



LINK-PIPE[®]

INC.

Manufacturer of No-Dig Pipe Repair Products

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LINK-PIPE™ PVC SLEEVE INSTALLATION PROCEDURE

Installation Tips (Continuous installation)

General Information:

1. **Product Description:** LINK-PIPE™ PVC sleeve is made of rigid PVC material generally used in pressure pipes. This design of sleeve consists of 5 segments.

Segments 'B' and 'S' are usually largest in size and form the major structure of the sleeve. Segments 'C' are smaller and their purpose is to lock the sleeve in place. 'C's are also called 'Flaps'.

2. The sleeve is first transported into the pipe. In most cases this requires passing through the Access Chamber (ACh) cover frame opening. Since the sleeve is larger than the opening, Sleeve is disassembled to be able to access the manhole.
3. Hinges are reinstalled when the sleeve arrives to the floor of the ACh. (Or to assemble the sleeve at the repair spot.)
4. O-rings are then placed into the grooves to keep them aligned during the sleeve expansion process.
5. The sleeve is now ready to be transported to the repair site in the pipe.
6. At the repair site the sleeve is either placed so as to cover the damaged area, or if joint sealing is required, the sleeve is centered on the joint.
7. Sleeve expansion is now ready to start:
 - 7.1. You need only one jack for the installation of this LPR series design.
 - 7.2. Set up the jack vertically sitting on the bottom (middle of segment 'B') pushing up to the 'Flaps' and expand the jack carefully observing that the tongues in line of hinge pins of 'Flaps' on right and left sides home into the grooves.
 - 7.3. Expanding the jack always pushes the 'Flaps' to spring out with a snapping sound. Snapping sound indicates a good and tight installation.
 - 7.4. O-rings create a holding force that prevents the sleeve from becoming loose.
8. The sleeve is designed to have an annular space between the outside of the sleeve and inside of the host pipe. This space must be filled to provide a load transfer medium in case of damaged pipe repair or a sealer in case infiltration is the goal.
 - 8.1. First some water must be present in the annular space. This may need pouring about a liter, quart, of water through the vent nipple at the invert.
 - 8.2. Easy flow cement grout is then pumped into the annular space until it will appear through the lateral pumping holes (grouting ports). Next day fill whole annular space with cement.
 - 8.3. Both vent holes are then closed and the job is complete.
9. One may observe some grout emerging because of high pressure being created during the curing process. High pressure helps sealing and if the leaking joint or cracks in the pipe material are open, curing pressure forces the grout into surrounding soil and combines with it creating a solid saddle around the damaged pipe.

Further Explanations and Suggestions:

1. Metal hinges alone are not strong enough to withstand the installation forces. Their purpose is only to guide the first tongue of the 'Flap' into the groove of Segment 'A's. Those tongues provide hinge strength for installation. It is therefore important to watch that the tongue fits into the groove without slipping out. Slip-out may happen if hinges may have been twisted in transport or handling.
2. When grout cures, some foam is forced out through 'Flap' joints. To reduce this from happening, some grout may be painted on the joints a couple hours before the installation, or before leaving the shop.



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Tips:

To install the sleeve, you need to have the jack set up as follows. Only one jack is needed for this LPR series design. You also need one hydraulic pump of model P80 from 'SIMPLEX' or 'ENERPAC'. Be aware that the jack is heavy and very slippery when working on the PVC material. It is recommended to have the jack setup and tried before you go for a real installation.





1. Prepare and set up the bottom piece 'B'. Fix the O-ring with the cable tie and place it onto the bottom of the pipe. The cable ties locations are marked on the O-Rings. Put flexible skirt underneath the piece 'B' (where this skirt is needed in accordance with drawing below).



2. Prepare and set up one of the side piece 'S'. Screw the hinges and fix the o-rings.

Note: Keep in mind that only the sleeves numbers 2 and 3 have no any fillet. The sleeves number 1 and 4 have fillet from one side only. So, when these sleeves are assembled, their fillet should be kept on one side.



3. Prepare and set up another side piece 'A'. Screw the hinges and fix the o-rings.



4. Assemble the top part, the flaps 'C's.



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5. Set up the jack for the installation.



5. Installation is completed.



Note:

1. When hand holding the sleeve, never place hand/fingers to the sleeve segment joints or you may have your fingers clamed as the **PVC material is very slippery.**
2. Before you start to pump the jack, **make sure all tongue grooves are matched.**



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3. Pump the jack slowly with caution. When you feel the pump is very tight, it is advised that you give about 20 seconds for the sleeve to settle after you have every 2-3 pumps.
4. Pictures above are from other files for your reference only.

End Sleeves Installation.

1. The same order shall be used to install two “End Sleeves” from both side of the “Middle Sleeve”. Install these sleeves with rabbet connection to the Middle Sleeve and over the clear PVC skirts as the drawing below.

Cement Pumping.

2. When all the sleeves are installed, screw the 1¼” NPT copper fittings (in the package) and connect a piece of flexible hose for cement pumping.
3. Easy flow cement grout is then pumped into the annular space of each sleeve until the cement will appear through the lateral pumping holes (grouting ports).
4. Next day fill whole annular space with cement (until it will appear through the gaps between O-Ring cords at 12 o'clock).
5. All pumping holes and gaps between O-Ring cords are then closed and the job is complete.

Note:

Pictures above are from other files for your reference only.

In your case, the sleeves will be installed continuously. Please connect these sleeves with the 8-inches wide clear PVC skirts as the drawing below.



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