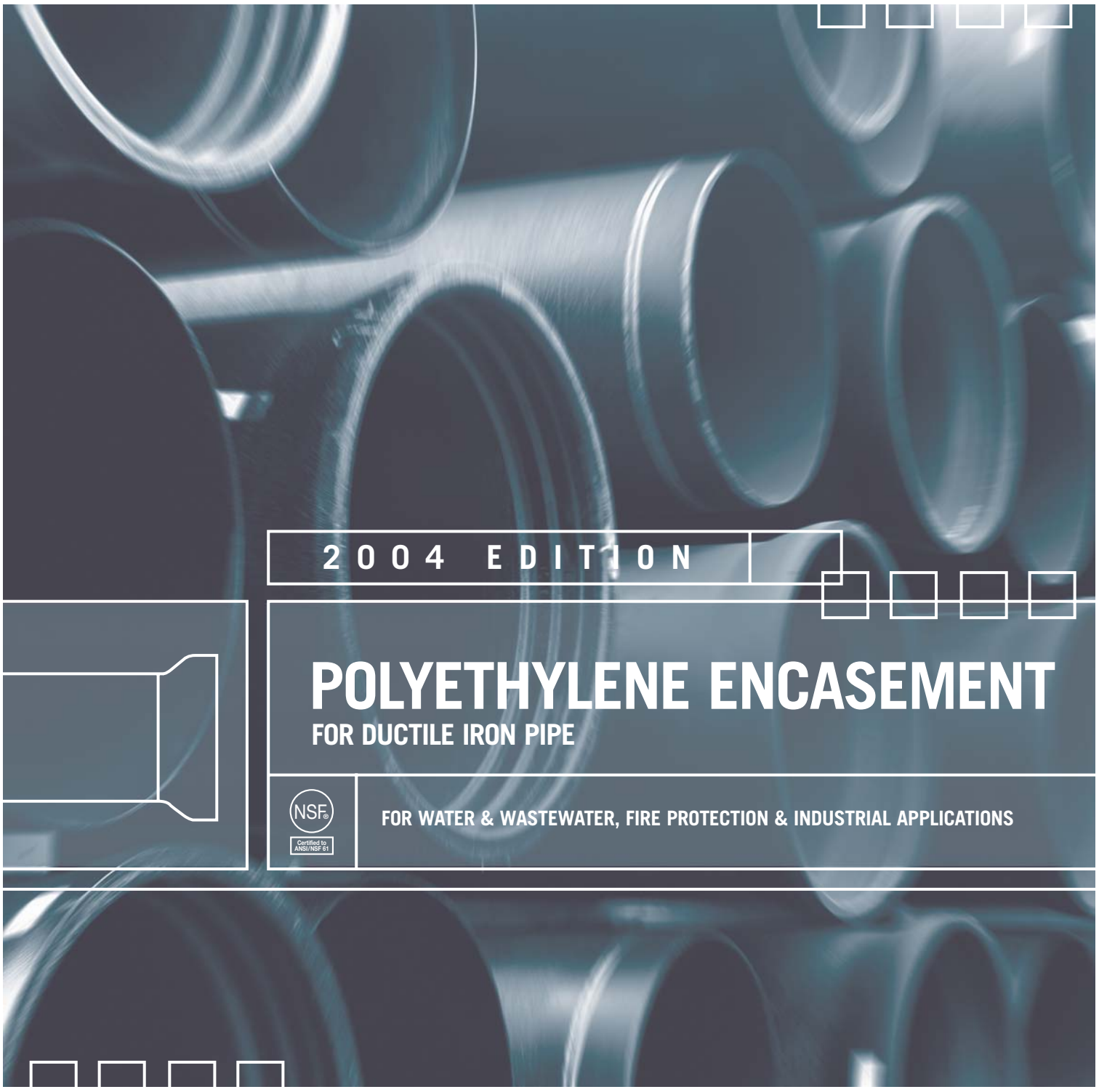


2004 EDITION

# POLYETHYLENE ENCASEMENT

## FOR DUCTILE IRON PIPE

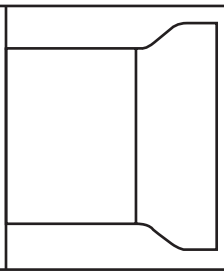
NSF® Certified to ANSI/NSF 61

FOR WATER & WASTEWATER, FIRE PROTECTION & INDUSTRIAL APPLICATIONS

MORE THAN JUST PIPE.

U.S. PIPE

866.DIP.PIPE



# POLYETHYLENE ENCASEMENT

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P 2

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## Polyethylene Encasement

Polyethylene encasement is the easiest, most economical and most effective method of corrosion protection for Ductile Iron pipe and fittings installed in aggressive soils. It is simply a tube or sheet of polyethylene film that is slipped over or wrapped around the exterior of the pipe and/or fitting at the job site prior to installation.

Since its initial testing in 1951, polyethylene encasement has been installed and used successfully on thousands of miles of gray and Ductile Iron pipe throughout the United States. This has led to the development of an international standard (ISO 8180) and numerous national standards (United States, ANSI/AWWA C105/A21.5 and ASTM A674; Great Britain, BS 6076; France, AFNOR NFA 48-851; Republic of Germany, DIN 30674, part 5; and Japan, JDPA Z 2005). All of these specify material requirements and recommended installation procedures. Complete step-by-step illustrated installation instructions are available through your U.S. Pipe sales representative.

The polyethylene film is not bonded to the pipe or completely sealed. Although the polyethylene film is described as "loose," the polyethylene film is tightly pressed against the pipe surface when it is surrounded by compacted soil. Any groundwater that might seep between the polyethylene and the pipe surface stagnates rapidly.

Research has shown that polyethylene encasement alone is a viable corrosion protection system for Ductile and gray-iron pipe in most environments. However, other options should be considered for uniquely severe environments as defined in ANSI/AWWA C105/A21.5.

### Advantages of Polyethylene Encasement

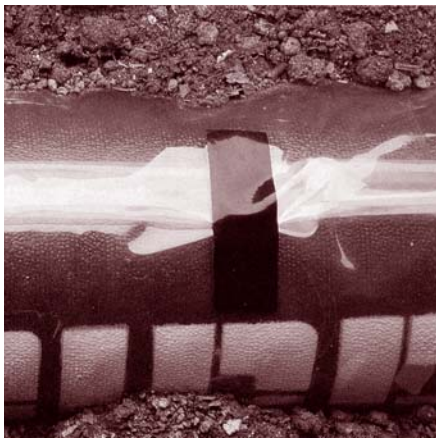
When compared to other corrosion control methods available for gray and Ductile Iron pipe, polyethylene encasement offers many advantages.

- It is inexpensive.
- It requires no monitoring or maintenance.
- It has no operating costs.
- It will not deteriorate while underground.
- It is easy to install.
- It is easy to repair damaged areas. (It is important that damaged areas be repaired with adhesive tape.)
- It requires no special handling or packaging during shipment of the pipe.

**ANSI/AWWA Standards**

**ANSI/AWWA C105/A21.5, Polyethylene Encasement for Ductile Iron Pipe Systems.**

In the United States, the film is specifically manufactured to meet the formulation, physical tests, thickness, and dimensional requirements specified in standard ANSI/AWWA C105/A21.5.



**Polyethylene encasement**

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# POLYETHYLENE ENCASEMENT

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## Installation Instructions

Taping over polyethylene encasement allows direct taps to be made through the tape and polyethylene encasement. Eliminates potential repairs to exposed area.

Tie straps allow easy, quick, secure tie down of polyethylene encasement behind the bell contour and on overlaps against the pipe surface.

### Figure 1.

Remove all lumps of clay, mud, cinders, etc. which may have accumulated on the surface of the pipe. A polyethylene tube should be cut so that it is approximately two feet longer than the pipe section. Slip the tube onto the pipe. Allow approximately one foot of the tube to overhang each end of the pipe.

### Figure 2.

Push back the overhanging tube ends until they clear the pipe ends.

### Figure 3.

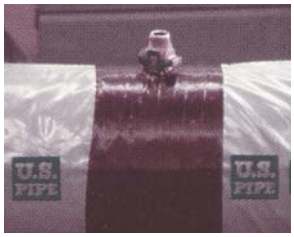
Take up the slack in the tube to make a snug but not tight fit. Fold excess back over the top of the pipe.

### Figure 4.

Secure the fold with polyethylene compatible adhesive tape at several locations along the pipe barrel.

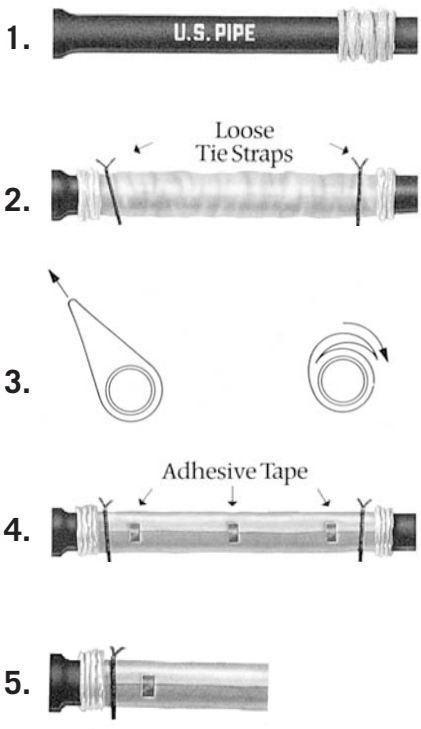
### Figure 5.

Dig a shallow bell-hole in the trench bottom at the joint location.




Tape over polyethylene encasement

Tie straps around polyethylene encasement



# POLYETHYLENE ENCASEMENT



## Installation Instructions (cont.)

### Figure 6.
Place the pipe into the trench.

### Figure 7.
Assemble the joint.

### Figure 8.
Pull the polyethylene tube end of the previously installed pipe over the new pipe and secure with the tie strap from the preceding pipe bell.

### Figure 9.
Overlap the secured tube end of the new pipe section. Secure the new tube end in place with the spigot end tie strap.

### Figure 10.
Repair all rips, tears, or other tube damage with suitable adhesive tape. Experience has shown that very small pin point sized punctures need not be repaired.

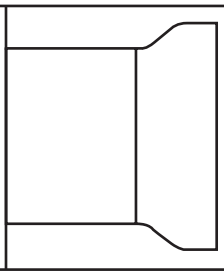
6.

7.

8.

9.

10.



# POLYETHYLENE ENCASEMENT



## Products for Water, Wastewater and Fire Protection

| Ductile Iron Pipe | SIZE RANGE |
|---|---|
| TYTON JOINT® Pipe | 4"-64" Ductile Iron |
| Mechanical Joint Pipe | 4"-12" Ductile Iron |
| TR FLEX® Pipe | 4"-64" Ductile Iron |
| Flanged Pipe | 3"-64" Ductile Iron |
| USIFLEX® Boltless Flexible Joint Pipe — for Subaqueous Installations | 4"-48" Ductile Iron |
| **Restrained Joints** | |
| TR FLEX® Pipe | 4"-64" Ductile Iron |
| MJ FIELD LOK® Gaskets | 4"-24" |
| FIELD LOK 350® Gaskets | 4"-24" |
| FIELD LOK® Gasket | 30" & 36" |
| TR FLEX GRIPPER® Rings | 4"-36" Ductile Iron |
| TR TELE FLEX® Assemblies | 4"-24" Ductile Iron |
| HP LOK™ Restrained Joint | 30"-42" |
| **Ductile Iron Fittings** | |
| TYTON® Fittings | 14"-64" Ductile Iron |
| TRIM TYTON® Fittings | 4"-12" Ductile Iron |
| TR FLEX® Fittings and TR FLEX® Telescoping Sleeves | 4"-64" Ductile Iron |
| Mechanical Joint Fittings | 3"-48" Ductile Iron |
| TRIM TYTE® MJ Fittings | 3"-48" Ductile Iron |
| Flanged Fittings | 3"-64" Ductile Iron |
| XTRA FLEX® Couplings | 4"-24" Ductile Iron |
| **Miscellaneous Products** | |
| PROTECTO 401™ Lined Ductile Iron Pipe for Domestic Sewage and Industrial Wastes | 4"-64" Ductile Iron |
| FLANGE-TYTE® Gaskets | 4"-64" |
| Polymeric Linings | For all pipe sizes |
| Saddle Outlets | Various Ductile Iron |
| Welded Outlets | Various Ductile Iron |
| Polyethylene Encasement | 4"-64" |

*Our products are manufactured in conformance with National Standards so that our customers may be assured of getting the performance and longevity they expect. Use of accessories or other appurtenances that do not comply with recognized standards may jeopardize the performance and longevity of the project.*

*All U.S. Pipe brochures and/or products are subject to change without further notice.*

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