



IRON STRONG

DUCTILE IRON PIPE INSTALLATION TIPS FOR PUSH- ON JOINTS

Training is priceless. Crews often receive training on safety, but what about installation? The following are some basic tips to help ensure your Ductile iron pipe project installs efficiently and problem-free.

INSPECT THE PIPE AT DELIVERY:

Ensure you have received all material by checking it against the Bill of Lading to verify that all items are accounted for.

TRENCH CONDITIONS AND EXCAVATION:

- ▶ What **Trench Type** is specified — will there be special backfill required?
- ▶ Be aware of trench conditions throughout construction to ensure safety.
- ▶ Ensure the trench is wide enough to allow for the proper installation and assembly of the pipe joints.
- ▶ During excavation, remember to dig bell holes to facilitate assembly, especially if pipe other than push-on pipe is being installed. Bell holes will also help facilitate the installation of polyethylene encasement if required.

BEFORE INSTALLATION OF THE PIPE:

- ▶ Clean bell socket and spigot ends to remove any dirt or debris.
- ▶ In winter conditions, make sure to check for, and remove any ice in the bell.
- ▶ The spigot should be cleaned just beyond the home line.
- ▶ If using TR Flex® pipe, position the bells so that the slots are easily accessible and follow the assembly instructions provided by diameter.

GASKET CARE AND INSTALLATION:

- ▶ Remember to properly store the gaskets in a clean and dry location.
- ▶ In the winter, heated storage may also be needed. This will allow the rubber to flex more easily for installation in cold weather.
- ▶ **Gasket Loops:** Looping the gasket will assist in assembly. The rule of thumb to follow is the 1st digit = number of loops recommended:
 - 3" - 18" = one loop
 - 20" & 24" = two loops
 - 30" & 36" = three loops
- ▶ For push-on pipe, the “heel” of the gasket should be located behind and flush or below the bell entering the throat. It should also sit ahead of the retainer bead — this holds the gasket in place during spigot insertion.
- ▶ The “bulb,” or softer rubber, should sit fully in the gasket seat area of the bell.
- ▶ For large diameter, it may be necessary to remove tension at the loop areas, working it around the bell. A flat hammer may be used to tap the gasket in place.

Note: Restraining gaskets, such as a Sure Stop 350®, are not as pliable as standard gaskets, and extra attention to detail is required.

PIPE INSTALLATION:

- ▶ After inserting the gasket, thoroughly lube the inside surface of the gasket and spigot OD of the pipe to be installed.
 - **Note:** Use only lube as supplied and/or approved by the manufacturer.
- ▶ While positioning the pipe into the trench, it is important to use proper handling techniques, including approved tongs or slings to lift the pipe.
- ▶ Once lowered into position, it is essential to align it straight with the adjoining pipe. Keep the spigot stripes parallel with the bell face during entry and while homing to ensure alignment.
- ▶ When in position, place wood dunnage across bell face and use the backhoe to push the pipe "home."
- ▶ It is not recommended to use a sling to pull the pipe home as pipe may move from side to side during assembly.
- ▶ If there is an upward rise in the grade, insert the spigot STRAIGHT, deflect up, and backfill under the pipe.
- ▶ If installing on a downward slope, dig the grade down, support the pipe and insert the spigot STRAIGHT, then lower the pipe to proper deflection.

FIELD CUTTING:

- ▶ Select proper pipe for field cutting:
 - Markings: Gauged Full Length (GFL) — green marking on the bell for 16" and up.
 - 12" and down are not specifically marked and are considered Gauged Full Length.
- ▶ Do not cut within 2' of the bell face.
- ▶ Always check the OD of the pipe before cutting.
- ▶ Bevel spigot ends for "push-on" type joints.

- ▶ Chamfer spigot ends for Mechanical Joints (MJs).

ADDITIONAL PRECAUTIONS WHEN USING RESTRAINING GASKETS:

- ▶ Do not lay the spigot on the entrance throat as the spigot may catch a tooth as it rides to the center of the gasket (typically at the 6 o'clock position).
- ▶ Depending on size, it is not uncommon to need an additional pushing force for restraining gaskets vs. standard push-on gaskets.
- ▶ After assembly, insert a feeler gauge between the bell and spigot to ensure the gasket was not pushed/dislocated.

ADDITIONAL ASSEMBLY AND INSTALLATION NOTES:

- ▶ When installing **TR Flex® restrained joint pipe**, it is essential to maintain pressure on the bell until all the locking segments have been installed.
- ▶ For large diameter pipe, insert the bottom locking segments first, then the top.
- ▶ Pull out the slack in the joint to "lock" the restraint.
- ▶ After the pipe has been fully assembled, **deflection at the joint(s)** may be achieved as needed, staying within the manufacturer's recommended maximum allowed per joint type and size.
- ▶ A full 5 degrees of deflection equals 19.1" for an 18' pipe. However, a convenient rule of thumb is not to exceed 1" of deflection per foot of pipe lay length.
- ▶ For assistance, refer to the McWane Pocket Engineer (pe.mcwane.com) for deflection per joint and size.

This tip sheet has been provided for your convenience. If you'd like to receive more in-depth, on-site, or virtual training, contact your local McWane Ductile professional at McWaneDuctile.com/contact-us/ or call 800-800-6013.



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