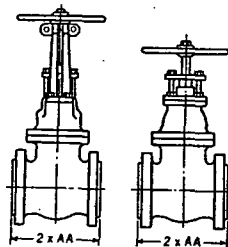


TABLE 11. AMERICAN STANDARD CONTACT SURFACE TO CONTACT SURFACE DIMENSIONS OF CAST-IRON AND STEEL FLANGED WEDGE GATE VALVES, A.S.A. B16.10-1939



NOMINAL PIPE SIZE	CONTACT SURFACE TO CONTACT SURFACE DIMENSIONS, (2 X AA)				
	Cast-Iron ^a			Steel	
	125	175b ^c	250b	150b	300b
1	—	—	—	—	—
1 1/4	—	—	—	—	—
1 1/2	—	—	—	—	—
2	7	7 1/4	8 1/2	7	7 1/2
2 1/2	7 1/2	8	9 1/2	7 1/2	8 1/2
3	8	9 1/4	11 1/2	8	9 1/2
3 1/2	8 1/2	10	11 1/8	8 1/2	11 1/8
4	9	10 1/2	12	9	11 1/8
5	10	11 1/2	15	10	15
6	10 1/2	13	15 1/8	10 1/2	15 1/8
8	11 1/2	14 1/4	16 1/2	11 1/2	16 1/2
10	13	16 3/4	18	13	18
12	14	17 1/2	19 3/4	14	19 3/4
14 O.D.	15	—	22 1/2	15	30
16 O.D.	16	—	24	16	33
18 O.D.	17	—	26	17	36
20 O.D.	18	—	28	18	39
24 O.D.	20	—	31	20	45

All dimensions given in inches.

^aThese dimensions are the same for Cast-Iron Double Disc Flanged Gate Valves.

^bThese are pressure designations which refer to the primary service ratings in pounds per square inch of the connecting end flanges.

^cThe connecting end flanges of 175 lb valves are the same as those on 250 lb valves.

NOTE 1:—Where dimensions are not given, the sizes either are not made or there is insufficient demand to warrant the expense of unification.

NOTE 2:—Female and groove joint facings have bottom of groove in same plane as flange edge, and center to contact surface dimensions for these facings are reduced by the amount of the raised face.

direction, depending for operation on the difference in pressure between 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.

Automatic control of steam supply to individual radiators can be effected by use of direct-acting radiator valves having a thermostatic element at the valve, or near to it. The direct-acting valve is usually an angle-type valve containing a thermostatic element which permits the flow of steam in accordance with room temperature requirements. These valves usually are capable of adjustment to permit variation in room temperature to suit individual taste.

Ordinary steam valves may be used for hot water service by drilling a 1/16-in. hole through the web forming the seat to insure sufficient circulation to prevent freezing when the valve is closed. Valves made particularly for use in hot water heating systems are of less complex design, one type consisting of a simple butterfly valve, and another of a quick opening type in which a part in the valve mechanism matches up with an opening in the valve body.

In one-pipe steam-heating systems, automatic air valves are required at the radiators. Two common types of air valves available are the vacuum type and the straight-pressure type. Vacuum valves permit the expulsion of air from the radiators when the steam pressure rises and, in addition, act as checks to prevent the return of air into the radiator when a vacuum is formed by the condensation of steam after the supply pressure has dropped. Ordinary air valves permit the expulsion of air from the radiator when steam is supplied under pressure, but when the pressure dies down and a vacuum tends to be formed the air is drawn back into the radiator.

CORROSION^a

Corrosion is sometimes encountered in heating work on the outside of buried pipes or the inside of steam heating systems; it is seldom experienced in hot water heating systems unless the water is frequently renewed. Piping buried in the ground is quite successfully protected by coatings of the asphaltic type which are usually applied hot and often reinforced with fabric wrappings. Galvanizing by the hot-dip process and painting with specially prepared mixtures also afford some protection.

Internal corrosion in steam heating systems occurs principally in the condensate return pipes and is nearly always caused by oxygen or carbon dioxide, or both, in solution in the condensate. Oxygen may enter the heating system with the steam, owing to its presence in the boiler-feed water, or it may enter as air through small leaks, particularly in systems which operate at sub-atmospheric pressures. When a steam heating system is operated intermittently, air rushes in during each shutdown period and oxygen is absorbed by the condensate which clings to the interior surfaces of the pipes and radiators. The rate of corrosion depends upon the amounts of oxygen and carbon dioxide present in solution, upon

^aNew Light on Heating System Corrosion, by J. H. Walker (*Heating and Ventilating*, May, 1933). A.S.H.V.E. RESEARCH REPORT No. 983—Corrosion Studies in Steam Heating Systems, by R. R. Seeber, F. A. Rohman and G. E. Smedberg, (A.S.H.V.E. TRANSACTIONS, Vol. 40, 1934, p. 253). A.S.H.V.E. RESEARCH REPORT No. 1037—Corrosion Studies in Steam Heating Systems, by R. R. Seeber, F. A. Rohman and G. E. Smedberg, (A.S.H.V.E. TRANSACTIONS, Vol. 42, 1936, p. 263). A.S.H.V.E. RESEARCH REPORT No. 1071—Corrosion Studies in Steam Heating Systems, by R. R. Seeber and Margaret R. Holley (A.S.H.V.E. TRANSACTIONS, Vol. 43, 1937, p. 461). Corrosion in Steam Heating Systems, by L. F. Collins and E. L. Henderson, (*Heating, Piping and Air Conditioning*, September, 1939 to May, 1940).