



Grooved Product Warnings!!

Read carefully prior to handling and installing grooved couplings and fittings!

FAILURE TO FOLLOW THESE WARNINGS CAN CAUSE DAMAGE TO GROOVED COUPLINGS AND FITTINGS RESULTING IN LEAKAGE, PROPERTY DAMAGE, INJURY, OR DEATH.

ALWAYS FOLLOW THE DESIGN AND INSTALLATION REQUIREMENTS IN THE RELIABLE TECHNICAL BULLETIN APPLICABLE TO EACH GROOVED PRODUCT. IN ADDITION, COUPLINGS AND FITTINGS MUST ONLY BE USED IN SYSTEMS INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE LATEST PUBLISHED STANDARDS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, AS WELL AS THE REQUIREMENTS OF ANY APPLICABLE GOVERNMENTAL CODES OR ORDINANCES, INSURERS, OR OTHER AUTHORITIES HAVING JURISDICTION.

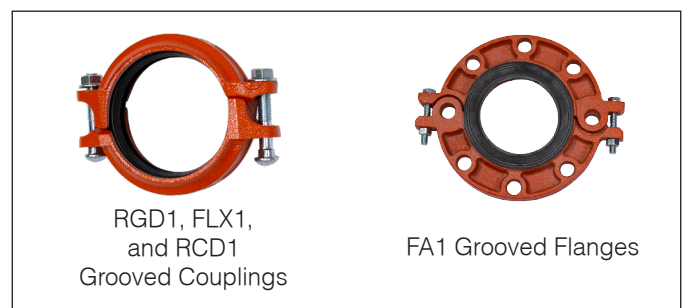
Important Precautions to Follow:

1. Prior to installation, grooved products should be maintained in the original packaging and shielded from rain until used to minimize the potential for damage to products that would cause improper installation, or leakage.
2. Prior to installation, all grooved fittings should be inspected for damage to sealing surfaces that may have occurred during shipping. Fittings with significant dents, gouges, or other deformities may leak when installed. Machining toolmarks are a normal result of manufacturing.
3. All pipe ends shall be grooved to the appropriate specification and free of dents, gouges, burrs, sharp edges, and other defects that can prevent proper sealing or damage gaskets, causing leakage. All pipe ends should be inspected prior to installation.
4. Grooved products should only be installed using original, Reliable-branded components. Components such as coupling halves, seals, or fasteners from other manufacturers should never be used in Reliable grooved product assemblies prior to or during installation. Other manufacturer's components in product assemblies may cause leakage or failure of the grooved product.
5. Gaskets include both embedded lubricant in the elastomer, plus a surface treatment of dry powder lubricant to improve ease of installation and prevent gasket pinching during installation. No other lubricant is required.
6. Ensure that all equipment used is properly functioning and in good repair, and that work is conducted in a safe manner with everyone in the vicinity using appropriate personal protective equipment.

Bolt Torque Data

							Table A
RGD1 Coupling Size (in)	FLX1 Coupling Size (in)	MTT2/MTG1 Mechanical Tee Size (in)	MTT1 Mechanical Tee Size (in)	041 U-Bolt Tee Size (in)	Bolt Size (in)	Socket Size (in)	Bolt Torque* Range (ft-lb)
-	-	-	1 - 2-1/2	1-1/4 - 3	3/8	9/16	22 - 29
1 - 3	1 - 3	2	-	-	3/8	9/16	45 - 50
4 - 6	4 - 6	2-1/2 - 4	-	-	1/2	3/4	65 - 75
8	8	6 - 8	-	-	5/8	15/16	145 - 170
10	10 - 12	-	-	-	3/4	1-1/8	200 - 220
12 - 16	14 - 16	-	-	-	7/8	1-15/16	200 - 220

* non-lubricated bolt torque, any products not listed here may use the torque that corresponds with the bolt size

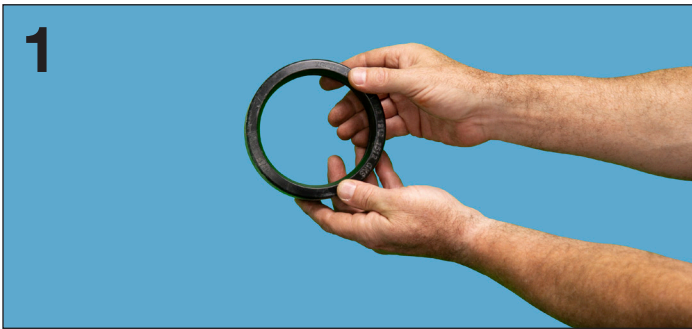


Page 2



Mechanical Tees
Page 3

7. Reliable fittings and coupling assemblies are interchangeable with other manufacturers' products meeting the same groove specifications. A model number cross reference sheet is available from Reliable to identify which Reliable model number corresponds to other manufacturers' comparable products.



1. Remove one bolt from coupling to remove gasket (for angle pad coupling and grooved flange) or completely disassemble (for flexible or reducing couplings). Inspect gasket to ensure that it is not damaged and is appropriate for intended service. Inspect pipe ends for correct grooving and lack of burrs, dents, and gouges to ensure a good sealing surface and proper coupling fit. Burrs may be removed with sandpaper or a file, if care is taken to not damage the sealing surface between the groove and the end of the pipe.



2. Install the gasket fully over the pipe end so that the gasket lip does not overhang. Some stretching of the gasket is required to fit on the pipe. If no stretching is required, check to ensure that all equipment is the correct size.

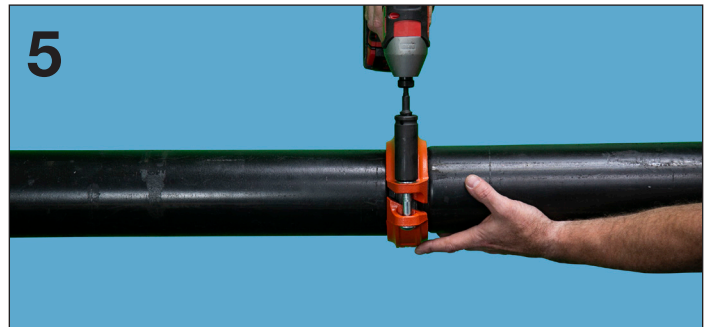


3. Align and position mating pipe ends together. Slide the gasket into position centered between the grooves on each pipe end. Both grooves should be visible.

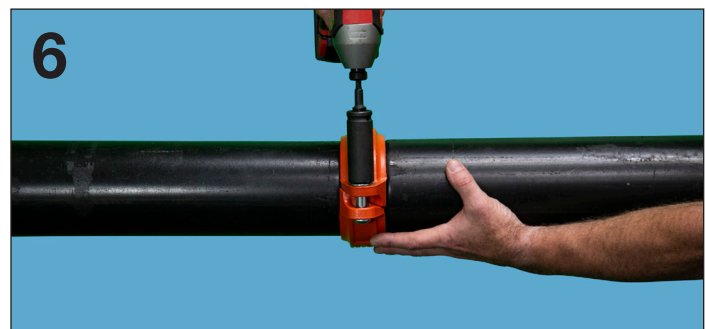


4. Loosen remaining nut (for angle pad) to allow coupling assembly to swing around pipe and gasket.

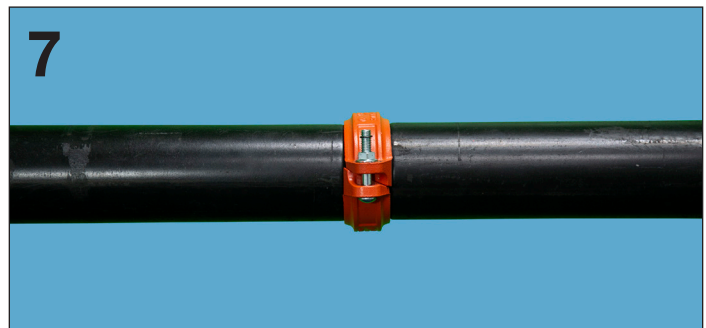
4. (cont.) Reorient both coupling halves to fit around gasket, ensuring that tongue on the coupling aligns with grooves in pipe. Install all previously-removed bolting, and thread nuts to finger-tight on both bolts. The oval track of the bolt should seat fully into the bolt hole in the coupling halves.



5. Tighten all nuts in even amounts while alternating between all nuts. Evenly tightening the nuts while alternating the nut being tightened is important to prevent gasket pinching and ensure proper fit and sealing of coupling assembly on pipes and fittings. This is required for both hand and impact tools.



6. Stop tightening nuts when metal-to-metal contact between the upper and lower coupling halves occurs. Excessive tightening of nuts by either hand or impact tools beyond torque limits specified in Table A for a given bolt size may damage the coupling and cause leaks.



7. Visually inspect the bolt pads on each side of the coupling to ensure metal-to-metal contact is achieved and consistent. Also inspect to ensure that the tongue on the coupling halves are fully engaged in the pipe grooves.

8. GROOVED FLANGE: Once gasket is in place, grooved flange may be installed around pipe, and the bolt and nut tightened until metal to metal contact is achieved without exceeding recommended bolt torque.

Installation Instructions for Mechanical Tees

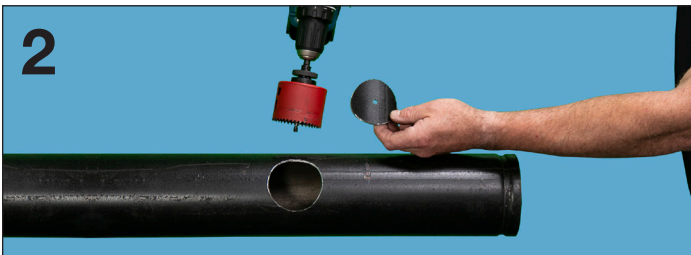


1. Disassemble the mechanical tee, and inspect gasket to ensure that it is not damaged and is appropriate for the intended service. Inspect the pipe where the mechanical tee is intended to be installed, ensuring that it is round and does not have any damage to the pipe that might impair sealing of the gasket.

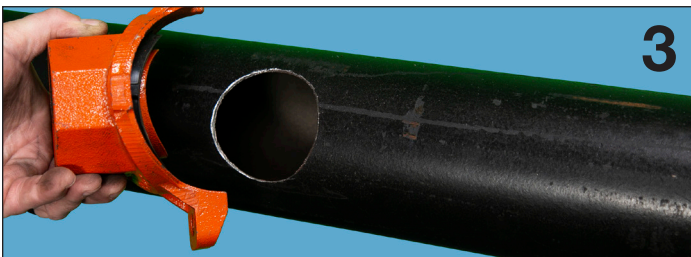
Mechanical Tee Hole Preparation Data

Table B

Model	Nominal Run Pipe Size in (mm)	Nominal Run Branch Size in (mm)	Hole Saw Size in (mm)	Max. Hole Diameter in (mm)
MTT2 / MTG1	All sizes	1 (25)	1-1/2 (38)	1-5/8 (41)
MTT2 / MTG1	All sizes	1-1/4 (32)	1-3/4 (45)	1-7/8 (48)
MTT2 / MTG1	2 (50)	1-1/2 (40)	1-3/4 (45)	1-7/8 (48)
MTT2 / MTG1	2-1/2 (65) - 8 (200)	1-1/2 (40)	2 (50)	2-1/8 (53)
MTT2 / MTG1	2-1/2 (65)	2 (50)	2 (50)	2-1/8 (53)
MTT2 / MTG1	All sizes	2 (50)	2-1/2 (64)	2-5/8 (67)
MTT2 / MTG1	All sizes	2-1/2 (65)	2-3/4 (70)	2-7/8 (73)
MTT2 / MTG1	All sizes	3 (80)	3-1/2 (89)	3-5/8 (92)
MTT2 / MTG1	All sizes	4 (100)	4-1/2 (114)	4-5/8 (117)
041 / MTT1	All sizes	All sizes	1-3/16 (30)	1-1/4 (31)



2. Cut the appropriate size hole in the pipe in accordance with Table B. Be sure to remove the cutout plug from the inside of the pipe before installing the mechanical tee. Remove any burrs or rough edges left from the cutting process. Clean the sealing surface at least 5/8" (16 mm) around the cut hole, removing any debris or deposits that may impact sealing performance of the gasket. Visually inspect the sealing surface for any defects that may impair sealing performance of the gasket.



3. The gasket has lubricant embedded in the rubber, and a dry powder lubricant applied on the surface during assembly at the factory. No additional lubricant is required. Ensure that the gasket is properly installed in the mechanical tee outlet housing, and then align the housing with the cut hole in the pipe, ensuring that the mechanical tee's locating feature fits into the cut hole in the pipe.



4. Insert u-bolt (for 041) or align the strap housing of the mechanical tee (MTT or MTG) with the outlet housing, and install fasteners finger-tight to hold the mechanical tee assembly in place on the pipe



5. Tighten all nuts in even amounts while alternating between all nuts. Evenly tightening the nuts while alternating the nut being tightened is important to prevent gasket pinching and ensure proper fit and sealing of mechanical tee assembly on pipes. This is required for both hand and impact tools.



6. Stop tightening nuts when metal-to-metal contact between the housings (MTT or MTG), or when the u-bolt is tight against the pipe and the mechanical tee will not move (041). Excessive tightening of nuts by either hand or impact tools beyond torque limits specified in Table A may damage the joint and cause leaks. It is important to ensure that fasteners are tightened appropriately within the specified range of this document to ensure that mechanical tees function as intended and do not leak.



7. Visually inspect all components of the mechanical tee to ensure that it is properly installed on the pipe.