



PVC Ring Lock series 3500 (PVCGRIP™)

Mechanical Joint 360° Ring Type Restraint System

Designed for C900 and IPS PVC Pipe

Patent #5,947,527



PVC Ring Lock series 3500 for PVC pipe

INFORMATION

The PVC Ring Lock System is an innovative design with a 360° grip-ring feature. This feature provides uniform restraining pressure around the circumference of the pipe, thus avoiding pipe distortion and point loading. Its unique independent restraining and sealing features allows it to be used for Push-On and Mechanical Joint fittings, Valves and Fire Hydrants. It can be used on any class, C900 PVC and IPS PVC pipe.

Innovative 360° Grip-Ring Restraint

FEATURES & ADVANTAGES

- Unique ring design provides 360° pipe restraint, so there is no point loading on the pipe.
- No washers or spacers to remove when used on CI OD PVC pipe or IPS PVC pipe* (***transition gasket required on 12" and under IPS PVC Pipe**).
- One ring fits both CI OD PVC pipe and IPS PVC pipe used.
- Universal application for various types of PVC pipe simplifies inventory requirements and reduces carry cost.
- Double headed torque limiting bolts utilize 1¼" wrench size on both hex heads.
- Torque limiting bolts are designed with collars so that a wrench won't slip off bottom for easier installation.
- PVC Ring Lock sizes 4"-12" are listed with Underwriters Laboratories and Factory Mutual approved for use on DR18 class 235 C900 PVC pipe at 150 PSI.
- Tested to and meets the requirements of ASTM F1674 through 12" size
- Safety factor is twice (2:1) the standardized pressure rating of the pipe on which it is used.
- Offers a full 5° deflection through 12" and 3° on 16"
- Gland, ring and follower gland are made from high strength ductile iron per ASTM A536, grade 65-45-12 and are compatible with all mechanical joints conforming to ANSI/AWWA C111/A21.11.
- Eliminates tie rods and thrust blocks
- For use on HDPE or C909 pipe, please contact Star Engineering
- Standard gland color is Coral Red (RAL 3016).

SAMPLE SPECIFICATIONS

Restrainer mechanism shall be integrated into the design of the follower gland. The gripping or restraining mechanism shall transmit uniform restraining pressure around the circumference of the pipe, thus avoiding point loading or pipe distortion. This restraining process shall be kept separate from the mechanical joint sealing process and not a part of the sealing function. Gland and ring components shall be manufactured of ductile iron conforming to ASTM A536, grade 65-45-12.

The restraining torque limiting bolt system shall have a torque-limiting feature designed to break off at preset torque limit to ensure proper actuation. Both the twist off head and the removal head shall be the same size as the T-bolt nut.

The restraining mechanism design can replace the standard mechanical joint gland and can be used with the standard mechanical joint bells conforming to ANSI/AWWA C111/A21.11, C110/A21.10 and C153/A21.53 of the latest revision.

The restraining mechanism shall have a pressure rating equal to that of the pipe on which it is used. All sizes shall have a minimum safety factor of 2:1 (i.e. twice the pressure rating of the pipe on which it is used). The restraining mechanism through 12" size shall be Listed by Underwriters Laboratories, Inc., Approved by Factory Mutual Research and shall be tested to ASTM F 1674. The restraining device for C900/C900 PVC and IPS PVC Pipe shall be Star Pipe Products PVC Ring Lock Series 3500 or equal.

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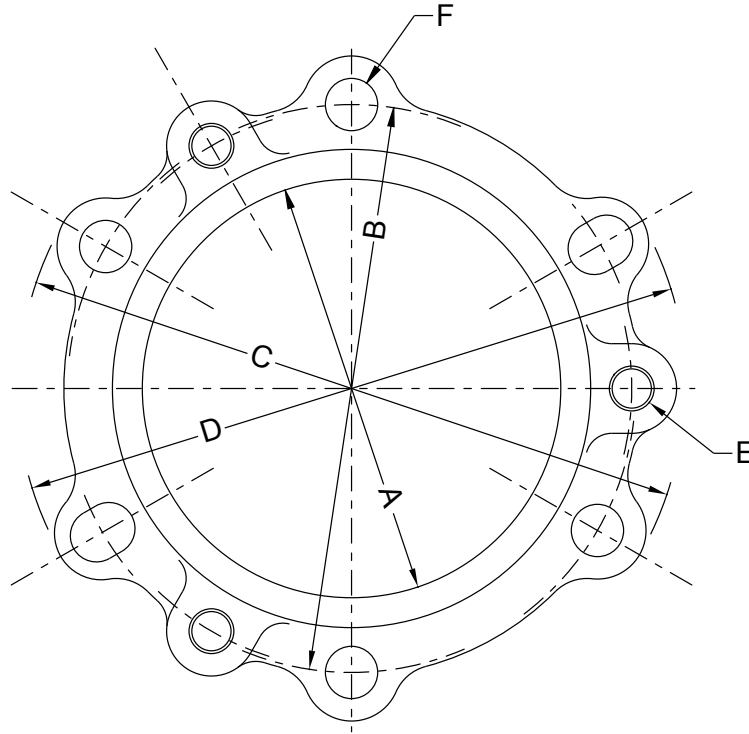
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TECHNICAL INFORMATION



PVC RING LOCK 3500 SPECIFICATIONS*

SIZE	ANSI/AWWA C900/C900 PIPE O.D.	IPS PIPE O.D. (TRANSITION GASKET REQUIRED)	A	B	C	D	E	F	APPROX WT. (LBS)
4	4.80	4.50	4.90	7.50	9.13	9.13	4 @ .75	4 @ .75	9
6	6.90	6.63	7.00	9.50	11.13	11.75	3 @ .75	6 @ .75	14
8	9.05	8.63	9.15	11.75	13.38	14.00	4 @ .75	6 @ .75	18
10	11.10	10.75	11.20	14.00	15.63	16.75	6 @ .75	8 @ .75	27
12	13.20	12.75	13.30	16.25	17.88	19.13	8 @ .75	8 @ .75	34
16	17.40	N/A	17.54	21.00	22.50	22.50	10 @ .75	12 @ .75	73

*All dimensions in inches except where indicated.

STANDARDIZED PRESSURE RATINGS (PSI)**

NOM SIZE (IN.)	ANSI/AWWA C900								ASTMD2241 IPS OD		
	DR14	DR17	DR18	DR21	DR25	DR27.5	DR32.5	DR41	SDR 17	SDR 21	SDR 26
4	305	250	235	200	165	-	-	-	250	200	160
6	305	250	235	200	165	-	-	-	250	200	160
8	305	250	235	200	165	-	-	-	250	200	160
10	305	250	235	200	165	-	-	-	250	200	160
12	305	250	235	200	165	-	-	-	250	200	160
16	-	-	235	200	165	150	125	-	-	-	-

**For the ordinary water works with Transient surges only. Ratings are for PVC pipes with SERIES 3500 Restraint.

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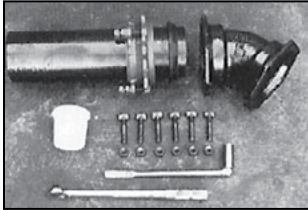
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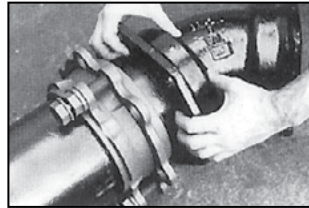
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INSTALLATION INSTRUCTIONS - SIZES 4" - 16"



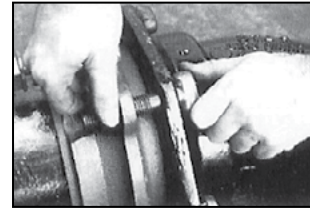
STEP 1

The rubber gasket will seal more effectively if the surfaces with which it comes in contact are thoroughly cleaned just before assembly to remove all loose foreign material. Lubrication and additional cleaning should be provided by brushing both the gasket and the plain end with soapy water or pipe lubricant. Slide the PVC Grip on the plain end, followed by the MJ gasket.



STEP 2

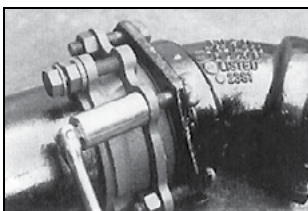
After insertion of the pipe into the bell of the fitting firmly press the gasket into the gasket recess. During this process the joint should be kept straight.



STEP 3

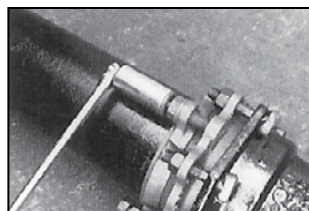
Slide the PVC Grip toward the MJ bell with the gland lip against the gasket. Insert T-bolts and hand tighten nuts.

IMPORTANT: Make deflection after joint is assembled but before tightening T-bolts.



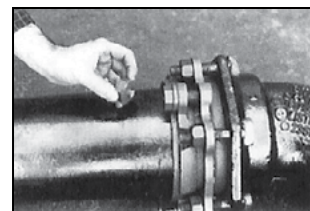
STEP 4

When tightening bolts, it is essential that the gland be brought up toward the bell flange evenly, maintaining approximately the same distance between the gland and the face of the flange at all points around the socket. All T-bolts should be tightened until they are within the torque range per ANSI/AWWA C600 (See table A below). T-Bolts should be tightened alternately on opposite sides (Star Pattern).



STEP 5

After correct assembly of the mechanical joint, tighten each torque limiting bolt by turning approximately 180 degrees in a clockwise direction, alternating between bolts on opposite sides (Star Pattern), until the break away heads twist off. Never turn a single head over 180 degrees without alternating to another bolt.



STEP 6

If removal is necessary, utilize the 1 1/4" hex head provided. [If reassembly is required, assemble the joint in the same manner as above and tighten the wedge bolt to 90 ft-lbs].

(TABLE A) T-HEAD BOLT & NUT DETAILS		
PIPE SIZE (IN)	BOLT SIZE (IN)	RANGE ¹ OF TORQUE (FT-LBS)
3	5/8	45-60
4-16	3/4	75-90

¹These torque ranges are requirements of AWWA C600

Notes:

- Not to be used on DI or steel pipe.

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