

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

### Features and Applications:

- **Sizes 30 through 54 inch**  
For smaller sizes see individual brochure:  
**Series 2000PV**  
Mechanical Joint Restraint
- **MEGA-BOND®**  
Restraint Coating System
- **Constructed of ASTM A536 Ductile Iron**
- **Restraint Ring, Follower Gland, Gasket, and all bolts included**
- **Heavy duty thick wall design**
- **The Restraint Gland is separate from the mechanical joint follower gland**

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

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

Nominal Pipe Size	Series Number	Shipping Weights	AWWA C900-16 PVC Pipe					
			DR14	DR21	DR25	DR32.5	DR41	DR51
30	2230	309.1	150†	165	165	125	100	80
36	2236	398.5	-	-	165	125	100	80
42	2242	652.0	-	-	-	125	100	80
48	2248	711.1	-	-	-	125	100	80
54	2254	1,085.6	-	-	150	-	-	-

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

†For higher pressures a tandem restraint is available. Contact EBAA for details.

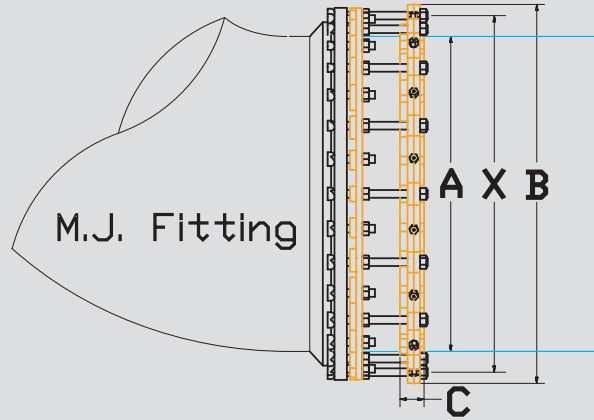
### Sample Specification

Restraint for large diameter AWWA C900-16 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.

A Microsoft® Office Word Document version of this Sample Specification may be downloaded from [www.ebaa.com](http://www.ebaa.com).

# Submittal Reference Drawing

EBAA IRON



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## Submittal Reference Drawing Dimensions

Nominal Pipe Size	Series Number	A Maximum Pipe OD	B Max. Restraint OD* (Casing Clearance)	C Minimum Restraint Width	X Maximum Bolt Hole Circle**	Bolts	
						Short (Quantity - Size)	Long (Quantity - Size)
30	2230	32.00	39.12	3.45	36.88	10 - 1 X 6	10 - 1 X 16†
36	2236	38.30	46.00	3.45	43.75	12 - 1 x 6	12 - 1 x 16†
42	2242	44.50	54.12	3.88	51.52	14 - 1¼ x 6½	14 - 1¼ x 15
48	2248	50.80	61.08	3.88	58.45	16 - 1¼ x 6½	16 - 1¼ x 15
54	2254	57.56	71.00	5.00	68.00	18 - 1¼ x 6½	18 - 1¼ x 15

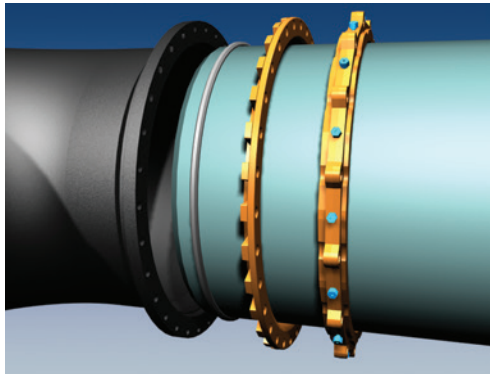
NOTE: All dimensions are in inches (± 1%), and are subject to change without notice.

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

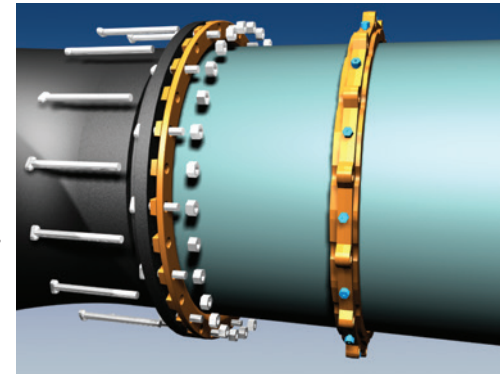
\*\*Restraining ring's bolt hole centers.

†T-Nut and All Thread Rod

## Installation Instructions for Series 2200



after joint assembly but before tightening bolts.



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 unidirectional 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.

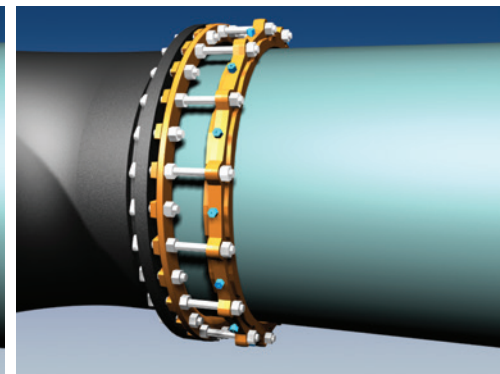
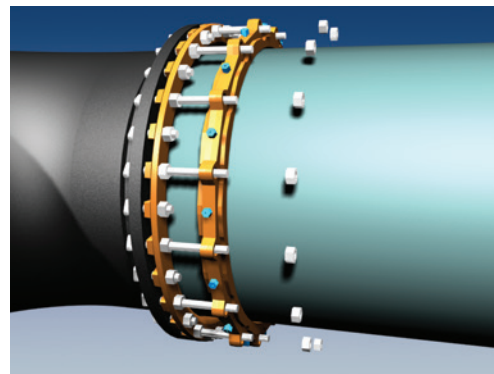
2. Insert the pipe into the socket and press the gasket firmly and evenly into the gasket recess. Keep the joint straight during assembly.

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

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.



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