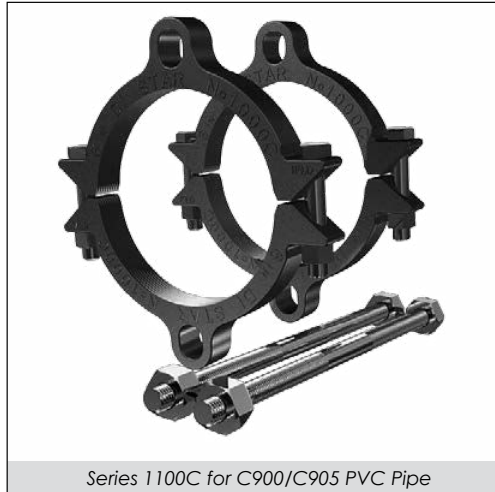




# Pipe Restrainers series 1100

1100C Bell Restrainers for AWWA C900/C905 PVC Pipe  
and 1100S Bell Joint for IPS PVC Pipe



Series 1100C for C900/C905 PVC Pipe

## INFORMATION

PVC Restrainers for restraining pipe and PVC pipe bell joints. These restrainers work in any type of soil for a guaranteed joint restraint with rated pressure as listed below.

PVC restrainers can be installed on new or existing systems, totally eliminating the use of thrust blocks. These restrainers have internal serrations that lock onto the pipe and give 360° contact and support the pipe wall. Restraint devices may be used with any type of PVC piping system.

**Can be Installed on New  
or Existing Systems**

## FEATURES & ADVANTAGES

- 360° contact, no pipe distortion or point loading
- Made of Ductile Iron - ASTM Grade 536, Grade 65-45-12
- Restrainers work with Push-On Pipe Bells.
- All restrainers are machined to exact tolerances.
- Rated pressures carry a 2:1 safety factor.
- Can be installed outside the trench, to ease installation
- T-Bolts/Rods/Hex Nuts: low alloy steel per ANSI/AWWA C111/A21.11
- Clamping Bolts: SAE J429 Grade 5
- Series 1100C is approved by Factory Mutual Research in sizes 4"-6" for use on C900 PVC DR18, for 150 PSI.
- Available in sizes 4"-48"
- Standard color is Graphite Black (RAL 9011).
- Casting halves for IPS PVC pipe color is Moss Green (RAL 6005).



1100C on pipe bell

## STANDARDIZED PRESSURE RATINGS\*\*

ANSI/AWWA C900 CI OD		ANSI/AWWA C905 CI OD		ASTMD2241 IPS OD	
DR 14	200 PSI	DR 18	235 PSI	SDR 17	250 PSI
DR 18	150 PSI	DR 21	200 PSI	SDR 21	200 PSI
DR 25	100 PSI	DR 25	165 PSI	SDR 26	160 PSI
		DR 32.5	125 PSI		

\*\*For ordinary water works with transient surges only. Ratings are for PVC pipes with SERIES 1000 Restrainer.

## SAMPLE SPECIFICATIONS

PVC restraint devices shall be manufactured of high strength ductile iron in accordance to ASTM A536 Grade 65-45-12 for all sizes. Internal serrations will be machined to provide exact tolerances to provide 360° contact and support of the pipe wall. PVC Restraint devices shall have a safety factor of 2:1 over the pressure rating.

JRCAT14.01



® REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

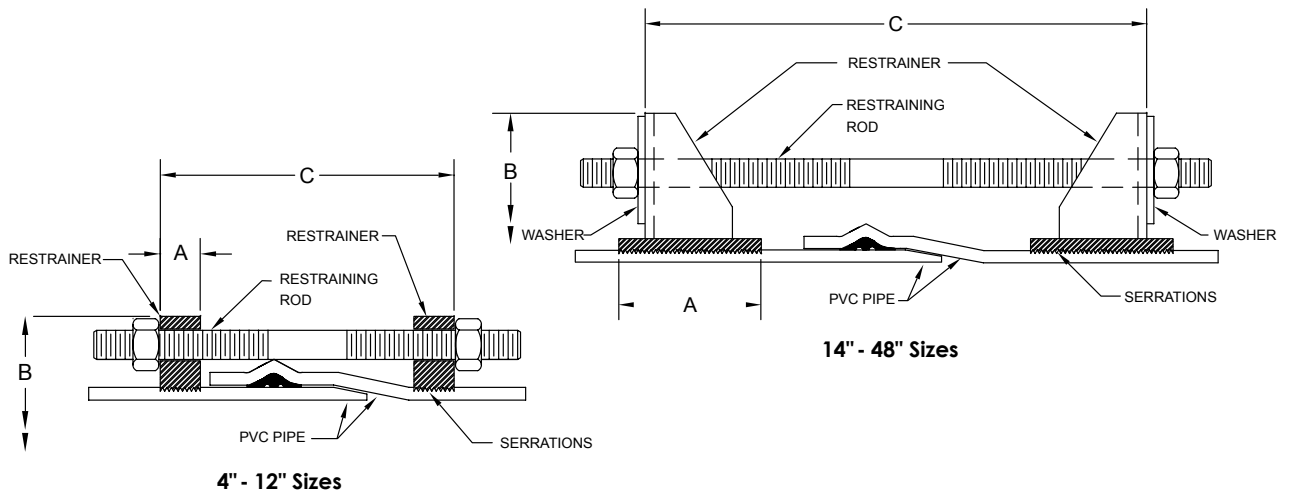
STAR® PIPE PRODUCTS  
HOUSTON CORPORATE | TOLL FREE 1-800-999-3009 | FAX 281-558-9000  
www.starpipeproducts.com



# Pipe Restrainers series 1100

1100C Bell Restrainers for AWWA C900/C905 PVC Pipe  
and 1100S Bell Joint for IPS PVC Pipe

## TECHNICAL INFORMATION



PIPE RESTRAINERS 1100 SPECIFICATIONS*										
NOM. SIZE	PVC PIPE WITH DUCTILE IRON PIPE O.D. STYLE 1100C	PVC PIPE WITH STEEL PIPE O.D. STYLE 1100S	A	B APPROX.	C MAX.	RESTRAINT BOLTS/RODS		CLAMPING BOLTS		APPROX WT. (LBS)
	O.D.	O.D.				QTY	SIZE	QTY	SIZE	
4	4.80	4.50	1.12	9.12	12.00	2	3/4 x 17	4	5/8 x 3 1/2	16
6	6.90	6.63	1.15	11.12	13.00	2	3/4 x 17	4	5/8 x 3 1/2	20
8	9.05	8.63	1.47	14.75	15.00	2	3/4 x 17	4	3/4 x 4	32
10	11.10	10.75	1.38	16.82	16.00	4	3/4 x 24	4	7/8 x 5	52
12	13.20	12.75	1.42	19.46	18.00	4	3/4 x 24	4	7/8 x 5	56
14	15.30	N/A	4.00	22.68	24.00	6	3/4 x 30	8	7/8 x 7	150
16	17.40	N/A	3.75	24.65	28.00	6	3/4 x 30	8	7/8 x 6 1/2	117
18	19.50	N/A	4.25	26.65	28.00	8	3/4 x 30	8	7/8 x 6 1/2	147
20	21.60	N/A	5.00	28.88	28.00	8	3/4 x 36	8	1 1/8 x 8 1/2	206
24	25.80	N/A	5.00	33.98	34.00	12	3/4 x 36	8	1 1/8 x 8 1/2	265
30	32.00	N/A	7.00	42.48	38.00	12	1 x 48	12	1 1/8 x 6	492
36	38.30	N/A	7.00	48.61	38.00	12	1 x 48	12	1 1/8 x 6	561
42	44.50	N/A	11.00	57.00	46.00	16	1 1/4 x 54	12	1 1/2 x 10	1916
48	50.80	N/A	11.00	63.88	46.00	16	1 1/4 x 54	12	1 1/2 x 10	2242

\*All dimensions in inches except where indicated.





# Pipe Restrainers series 1100

1100C Bell Restrainers for AWWA C900/C905 PVC Pipe  
and 1100S Bell Joint for IPS PVC Pipe

## INSTALLATION INSTRUCTIONS (SERIES 1100 4"-12")



STEP 1

Assemble the spigot end of first pipe into the pipe bell using standard procedure per pipe manufacturer.



STEP 2

Assemble one restrainer behind the bell of pipe and evenly tighten the restrainer clamping bolts to the recommended torque. Then insert one of the provided restraint rods through one of the restrainer holes. Mark a line about 1" away from the end of the rod and towards the end of the bell as shown. Assemble the second restrainer even with the mark on the spigot end of pipe. Use one of the provided restraining rods as a guide to align restraint holes. Tighten restrainer clamping bolts to the recommended torque on the second restrainer after it is aligned with the first one (see Table B).



STEP 3

Insert the restraining rods through the restrainers as shown. Snug tighten the remaining nuts behind each restraint so that the spigot end is secured into the bell end.

**Caution: Do not over-tighten the restrainer nuts. Turn nut to hand tight plus half turn.**

## INSTALLATION INSTRUCTIONS (SERIES 1100 14"- 48")



STEP 1

Assemble the spigot end of first pipe into the pipe bell using standard procedure per pipe manufacturer.



STEP 2

Assemble one restrainer behind the bell of pipe and evenly tighten the restrainer clamping bolts to the recommended torque. Then insert one of the provided restraint rods through one of the restrainer holes. Mark a line about 1" away from the end of the rod and towards the end of the spigot as shown. Assemble the second restrainer even with the mark on the spigot end of pipe. Use one of the provided restraining rods as a guide to align restraint holes. Tighten restrainer clamping bolts to the recommended torque on the second restrainer after it is aligned with the first one.



STEP 3

Assemble the second restrainer even with the mark on the spigot end of pipe. Use one of the provided restraining rods as a guide to align restraint holes. Tighten clamping bolts to the recommended torque (see Table B) on the second restrainer after it is aligned with the first one.



STEP 4

Insert the restraining rods through the restrainers as shown. Snug tighten the remaining nuts behind each restraint so that the spigot end is secured into the bell end.

**Caution: Do not over-tighten the restrainer nuts. Turn nut to hand tight plus half turn.**

(TABLE B) CLAMPING BOLTS RECOMMENDED TORQUE

PIPE SIZE (IN)	RANGE OF TORQUE (FT-LBS)
4-12	90-110
14-16	150-200
18	175-225
20	200-250
24-36	225-275
42-48	300-350

