

DIPRA Facts & Figures

Not All Pipes Are Equal: Ductile Iron vs Steel

The distinct, indisputable advantages to using Ductile Iron Pipe instead of steel pipe have long been recognized by engineers, contractors, construction firm owners, and community leaders. Ductile iron pipe offers more durability, a higher degree of safety, an extremely efficient installation process, and greater energy savings.

Key advantages of Ductile Iron Pipe:

- Ductile Iron Pipe is designed according to rigorous and prudent AWWA standards.
- Ductile Iron Pipe is typically manufactured with larger inside diameters than steel pipe, resulting in lower pumping costs—and an average 21% savings in energy costs.
- For the same pressure design, Ductile Iron Pipe will have a greater wall thickness than steel pipe. In Ductile Iron Pipe design, allowances for casting tolerances and for minor scratches or abrasions that may occur from handling or installation are applied. While both types of pipe may have the same yield strength, steel pipe can be 35% thinner and does not include similar allowances in design calculations.
- Installing steel pipe requires bonded coatings for corrosion control—either a cement-mortar coating or a bonded dielectric coating such as a tape-wrap coating. Cement-mortar coatings are very sensitive to environments with sulfate-heavy soil, high chloride content or a low pH balance. Any cracking or damage to the coating will expose the steel and can result in corrosion cells. Bonded dielectric coatings also require cathodic protection as a supplement to control corrosion at locations where damage to the coating inevitably occurs. It is practically impossible to install pipe with bonded coatings without experiencing some coating damage from shipping and handling.
- Ductile Iron Pipe is routinely protected from corrosion through polyethylene encasement, which is applied at the job site—eliminating any shipping and handling problems. Properly applied, polyethylene encasement isolates the pipe from aggressive soils, while providing a uniform, benign environment under the encasement. Its use also eliminates corrosion concentration cells since the encasement is not bonded to the pipe surface.
- During installation, steel pipe is not stiff enough or strong enough to stand on its own. Braces must be placed inside the pipe to hold its shape; steel pipe requires more side fill soil support against the external loads they will experience, increasing the difficulty of installation.
- Ductile Iron Pipe has push-on joints that can be used to reroute the pipe, offering installers more field adaptability and flexibility and eliminating the need for line drawings necessary for steel pipe installation.



For details about the benefits of Ductile Iron Pipe or the Ductile Iron Pipe Research Association visit www.dipra.org



Strength and **Durability** for **Life**®

