

Series 2248, restraining a 48 inch plain end PVC pipe to a ductile iron mechanical joint fitting.

### Features and Applications:

- **Sizes 30 through 48 inch**  
For smaller sizes see individual brochures for:  
**Series 2000PV**  
Mechanical Joint Restraint  
**Series 2500**  
Restraint for C905 PVC Pipe at PVC Fittings  
**Series 2800**  
Bell Restraint Harness for C905 PVC Pipe
- **MEGA-BOND®**  
Restraint Coating System
- **Constructed of ASTM A536 Ductile Iron**
- **Heavy duty thick wall design**
- **The Restraint Gland is separate from the mechanical joint follower gland**

## Support Products

More information on these products can be found inside this brochure

### Series 2500

Restraint for C905 PVC Pipe at PVC Fittings

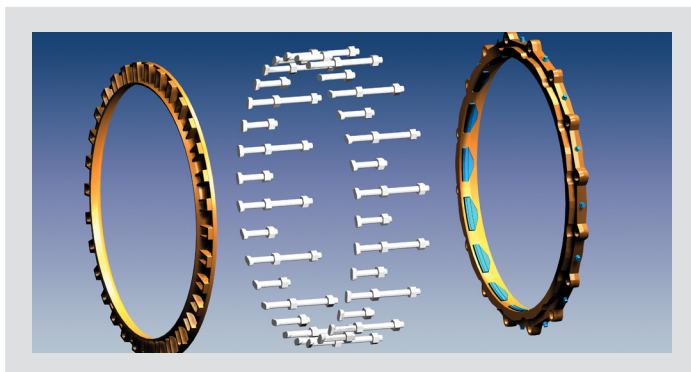
### Series 2800

Bell Restraint Harness for C905 PVC Pipe

For use on water or wastewater pipelines subject to hydrostatic pressure and tested in accordance with either AWWA C600, C605 or ASTM D2774.

### Sample Specification

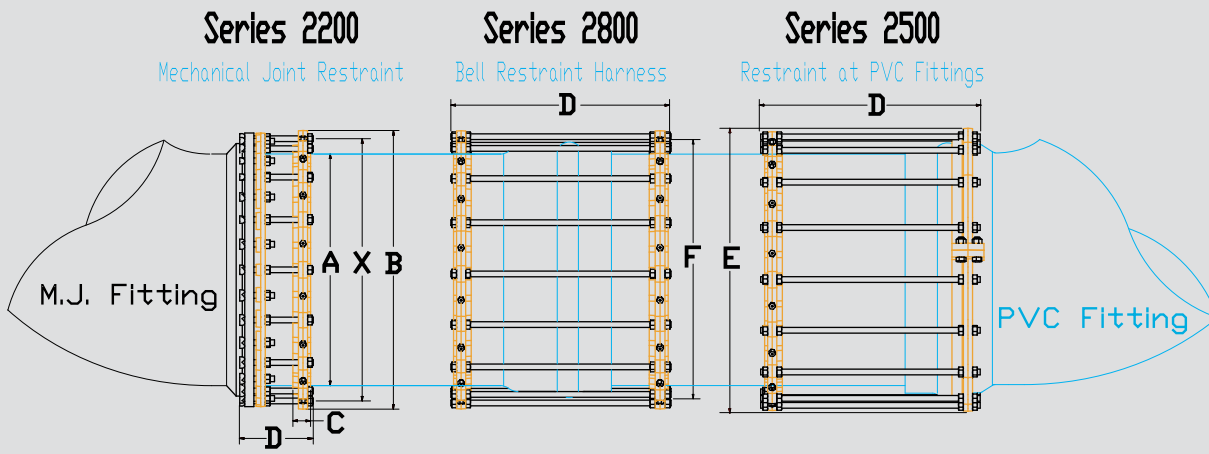
Restraint for large PVC pipe ( $\geq 30$  inch), at mechanical joint fittings, shall consist of the following: The restraint ring and mechanical joint gland ring shall be manufactured of ductile iron conforming to ASTM A536. The restraint devices shall be coated using MEGA-BOND®. (For complete specifications on MEGA-BOND visit [www.ebaa.com](http://www.ebaa.com).) The gland ring shall be used to create the seal at the mechanical joint. The seal shall be the EBAA-Seal™ Improved Mechanical Joint Gasket. A restraint ring, incorporating a plurality of individually-actuating gripping surfaces, shall be used to grip the pipe, and a sufficient number of bolts shall be used to connect the gland ring and the gripping ring. The combination shall have a working pressure rating equal to that found in the most current product brochure. The restraint shall be the Series 2200, as manufactured by EBAA Iron, Inc., or approved equal.



# Submittal Reference Drawing

EBAA IRON

MADE IN USA



## Submittal Reference Drawing Dimensions

Nominal Pipe Size	Series Number	A Maximum Pipe OD	B Max. Restraint OD* (Casing Clearance)	C Minimum Restraint Width	D Maximum Thrust Bolt Length	E Clamp OD** (Casing clearance)	F Maximum Bell Clearance	X Maximum Bolt Hole Circle***	Bolt Qty.
	2230	32.0	39.12	3.45	15	-	-	36.88	10
30	2530	32.0	42.88	3.45	28	42.88	39.25	40.50	10
	2830	32.0	42.88	3.45	32	-	39.25	40.50	10
	2236	38.3	46.00	3.45	15	-	-	43.75	12
36	2536	38.3	49.76	3.45	28	49.76	46.13	47.38	12
	2836	38.3	49.76	3.45	32	-	46.13	47.38	12
	2242	44.5	54.12	3.88	15	-	-	51.52	14
42	2542	44.5	54.12	3.88	48	59.52	49.00	51.52	14
	2842	44.5	54.12	3.88	48	-	49.00	51.52	14
	2248	50.8	61.08	3.88	15	-	-	58.45	16
48	2548	50.8	61.08	3.88	48	66.53	56.00	60.00	16
	2848	80.8	61.08	3.88	48	-	56.00	58.45	16

All dimensions are in inches ( $\pm 1\%$ ), and are subject to change without notice.

\*As installed with nuts twisted off. Does not include bell clamp if applicable.

\*\* Bell clamp O.D. Including clamp's bolt flanges.

\*\*\* Restraining ring's bolt hole centers.

## Pressure Ratings (PSI) and Weights (lbs)

Nominal Pipe Size	Series Number	Shipping Weights (lbs)	AWWA C905 Cast Iron O.D.						Series 2800: 30 and 36 inch utilize one restraint ring on the plain end and one bell ring behind the bell.  42 and 48 inch utilize two restraint rings, one on the plain end and one behind the bell.
			DR14 Class 200	DR21 Class 200	DR25 Class 165	DR32.5 Class 125	DR41 Class 100	DR51 Class 80	
	2230	309.1	150 <sup>†</sup>	165	165	125	100	80	
30	2530	364.4	-	-	-	-	-	-	
	2830	466.1	150 <sup>†</sup>	-	165	125	100	80	
	2236	398.5	-	-	165	125	100	80	
36	2536	471.0	-	-	-	-	-	-	
	2836	457.0	-	-	125	125	100	80	
	2242	652.0	-	-	-	125	100	80	
42	2542	921.4	-	-	-	125	100	80	
	2842	900.0	-	-	-	125	100	80	
	2248	711.1	-	-	-	125	100	80	
48	2548	1056.0	-	-	-	125	100	80	
	2848	954.0	-	-	-	125	100	80	

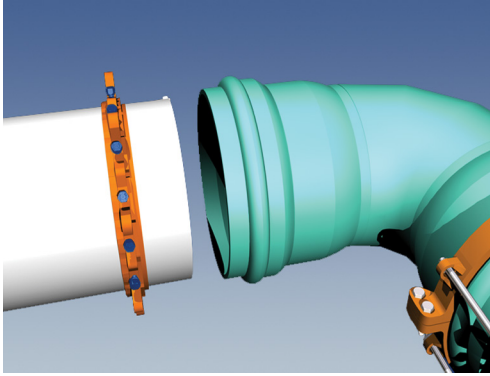
NOTE: For applications or pressures other than those shown, please contact EBAA for assistance.

<sup>†</sup>For higher pressures a tandem restraint is available. Contact EBAA for details.

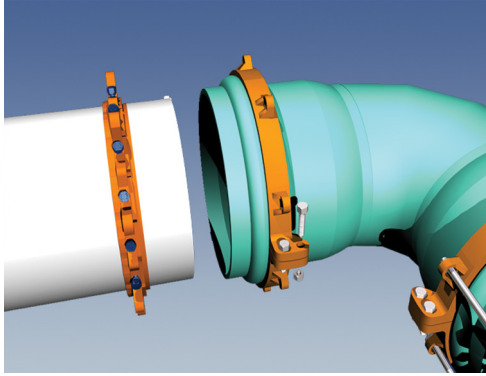
# Series 2500

## Installation Instructions

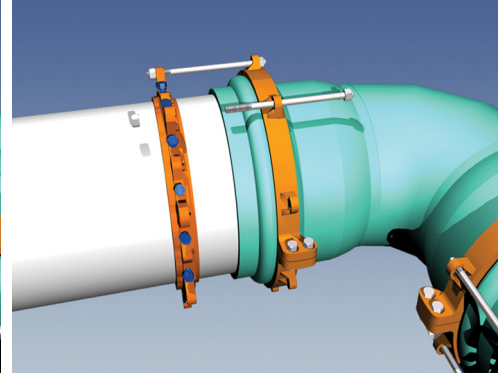
### Restraint for C905 PVC Pipe at PVC Fittings



1. Slide the spigot restraint onto the end of the pipe with the lip or the wording "This Side Toward Bell" facing the end of the pipe. Do not tighten the restraint wedges at this time.

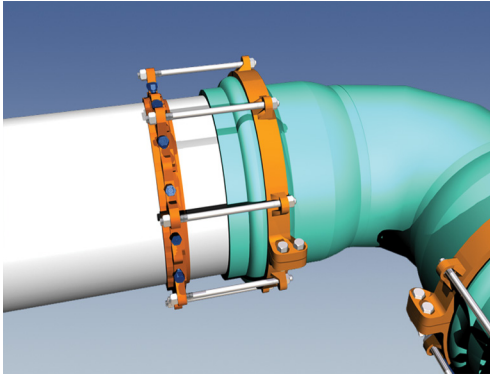


2. Install the backup ring on the fitting bell behind the gasket race as shown. Install the clamp bolts and tighten to 50 ft-lbs. Keeping an equal gap on both sides.



3. Assemble the pipe and fitting joint according to the manufacturer's instructions.

Install the thrust bolts.  
Thread a nut onto each bolt until there are several threads showing.

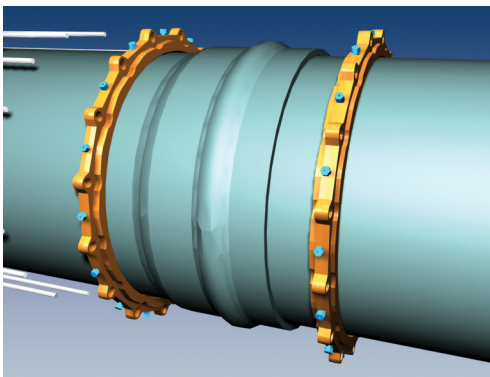


4. Pull the restraint ring away from the joint until the slack is removed from the thrust bolts. Hand tighten the actuating screws on the restraint ring until all wedges are touching the pipe. Continue tightening the screws in an alternating manner until the torque limiting heads twist-off. Tighten thrust bolts evenly until snug being careful not to pull the spigot further into the bell.

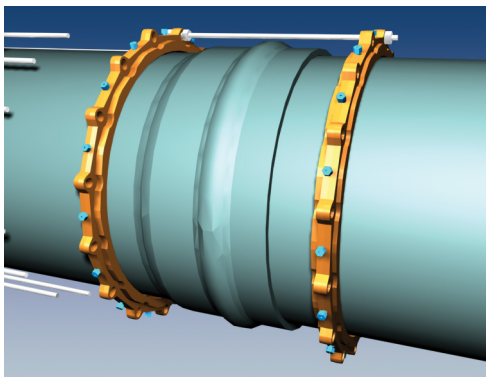
# Series 2800

## Installation Instructions

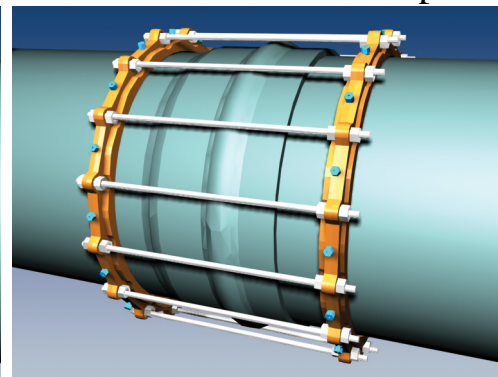
### Bell Restraint Harness for C905 PVC Pipe



1. Slide one of the uni-directional restraint rings along the length of the PVC pipe until 2-3 inches from bell. Make sure the lettering on the restraint ring that says "This Side Toward Bell" faces the bell. Slide the remaining restraint ring on the spigot end, again with the lettering facing the bell in which the spigot end will be inserted into.

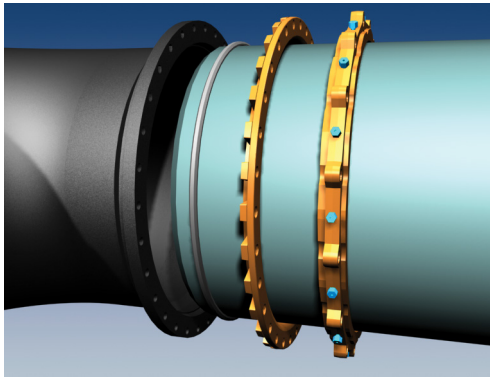


2. Assemble the pipe joint per the pipe manufacturer's instructions.
3. Run one hex nut onto each end of the connecting rod about 3-4 inches. Install the rods into the provided bolt holes of the restraint rings. Thread the remaining hex nuts onto the connecting rods until about 1-2 threads are showing. Run up the inside hex nuts onto the restraint rings then tighten the hex nuts securely.

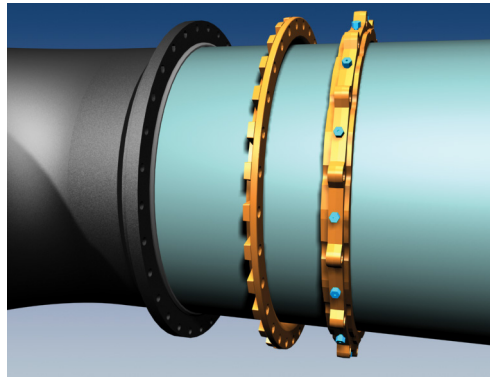


4. Hand tighten the actuating screws until all wedges are touching the pipe. Continue to tighten the screws in an alternating manner until torque limiting heads twist-off.

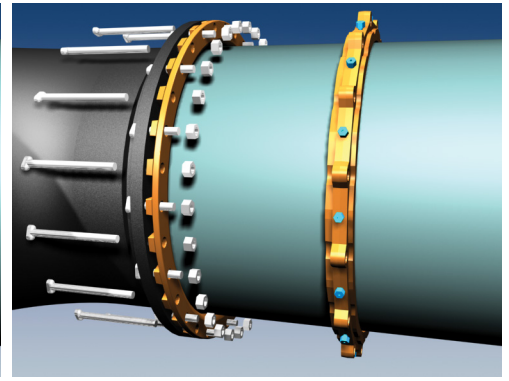
# Installation Instructions for Series 2200



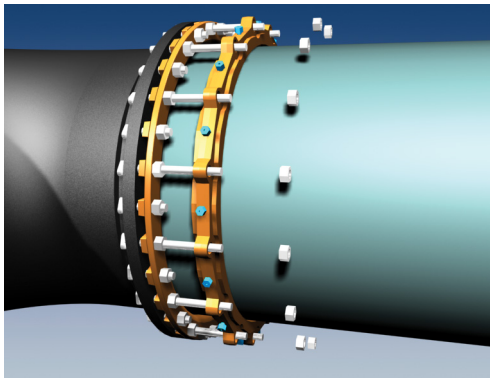
1. The 2200 is for use with PVC pipe. Clean the socket and the plain end. Lubrication and additional cleaning should be provided by brushing both the gasket and the plain end with soapy water or approved pipe lubrication meeting the requirements of ANSI/AWWA C111/A21.11, just prior to slipping the gasket onto the plain end for joint assembly. Place the uni-directional restraint ring on the plain end first with the lettering "This Side Toward Bell" facing the Mechanical Joint. Followed by the mechanical joint gland with the lip extension toward the plain end. The gasket goes on the plain end last.



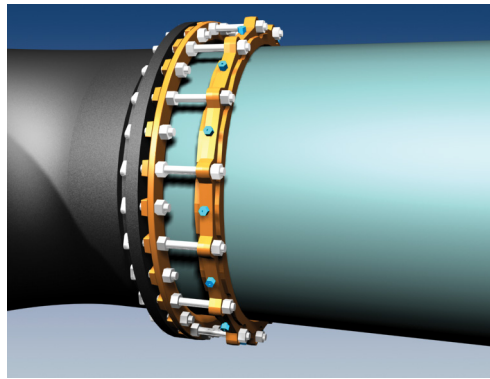
2. Insert the pipe into the socket and press the gasket firmly and evenly into the gasket recess. Keep the joint straight during assembly.



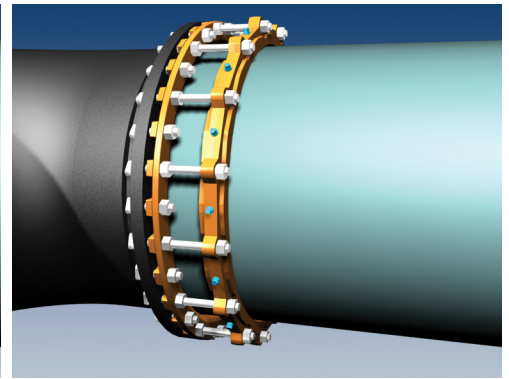
3. Push the Mechanical Joint Gland toward the socket and center it around the pipe with the gland lip against the gasket. Using the shorter T-Bolts supplied, insert bolts in to every other bolt hole and hand tighten Hex Nuts. Using the longer T-Bolts supplied, insert them in the remaining bolt holes. Run the Hex Nuts up and hand tighten them against the Mechanical Joint Gland. Slide the Restraint Ring into position so that the longer T-Bolts pass through the Restraint Ring's bolt holes. Run the remaining Hex Nuts up against the Restraint Ring until 1-2 threads are showing. Make deflection after joint assembly but before tightening bolts.



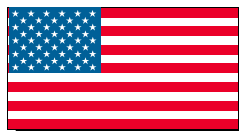
4. Tighten the Hex Nuts on the Mechanical Joint Gland (NOT the Restraint Ring Hex Nuts) to the normal range of bolt torque (120-150 ft-lbs for 42" and 48") while at all times maintaining approximately the same distances between the Mechanical Joint Gland and the face of the flange at all points around the socket. This can be accomplished by partially tightening the bottom bolt first, then the top bolt, next the bolts at either side, finally the remaining bolts. Repeat the process until all bolts are within the appropriate range of torque. The use of a torque indicating wrench in combination with an open end wrench will facilitate this procedure.



5. Inspect Restraint Ring for squareness with pipe and that it is still in full contact with all Hex Nuts on the longer T-Bolts. Tighten the torque limiting twist off nuts, on the Restraint ring, in a clockwise direction (direction indicated by arrow on top of nut) until all wedges are in firm contact with the pipe surface. Continue tightening in an alternating manner until all of the nuts have been twisted off.



6. If removal is necessary, utilize the 5/8" hex heads provided. If reassembly is required, assemble the joint in the same manner as above, tighten the wedge actuating screws to 60 - 80 ft-lbs. If the Series 2200 restraint is removed from the pipe, be sure that all of the screws and wedges are in place before the restraint is reassembled.



Members of...  
**AFS**  
AMERICAN FOUNDRY SOCIETY

**EBAA IRON Sales, Inc.**

P.O. Box 857, Eastland, TX 76448

Tel: (254) 629-1731

Fax: (254) 629-8931

(800) 433-1716 within US and Canada

contact@ebaa.com

www.ebaa.com