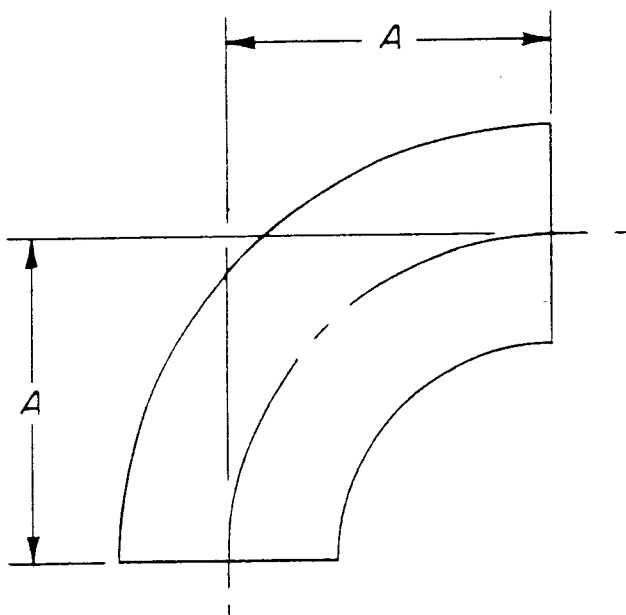


Engineering Guidelines for Designing Fittings and Joints

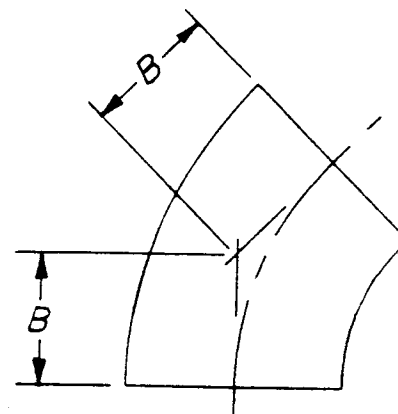
Industrial Fiberglass has the ability to design and fabricate a full complement of standard fittings (elbows, tees, wyes and reducers). The dimensions of these standard fittings are given in a series of figures and tables which follow. Where necessary, the laying lengths of the standard fittings can often be varied to accommodate project conditions.

In addition, Industrial Fiberglass can fabricate a wide variety of specials to accommodate those project conditions that require flow conditions that are not served by the standard fittings. When such specials are required, contact your Industrial Fiberglass representative for further detail.

Fittings and specials are designed and fabricated for both gravity flow and pressure conditions. Factors such as pressure, vacuum, depth of burial, angular flow change, whether thrust blocks are used, and temperature variations are accounted for in the design of the filament wound pipe sections, in the reinforcement used to connect pipe sections, and in the joining of the fittings and specials to the other parts of the pipeline.



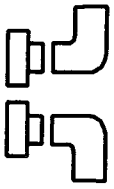
90° Smooth Sweep Elbow



45° Smooth Sweep Elbow

Smooth Sweep Elbows - Notes

1. Smooth sweep elbows are currently available for diameters up to 24".
2. Smooth sweep elbows are available for turning angles other than 90° and 45°. For laying lengths, contact Industrial Fiberglass.



Industrial Fiberglass Specialties, Inc.

521 Kiser Street
Dayton, OH 45404-1641
Tel: 937-222-9000
Fax: 937-222-9020

Duct Fitting Dimensions

03-31-00

Page #2 of 4

Fitting Dimensions In Inches

Dia.	A	B	C	D	E	F	G
12"	18	7-1/2	16	26	38	12	---
14"	21	8-3/4	18	30	42	12	---
16"	24	10	20	32	46	14	---
18"	27	11-1/4	21	36	50	14	---
20"	30	12-1/2	22	38	54	16	---
24"	36	15	24	42	60	18	---
30"	45	18-3/8	30	52	72	20	12
36"	54	22-1/2	33	62	84	22	14-1/2
42"	63	26	36	72	96	24	16-7/8
48"	72	29-7/8	42	90	132	42	19-1/4
54"	81	33-1/2	48	102	150	48	21-3/4
60"	90	37-1/4	54	112	164	52	24
72"	108	44-3/4	66	135	198	63	29
84"	126	52-1/4	72	154	224	70	33-3/4
96"	144	59-5/8	84	170	244	74	38-1/2
108"	162	67	96	190	272	82	43-1/2

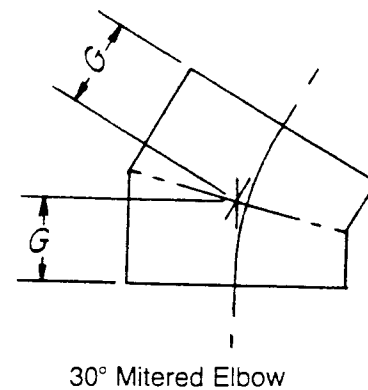
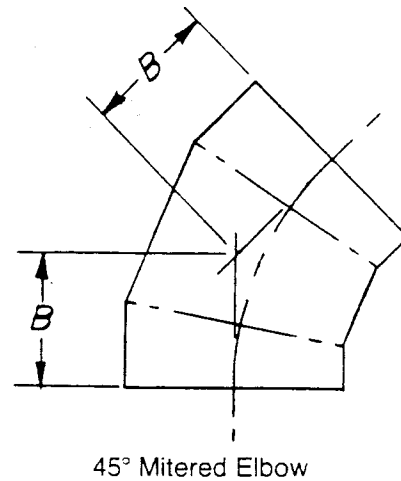
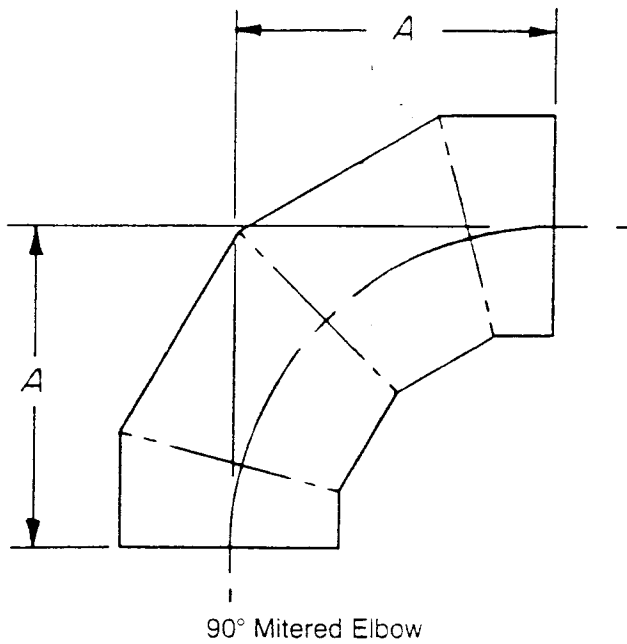
General Elbow Notes

12" dia. - 24" dia. elbows are smooth flow

30" dia. - 108" dia. elbows are mitered

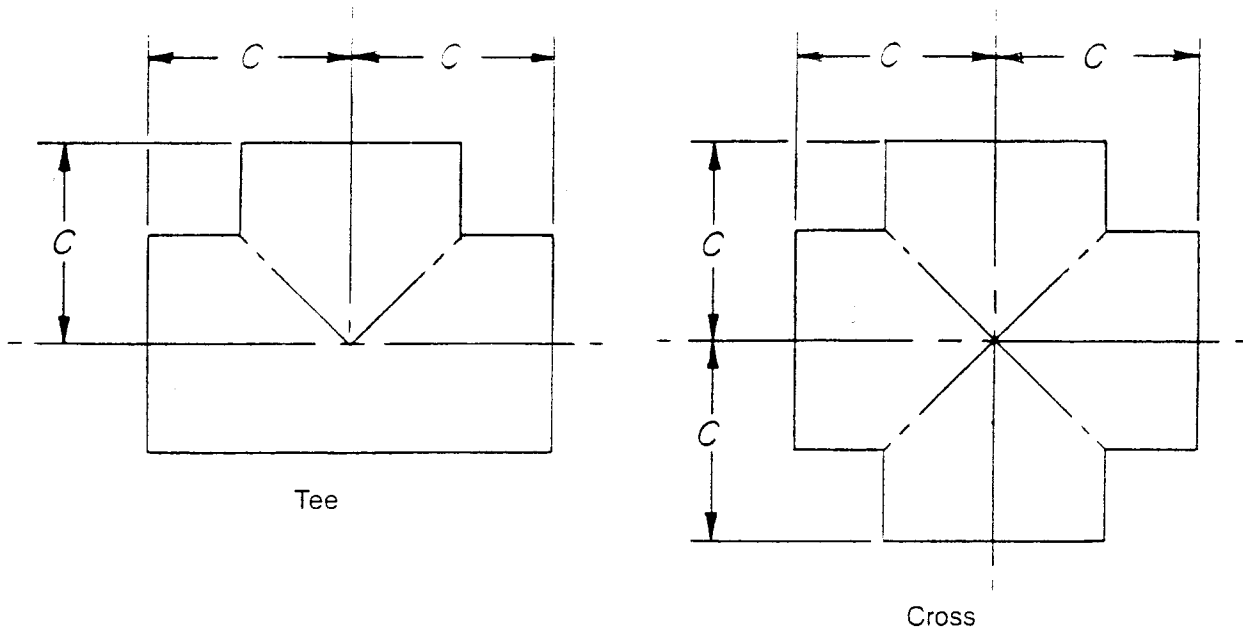
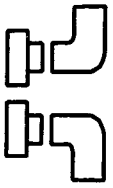
All dimensions are for plain end fittings.
For flanged or bell and spigot fittings, contact Industrial Fiberglass.

For intermediate sizes, and sizes larger than 108", contact Industrial Fiberglass.



Mitered Elbows - Notes

- Mitered elbows are available for other angles. Angles between 0° and 30° will use two mitered sections, angles between 31° and 60° will use three mitered sections, angles between 60° and 90° will use four mitered sections. For laying lengths, contact Industrial Fiberglass.
- Mitered elbows are available in diameters 30" and larger.

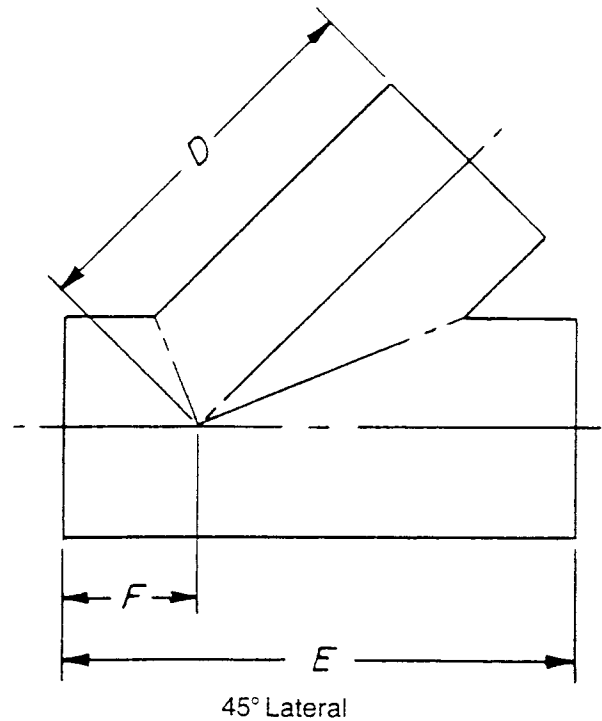


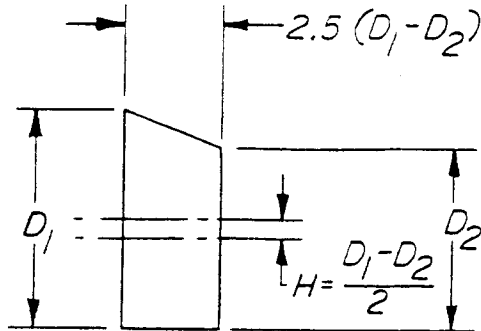
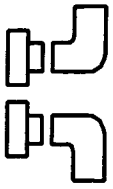
Tees and Crosses - Notes

1. Tees and crosses have been drawn and are dimensioned for the condition where the diameter of all connections is equal.
2. Tees and crosses are available where the diameters of the through pipe and branch connections are not equal. For the laying length ("C") for such situations, contact Industrial Fiberglass.

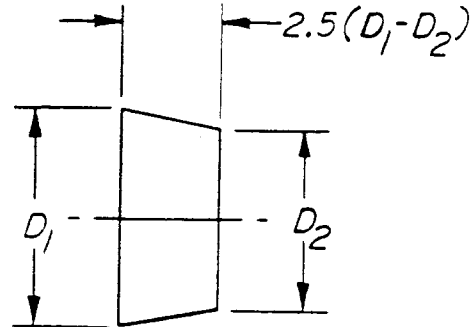
Laterals - Notes

1. The 45° lateral has been drawn and is dimensioned for the condition where the diameter of all connections is equal.
2. Laterals are available where the angle is other than 45°, and where the diameters of the through pipe and branch connections are not equal. For the laying lengths ("D", "E", and "F") for such conditions, contact Industrial Fiberglass.

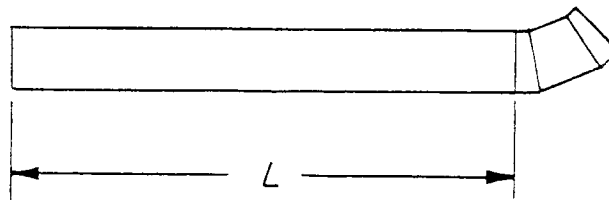




Eccentric Reducer



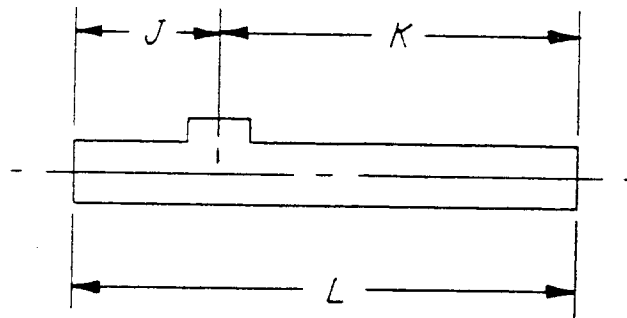
Concentric Reducer



Fitting Connected to End of Pipe

When possible, a fitting will be connected to the end of a length of pipe and shipped as a single unit.

"L" = Standard length of pipe.



Fitting Within Length of Pipe

When possible, a fitting (tee, cross, or lateral) will be placed within a length of pipe and shipped as a single unit.

"L" = Standard length of pipe.

"J" and "K" = To suit project requirements.