ASC Engineered Solutions

☐ **Fig. 6045** Gruvlok CTS Mechanical Tee
☐ **Fig. 6047** Gruvlok CTS Mechanical Cross

Fig. 6045

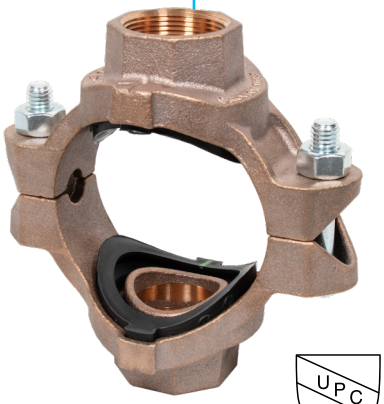

Fig. 6047

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.

The CTS Mechanical Tee housing is specially engineered to fit to the tube OD and the CTS Mechanical Tee gasket provides a leak tight reliable seal in both positive pressure and vacuum conditions. The maximum working pressure for all sizes is 300 PSI (20.6 bar) when assembled on K or L copper tube.

The Fig. 6045 CTS Mechanical Tee provides for a branch connection and the Fig. 6047 CTS Mechanical Cross provides for a cross connection in K, L, or M copper tube. Gruvlok CTS Mechanical Tees and Crosses have a NPT female pipe thread branch.

CTS Mechanical Tee and Cross connections are available in sizes 2 ½" x ¾" through 4" x 1 ½", allowing versatility in piping design.

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

Material Specifications

Bolts
SAE J429, Grade 5, Zinc Electroplated
ISO 898-1, Class 8.8, Zinc Electroplated followed by a Yellow Chromate Dip

Heavy Hex Nuts
ASTM A563, Grade A, Zinc Electroplated
ISO 898-2, Class 8.8, Zinc Electroplated followed by a Yellow Chromate Dip

Housing
Copper Alloy conforming to CDA C83470 or C89833

Gasket Materials
Properties as designated in accordance with ASTM D2000

Grade "E" EPDM (Green color code)
-40°F to 230°F (Service Temperature Range)
(-40°C to 110°C)
Recommended for water service, diluted acids, alkalies solutions, oil-free air and many other chemical services.
NOT FOR USE IN PETROLEUM APPLICATIONS.

Lubrication
☐ Standard Gruvlok
☐ Gruvlok Extreme (Do Not use with Grade "L")

Flow Data
(Frictional Resistance)

Branch Size Inches	C.V. Value	Equiv. Pipe Length Feet
In./DN(mm)	In./DN(mm)	Meters
½ 15	22 –	1.0 0.3
¾ 20	25 –	2.0 0.6
1 25	44 –	2.0 0.6

GRUVLOK
An ASC Engineered Solution

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

CTS Mechanical Tees and Crosses
Fig. 6045, 6047

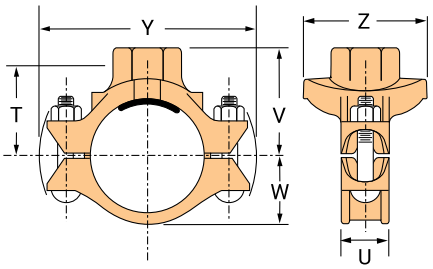

Fig. 6045

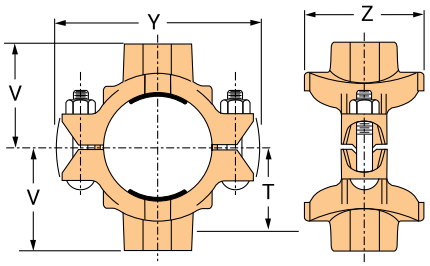

Fig. 6047

CTS Outlet

Nominal Size	O.D.	Hole Dimensions		▼Max. Working Pressure		CTS Outlet Dimensions						Bolt Size	Specified Torque §		Approx. Wt. Ea.	
		Min. Diameter	Max. Diameter	K, L	M	T	U	V Threaded	W	Y	Z		Min.	Max.	6045	6047
In./DN(mm)	In./mm	In./mm	In./mm	PSI/bar	PSI/bar	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	Ft.-Lbs/N-m	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

Note:

§ – For additional Bolt Torque information, see the Technical Data Section of the Gruvlok Catalog.

See Installation & Assembly directions on last page.

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Building connections that last™

Fig. 6045, 6047 CTS Mechanical Tees and Crosses

WARNING

Read and understand all instructions before use.

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.

ALWAYS USE A GRUVLOK® LUBRICANT FOR PROPER COUPLING ASSEMBLY.
Thorough lubrication of the gasket is essential to assist the gasket into the proper sealing position.

1 Pipe Preparation

Cut the appropriate size hole in the pipe and remove any burrs. Be sure to remove any debris from inside the pipe. Clean the gasket sealing surface within 5/8" of the hole and visually inspect the sealing surface for defects that may prevent proper sealing of the gasket.

Branch Size	Hole Saw Size
In.	In. (+1/8, -0)
3/4, 1	1 1/2
1 1/2	2

2 Check & Lubricate Gasket

Check the gasket to be sure it is compatible for the intended service. Apply a thin layer of Gruvlok lubricant to the back surface of the gasket. Be careful that foreign particles do not adhere to the lubricated surfaces. Insert the gasket back into the outlet housing making sure the tabs in the gasket line up with the tab recesses in the housing.

3 Gasket Installation

Lubricate the exposed surface of the gasket. Align the outlet housing over the pipe hole making sure that the locating collar is in the pipe hole.

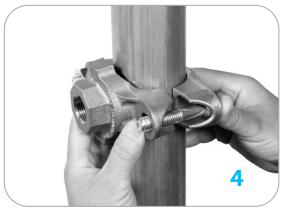
4 Alignment

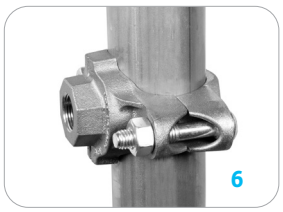
Align the strap around the pipe, insert the bolts and tighten the nuts finger tight.

5 Tighten Nuts

Alternately and evenly tighten the nuts to the specified bolt torque.

6 Assembly is Complete





Specified Bolt Torque

Specified bolt torque is for the oval neck track bolts used on the Gruvlok CTS Mechanical Tees and Crosses. The nuts must be tightened alternately and evenly until fully tightened. Caution: Use of an impact wrench is not recommended because the torque output can vary significantly due to many variables including air pressure, battery strength and operational variations.

CAUTION: Proper torquing of the bolts is required to obtain the specified performance. Overtorquing the bolts may result in damage to the bolt and/or casting which could result in lower pressure retention capabilities, lower bend load capabilities, pipe joint leakage and pipe joint separation.

ANSI Specified Bolt Torque

Bolt Size	Wrench Size	Specified Bolt Torque*
In.	In.	Ft.-Lbs
1/2	7/8	60–80

* Non-lubricated bolt torques.

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