

## INSULATING LARGE DIAMETER PIPE WITH K-FLEX SHEET INSULATION

Large diameter pipe can be insulated with K-FLEX USA flexible, closed-cell elastomeric sheet insulation products. K-Flex sheet insulation is available in 3' x 4' sheets or 4' wide rolls. Roll width will vary based on thickness. Pre-formed tubing sizes are manufactured up to 8" IPS. It may be more economical to use sheet to insulate pipes that are 5" IPS or larger. On a material basis, pre-formed pipe insulation in large sizes is more expensive as a result of the manufacturing process and shipping costs. Flat sheet or rolls can be shipped more economically than material in a pipe form. This must be weighed against waste factors, especially when using sheets. For *indoor* applications, sheet can be pre-cut to fit the circumference of the pipe, making for easy installation. Roll products can offer savings over sheet products in terms of product yield and flexibility of fabrication. By simply cutting all lengths to 4 feet, using the roll width as the length – thus the various widths needed for different pipe diameters can be cut from the roll length). Other benefits of using sheet products vs. pre-formed pipe insulation are fewer inventory items, less space required for inventory and a better fit on the pipe.

Notes: Sheet thickness should be limited to what will easily wrap around the pipe without placing too much stress on the seam. It may be necessary to use multiple layers to attain the required thickness. Before pre-cutting large quantities of sheet, it is recommended that the sheet be test fitted to the pipe work. Sheet should fit loosely (no stress on the seam), approximately ¼" space between the insulation and the pipe. Never stretch insulation over the pipe work. Elastomeric insulation expands and contracts with temperature changes, so sheet should be cut and installed with minimal temperature fluctuations. Pre-cutting large quantities of sheet to be used over long periods of time is not recommended. Insulation installed *outdoors* or in unconditioned spaces is subject to temperature related expansion and contraction. If the sheet is pre-cut, enough additional length should be added so that adjustments can be made on site to attain proper fit.

### Calculating Sheet Lengths

The sheet length required is based on the OD of the pipe to be insulated. The formula used to estimate the sheet stretch out in the attached table is:  $(\text{pipe OD} + 2 \times \text{insulation thickness}) \times 3.14 = \text{sheet length}$ . This formula can be used for other pipe sizes and / or insulation thicknesses. An additional ¼ - ½" can be added to the lengths in the table for a looser fit, but this may affect the yield.

### Installation Recommendations

Select the optimum size sheet for the pipe work based on the table below. Make length adjustments if necessary and cut sheets to length. Apply a brush coat of contact adhesive to both seams. Fully adhering the sheet to the pipe is not recommended. On pipe sizes 12" and larger, sheet should be adhered to the bottom 1/3 of the pipe with the seam positioned to the top of the pipe. Place the insulation around the pipe and firmly press the seams together. Join opposite ends first, and then work towards the center. (This ensures straight edges at the ends for better butt joints). Finally, apply adhesive to butt joints and press adjoining insulation sections firmly together.

Note: In critical conditions for chilled water and refrigerant systems, create a vapor dam by applying a band of contact adhesive to the pipe and sheet insulation inner surface for a least ½" on either side of all butt joints. Refer to the K-Flex USA INSTALLATION MANUAL for detailed installation techniques.

## Sheet Yield Chart

(Yields When Using Sheet to Insulate Large Diameter Pipe)

Note: Rolls can offer better yield than sheet.

\*Outer circumference of insulation when installed on pipe. Add 1/4" to 1/2" for looser fit (may affect yield).

Pipe Size (Actual OD, in)	Insulation Thickness (in.)	Width (in.) Pipe Circumference*	Sheet/Roll Length (Configuration)	Yield, Linear Feet of Pipe Work per 3' x 4' Sheet or per Designated Roll Size
5" IPS  (5 5/8")	1/2	20 4/5	Sheets-36"	6
	3/4	22 1/2	Sheets-36"	6
	1	24	Sheets-36"	6
	1 1/2	27 1/4	Sheets- 48"	4
	2	30 1/4	Sheets- 48"	4
6 IPS  (6 5/8")	1/2	24	Sheets-36"	6
	3/4	25 1/2	Sheets- 48"	4
	1	27 1/4	Sheets- 48"	4
	1 1/2	30 1/4	Sheets- 48"	4
	2	33 1/2	Sheets- 48"	4
8 IPS  (8 5/8")	1/2	30 1/4	Sheets- 48"	4
	3/4	31 7/8	Sheets- 48"	4
	1	33 1/2	Sheets- 48"	4
	1 1/2	36 1/2	Sheets-36"	3
	2	39 5/8	Sheets-36"	3
10 IPS  (10 3/4")	1/2	36 8/9	Sheets-36"	3
	3/4	38 1/2	Sheets-36"	3
	1	40	Sheets-36"	3
	1 1/2	43 1/8	Sheets-36"	3
	2	46 3/8	Sheets-36"	3
12 IPS  (12 3/4")	1/2	43 1/4	Sheets-36"	3
	3/4	44 3/4	Sheets-36"	3
	1	46 1/2	Sheets-36"	3
	1 1/2	49 1/2	Rolls- 48" x 25'	24
	2	52 3/4	Rolls-48" x 15'	12
14 IPS  (14")	1/2	47 1/9	Sheets- 48"	3
	3/4	48 3/4	Rolls- 48" x 50'	48
	1	50 1/4	Rolls-48" x 35'	32
	1 1/2	53 1/2	Rolls- 48" x 25'	20
	2	56 1/2	Rolls-48" x 15'	12
16 IPS  (16")	1/2	53 1/2	Rolls- 48" x 70'	60
	3/4	55	Rolls- 48" x 50'	40
	1	56 1/2	Rolls-48" x 35'	28
	1 1/2	59 3/4	Rolls- 48" x 25'	20
	2	62 3/4	Rolls-48" x 15'	8
18 IPS  (18")	1/2	59 3/4	Rolls- 48" x 70'	56
	3/4	61 1/4	Rolls- 48" x 50'	36
	1	62 3/4	Rolls-48" x 35'	24
	1 1/2	66	Rolls- 48" x 25'	16
	2	69 1/8	Rolls-48" x 15'	8
20 IPS  (20")	1/2	66	Rolls- 48" x 70'	48
	3/4	67 1/2	Rolls- 48" x 50'	32
	1	69 1/8	Rolls-48" x 35'	24
	1 1/2	72 1/4	Rolls- 48" x 25'	16
	2	75 3/8	Rolls-48" x 15'	8

Above recommendations are based on the following formula: (pipe OD + 2x insulation thickness) x 3.14 = sheet length.

