

Thank you for purchasing the Tuf-Lok Ring Grip Tube Coupling. This guide contains information that will allow you to get the best results from your equipment while operating it safely. Please read it carefully before installing and operating this equipment. It is critical that the people operating and maintaining this equipment have a copy of this guide. All information in this guide is based on the latest product information. Tuf-Lok International reserves the right to make changes at any time without notice and without incurring any obligation.



Safety

Your safety and the safety of others are very important. We have provided important safety messages in this guide and safety labels on the equipment. Please read these messages carefully.

A safety message alerts you to the potential hazards that could hurt you or others. Each safety message is preceded by a safety alert symbol and one of three words, DANGER, WARNING, or CAUTION.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

These signal words mean:



DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

Each message typically identifies the type of the hazard, the consequence of not avoiding the hazard, and how to avoid the hazard.

Damage Prevention Messages

NOTICE

NOTICE indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

Symbol	Typical Warning/Meaning
	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	Mandatory Action to Avoid a Hazard
	Pressurized Source, or Contents Under Pressure

NOTICE

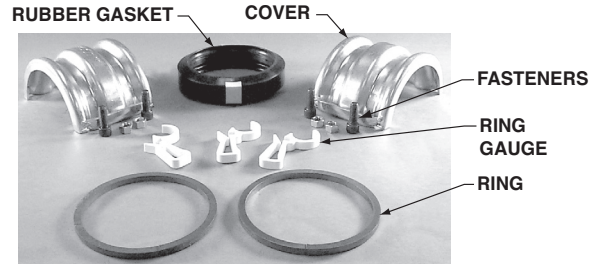
OPERATING CONDITIONS



The Tuf-Lok tube coupling has been designed to provide dependable service, even under severe use. However, the Tuf-Lok tube coupling is intended for specific operating conditions only, with respect to air pressure and temperature. Maintenance of such products is controlled exclusively by the user. Tuf-Lok disclaims all responsibility for damage or injury resulting from the use of the Tuf-Lok tube coupling. Therefore, the user assumes all responsibility for any and all claims arising directly or indirectly from the product and/or its use.

Operation Principles

The Tuf-Lok ring grip tube coupling provides a versatile, economical and reliable method for connecting tube together. The Tuf-Lok ring grip tube coupling eliminates any tube grooving, threading or flanging. Tube end preparation is simple and easy, either in the shop or on the job site. In addition to speed and ease of assembly, the Tuf-Lok ring grip tube coupling offers specific mechanical benefits to the designer, installer and end user.



Gasket Usage and Temperature Ratings

Black EPDM - Tuf-Lok coupling standard gasket, rated to 230° F (110° C)

White Buna-N - Tuf-Lok coupling standard food grade gasket, rated to 180° F (82° C)

White Silicone - Tuf-Lok coupling standard high temperature gasket (also food grade), rated to 350° F (176° C)

Installation



WARNING



Provide proper supports for the tube during installation. The Tuf-Lok tube coupling is not intended to support the weight of the tube.

1. Cut both tube ends square and deburr all edges (see Fig. 1). Burrs and jagged edges can cut the rubber gasket.
2. The outside surface of the pipe should be properly cleaned of all mill scale and any other contamination.
3. Slide the ring over the end of the tube. Use the nylon ring gauges provided to locate the ring in the proper position. (see Fig. 2-3).

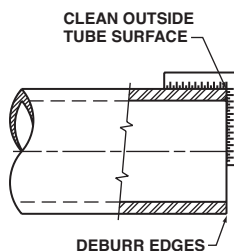


Fig. 1



Fig. 2

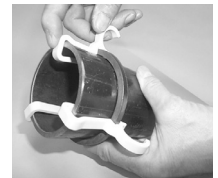


Fig. 3

4. Make sure the nylon ring gauges are pushed up tightly to the end of the pipe in order for the ring to be located in the proper position. (see Fig. 4).

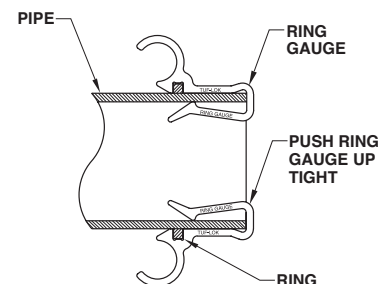


Fig. 4

Installation

5. Tack weld the ends of the ring to the pipe. Continue tack welding around the perimeter to secure the ring in place (see Fig. 5).

WARNING



All welding must be completed by a qualified welder.

NOTICE

Distance between tack welds should not exceed 2.00" (51 mm). Failure to tack weld rings properly may cause warping and improper location of ring.

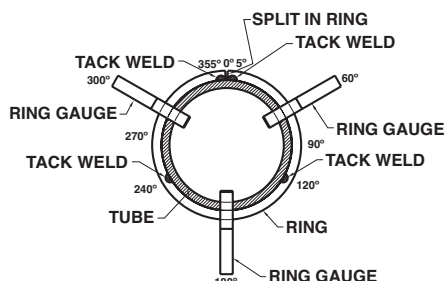


Fig. 5

6. Remove the nylon ring gauges and continuously weld the ring on the **tube end side only** with a 1/4" (6.4mm) fillet weld (see Fig. 6). Repeat steps 2 through 6 for the mating tube end.

NOTICE



Allow the welded ring and tube to cool below 150° F (65° C) before continuing with the assembly of the coupling.

7. Lubricate the rubber gasket with an 8:1 ratio of water and liquid detergent solution for ease of installation (see Fig. 7).
8. Gently slide the gasket past the end of the tube (see Fig. 8).



Fig. 6



Fig. 7



Fig. 8

9. Butt the mating tube end to the tube with the gasket in place.
10. Position the gasket over the joint until it is centered (see Fig. 9).
11. Use the metal cover as an alignment guide to position the gasket (see Fig. 10).
12. Assemble the metal covers over the welded rings and gasket with the gasket inserts positioned between the coupling cover halves (see Fig. 11).

WARNING



Gasket inserts must be positioned between the cover halves to prevent joint pressure failure and/or damage to equipment or possible injury to plant personnel (see Fig. 13).



Fig. 9



Fig. 10

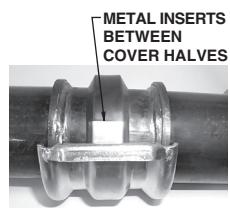


Fig. 11

13. Install bolts, lock washers and nuts; partially tighten the coupling bolts to ensure proper seating of the gasket (see Fig. 12). Ensure the metal insert on the gasket is correctly positioned between the coupling covers to protect against gasket failure (see Fig. 13).

NOTICE

Do not over tighten bolts. Over tightening would exceed recommended limits and damage the coupling.

14. Evenly tighten all the coupling bolts to a torque value of 44 ft. lbs.
15. For optimum alignment, the cover must be touching the tube perimeter at points 1 through 6 (see Fig. 14).

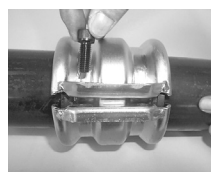


Fig. 12

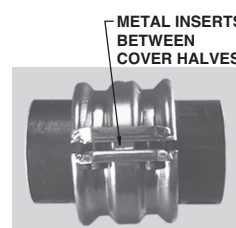


Fig. 13

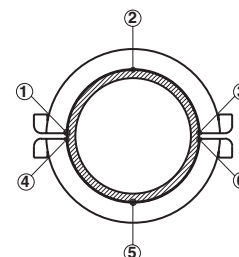


Fig. 14

16. Before disassembling the coupling, completely depressurize the tubing system.

WARNING



To prevent damage to equipment and/or possible injury to plant personnel, make sure any residual pressure within the tube is completely relieved before disassembling the coupling. Follow all lockout and tagout procedures before performing maintenance on or servicing the Tuf-Lok coupling.

Dimensions & Specifications

Tube Outside Diameter		Maximum Working Pressure		Maximum End Load	
in.	mm	psig	barg	lbs.	N
2.00	51	150	10.34	4600	20,461
3.00	76	150	10.34	6300	28,024
4.00	102	150	10.34	7600	33,806
5.00	127	150	10.34	9000	40,034
6.00	152	150	10.34	10,100	44,927

Customer Assistance

Should any questions arise with regard to installation and/or operation that are not covered in this manual, please call or email the Tuf-Lok customer service department for further recommendations.

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