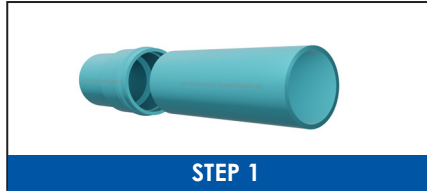




# Pipe Restrainers series 1100

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

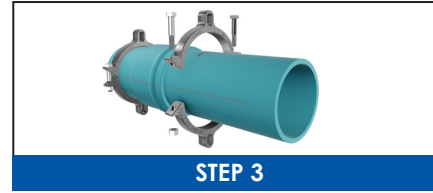
## 4" - 12" SERIES 1100 INSTALLATION INSTRUCTIONS



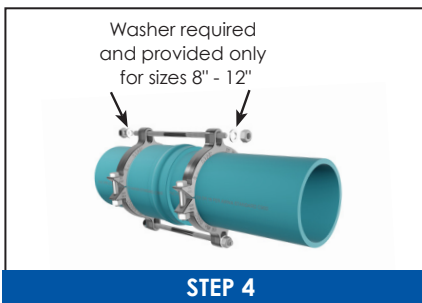
Assemble the spigot end of first pipe into the second pipe bell using standard procedure per pipe manufacturer.



Assemble one restrainer behind the bell of pipe. Evenly tighten the restrainer clamping bolts to the recommended torque, ensuring the gap between pads on both sides remain even. Use one of the Restraint rods as a guide to position Restraint on spigot end. Mark a reference line such that the Restraint rod ends extend past each nut approximately 0.50".



Assemble the second restrainer on the spigot end of pipe. After aligning second restrainer with the first one, tighten the clamping bolts to the recommended torque evenly such that the gap between pads on both sides remain even .



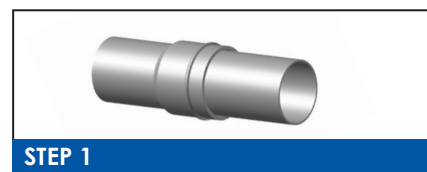
Insert the restraining rods through the restrainer ears. Place a washer (Provided and required only for sizes 8"-12") on each end of restrainer ear as shown. Snug tighten all nuts such that rods stick out approximately 0.50" past the nut on each end.

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

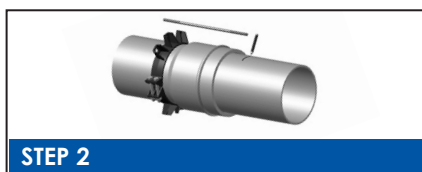
**NOTE: Due to variability of PVC Pipe bell lengths, please contact Star Pipe Products if rod lengths are short.**

| RECOMMENDED TORQUE (CLAMPING BOLTS) |                          |
|-------------------------------------|--------------------------|
| PIPE SIZE (IN)                      | RANGE OF TORQUE (FT-LBS) |
| 4"-12"                              | 90-110                   |

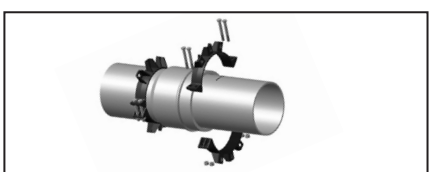
## 14" - 48" SERIES 1100 INSTALLATION INSTRUCTIONS



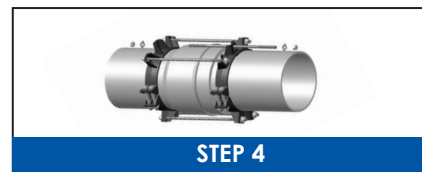
Assemble the spigot end of first pipe into the pipe bell using standard procedure per pipe manufacturer.



Assemble one restrainer behind the bell of pipe as shown above. The flat side of the restrainer ears must face away from the assembled joint. Make sure that the entire length of all the serrations are in contact with the pipe before installing the clamping bolts. Evenly tighten the restrainer clamping bolts to the recommended torque, Table B. Then insert one of the restraint rods (provided) through one of the restrainer holes. Mark a line away from the end of the rod and towards the end of the spigot that allows sufficient room for threads on the rod ends to fully engage nuts (provided). Full engagement occurs when there are at least two threads showing past the nut on the rod.



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.



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                   |
| 14-36                                       | 130 min.                 |
| 42-48                                       | 300-350                  |

STAR® PIPE PRODUCTS