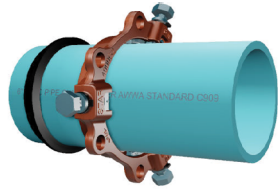




# PVC Stargrip® series 4000

Mechanical Joint Wedge Action Restraint  
for Plastic Pressure Pipe  
Sizes 3" - 12"

## INSTALLATION INSTRUCTIONS - SIZES 3" - 12"

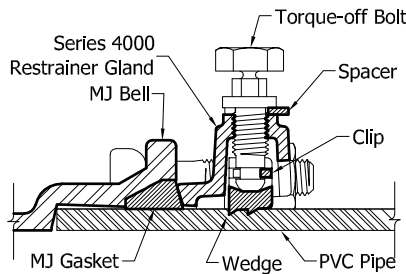


STEP 1

The rubber gasket seals more effectively if the surfaces with which it comes in contact are thoroughly cleaned just before assembly. Remove all foreign material while cleaning. Lubrication and additional cleaning should be provided by brushing both the gasket and the plain end with soapy water or pipe lubricant. Slide the SERIES 4000 on the plain end with lip facing the plain end, followed by the MJ gasket with tapered side facing the plain end.

**IMPORTANT:** When installing sizes 4" through 12" on IPS PVC pipe, MJ Transition gasket must be used.

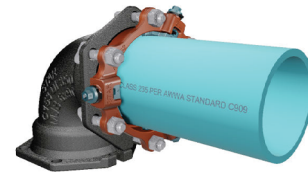
After insertion of the pipe into the bell of the fitting, firmly press the gasket into the gasket recess. During this process the joint should be kept straight.



STEP 2

Slide the SERIES 4000 toward the MJ bell with the gland lip evenly pressed against the gasket. Insert T-bolts and hand tighten nuts.

**IMPORTANT:** Make deflection after joint is assembled but before tightening T-bolts to required torque range as listed in table below.



STEP 3

STEP 4

While tightening T-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. In order to keep the spigot fully homed in the MJ bell, the joint will need to be kept in compression until the completion of Step 6. All T-bolts should be tightened until they are within the torque range as listed in table below. This process may require multiple rounds.

Hand tighten the Torque-limiting twist-off bolts in a clockwise direction until all wedges are in firm contact with the pipe surface.

**IMPORTANT:** When installing sizes 4" through 12" on IPS PVC pipe, spacers must be removed from the torque-limiting bolts.

STEP 5

STEP 6

Continue tightening in an alternating manner until all of the Torque-limiting twist-off bolt heads have been twisted off. If removal is necessary, utilize the 5/8" hex head provided. If reassembly is required, assure that all of the Torque-off bolts, wedges, clips and spacers (if required) are in place. Assemble the joint in the same manner as above and tighten the wedge bolts to 45-60 ft.-lbs. using 5/8" hex head provided.

Table C. T-Head Bolt and Nut Details					
NOM. PIPE SIZE (IN)	BOLT SIZE (IN)	RANGE OF TORQUE (FT-LBS)			
		AWWA C900 (PVC)	ASTM D2241 (PVC)	AWWA C909 (PVC)	AWWA C901/ AWWA C906 (HDPE)
3	5/8		45-60		75-90
4 to 12	3/4	75-90	75-90	55-65	75-90

\* Deflection not allowed for C909.

**Notes:**

- If effective sealing is not attained at the maximum torque indicated, then the joint should be disassembled, thoroughly cleaned, and reassembled. **Overstressing the bolts to compensate for poor installation practice is not acceptable.**
- Not to be used on DI or steel pipe.
- PVC Stargrips must be adequately wrapped or protected if they are covered by concrete to ensure that concrete is not allowed to enter the wedge pocket.
- For applications with vertical offsets please contact Star Pipe Products for technical assistance.

STAR® PIPE PRODUCTS



# PVC Stargrip<sup>®</sup> series 4000

Mechanical Joint Wedge Action Restraint  
for Plastic Pressure Pipe  
Sizes 14" - 36"

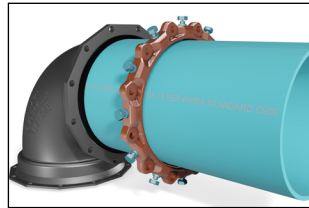
## INSTALLATION INSTRUCTIONS - SIZES 14" - 36"



STEP 1

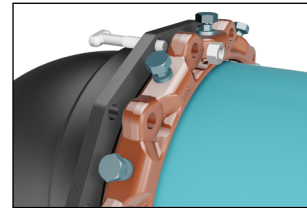
The rubber gasket seals more effectively if the surfaces with which it comes in contact are thoroughly cleaned just before assembly to remove all loose rust or foreign material. Lubrication and additional cleaning should be provided by brushing both the gasket and the plain end with soapy water or pipe lubricant. Slide the SERIES 4000 on the plain end, followed by the MJ gasket, with narrow edge of the gasket towards the MJ bell.

NOTE: If installing the Series 4000 on HDPE pressure pipe, a stainless steel pipe stiffener (provided by others) is required. The stiffener must be installed in the HDPE pipe before installing the Series 4000. The stainless steel pipe stiffener must be of sufficient length to support the full bearing length of the restrainer.



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.



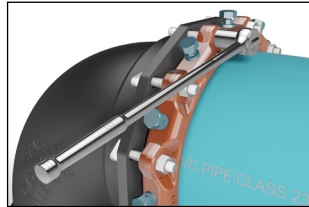
STEP 3

Slide the SERIES 4000 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.

Table D. T-Head Bolt and Nut Details				
NOM. PIPE SIZE (IN)	BOLT SIZE (IN)	RANGE OF TORQUE (FT-LBS)		
		AWWA C900 (PVC)	AWWA C909 (PVC)	AWWA C901/AWWA C906 (HDPE)
14 to 18	3/4	75-90	75-90	75-90
20 to 24	3/4	75-90		
30 to 36	1	100-120		

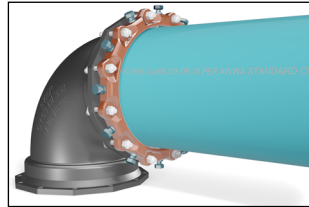
\*Deflection not allowed for C909.



STEP 4

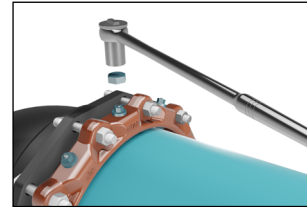
While tightening T-bolts, it is essential that the gland be brought up toward the bell flange evenly, maintaining approximately the same distance between the gland and the face of the flange at all points around the socket. In order to keep the spigot fully homed in the MJ bell, the joint will need to be kept in compression until the completion of step 6.

All T-bolts should be tightened until they are within the torque range as listed in Table D. This may require multiple rounds.



STEP 5

Tighten the Torque – limiting twist – off bolts in a clockwise direction until all wedges are in firm contact with the pipe surface.



STEP 6

Continue tightening in an alternating manner until all of the Torque – limiting twist – off bolt heads have been twisted off.

If removal is necessary, utilize the 5/8" 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.

### Notes:

- If effective sealing is not attained at the maximum torque indicated, then the joint should be disassembled, thoroughly cleaned, and reassembled. **Overstressing the bolts to compensate for poor installation practice is not acceptable.**
- Not to be used on DI or steel pipe.
- PVC Stargrips must be adequately wrapped or protected if they are covered by concrete to ensure that concrete is not allowed to enter the wedge pocket.
- For applications with vertical offsets please contact Star Pipe Products for technical assistance.

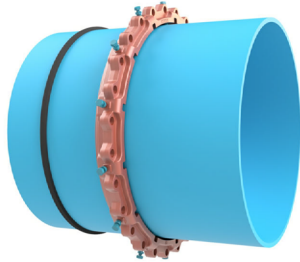
STAR<sup>®</sup> PIPE PRODUCTS



# PVC Stargrip® series 4000

Mechanical Joint Wedge Action Restraint  
for Plastic Pressure Pipe  
Sizes 42" - 48"

## INSTALLATION INSTRUCTIONS - SIZES 42" - 48"



**STEP 1**

The rubber gasket seals more effectively if the surfaces with which it comes in contact are thoroughly cleaned just before assembly. Remove all foreign material while cleaning. Lubrication and additional cleaning should be provided by brushing both the gasket and the plain end with soapy water or pipe lubricant. Slide the SERIES 4000 on the plain end with lip facing the plain end, followed by the High Pressure MJ gasket.

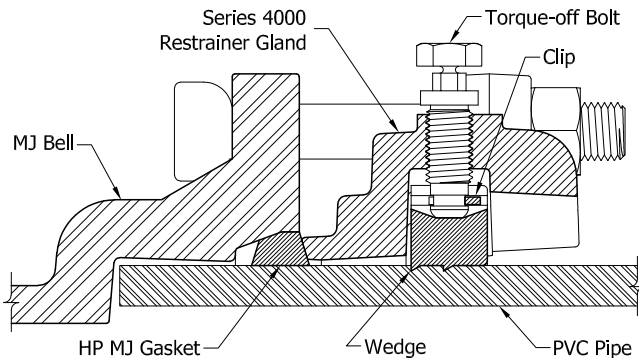
**STEP 2**

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 SERIES 4000 toward the MJ bell with the gland lip evenly pressed against the gasket. Insert T-bolts and hand tighten nuts.

**IMPORTANT:** Make deflection after joint is assembled but before tightening T-bolts to required torque range as listed in table.

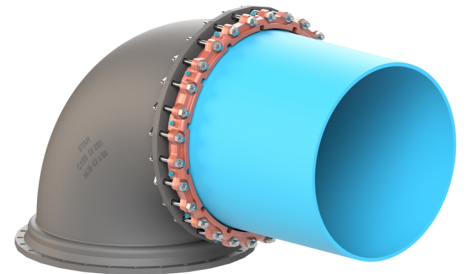


**STEP 4**

While tightening T-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. In order to keep the spigot fully homed in the MJ bell, the joint will need to be kept in compression until the completion of Step 6. All T-bolts should be tightened until they are within the torque range as listed in table E. This will require multiple rounds.

**STEP 5**

Hand tighten the Torque-limiting twist-off bolts in a clockwise direction until all wedges are in firm contact with the pipe surface.



**STEP 6**

Continue tightening in an alternating manner until all of the Torque-limiting twist-off bolt heads have been twisted off. If removal is necessary, utilize the 5/8" hex head provided. If reassembly is required, assure that all of the Torque-off bolts, wedges and clips are in place. Assemble the joint in the same manner as above and tighten the wedge bolt to 65 - 80 fl.-lbs. using 5/8" hex head provided.

Table E. T-Head Bolt and Nut Details			
NOM. PIPE SIZE (IN)	BOLT SIZE (IN)	RANGE OF TORQUE (FT-LBS) - AWWA C900 (PVC)	MAXIMUM DEFLECTION ANGLE FOR C900 (DEG.)
42	1 1/4	120-150	1
48	1 1/4	120-150	1

### Notes:

- If effective sealing is not attained at the maximum torque indicated, then the joint should be disassembled, thoroughly cleaned, and reassembled. **Overstressing the bolts to compensate for poor installation practice is not acceptable.**
- Not to be used on DI or steel pipe.
- PVC Stargrips must be adequately wrapped or protected if they are covered by concrete to ensure that concrete is not allowed to enter the wedge pocket.
- For applications with vertical offsets please contact Star Pipe Products for technical assistance.

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