Flange Fabricated Ductile Iron Pipe Field Handling and Installation Guidelines

Receiving Fabricated Ductile Iron Pipe

- When receiving fabricated ductile iron pipe at the jobsite, each spool should be inspected to ensure no damage to the lining, coating, or flanges occurred during transit. If damage is discovered take pictures and contact your sales representative.
- When unloading, never lift spools by inserting forks into the pipe as it can result in damaging the lining of the pipe. Instead, utilize a sling around the barrel of the pipe or a pallet to lift the pipe.
- Do not lift by the flanged end or drop the spool. Handling in this way can break the thread seal.
- Prior to installation check that the face of the flange is in factory new condition and free of dirt, or any other debris. Rust inhibitor coating may be removed with solvent. Any paint on the face of the flange should be removed.
- Store fabricated pipe in an area that will minimize handling prior to installation. Constant handling of fabricated Ductile Iron spools increases the risk of damaging the threaded connection.

Bolts, Nuts, and Gaskets

Unless otherwise specified by the purchaser, gaskets shall be synthetic rubber, either ring or full face 1/8” 3.18mm) thick. Gaskets should conform to the dimensions shown in Table A.1 of Appendix A of the latest revision of the ANSI/AWWA C115/A21.15 standard. Ring gaskets are recommended for 14-in. (350-mm) and larger sizes if flat gaskets are used.

Ductile Iron flanged joints are rated for 250 psi working pressure. However, 24-inch and smaller flanged joints with Ductile Iron flanges may be rated for 350 psi with the use of special gaskets. Refer to applicable tables in the standard for specifics of the pressure rating.

Size, length, and number of bolts required are shown in Tables 2 and 3 of ANSI/AWWA C115/A21.15. Bolts conform to ASME B18.2.1, nuts conform to ASME B18.2.2. Bolts and nuts are threaded in accordance with ASME B1.1, Unified Inch Screw Threads (UN and UNR Thread Form), class 2A, external, and class 2B, internal. Bolts and nuts of low-carbon steel conforming to the chemical and mechanical requirements of ASTM A307, standard specification for carbon steel bolts and studs, 60,000 psi Tensile Strength, Grade B, are suitable for use with the flanges described in ANSI/AWWA C115/A21.15 when used with the rubber gaskets described.

Installation

The purchaser is responsible for the design, assembly, and installation of the flanged piping system. The following suggestions are for general guidance:

The use of flanged joints underground is generally not recommended because of the rigidity of the joint. Due to availability of Mechanical Joint pipe, Threaded MJ Bells may be offered as an alternative to cast MJ Bell pipe. Like threaded flanged joints, thread-on MJ Bells are not recommended for buried service. If there is a need for MJ fabricated pipe or wall pipe to be directly buried, the customer must request MJ Bell pipe at time of order. Use of restrained joint pipe or push-on pipe with locking gaskets is highly recommended for underground applications.

Flanged faces should bear uniformly on the gasket, and the bolts should be tightened in a progressively crisscrossed or star pattern, such as by tightening the bottom bolt first; then, the top bolt; next, the bolts at either side; and finally, the remaining bolts. This process should be repeated until all bolts are adequately tightened. Only torque to the recommended values provided by the gasket manufacturer.

Be careful to prevent bending or torsional strains from being applied to flanges or flanged appurtenances.

Piping systems must be designed so that piping connected to flanges is properly anchored, supported, or restrained to prevent breakage of flanges and flanged fittings or appurtenances. Impact wrenches cannot be used in many cases when assembling flanged joints due to the many variations of flange shroud diameters and impact wrench socket dimensions, in combination with nut configurations (heavy or regular hex). Please consult the gasket manufacturer for recommended torque values.

An annular space exists between the incomplete threads on the OD of the pipe and the ID of the flange shroud. Specifying engineers are advised that this space should be sealed to prevent oxidation to these surfaces. The appropriate time at which sealant should be applied is following installation to avoid any damage beforehand and any incompatibility with subsequently applied coatings.

This information has been gathered from other sources for your reference. McWane Plant & Industrial assumes no responsibility for its accuracy.