

For more information contact DIPRA or any of its member companies.

Ductile Iron Pipe Research Association

An association of quality producers dedicated to the highest pipe standards through a program of continuing research and service to water and wastewater professionals.

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GUIDELINES

Polyethylene Encasement Installation Guide

Last Revised:
August 2016

A Step-by-Step Guide For Installing Polyethylene Encasement on Ductile Iron Pipe

Polyethylene encasement is placed on Ductile iron pipe to prevent corrosion. It does not have to be sealed watertight, but it should be installed so that no dirt or bedding material comes in contact with the pipe. All lumps of clay, mud, cinders, etc., on the pipe surface should be removed before the pipe is covered with polyethylene. If the polyethylene is damaged, it must be repaired before the trench is backfilled.

Small holes or tears can be repaired with a piece of tape placed over the hole. Large holes or tears should be repaired by taping another piece of polyethylene over the hole.

Overlaps, ends, and repairs can be held in place with tape or plastic tie straps until the trench is backfilled. Other general tips for proper installation include:

- Quality of installation is more important than the actual sequence followed.
- When lifting polyethylene-encased pipe with a backhoe, use a fabric-type “sling” or padded cable to protect the polyethylene.
- When installing polyethylene encasement below the water table or in areas subject to tidal action, seal both ends of the tube as thoroughly as possible with adhesive tape or plastic tie straps at the joint overlap. Additionally, place circumferential wraps of tape or tie straps at 2-foot intervals along the barrel of the pipe to help minimize the space between the encasement and the pipe.

Follow these steps for easy installation



Step 1

Cut a section of polyethylene tube approximately two feet longer than the pipe section. Remove all lumps of clay, mud, cinders, or other material that might have accumulated on the pipe surface during storage. Slip the polyethylene tube around the pipe, starting at the spigot end. Bunch the tube accordion fashion on the end of the pipe. Pull back the overhanging end of the tube and circumferentially tape it to the barrel of the pipe behind the insertion line. After assembly of the joint, the tape should be as close to the face of the bell as possible but not so close to the spigot end that it interferes with the gasket.



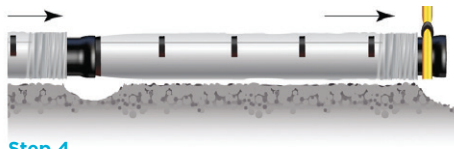
Step 2

Take up the slack in the tube along the barrel of the pipe to make a snug, but not tight, fit. Fold excess polyethylene back over the top of the pipe and use pieces of tape across the fold to securely hold it. This step is extremely important to avoid the sagging of the film at the bottom of the pipe.



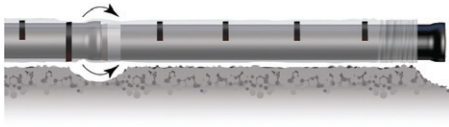
Step 3

Dig a shallow bell hole in the trench bottom at the joint location to facilitate installation of the polyethylene tube. Lower the pipe into the trench and make up the pipe joint with the preceding section of pipe.



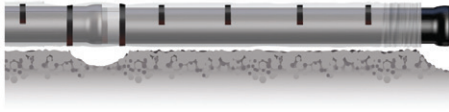
Step 4

Move the cable to the bell end of the pipe and lift the pipe slightly to provide enough clearance to easily slide the tube over the remaining barrel of the pipe. Snugly fold over the excess wrap using tape to hold it in place. Note: Make sure that no dirt or other bedding material becomes trapped between the wrap and the pipe.



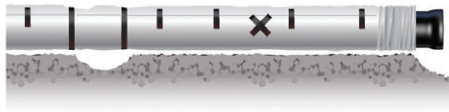
Step 5

Secure the polyethylene in place behind the preceding bell by using a circumferential wrap of tape. Make the overlap of the polyethylene tube by pulling back the bunched polyethylene from the preceding length of pipe and ensure there is at least a 12-inch overlap.



Step 6

Place another circumferential wrap of tape on the overlapping polyethylene, securing it to the spigot side of the joint.



Step 7

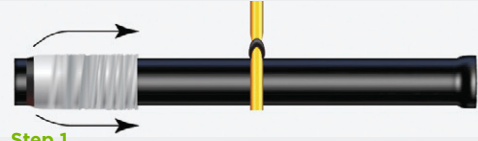
Repair all small rips, tears, or other tube damage with adhesive tape. If the polyethylene is badly damaged, repair the damaged area with a sheet of polyethylene and seal the edges of the repair with adhesive tape.



Step 8

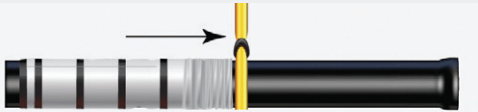
Carefully backfill the trench according to the procedures in AWWA C600 Standard. To prevent damage during backfilling, allow adequate slack in the tube at the joint. Backfill should be free of cinders, rocks, boulders, nails, sticks, or other materials that might damage the polyethylene. Avoid damaging the polyethylene when using tamping devices.

Wet Trench Installation



Step 1

Cut a section of polyethylene tube approximately two feet longer than the pipe section. Remove all lumps of clay, mud, cinders, or other material that might have accumulated on the pipe surface during storage. Slip the polyethylene tube around the pipe, starting at the spigot end. Bunch the tube accordion fashion on the end of the pipe. Pull back the overhanging end of the tube and circumferentially tape it to the barrel of the pipe behind the insertion line. After assembly of the joint, the tape should be as close to the face of the bell as possible but not so close to the spigot end that it interferes with the gasket.



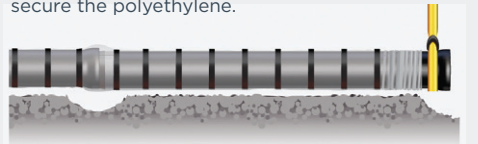
Step 2

Take up the slack in the tube along the barrel making a snug fit and fold over the excess polyethylene. Apply circumferential wraps of tape every two feet until you run out of room. This is extremely important to avoid the sagging of the film at the bottom of the pipe.



Step 3

Dig a shallow bell hole in the trench bottom, lower the pipe and make up the joint. Slide the sling to the bell end and lift slightly to provide clearance to slide the encasement to the end. Continue to snugly fold over and tape at 2-foot intervals to secure the polyethylene.



Step 4

Make the overlap of the polyethylene tube by pulling back the bunched polyethylene from the preceding length of pipe and ensure there is at least a 12" overlap. Secure the polyethylene with a circumferential wrap of tape at the overlap and behind the preceding bell.

Step 5

Repair any damage to the polyethylene and backfill according to AWWA C600 as described in Steps 8 & 9 of Modified Method A.

Tapping Polyethylene-Encased Pipe

When tapping polyethylene-encased Ductile iron pipe, the following procedure is recommended:

Step 1



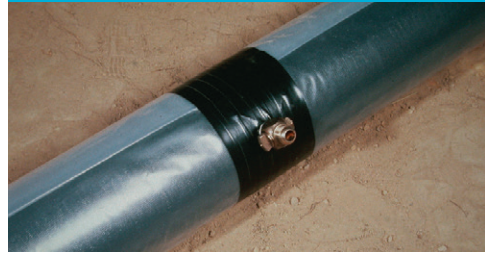
Wrap two or three layers of polyethylene adhesive tape completely around the pipe to cover the area where the tapping machine and chain will be mounted.

Step 2



Mount the tapping machine on the pipe area covered by the polyethylene adhesive tape. Then make the tap and install the corporation stop directly through the tape and polyethylene.

Step 3



After making the direct service connection, inspect the entire circumferential area for damage and make any necessary repairs.

Step 4



Wrap any connected copper service line within three (3) feet of the pipe with polyethylene.

Step 5

Backfill trench as described before.

Remember: If you have any problems or questions about installing polyethylene encasement, contact DIPRA or one of its member companies.