

interchangeable, although for refrigeration use, thread fits and tolerances on thread gages must be maintained within close limits.

Ammonia pipe fittings made of cast iron are extensively used in handling refrigerants in larger installations. Until recently, no standard dimensions were adhered to in the manufacture of ammonia flanged fittings or companion flanges with the result that fittings of different manufacturers were not interchangeable. A subcommittee of A.S.A Sectional Committee B16 has prepared proposed American Standard dimensions for ammonia flanged fittings and companion flanges for maximum service pressure of 300 lb per sq in. which will be available soon.

Thread Connections

Threads used for fittings are the same American Standard taper pipe threads as those used for pipe, and unless otherwise ordered, right-hand

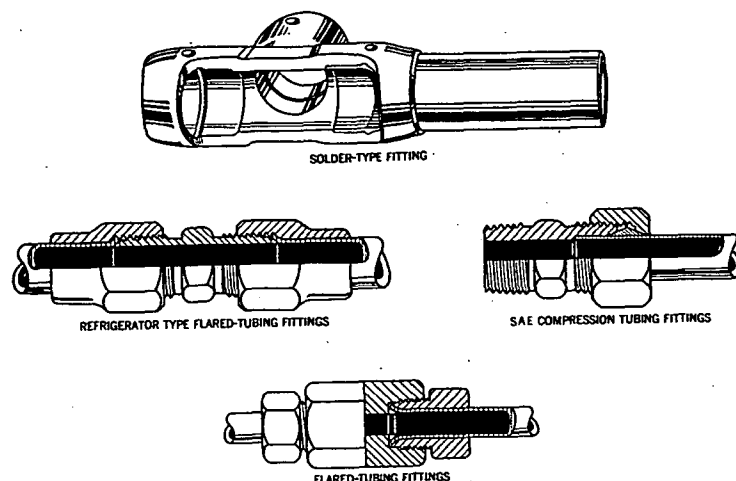


FIG. 2. COPPER OR BRASS TUBING FITTINGS

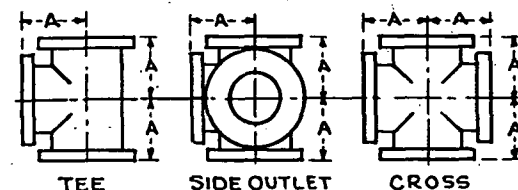
threads are used. To facilitate drainage, some elbows have the thread tapped at an angle to provide a pitch of the connecting pipe of $\frac{1}{4}$ in. to the foot. These elbows are known to the trade as pitched elbows and are commercially available. Malleable iron fittings, like brass fittings, are cast with a round instead of a flat bead or bead, or with no bead at all. Fittings are designated as male or female, depending on whether the threads are on the outside or inside, respectively.

Flanged fittings are generally used in the best practice for connecting all piping above 4 in. in diameter. While screwed fittings may be used for the larger sizes and are satisfactory under the proper working conditions, it will be found difficult either to make or to break the joints in these large sizes.

A number of different flange facings in common use are plain face,

raised face, tongue and groove, and male and female. Cast-iron fittings for 125 lb pressure and below are normally furnished with a plain face, while the 250 lb cast-iron fittings are supplied with a $\frac{1}{16}$ -inch raised face. The standard facing for steel flanged fittings for 150 and 300 lb is a

TABLE 8. AMERICAN STANDARD DIMENSIONS OF TEES AND CROSSES (STRAIGHT SIZES) FOR 125 LB CAST-IRON FLANGED FITTINGS



NOMINAL PIPE SIZE a-b	A	AA	DIAMETER OF FLANGE	THICKNESS OF FLANGE, MIN.	METAL THICKNESS OF BODY, MIN.
	CENTER TO FACE TEES AND CROSSES b-c	FACE TO FACE TEES AND CROSSES b-c			
1	3½	7	4¼	⅞	⅞
1¼	3¾	7½	4¾	⅞	⅞
1½	4	8	5	⅞	⅞
2	4½	9	6	⅞	⅞
2½	5	10	7	1⅞	⅞
3	5½	11	7½	⅞	⅞
3½	6	12	8½	1⅞	⅞
4	6½	13	9	1⅞	⅞
5	7½	15	10	1⅞	⅞
6	8	16	11	1	⅞
8	9	18	13½	1½	⅞
10	11	22	16	1⅞	¾
12	12	24	19	1¾	1⅞
14 O.D.	14	28	21	1⅞	⅞
16 O.D.	15	30	23½	1⅞	1
18 O.D.	16½	33	25	1⅞	1⅞
20 O.D.	18	36	27½	1⅞	1⅞
24 O.D.	22	44	32	1⅞	1⅞
30 O.D.	25	50	38¾	2½	1⅞
36 O.D.	28	56	46	2⅞	1⅞
42 O.D.	31	62	53	2⅞	1⅞
48 O.D.	34	68	59½	2¾	2

All dimensions given in inches.

aSize of all fittings listed indicates nominal inside diameter of port.

bTees, side outlet tees, and crosses, 18 in. and smaller, reducing on the outlet, have the same dimensions center to face, and face to face as straight size fittings corresponding to the size of the larger opening. Sizes 18 in. and larger, reducing on the outlet, are made in two lengths, depending on the size of the outlet.

cTees and crosses, reducing on run only, carry same dimensions center to face and face to face as a straight size fitting of the larger opening.

$\frac{1}{16}$ -inch raised face although these fittings are obtainable with a variety of facings. The gasket surface of the raised face may be finished smooth or may be machined with concentric or spiral grooves often referred to as serrated face or phonograph finish, respectively.

The dimensions of elbows, tees and crosses for 125 lb cast-iron screwed