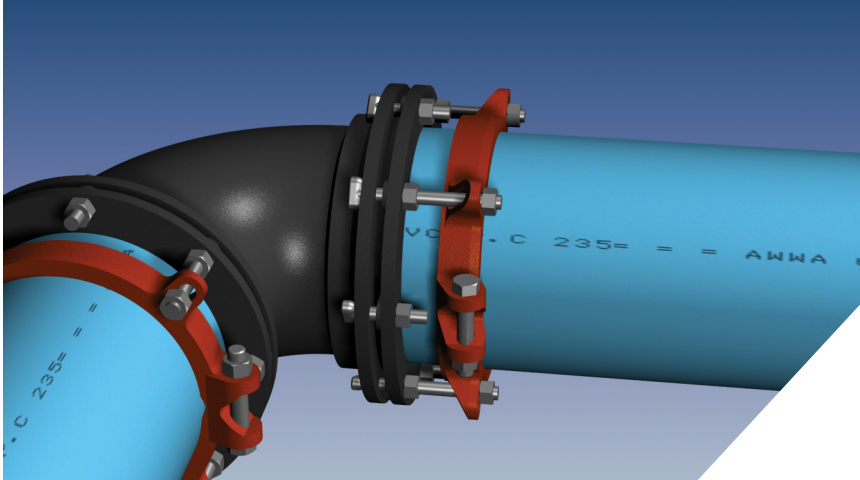


Patent Pending

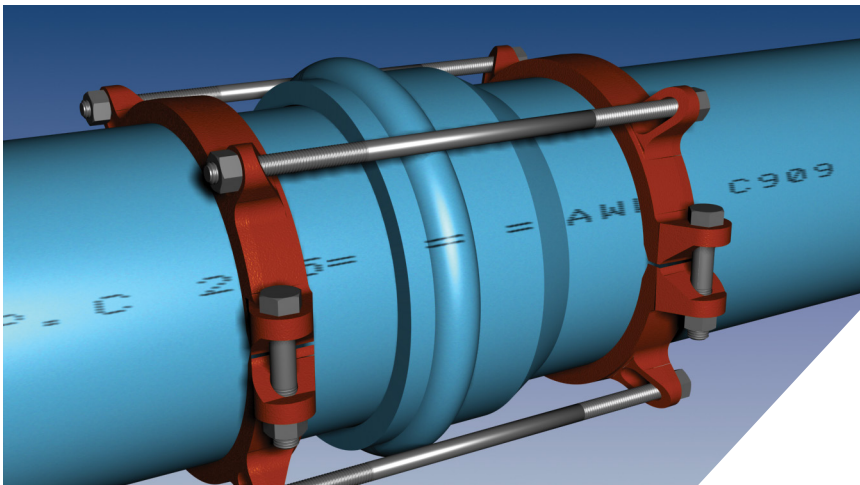
## Series 19MJ00

Mechanical Joint Restraint for 4 through 12 inch C909 PVC



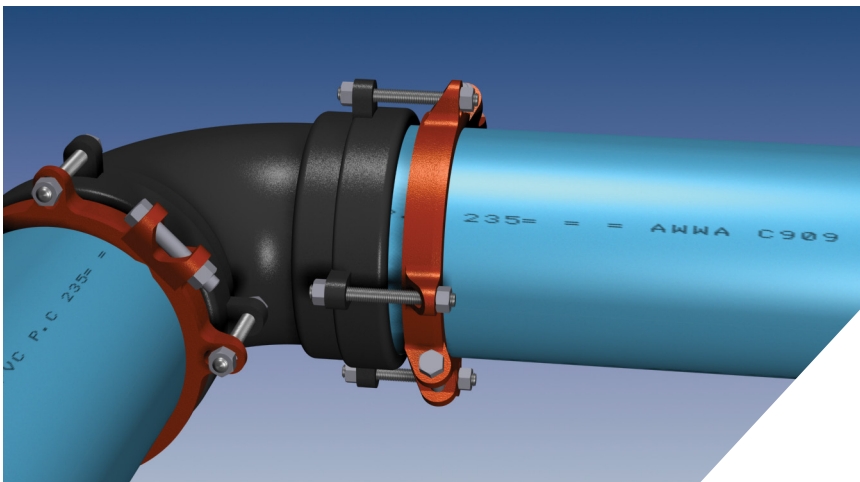
## Series 1900

Restraint Harness for 4 through 12 inch C909 PVC



## Series 19PF00

Restraint at Ductile Iron Fittings for 4 through 12 inch C909 PVC



### Features and Applications:

- For use on AWWA C909 PVC
  - Sizes 4 inch through 12 inch (for size 16 see further in brochure)
  - Rated to the Full Pressure of the Pipe
  - Minimum 2 to 1 Safety Factor
  - Split Serrated Restraint Rings for ease of installation
  - **MEGA-BOND®** Restraint Coating System
  - Constructed of ASTM A536 ductile iron
- For use on water and wastewater pipelines subject to hydrostatic pressure and tested in accordance with either AWWA C600 or ASTM D2774.

### Sample Specification

Restraint for AWWA C909 PVC Pipe shall consist of the following: The restraint shall be manufactured of ductile iron conforming to ASTM A536. The restraint devices shall be coated with MEGA-BOND. (For complete specifications on MEGA-BOND visit [www.ebaa.com](http://www.ebaa.com).) The combination of the restraint(s) and fasteners shall have a pressure rating to the full pressure rating of the pipe. The restraint shall have a two to one safety factor.

### Restraint at Ductile Iron Fittings:

A split serrated ring shall be used to grip the plain-end of the pipe, a sufficient number of bolts shall connect the restraint ring to the ductile iron fitting. The restraint for mechanical joint fittings shall be the Series 19MJ00. The restraint for push-on fittings with restraining ears shall be the 19PF00.

### Restraint Harness:

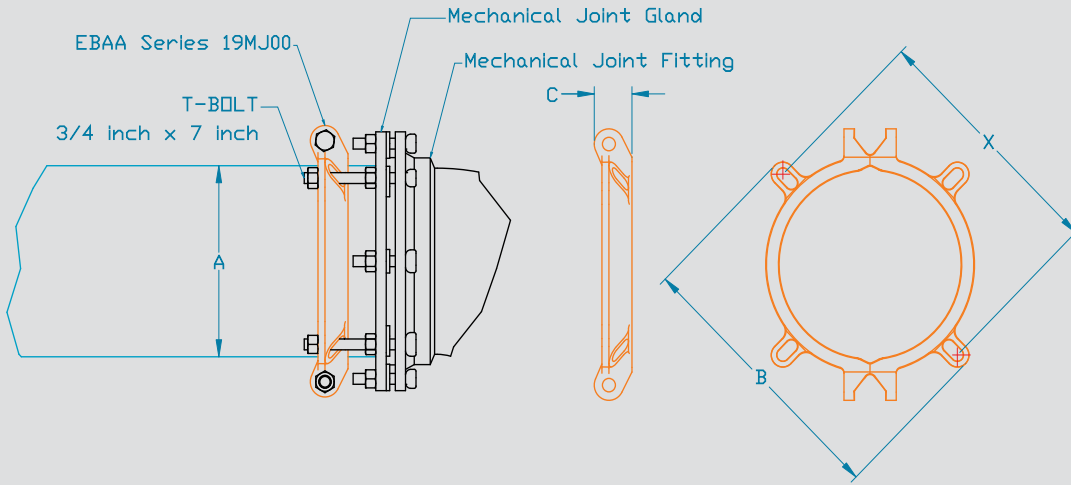
A split serrated ring shall be used to grip the plain-end of the pipe. A split serrated ring shall also be used to grip the barrel of the pipe behind the bell, and a sufficient number of bolts shall be used to connect the restraint rings. The combination shall be the Series 1900.

All Series manufactured by EBAA Iron, Inc., or approved equal.

# Series 19MJ00 Submittal Reference Drawing

EBAA IRON

MADE IN USA



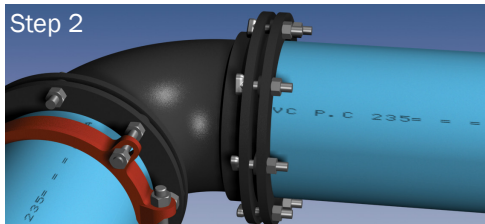
Nominal Pipe Size	Series Number	Pressure Rating*	Approximate Shipping Weight	A Pipe O.D.	B Max. Restraint O.D. (casing clearance)	C Restraint Ring Width	* Thrust Bolt Quantity	X Thrust Bolt Circle (Min. - Max.)
4	19MJ04	235	11.27	4.80	9.20	2.04	2	7.5
6	19MJ06	235	13.57	6.90	11.20	2.04	2	9.5
8	19MJ08	235	17.77	9.05	14.70	2.04	4	11.32 - 12.99
10	19MJ10	235	35.06	11.10	16.61	2.70	4	14.00 - 14.94
12	19MJ12	235	40.86	13.20	19.33	2.70	4	15.94 - 17.66

NOTE: Dimensions are in inches ( $\pm 1\%$ ) and are subject to change without notice.

\*Derate pressure rating if not all connecting bolts were used.

## Installation Instructions

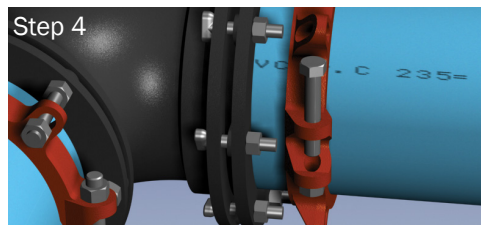
1. Identify the pipe. The Series 19MJ00 is designed for restraining C900 PVC and C909 PVC pipe at ductile iron Mechanical Joint (MJ) fittings with MJ glands (supplied by others). The restraint is a split, serrated ring installed behind the MJ gland. The 19MJ00 utilizes longer t-Bolts than the standard MJ t-Bolt lengths to facilitate the restraint position.



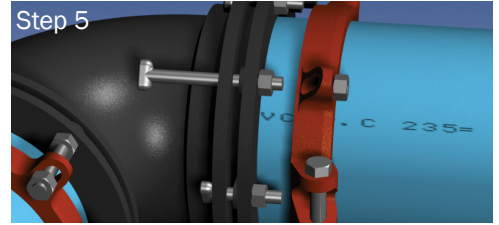
2. Set aside the split restraint and longer bolts and install the MJ gland per AWWA C600. The bolt torques for 4 inch through 12 is 75-90 ft-lbs. The use of a torque-indicating wrench will facilitate the procedure.



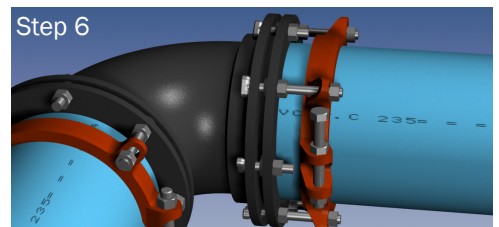
3. Using a longer bolt as a gauge, place one half of the restraint onto the pipe so the bolt holes of the restraint and the MJ gland align. Allow enough room on the longer bolts to fully engage the nuts with several threads showing.



4. Install the second half of the restraint to align with the first. Tapping each half into place may be necessary. Before installing the side bolts double check the position by using the longer bolts as gauges. Make sure the ID of the restraint is touching the pipe. Side bolts are to be evenly tightened to 120 ft-lbs of torque (70 ft-lbs on 4 inch and 6 inch). A torque indicating wrench will help facilitate this.



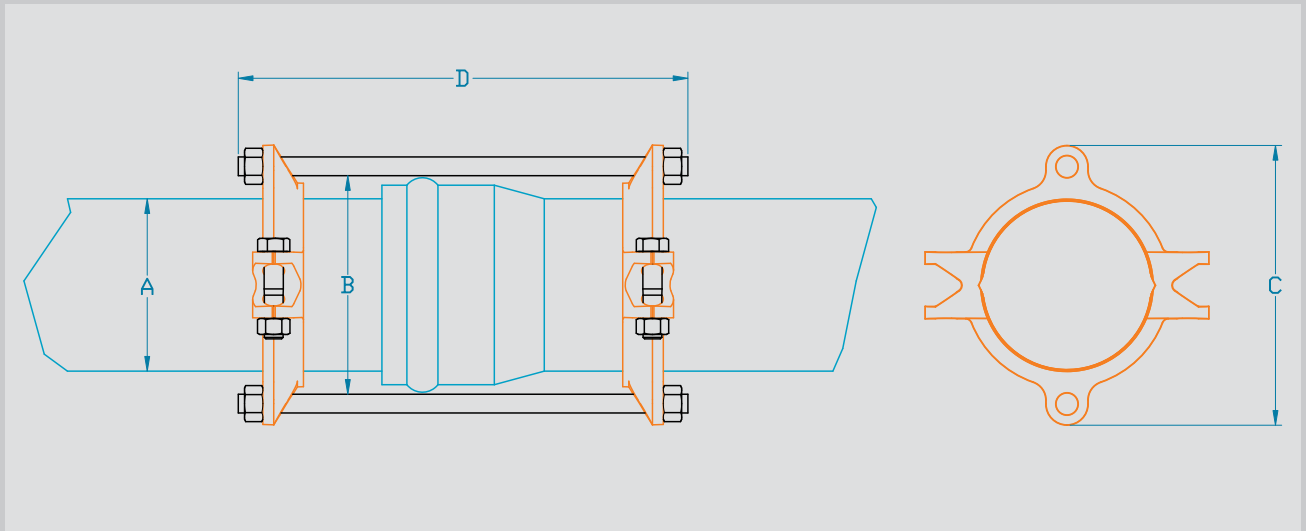
5. Each of the longer bolts should have two nuts: one to tighten against the MJ gland and one to snug up against the restraint ring with a few threads showing. One at a time, remove a shorter bolt that aligns with the restraint bolt hole and replace with the longer bolt, remembering to "run" one nut up to engage against the MJ gland. This nut should be to the same torque as the original one removed (see step 2 for torque values). Do this for all remaining bolts holes of the restraint.



6. Once all bolts are in place and the MJ gland nuts have been retightened to torque, put the remaining nuts on the bolt behind the restraint. Hand tighten the nuts behind the restraint. Do not over tighten the nuts behind the restraint to move the plain-end of the pipe further into the joint.

# Series 1900 Submittal Reference Drawing

EBAA IRON

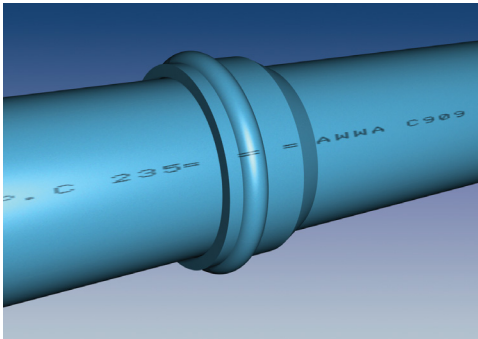


MADE IN USA

Nominal Pipe Size	Series Number	Pressure Rating	Approximate Shipping Weight	A	B	C	D	Thrust Bolt (Number-Size)
				Pipe O.D.	Maximum Bell O.D. Cleared	Max. Restraint O.D. (Casing Clearance)	Overall Length	
4	1904	235	21.52	4.80	6.625	9.20	13	2 - 3/4 x 13
6	1906	235	27.14	6.90	8.625	11.20	18	2 - 3/4 x 18
8	1908	235	39.66	9.05	12.12	14.70	18	4 - 3/4 x 18
10	1910	235	71.82	11.10	14.07	16.61	22	4 - 3/4 x 22
12	1912	235	82.62	13.20	16.79	19.33	22	4 - 3/4 x 22

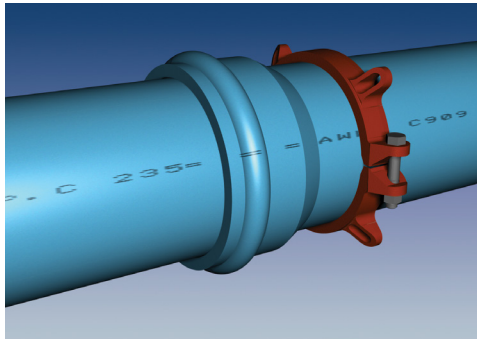
## Installation Instructions

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

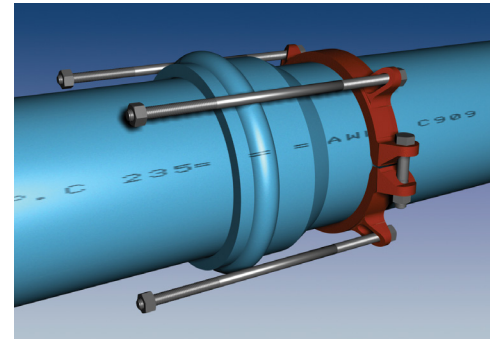


The Series 1900 is designed for restraining push-on PVC pipe bells. It has a split, serrated restraint ring on the spigot and a split serrated ring behind the bell.

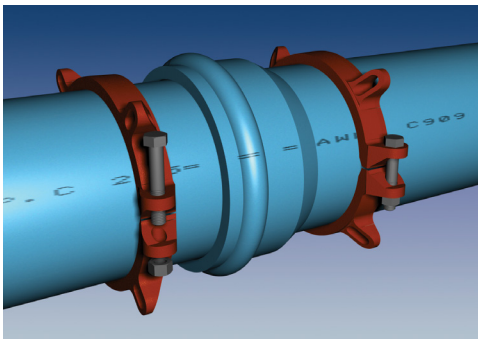
1. Assemble the push-on joint per the pipe manufacturer's instructions.



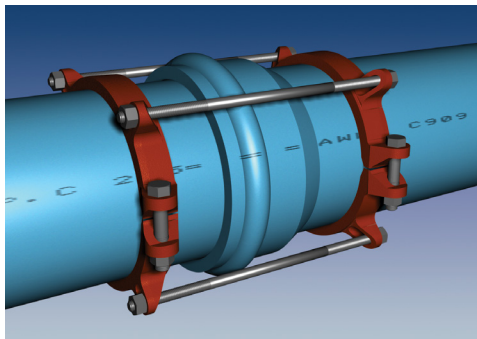
2. Install both halves of the serrated ring around the pipe behind the bell, tapping each half into place. Make sure that the complete ID of the ring is touching the pipe before installing the side bolts. Install the side bolts and tighten evenly to 120 ft-lbs. of torque. (70 ft-lbs on 4 inch and 6 inch)



3. Remove the side bolts from the second serrated restraint ring. Use the Thrust Bolts to determine the proper location of the restraint ring on the spigot. Allow enough room on the thrust bolt to fully engage the nuts.



4. Install both halves of the restraint ring at the proper location, tapping each half into place. Make sure that the complete ID of the ring is touching the pipe before installing the side bolts. Tighten the side bolts evenly to 120 ft-lbs. (70 ft-lbs on 4" and 6")



5. Place nuts on the thrust bolts and hand tighten until they are snug. Allow enough room on the thrust bolts to fully engage the nuts. Do not tighten these bolts enough to force the spigot further into the bell of the joint.



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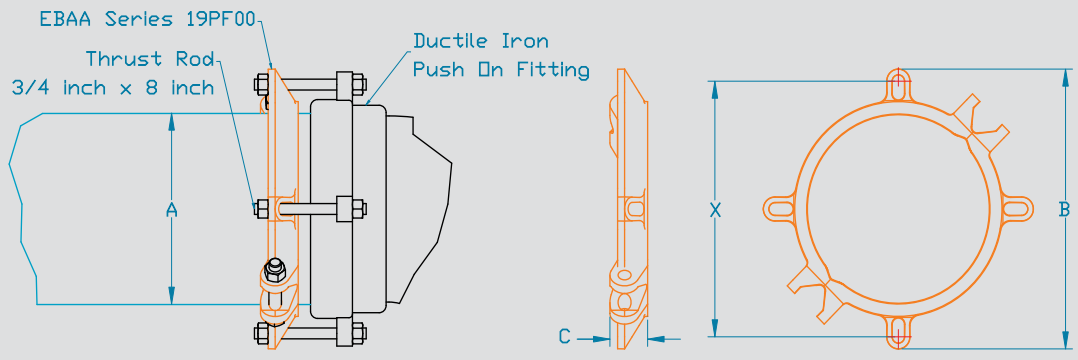
www.ebaa.com



# Series 19PF00 Submittal Reference Drawing

EBAA IRON

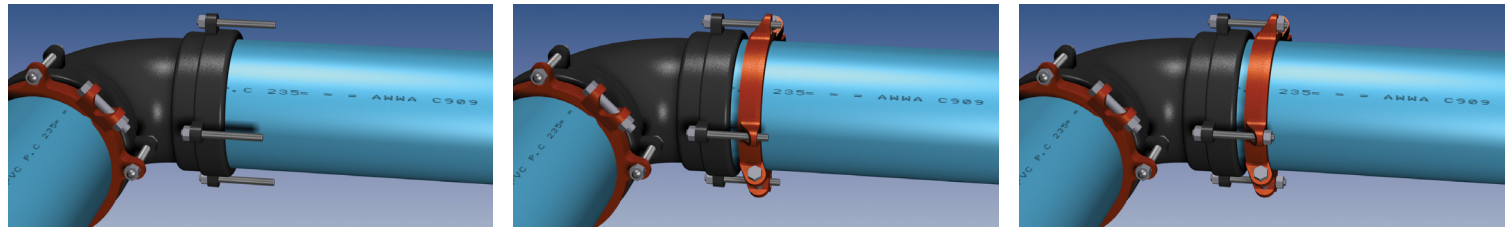
MADE IN USA



Nominal Pipe Size	Series Number	Pressure Rating*	Approximate Shipping Weight	A Pipe O.D.	B Max. Restraint O.D. (casing clearance)	C Restraint Ring Width	* Thrust Bolt Quantity	X Thrust Bolt Circle (Min. - Max.)
4	19PF04	235	11.03	4.80	9.20	2.04	2	7.5
6	19PF06	235	13.33	6.90	11.20	2.04	2	9.5
8	19PF08	235	17.53	9.05	14.70	2.04	4	11.32 - 12.99
10	19PF10	235	34.58	11.10	16.61	2.70	4	14.00 - 14.94
12	19PF12	235	40.38	13.20	19.33	2.70	4	15.94 - 17.66

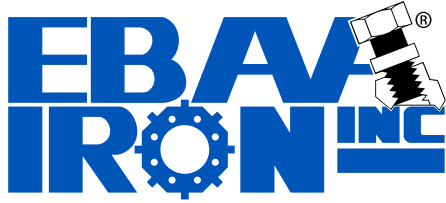
**NOTE:** Dimensions are in inches ( $\pm 1\%$ ) and are subject to change without notice.  
 \*Derate pressure rating if not all connecting bolts were used.

## Installation Instructions



- Assemble joint per the pipe and fitting manufacturer's instructions.
- Using the connecting thrust rods to determine the proper restraint location, install both halves of the restraint by tapping them into place. Allow enough room on the connecting thrust rods to fully engage the nuts with several threads showing. Make sure the ID of the restraint is touching the pipe before installing and tightening of side bolts. Side bolts are to be evenly tightened to 120 ft-lbs of torque (70 ft-lbs on 4 inch and 6 inch). A torque indicating wrench will help facilitate this.
- Tighten the connecting thrust rods until snug; do not over tighten connecting thrust rods as to move the spigot further into the joint.

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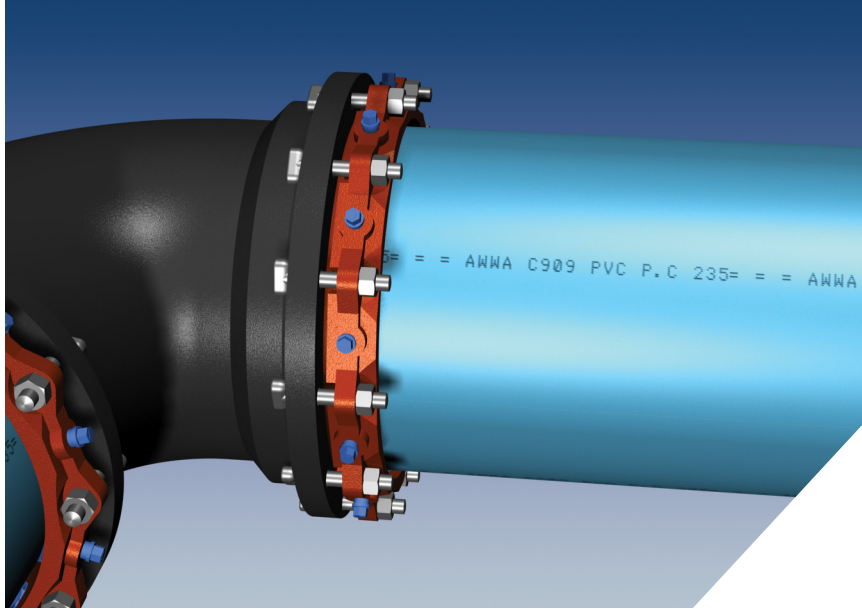


# Restraints for C909 PVC Pipe

Size 16 inch

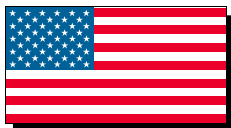
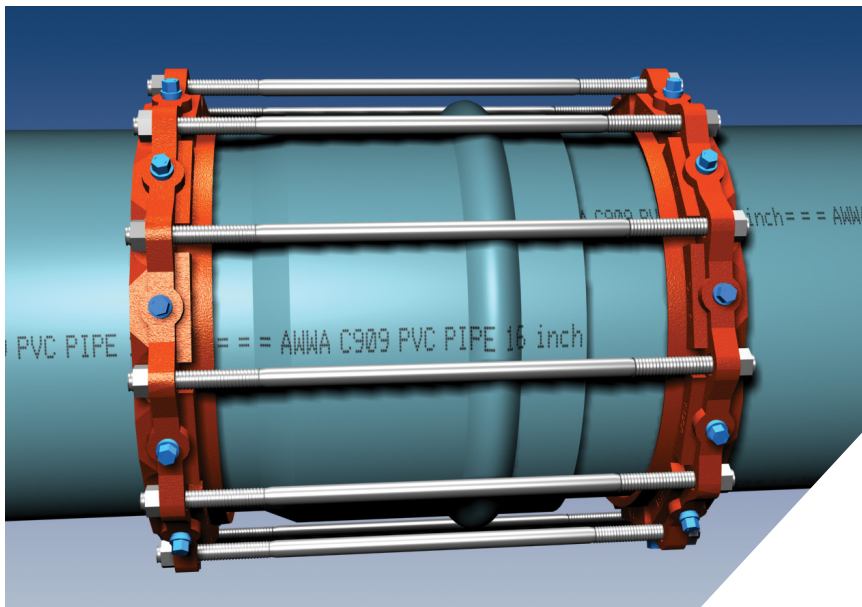
## Series 2016PV

Mechanical Joint Restraint for 16 inch C909 PVC Pipe



## Series 2916

Restraint Harness for 16 inch C909 PVC Pipe



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### Features and Applications:

- For use on AWWA C909 PVC
- Sizes 16 inch
- Rated to the Full Pressure of the Pipe
- Minimum 2 to 1 Safety Factor
- **MEGA-BOND®** Restraint Coating System
- Constructed of ASTM A536 ductile iron

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

### Sample Specification

Restraint for AWWA C909 PVC Pipe shall consist of the following: The restraint shall be manufactured of ductile iron conforming to ASTM A536. The restraint devices shall be coated with MEGA-BOND. (For complete specifications on MEGA-BOND visit [www.ebaa.com](http://www.ebaa.com).) The combination of the restraint(s) and fasteners shall have a pressure rating to the full pressure rating of the pipe. The restraint shall have a two to one safety factor.

### Mechanical Joint Restraint:

Restraint Devices for 16 inch AWWA C909 shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10. The restraint for 16 inch mechanical joint fittings shall be the Series 2016PV.

### Restraint Harness:

Restraint Harnesses for 16 inch AWWA C909 shall consist of two restraint rings incorporating multiple gripping wedges per ring, and a sufficient number of bolts shall be used to connect the restraint rings. The combination shall be the Series 2916.

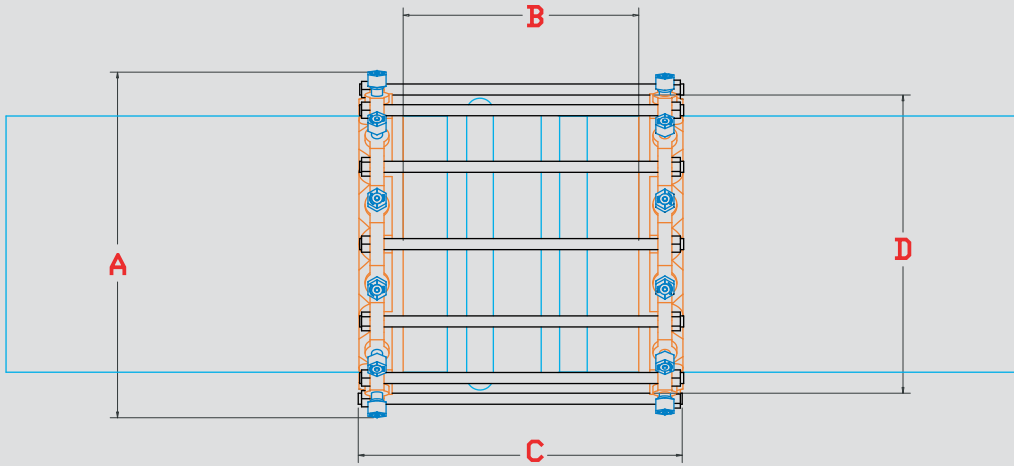
All Series manufactured by EBAA Iron, Inc., or approved equal.

**For additional information regarding the 2016PV, including installation instructions refer to the Series 2000PV Product Brochure found at [www.ebaa.com](http://www.ebaa.com).**

# Series 2916 Submittal Reference Drawing

EBAA IRON

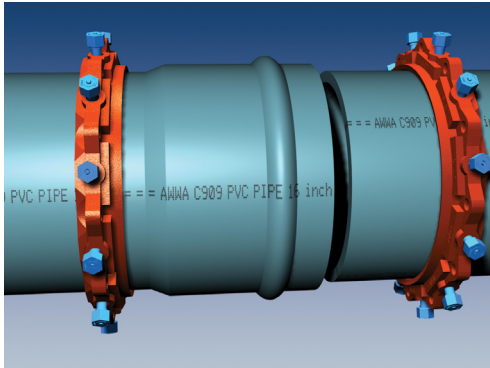
MADE IN USA



Nominal Pipe Size	Series Number	A Maximum Casing O.D. Clearance	B Inside Length	C Overall Length	D Maximum Bell O.D. Clearance	Thrust Bolt (Quantity - Size)
16	2916	23.4	16.0	22.0	20.3	12 - 3/4 x 22

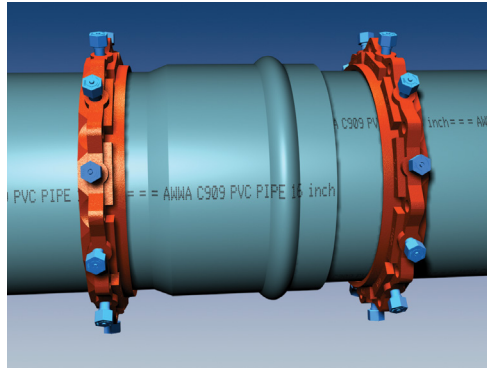
NOTE: Dimensions are in inches and are subject to change without notice.

## Installation Instructions Series 2916

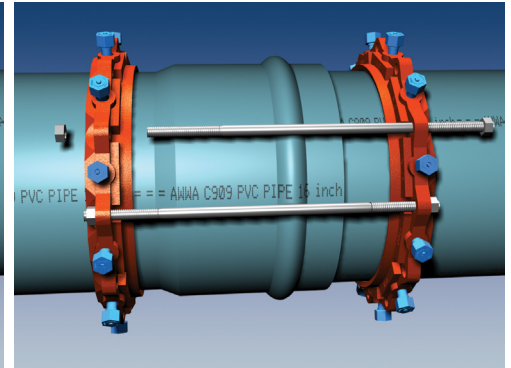


The Series 2916 is designed for restraining AWWA C909 PVC Pipe with push-on bells. It has one restraint ring behind the bell and on the plain end.

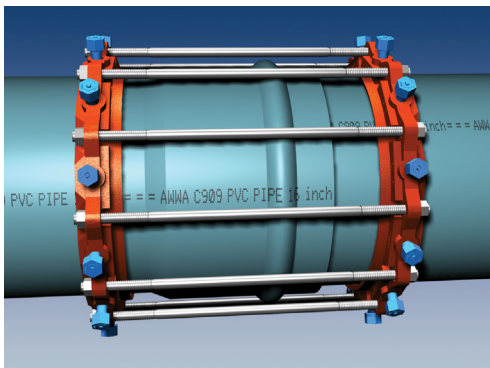
1. With the lip extension toward the bell, slide one restraint ring along the length of pipe toward the bell.



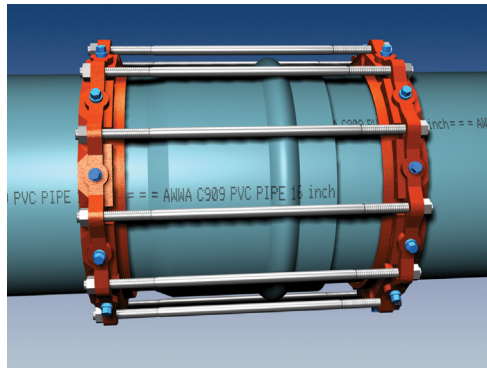
2. Slide the second restraint ring on the spigot or plain end with the lip extension toward the bell.
3. Assemble joint per the pipe manufacturer's instructions.



4. Position the restraint ring on the spigot or plain end such that the bolt holes are in alignment and the distance between the rings is suitable for the thrust bolt length. Allow enough room on the thrust bolt to fully engage the nut with several threads showing.



5. Install the thrust bolts in each available bolt hole for maximum distribution of operating forces. Place the nuts on the end of the thrust bolts. Allow enough room on the thrust bolts to fully engage the nut with several threads showing.



6. Pull the restraint ring away from the joint until the slack is removed from thrust bolts.

7. Tighten the torque limiting twist-off nuts in a clockwise direction (indicated by arrow on top of nut) until all wedges are in firm contact with the pipe surface. Continue tightening in an alternate manner until all the nuts have been twisted off.
8. If removal is necessary; use the 5/8 inch hex head provided. If reassembly is required, assemble the product in the same manner as indicated in the previous steps and tighten the wedge screws to 90 ft-lbs.