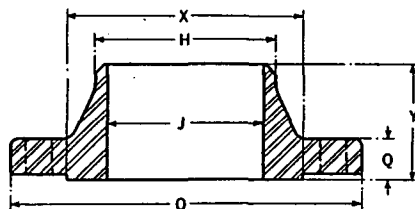


to 250 lb saturated steam working pressure, although most manufacturers also make valves for medium pressure up to 175 lb steam working pressure. The more common types are gate valves or straightway valves, globe valves, angle valves, check valves and automatic valves, such as reducing and back-pressure valves.

Gate valves are the most frequently used of all valves since in their open position the resistance to flow is a minimum. These valves may be

TABLE 12. AMERICAN STANDARD DIMENSIONS OF STEEL WELDING NECK FLANGES FOR STEAM SERVICE PRESSURE RATING OF 300 LB PER SQ IN. (GAGE) AT A TEMPERATURE OF 750 F



NOMINAL PIPE SIZE	DIAM. OF FLANGE	THICKNESS OF FLG. MIN.	DIAM. OF HUB	HUB DIAM. BEGINNING OF CHAMFER 60°-d	LENGTH THRU HUB ^a	INSIDE DIAM. OF PIPE SCHEDULE 40 ^c -d	INSIDE DIAM. OF PIPE SCHEDULE 80 ^c -d	DIAM. OF BOLT CIRCLE	No. OF BOLTS	SIZE OF BOLTS
	O	Q	X	H	Y	J	J			
1/2	3 3/4	9/16	1 1/2	0.84	2 1/16	0.62*	0.55†	2 5/8	4	1/2
3/4	4 5/8	5/8	1 7/8	1.05	2 1/4	0.82*	0.74†	3 1/4	4	5/8
1	4 7/8	1 1/16	2 1/8	1.32	2 3/8	1.05*	0.96†	3 1/2	4	5/8
1 1/4	5 1/4	3/4	2 1/2	1.66	2 7/8	1.38*	1.28†	3 3/8	4	5/8
1 1/2	6 1/8	13/16	2 3/4	1.90	2 11/16	1.61*	1.50†	4 1/2	4	3/4
2	6 1/2	7/8	3 3/16	2.38	2 3/4	2.07*	1.94†	5	8	5/8
2 1/2	7 1/2	1	3 11/16	2.88	3	2.47*	2.32†	5 1/8	8	3/4
3	8 1/4	1 1/8	4 5/8	3.50	3 1/8	3.07*	2.90†	6 5/8	8	3/4
3 1/2	9	1 1/16	5 1/4	4.00	3 3/16	3.55*	3.36†	7 1/4	8	3/4
4	10	1 1/4	5 3/4	4.50	3 3/8	4.03*	3.83†	7 7/8	8	3/4
5	11	1 3/8	7	5.56	3 7/8	5.05*	4.81†	9 1/4	8	3/4
6	12 1/2	1 7/16	8 1/8	6.63	3 7/8	6.07*	5.76†	10 5/8	12	3/4
8	15	1 5/8	10 1/4	8.63	4 3/8	7.98*	7.63†	13	12	7/8
10	17 1/2	1 7/8	12 5/8	10.75	4 5/8	10.02*	-----	15 1/4	16	1
12	20 1/2	2	14 3/4	12.75	5 1/8	-----	-----	17 3/4	16	1 1/8
14 OD	23	2 1/8	16 3/4	14.00	5 5/8	To Be Specified by Purchaser	To Be Specified by Purchaser	20 1/4	20	1 1/8
16 OD	25 1/2	2 3/4	19	16.00	5 3/4	To Be Specified by Purchaser	To Be Specified by Purchaser	22 1/2	20	1 1/4
18 OD	28	2 3/8	21	18.00	6 1/4	To Be Specified by Purchaser	To Be Specified by Purchaser	24 3/4	24	1 1/4
20 OD	30 1/2	2 1/2	23 1/8	20.00	6 3/8	To Be Specified by Purchaser	To Be Specified by Purchaser	27	24	1 1/2
24 OD	36	2 3/4	27 5/8	24.00	6 5/8	To Be Specified by Purchaser	To Be Specified by Purchaser	32	24	1 1/2

All dimensions given in inches.

^aA raised face of 1/4 in. is included in thickness of flange minimum and in length through hub.

^bThis outside surface of the welding end of the hub shall be straight or tapered at not more than 6 deg

^cDimensions H and J correspond to the outside and inside diameters of pipe as given in ASA B36.10-1939, Schedules 40 and 80. Purchaser's order must specify which of these two inside diameters is desired.

^dThese flanges are regularly bored to match inside diameter of Schedule 40 pipe, but are bored to Schedule 80 pipe when so ordered.

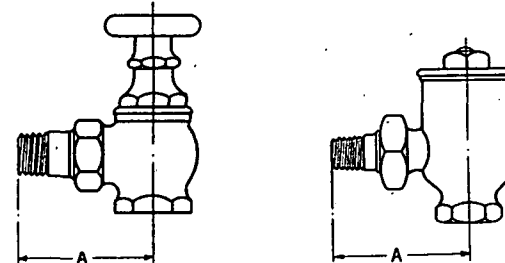
*These diameters are identical with the diameters of what was formerly designated as *Standard Weight Pipe* of the corresponding sizes.

†These diameters are identical with the diameters of what was formerly designated as *Extra-Strong Pipe* of the corresponding sizes.

secured with either a rising or a non-rising stem, although in the smaller sizes the rising stem is more commonly used. The rising stem valve is desirable because the positions of the handle and stem indicate whether the valve is open or closed, although space limitations may prevent its use. The globe valve is less expensive to manufacture than the gate valve, but its peculiar construction offers a high resistance to flow and may prevent complete drainage of the pipe line. These objections are of particular importance in heating work.

Check valves are automatic in operation and permit flow in only one direction, depending for operation on the difference in pressure between

TABLE 13. STANDARD ROUGHING-IN DIMENSIONS ANGLE TYPE VALVES



SIZE OF VALVE	DIMENSION A STEAM AND HOT WATER ANGLE VALVES AND UNION ELBOWS EFFECTIVE JANUARY 1, 1926	DIMENSION A MODULATING VALVES EFFECTIVE JANUARY 1, 1926	DIMENSION A RETURN LINE VACUUM VALVES EFFECTIVE JANUARY 1, 1925
1/8	2 1/4	2 3/4	3 1/4
3/4	2 3/4	2 3/4	---
1	3	3	---
1 1/4	3 1/2	3 1/2	---
1 1/2	3 3/4	3 3/4	---
2	4 1/4	4 1/4	---
Tolerance	+1/8	+1/8	---

All dimensions given in inches.

Connecting ends shall be threaded and gaged as to threading according to the American (Taper) Pipe Thread Standard, A.S.A. No. B2-1919.

The standardization of the Roughing-in Dimensions of Angle Steam and Hot Water, and Modulating Radiator Valves was made possible by the cooperation of the *Manufacturers Standardization Society of the Valves and Fittings Industry*.

the two sides of the valve. The two principal kinds of check valves are the swing check in which a flapper is hinged to swing back and forth, and the lift check in which a dead-weight disc moves vertically from its seat.

Valves commonly used for controlling steam or water supply to radiators constitute a special class since they are manufactured to meet heating system requirements. These valves are generally of the angle type and are usually made of brass. Graduations on the heads or lever handles are often supplied to indicate the relative opening of the valve in any position. Standard roughing-in dimensions for angle-type valves are given in Table 13.

Automatic control of steam supply to individual radiators can be