LINK-SEAL® CONDUIT SEALS

Installation & Maintenance Information

IF 1374

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

APPLICATIONS

Link-Seal conduit seals are designed to provide a quick, economical way to seal conduit in concrete walls, floors and casings. Link-Seal provides a positive hydrostatic seal that is rated at 20 psig (40 feet of head). Link-Seal is available in four versions, an environmental seal which is designed for long life and use as a permanent seal, and a fire seal for fire protection in floor and wall penetrations.

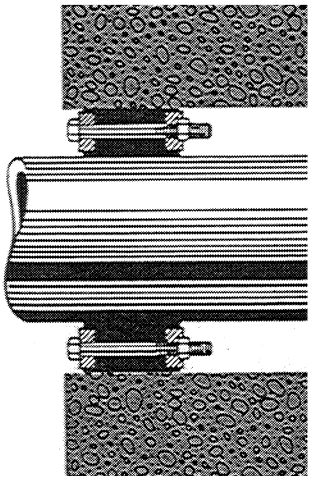
Link-Seal environmental seals are manufactured from EPDM compounds that resist temperatures from -40°F to 250°F. Environmental seals are available with optional stainless steel hardware and pressure plates. Link-Seal fire seals are manufactured from a silicone material that resists temperatures from -67°F to 400°F. The T model fire seal is FM approved as a 1 hour fire seal. The FS model fire seal is rated as a 3 hour fire seal. It is also possible to use two T models back to back to create a 3 hour fire seal.

METHODS

There are three methods that can be used to install the Link-Seal element around the conduit. Each are described below in detail. Choose the method best for your application.

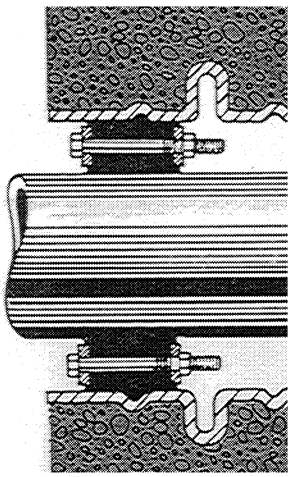
CORE DRILLED HOLE METHOD:

This method is used primarily on existing concrete walls. When it is not practical to use a sleeve, core drilling produces an excellent surface for Link-Seal. When you know the size and type of conduit the rest is easy. Recommended core hole dimensions are shown in Table 1. After the hole is drilled, the Link-Seal assembly is wrapped around the conduit and easily slides into position for tightening. Four inch minimum wall thickness is required. Core drilled holes may be used with all types of Link-Seal.



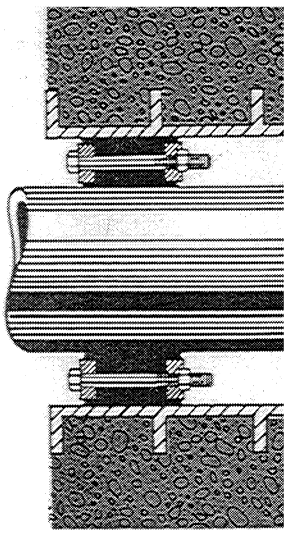
PLASTIC SLEEVE METHOD:

The Century Line® plastic sleeves are specifically engineered for use in the Link-Seal system. They are made from high impact thermoplastic and will not rust, corrode or shatter in cold weather. Century Line sleeves are lightweight and easy to handle during poured wall construction. Molded-in waterstop and reinforcing ribs serve to anchor the sleeve in the wall and resist pour forces. Nailer end caps are provided to make placement in forms simple and accurate. Eight inch minimum wall thickness is required. Plastic sleeves can be used with the environmental seals only.



METAL SLEEVE METHOD:

The Sleeve-Sec® metal sleeves provide extreme structural strength. A single worker can nail the flanged sleeves into the wooden forms in minutes. Metal sleeves are available in lengths form 3" to 48". To ensure maximum corrosion resistance a tough polymer coating covers the entire surface. Four inch minimum wall thickness is required. Metal sleeves may be used with all types of Link-Seal.



SEAL TYPES

There are four types of Link-Seals available. They are briefly described below:

MODEL C:

Model C is the standard environmental seal. The rubber seal elements are made from black EPDM. The pressure plates are glass reinforced nylon and hardware is carbon steel with a zinc dichromate plate. The temperature range is from -40˚F to +250˚F. They are suitable for use in water, direct ground burial and atmospheric conditions. Provides electrical insulation where cathodic protection is required.

MODEL S316:

Model S316 is also an environmental seal. The rubber seal elements are made from black EPDM. The pressure plates are glass reinforced nylon and hardware is 316 type stainless steel. The temperature range is from -40˚F to +250˚F. They are ideal for use in chemical processing plants and waste water treatment plants. The EPDM rubber is resistant to most inorganic acids and alkalis, and some organic chemicals (acetone, alcohol, ketones).

MODEL T:

Model T is the basic fire seal. The rubber seal elements are made from gray silicone. The pressure plates and hardware are steel with a zinc dichromate plate. The temperature range is from -67˚F to +400˚F. The silicone rubber is ideal for temperature extremes and the Model T is FM approved as a 1 hour fire stop. Approval is in accordance with ASTM E814 81 fire and hose stream criteria. Link-Seal fire seals are used with Link-Seal steel sleeves or core-bit drilled openings.

MODEL FS:

Model FS is the 3 hour rated fire seal. Model FS is basically two model T's back-to-back with a tie rod that allows both seals to be tightened simultaneously. The rubber seal elements are made from gray silicone. The pressure plates and hardware are steel with a zinc dichromate plate. The temperature range is from -67˚F to +400˚F. Link-Seal fire seals are used with Link-Seal steel sleeves or core-bit drilled openings.

INSTALLATION:

1. Select the proper seal and sleeve (if required) from ordering information.

2. If using the core drilled or cast hole method, hole in concrete wall should be in accordance with Table 1 based on conduit size and type.

TABLE 1

Conduit Size	Conduit Type	Hole Diameter (in.)
1/2"	EMT	2
1/2"	IMC	2
1/2"	Rigid Steel Conduit	2
3/4"	EMT	2
3/4"	IMC	2.5
3/4"	Rigid Steel Conduit	2.5
1"	EMT	3
1"	IMC	3
1"	Rigid Steel Conduit	3
1 1/4"	EMT	3
1 1/4"	IMC	3
1 1/4"	Rigid Steel Conduit	3
1 1/2"	EMT	3.5
1 1/2"	IMC	3.5
1 1/2"	Rigid Steel Conduit	3.5
2"	EMT	4
2"	IMC	4
2"	Rigid Steel Conduit	4
2 1/2"	EMT & Rigid Steel Conduit	4
2 1/2"	IMC	4
3"	EMT & Rigid Steel Conduit	5
3"	IMC	5
3 1/2"	EMT & Rigid Steel Conduit	6
3 1/2"	IMC	6
4"	EMT & Rigid Steel Conduit	6
4"	IMC	6
5"	Rigid Steel Conduit	8
6"	Rigid Steel Conduit	10

3. If using Link-Seal Century Line plastic sleeves, see **Installing Century Line Sleeves** section of this instruction sheet.

4. Link-Seal seals are shipped as a belt of interconnected rubber links. Wrap the seal assembly around the conduit and connect the end links together.

5. Pre-tighten the Link-Seal bolts before insertion of the seal into the annular space. Start by pressing the two end links at the top (12 o'clock) position together, square up each pressure plate at a tangent to the conduit and tighten the bolt enough to keep the links from spreading apart again. The entire area of each pressure plate must press against the mating surface of its link to ensure that its full area compresses the rubber link in the final tightening. Tighten each bolt on the seal before insertion by rotating the seal around the conduit and tightening in the top position. A socket wrench should be used to tighten the bolts. The 300 series seals require a 1/4" or 3/8" square drive. The 400 series requires a 1/2" square drive.

6. Before inserting Link-Seal make sure that the surface of the conduit and the ID of the casing or sleeve are clean and free of foreign material.

7. Slide the seal along the conduit and start inserting it into the annular space at the bottom (6 o'clock) position. Gradually work both sides of the seal into place. The Link-Seal should be positioned into the casing or sleeve so that the front edge of the pressure plates is even with or slightly inside the end of the casing or sleeve.

8. Now complete the tightening of the seal. Start with the bolt at the top position and give it a couple of turns. Move to the next bolt and repeat. Continue until you have moved all the way around the pipe.

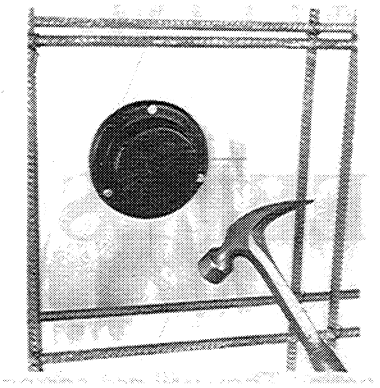
CAUTION
Do not tighten each bolt completely before moving to the next. Don't skip any bolts or move in an odd pattern. This will insure proper tightening of the seal element.

9. Continue tightening each bolt as in step 8. It may take 4 to 6 complete passes around the conduit before the seal is completely tight. When the bolts are tightened the seal will expand to create a gas and watertight seal.

10. When the pressure plates are firmly embedded into the rubber the seal is complete. If in doubt, give the bolts another turn.

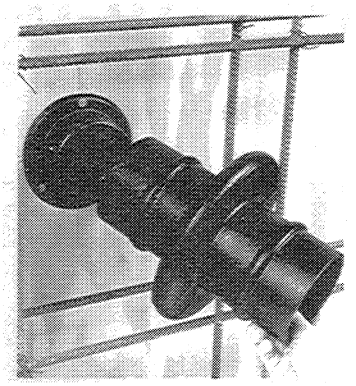
INSTALLING CENTURY LINE SLEEVES

1. Nail one end cap to form, centering cap at desired position.

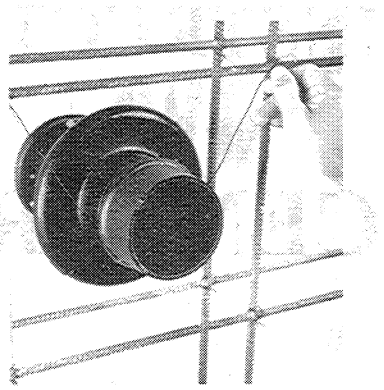


Note
Both end caps must be used and properly inserted into sleeve to insure sleeve will not become out of round during the pour.

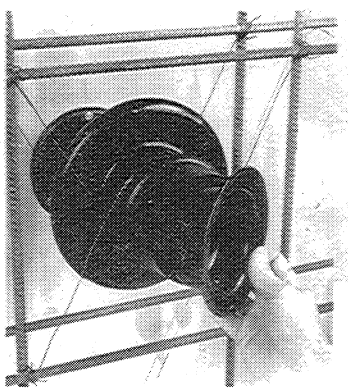
2. Place sleeve body on end cap. Sleeve body should be cut 1/2" shorter than width of wall. Cut with hand or power saw. (To insure maximum sealing against water migration, center water stop in wall by cutting equal lengths from each end.)



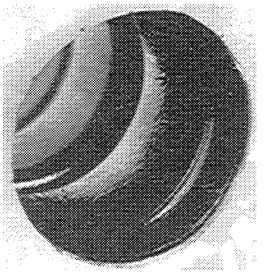
3. For additional stability, it may be necessary to secure the sleeve to reinforcing rod with wire or in a similar fashion.



4. Before final form is positioned, place second end cap on sleeves. Check to determine that cap is properly inserted.



5. Remove forms. Then end caps may be replaced to protect sleeve from dust and debris until conduit penetration is made. At that time remove caps and wipe the sleeve clean.



COOPER
Crouse-Hinds
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