

MJ TUFGRIP™ TLD SPLIT

SERIES 1000S

FOR DUCTILE IRON PIPE

A Proven Third-Generation Mechanical Joint Restraint

Tyler Union's TUFGrip™ restraint represents the culmination of 20 years of engineering and testing. As a third-generation restraint, TUFGrip is the best available technology in the waterworks market for use in restraining PVC, ductile and HDPE pipe.

FEATURES & ADVANTAGES

- Torque limiting nut on gripping wedge assembly twists off within a designed torque range, eliminating the need for specialized tools.
- Gripping wedge assembly pivots providing stronger engagement of pipe wall at lower torque requirement (45–60 ft.-lbs.).
- Proven restraint technology utilizing fewer gripping wedges in frequently applied diameters, reducing trench time and project cost.
- Restraint's heavy-duty construction and design eliminates the need for costly thrust blocks and tie rods.
- Suitable for potable and wastewater applications.



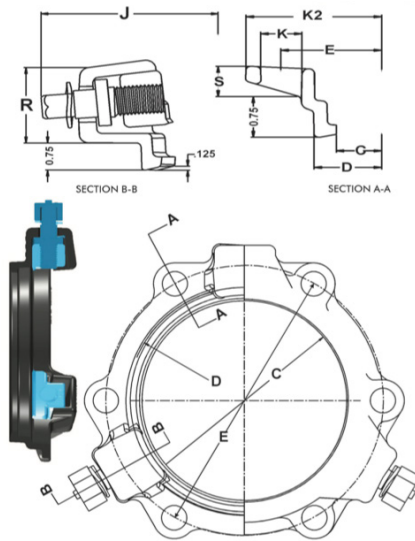
SPECIFICATIONS

- Designed and proven to restrain plain end ductile iron pipe conforming to ANSI/AWWA C151/A21.51 in diameters 4"–12" with a maximum surface hardness value of 250 Brinell at the engagement point of the wedges. (ISO 2531 for Ductile Iron Pipe specifies a maximum hardness value of 230 Brinell).
- Restraint design conforms with applicable requirements of ANSI/AWWA C111, ANSI/AWWA C153 and ANSI/AWWA C110.
- Restraint engineered for securing plain end pipe to mechanical joint fittings conforming to ANSI/AWWA C110, C111 and C153.
- Restraint rated for working water pressure of 350 psi for 4"–12" restraints.
- Cast of ASTM A536 compliant 65-45-12 ductile iron complete with a cast on date code and country of origin for traceability.
- Restraints and all components are designed and proven for a 2:1 safety factor based on the pipe pressure rating.
- Deflection rating when installed on AWWA C151 pipe with nominal diameter shall be 3° for 4"–12" restraints.
- Standard coating for Non-Domestic restraint is 4-6 mil of *alkyd resin baking enamel. ***Note:** TUF-Bond™ coatings available upon request.
- Gripping wedges are heat treated to a minimum 420 Brinell hardness.
- Gripping wedge, wedge collar bolt and twist-off torque limiting nut shall be e-coated.
- Not recommended for use on plain end fittings.
- Color coded black for pipe type (ductile pipe/*cast iron pipe).

***Note:** Refer to the next page for cast iron pipe application.

ISO 9001-2015 Registered

Product Source/Type	Name of Project	Name of Contractor	Project Engineer	Spec. Section and/or Project No.



MJ TUFGrip™ TLD SPLIT DIMENSIONS

Size (In.)	C	D	E	K2	J	K	R	S
4	4.93	5.92	7.50	8.98	10.67	7/8	2.20	0.73
6	7.03	8.02	9.50	10.98	12.77	7/8	2.24	0.82
8	9.18	10.17	11.75	13.23	14.92	7/8	2.28	0.82
10	11.23	12.22	14.00	15.70	16.97	7/8	2.37	0.93
12	13.33	14.32	16.25	17.95	19.07	7/8	2.40	0.93

SERIES 1000 TLD-DUCTILE MJ TUFGrip™ — APPLICATION CHART

Size (In.)	Part # – Gland Only	Part # – Gland Only	Wedge Qty.	T-head Bolt Qty.	Bolt Size	Gland Weight (lbs.)	Weight (w/Acc.)	*Pressure Rating	Pipe O.D. (Inches)
	Domestic	Non-Domestic							
4	N/A	495918	2	4	3/4" x 3-1/2"	7.1	11.8	350	4.80
6	N/A	495925	3	6	3/4" x 4"	11.2	18.8	350	6.90
8	N/A	495932	3	6	3/4" x 4"	13.1	20.3	350	9.05
10	N/A	495949	6	8	3/4" x 4"	26.0	32.5	350	11.10
12	N/A	495956	8	8	3/4" x 4"	31.5	40.4	350	13.20

*Note: The pressure ratings are rated working water pressures for the restraint.

**ADDITIONAL SERIES 2000S SPLIT TLP-PVC MJ TUFGrip™ RESTRAINT RATINGS

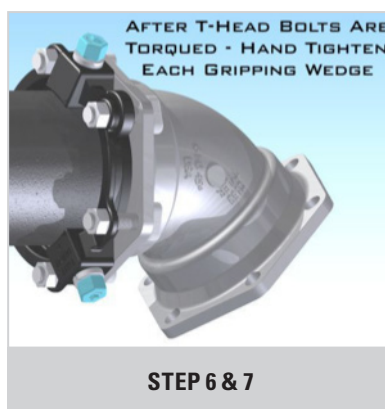
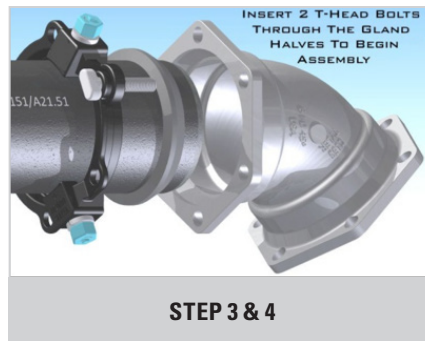
Size (In.)	AWWA C900			ASTM D2241		
	DR14	DR18	DR25	SDR17	SDR21	SDR26
4	305	235	150	250	200	160
6	305	235	150	250	200	160
8	305	235	150	250	200	160
10	305	235	150	250	200	160
12	305	235	150	250	200	-

**Note: Ratings for ordinary water works restraint applications with transitory surges only.

ISO 9001-2015 Registered

STOP-LOOK:

- The Series 1000S TUFGrip is specified for use on ductile iron pipe but can be used on some sizes of cast grey iron or pit cast pipe as provided (pipe not severely corroded, in sound condition and with an outside diameter compatible with restraint "C" dimension).
- Installation and hydrostatic testing shall be in accordance with AWWA C600 and AWWA C651.



ASSEMBLY STEPS – SERIES 1000S TLD SPLIT – FOR DUCTILE IRON PIPE

1. Ensure the beveled pipe end to be joined and mechanical joint socket are clean and free of debris.
2. Lubricate the pipe end and exterior plus the inside surface of gasket with joint lubricant that meets the requirements of AWWA C111. Now place the MJ gasket over the plain beveled end of the pipe with the narrow edge of the tapered gasket toward the beveled end of the pipe to be restrained.
3. Fully insert the pipe end into the MJ socket pipe landing. Keeping the pipe straight, slide/push the gasket firmly and evenly into the MJ socket recess.
4. Place the two halves of the black TUFGRIP around the pipe with the compression lip extension toward the MJ socket. Join the two restraint halves together with two T-head bolts. Use only T-head bolts, gaskets and nuts that meet AWWA C111 requirements.
5. With the two T-head bolts inserted through the restraint, push the TUFGRIP lip extension evenly against the thick side of the MJ gasket. With the TUFGRIP restraint against the gasket, the remaining T-head bolts are inserted with the T-head against the back of the MJ fitting bolt flange. Install two additional T-head bolts with nuts and hand tighten to secure the restraint to the fitting.
6. With the restraint secured to the fitting, remove the original assembly T-head bolts and reinsert with the T-head against the back of the MJ fitting bolt flange. Making sure the TUFGRIP is centered around the pipe's wall, hand tighten all remaining T-head bolts and nuts. If joint deflection is needed, only deflect the pipe in the joint after hand tightening of all nuts is completed. Maximum joint deflection is 3° when pipe and fitting dimensions are nominal.
7. Using a wrench, tighten the nuts on the T-head bolts a few turns at a time in an alternating or star pattern. Maintain equal spacing between the TUFGRIP bolt flange and the bolt flange of the MJ socket as the gasket is compressed. The T-head bolt and nut torque requirement is 75–90 ft.-lbs. for 4"–12" restraints.
DO NOT OVER TORQUE!
8. Hand tighten the torque limiting nut attached to the TUFGRIP wedge assemblies in a clockwise direction with an alternating or star pattern until all gripping wedges are in contact with the pipe wall. Rotational direction of torque limiting nut is indicated by a recessed arrow on the face of the nut. With a wrench, continue to tighten each torque nut half turn in an alternating or star pattern until all torque limiting nuts twist off. **NEVER** turn a torque limiting nut more than half turn without turning the remaining torque nuts an equal amount!
9. When all torque limiting nuts twist off, the mechanical joint and restraint assembly is complete.