1/2 x 2-1/2 x 3/4	2.27 57,7	2.24 57,0	0.75 19,1	2.2 1,0
2-1/2 x 2-1/2 x 1	2.40 61,0	2.46 62,5	0.91 23,11	2.3 1,0
2-1/2 x 2-1/2 x 1-1/4	2.52 64,0	2.63 66,8	0.97 24,6	2.5 1,1
2-1/2 x 2-1/2 x 1-1/2	2.70 68,6	2.74 69,6	1.09 27,7	2.7 1,2
3 x 3 x 3/4	2.45 62,2	2.64 67,1	0.75 19,1	2.9 1,3
3 x 3 x 1	2.54 64,5	2.85 72,4	0.91 23,11	3.0 1,4
3 x 3 x 1-1/4	2.63 66,8	2.95 74,9	0.97 24,6	3.1 1,4
3 x 3 x 1-1/2	2.85 72,4	3.06 77,7	1.09 27,7	3.4 1,5
4 x 4 x 3/4	2.95 74,9	3.06 77,7	0.75 19,1	5.2 2,4
4 x 4 x 1	3.10 78,7	3.28 83,3	0.91 23,11	5.5 2,6
4 x 4 x 1-1/4	3.25 82,5	3.53 89,7	0.97 24,6	5.7 2,6
4 x 4 x 1-1/2	3.35 85,1	3.71 94,2	1.09 27,7	6.1 2,8

Dimensional information in this chart is for cast fittings.
Contact your Grinnell Representative for the most current information.

**TABLE 2
FIGURE 618 REDUCING TEE
GROOVE X GROOVE X CUP
CAST COPPER**

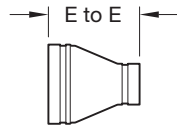


Figure 650
Concentric Reducer

Nominal Size ANSI Inches	E to E Inches mm	Approx. Weight Lbs. kg
2-1/2 x 2	3.29 83,6	1.4 0,6
3 x 2	2.50 63,5	1.4 0,6
3 x 2-1/2	2.50 63,5	1.4 0,6
4 x 2	4.75 120,7	3.0 1,4
4 x 2-1/2	3.00 76,2	2.3 1,1
4 x 3	3.00 76,2	2.3 1,1
5 x 3	3.88 98,6	3.7 1,7
5 x 4	3.38 85,9	3.7 1,7
6 x 3	4.38 111,3	5.1 2,3
6 x 4	3.88 98,6	5.2 2,4
6 x 5	3.38 85,9	4.8 2,2
8 x 6	5.00 127,0	9.7 4,4

Dimensional information in this chart is for cast fittings.
 Contact your Grinnell Representative for the most current information.

TABLE 3
FIGURE 650 CONCENTRIC REDUCER
GROOVE X GROOVE
CAST COPPER

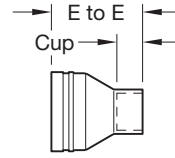
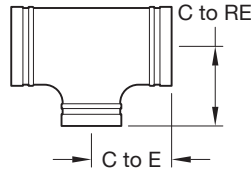


Figure 652
Concentric Reducer

Nominal Size ANSI Inches	E to E Inches mm	Cup Inches mm	Approx. Weight Lbs. kg
2 x 1	2.70 68,6	0.91 23,1	0.5 0,2
2 x 1-1/4	3.00 76,2	0.97 24,6	0.4 0,2
2 x 1-1/2	2.94 74,7	1.09 27,7	0.4 0,2
2-1/2 x 1	3.25 82,6	0.91 23,1	0.5 0,2
2-1/2 x 1-1/4	3.52 89,4	0.97 24,6	0.6 0,3
2-1/2 x 1-1/2	3.45 87,6	1.09 27,7	0.6 0,3
2-1/2 x 2	3.38 85,9	1.34 34,0	0.6 0,3
3 x 1-1/2	3.68 93,5	1.09 27,7	0.7 0,3
3 x 2	4.10 104,1	1.34 34,0	1.0 0,5
4 x 2	4.75 120,7	1.34 34,0	1.4 0,6

Dimensional information in this chart is for wrought fittings.
 Contact your Grinnell Representative for the most current information.

TABLE 4
FIGURE 652 CONCENTRIC REDUCER
GROOVE X CUP
WROUGHT COPPER



**Figure 621
Reducing Tee**

Nominal Size ANSI Inches	Copper Tube O.D. Inches <i>mm</i>	Nominal C to E Inches <i>mm</i>	Nominal C to RE Inches <i>mm</i>	Approx. Weight Lbs. <i>kg</i>
2-1/2 x 2-1/2 x 2	2.625 x 2.625 x 2.125 66,7 x 66,7 x 54,0	3.28 83,3	3.38 85,9	3.54 1,6
3 x 3 x 2	3.125 x 3.125 x 2.125 79,4 x 79,4 x 54,0	3.00 76,2	3.38 85,9	3.80 1,72
3 x 3 x 2-1/2	3.125 x 3.125 x 2.625 79,4 x 79,4 x 66,7	3.25 82,6	3.5 88,9	4.33 1,96
4 x 4 x 2	4.125 x 4.125 x 2.125 104,8 x 104,8 x 54,0	3.66 93,0	4.13 104,9	6.94 3,14
4 x 4 x 2-1/2	4.125 x 4.125 x 2.625 104,8 x 104,8 x 66,7	3.94 100,1	4.06 103,1	7.51 3,4
4 x 4 x 3	4.125 x 4.125 x 3.125 104,8 x 104,8 x 79,4	4.19 106,4	4.16 105,7	8.72 3,96
5 x 5 x 3	5.125 x 5.125 x 3.125 130,2 x 130,2 x 79,4	3.75 95,3	4.63 117,6	9.96 4,52
5 x 5 x 4	5.125 x 5.125 x 4.125 130,2 x 130,2 x 104,8	4.25 108,0	4.56 115,8	11.44 5,19
6 x 6 x 2-1/2	6.125 x 6.125 x 2.625 155,6 x 155,6 x 66,7	3.63 92,2	5.13 130,3	11.45 5,19
6 x 6 x 3	6.125 x 6.125 x 3.125 155,6 x 155,6 x 79,4	3.69 93,7	5.19 131,8	11.93 5,41
6 x 6 x 4	6.125 x 6.125 x 4.125 155,6 x 155,6 x 104,8	4.19 106,4	5.13 130,3	13.66 6,2
6 x 6 x 5	6.125 x 6.125 x 5.125 155,6 x 155,6 x 130,2	4.69 119,1	5.19 131,8	15.87 7,2

Dimensional information in this chart is for cast fittings.
Contact your Grinnell Representative for the most current information.

**TABLE 5
FIGURE 621 REDUCING TEE
GROOVED CAST COPPER**

