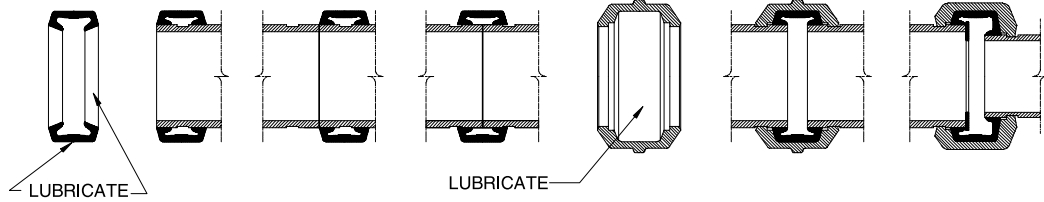




INSTALLATION INSTRUCTIONS



Coupling Installation for Style C-1, C-3, C-4, C-7 and RC-1

- Contact manufacturer to confirm proper gasket material and lubricant. Before assembly, remove burrs, scores, rust, etc. from grooved pipe ends and wipe pipe ends with a cloth.
- Apply manufacturer approved gasket lubricant to pipe ends as well as inside and outside the gasket itself and slip gasket over one end.
- Align second grooved pipe end until it touches the first pipe, slide the gasket over the second pipe. Center the gasket between grooves on both pipes.
- Install both housings so that they are centered in the two pipe grooves, and insert the two bolts and nuts.
- Be sure both track bolts are inserted properly in their tracks and the housing is not pinching the gasket.
- Hand tighten the nuts, then uniformly tighten until torque requirements are reached.

BOLT SIZE	TORQUE LB-FT
3/8	18 ± 5
1/2	45 ± 5
5/8	90 ± 5
3/4	150 ± 5

BOLT SIZE	TORQUE LB-FT
7/8	240 ± 5
1	350 ± 10
1 1/8	400 ± 10

Flange Installation for Style F1 & SF1

- Place flange around the pipe in the groove, without the gasket. The gasket cavity should face the end of the pipe. Place a bolt through the mating hole, opposite the hinge.
- Lubricate the gasket with manufacturer approved gasket lubricant and insert into the gasket cavity with the back of the gasket toward the flange. Make sure the lip of the gasket is centered on the pipe O.D. Lubricate the outer lip which seals to the other flange.
- Align bolt holes with mating flange and insert bolts through the mating holes of the other flange. Make sure mating surfaces are flush. Tighten nuts in a crossing order in alternating fashion until the faces contact firmly or bolts attain recommended flange joint torque figure.

Mechanical Tee Installation for Style MT-1, MT-2, MT-3 & MT-8

MT-1, MT-2 & MT-8

1. Cut hole in the pipe on the centerline, making sure the hole size is as specified in the tables on pages 13,14 & 15 for the specific size mechanical tee.
2. Clean pipe around the hole to remove burrs and to make sure there are no scores or protrusions which could stop proper seating. Make sure the pipe is clean of dirt and grease for 5 / 8" around hole.
3. Remove gasket and lightly grease it with manufacturer approved gasket lubricant and replace by aligning tabs with the housing.
4. Take out one bolt completely and loosen the other until the bottom casting swings underneath the pipe, align with top casting. Make sure to center the hole of the pipe with the hole of the fitting, insert bolt and tighten, making sure to keep an even gap and proper alignment. Torque the bolts per the following chart.

BOLT SIZE	3/8	1/2	5/8	3/4
TORQUE (LBS-FT)	35	50	50	50

MT-3, MT-9

1. Drill a 1 - 3/16 + 1/8 — 0 diameter hole on the centerline of the pipe.
2. Clean pipe around hole to remove any burrs, oil or grease which may be present.
3. With gasket installed in housing, center the housing over the hole and make sure the inner collar has engaged the hole.

DO NOT LUBRICATE GASKET

4. Attach the U bolt and uniformly tighten the nuts. The bolt torque should not exceed 20 lb-ft on pipe walls less than schedule 10 or exceed 25 lb-ft on pipe walls schedule 10 and above.

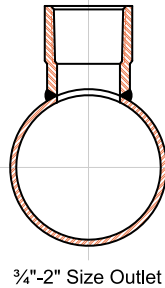
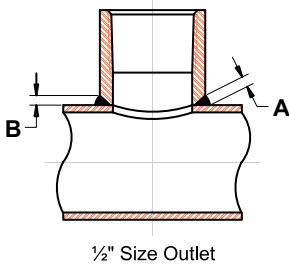


INSTALLATION INSTRUCTIONS

Weld Outlet Fitting Installation For Style MT-4

INSTALLATION INSTRUCTIONS

- The hole cut in the run pipe may be done prior to welding or after welding of the outlet fitting. If holes are cut prior to welding, see recommended hole size in chart on page 37.
- Star Outlet Fittings are designed to be installed using only one weld pass.
- 1/2" size outlets have a heavy cross section which helps maintain shape and threads during shipping and from weld/heat distortion after installation.
- 3/4"-2" size outlets maintain a relative uniform wall thickness in the contoured section. Heat settings can easily be set to allow for full penetration welds while reducing the probability of burn through. The weld area is designed adequately distanced from the threads such that the welding process should not distort the threads.
- It is recommended that the weld temperature be only as hot as needed to fully penetrate the materials being welded. Excessive heat may cause the outlet fitting to expand excessively resulting in threads not gauging properly after cooling. The following chart lists the recommended amount of weld for each size outlet.

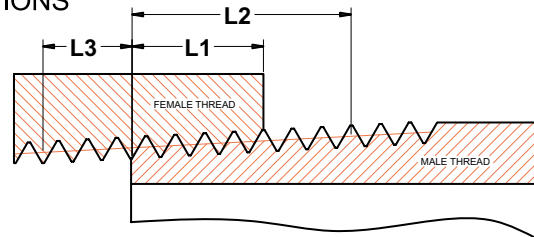


Outlet Size	A (Inches)	B (Inches)
1/2	1/4	3/16
3/4	1/4	3/16
1	1/4	3/16
1 1/4	1/4	3/16
1 1/2	5/16	1/4
2	5/16	1/4

THREAD ASSEMBLY INSTRUCTIONS

THREAD INSPECTION

- A. Prior to installing a threaded branch pipe or nipple into a MT-4 outlet fitting, inspect the thread of the outlet and the nipple to insure that:
- 1) No dirt or weld spatter is in the threads.
 - 2) No burn-through has damaged the threads.
 - 3) Thread length is correct.
- B. Clean as needed.



NPT TAPERED PIPE THREADS ANSI/ASME B1.20.1 Length of Effective Threads

Drop Nipple or Outlet Size	L1 Dim. Hand Tight in./thrds.	L3 Dim. Wrench Tight in./thrds.	Total L1 + L3 Length in./thrds.	L2 Dim. Effective Threads in./thrds.
1/2"	0.320/4.48	0.214/3.00	0.534/7.48	0.534/7.47
3/4"	0.339/4.75	0.214/3.00	0.553/7.75	0.546/7.64
1"	0.400/4.60	0.261/3.00	0.661/7.60	0.683/7.85
1-1/4"	0.420/4.83	0.261/3.00	0.681/7.83	0.707/8.13
1-1/2"	0.420/4.83	0.261/3.00	0.681/7.83	0.724/8.32
2"	0.436/5.01	0.261/3.00	0.697/8.01	0.757/8.70

APPLICATION OF PIPE SEALANT

- A. Use a pipe sealant that is fast drying, sets-up semi-hard and is vibration resistant. For outlets 1/2" through 1", an anaerobic pipe sealant is recommended.
- B. Thread tape containing Teflon* may also be used.

TIGHTENING OF BRANCH PIPE

- A. For outlet sizes through 2", wrench tighten up to three (3) full turns past handtight.

*Teflon is a registered trademark of DuPont