

LINING ROUND OR OVAL DUCTS WITH K-FLEX ELASTOMERIC INSULATION



Double Wall Construction



1. Most round or oval ducts that are insulated are double wall construction. The primary reason for this is to hold the insulation in place and to isolate fibrous liners from the air stream. Double wall construction is commonly used when the duct is lined with fiberglass. The standard technique for lining a double wall round duct is to adhere the insulation to the inner duct layer and slide the outer duct layer over it. Given that the open fibrous structure of fiberglass that compresses very easily, the outer core easily slides over the inner layer. When closed cell elastomeric insulation is used as a lining material, the gauge (thickness) of the insulation is critical as it does not compress as readily as fiberglass and has more surface friction.

The elastomeric insulation should be gauged to ensure that, when it is installed, the OD of the insulation is less than the ID of the outer duct shell. This allows the two layers to fit over each other. Duct lengths may have to be shortened to 4' or 6' maximum lengths to allow for insertion into the outer shell. The insulation is cut to fit around the inner duct such that the ends meet to make a seam (no overlap).

2. Adhesive (hot melt, water or solvent-based) is applied to both ends of the insulation sheet. The inner duct is adhered to the insulation sheet and the insulation is rolled onto the duct. Mate the ends of the insulation. The seams should be glued, although the double wall will prevent the insulation from moving.

3. The inner duct (with insulation) is then slid into the outer duct. A slight gap between the two layers is acceptable. Talc can be applied to the outer surface of the insulation to allow easier insertion into the outer duct, or the insulation can be tightly wrapped with a plastic sheet (which is removed after mating) to reduce friction.
4. Note that the greatest issue is with nominal 1” thick K-Flex Duct Liner Gray, as the actual thickness is 1.05” to provide an R = 4.2 typically required by code.

Single Wall Construction

Double wall construction is not mandatory when using elastomeric insulation to line round ducts.

Elastomeric insulation can be adhered to the inner wall of the round duct using contact adhesives.

Depending on the duct diameter, the length of the duct sections may have to be shortened to 4’ or 6’ maximum lengths to allow the liner to be adhere to the duct and pinned.

K-Flex 1120 water-based adhesive can be used, noting that extended time must be allowed for the adhesive to tack. Spray application shortens the tack time. Ideally, the liner seam should run longitudinally along the duct as this limits the duct length to a maximum of 5 feet without a traverse seam, as this is the maximum width of the liner. The longitudinal seam and the traverse seam should be sealed with an approved contact adhesive.