



METRALOOP INSTALLATION INSTRUCTIONS FOR SEISMIC APPLICATIONS

GENERAL: For structures that are designed to withstand a seismic event, there are two ways to design the building. The most common method is to install seismic separations in the building that will separate in a seismic event, leaving the sections of the building intact. The other method utilizes base isolation systems, where the whole building moves as one.

The installation instructions below are for products designed to protect piping crossing seismic separations. Base isolation systems generally have much higher movements and we consider products designed for these systems to be engineered products and they are not covered here.

Unless local code requirements or contract documents specify otherwise, we recommend following the guidelines for seismic joint configuration called out in NFPA 13. Please note that the requirements found in NFPA 13 are only mandatory for fire sprinkler systems.

1. Inspect joint for shipping damage, ensure that the shipping bar is intact.
2. During installation, make sure that the sections of flexible hose and braid are protected from damage and overextension. Weld splatter must be kept away from the flexible legs.
3. When required, Metraloops should be insulated with flexible unicellular, mineral wool or fiberglass insulation. Ridged insulations should be avoided on the hose element to avoid point loading the hose. Insulation should be selected and installed to avoid moisture entrapment.
4. For Copper sweat applications, cold strap the fitting that is being soldered or brazed. Thoroughly flush flux from the inside of the system, clean off any flux from the outside of the hose.
5. Metraloops are shipped with shipping bars to maintain the Loops neutral position. Shipping bars must be removed after installation.

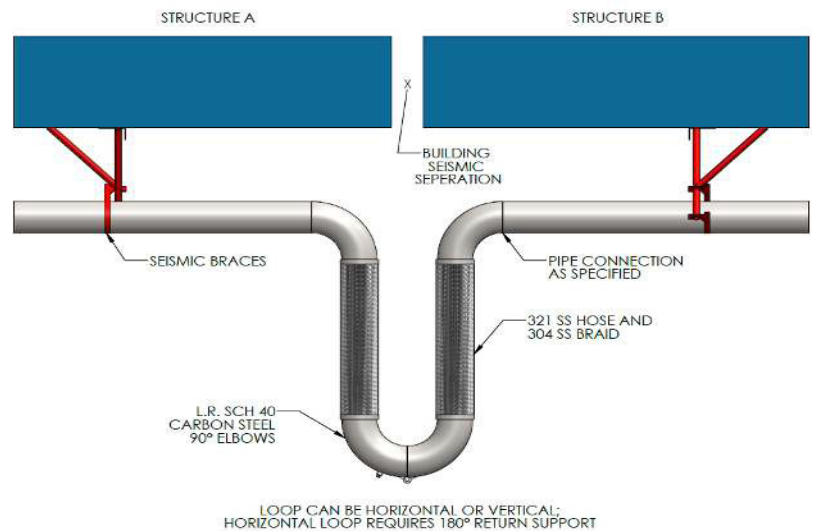
APPLICATION: The Metraloop is ideally suited to be used as a seismic device due to the low loads it develops. Loads developed by the Metraloop at 150 PSI:

2"	78 lbs.
2.5"	83 lbs.
3"	90 lbs.
4"	120 lbs.
5"	186 lbs.
6"	202 lbs.
8"	260 lbs.
10"	283 lbs.
12"	390 lbs.



Depending on the construction and the route of the piping, a Dog Leg may be used in place of the Metraloop. The installation procedure will be similar for both.

INSTALLATION: NFPA 13 calls out that the seismic device (Metraloop) be installed within 2 feet of the seismic separation, and the bracing be installed within 6 feet of the seismic separation. If this is not possible, consult with Metraflex.

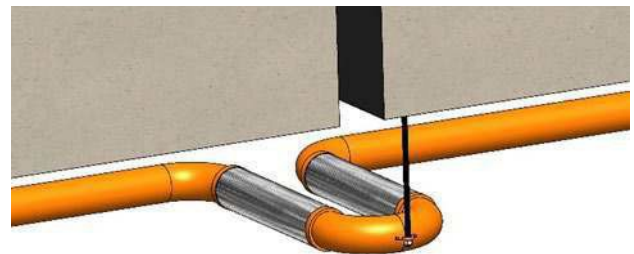


SUPPORTING THE METRALOOP 180°

RETURN: The Metraloop 180° return is self-supporting in 2 ½” and down with 4” or less movement.

HANGING DOWN: In the detail above, the Metraloop is hanging down. In this configuration, the Metraloop does not require any additional support.

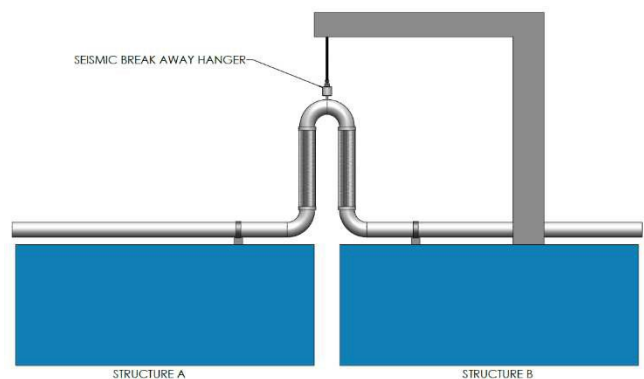
HORIZONTAL INSTALLATION: For horizontal installation of a Metraloop larger than 2 ½”, the 180° return fitting will need to be supported with a hanger rod or cable. The length of the hanger rod shall be a minimum of 12” plus half the nominal pipe size or 2 times the amount of movement, whichever is greater. If the hanger rod or cable does not meet the minimum length, a Seismic BreakAway Hanger from Metraflex is to be installed.



VERTICAL INSTALLATION: For vertical installations of a Metraloop larger than 2 ½” with movement less than or equal to 4”, the 180° return fitting will need to be supported and a Seismic BreakAway Hanger from Metraflex installed in the cable / rod.



Seismic BreakAway Hanger



Clearance Around Metraloops: Metraloops must have unobstructed clearance in all directions that is equal to the rated seismic movement to be able to move. For nested Metraloops, the distance between Metraloops should be equal to the pipe spacing on the main run.



INSTALLATION NOTES

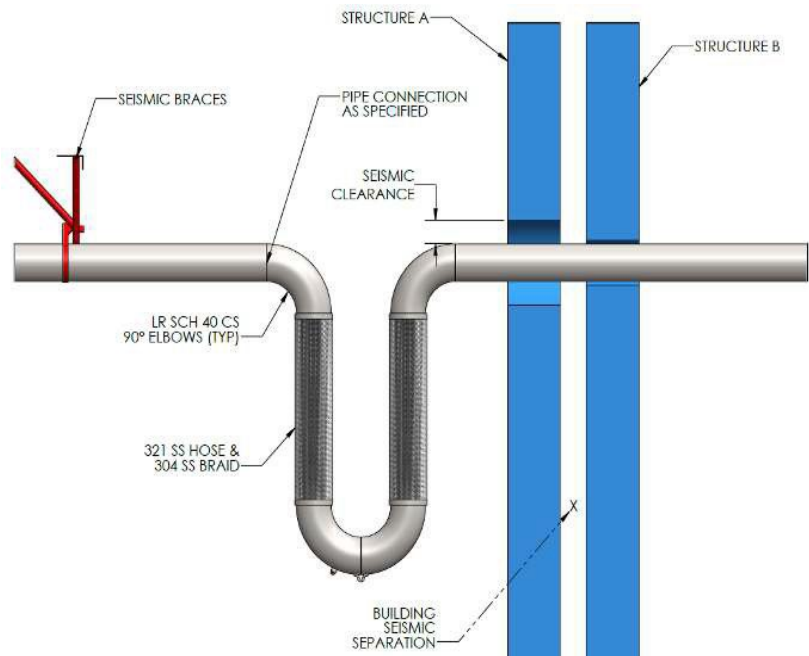
NO HUB COUPLINGS: No hub couplings are very popular for plumbing systems. We can supply a Metraloop to accommodate no hub couplings. When this happens, we recommend that no hub reinforcement brackets be used since the no hub couplings were designed for static installation, not seismic movement. See below



SEISMIC SEPARATION BETWEEN WALLS: A very common question is how to handle a situation where the seismic separation is between two walls.

You would need to create a seismic clearance in one wall as shown below. The seismic clearance needs to be the seismic movement plus 2 inches per NFPA 13. If you do not have this clearance a seismic event would shear off the pipe.

You would then place the Metraloop on the same side with the seismic clearance and put the brace on the other side of that. If the customer is concerned with an open hole, this can be sealed with a sheet metal escutcheon plate that would yield during a seismic event and need to be replaced afterward.



COMBINED SEISMIC AND THERMAL APPLICATIONS

In cases where the Metraloop is to be used for both seismic and thermal movement, the Metraloop must be sized to handle the combined movements and the seismic bracing would be replaced by a guide with pipe hangers.



Note: Although not all installation cases require a Seismic BreakAway Hanger, we recommend that they be used whenever any seismic loop is installed. It is often overlooked that with the standard seismic installation, the loop is hung from one of the structures. The result is that in a seismic event, one side of the loop does all the work while the other side does not move. Using a Seismic BreakAway Hanger, that will release in a seismic event will allow both sides of the loop to flex. See drawings below.

