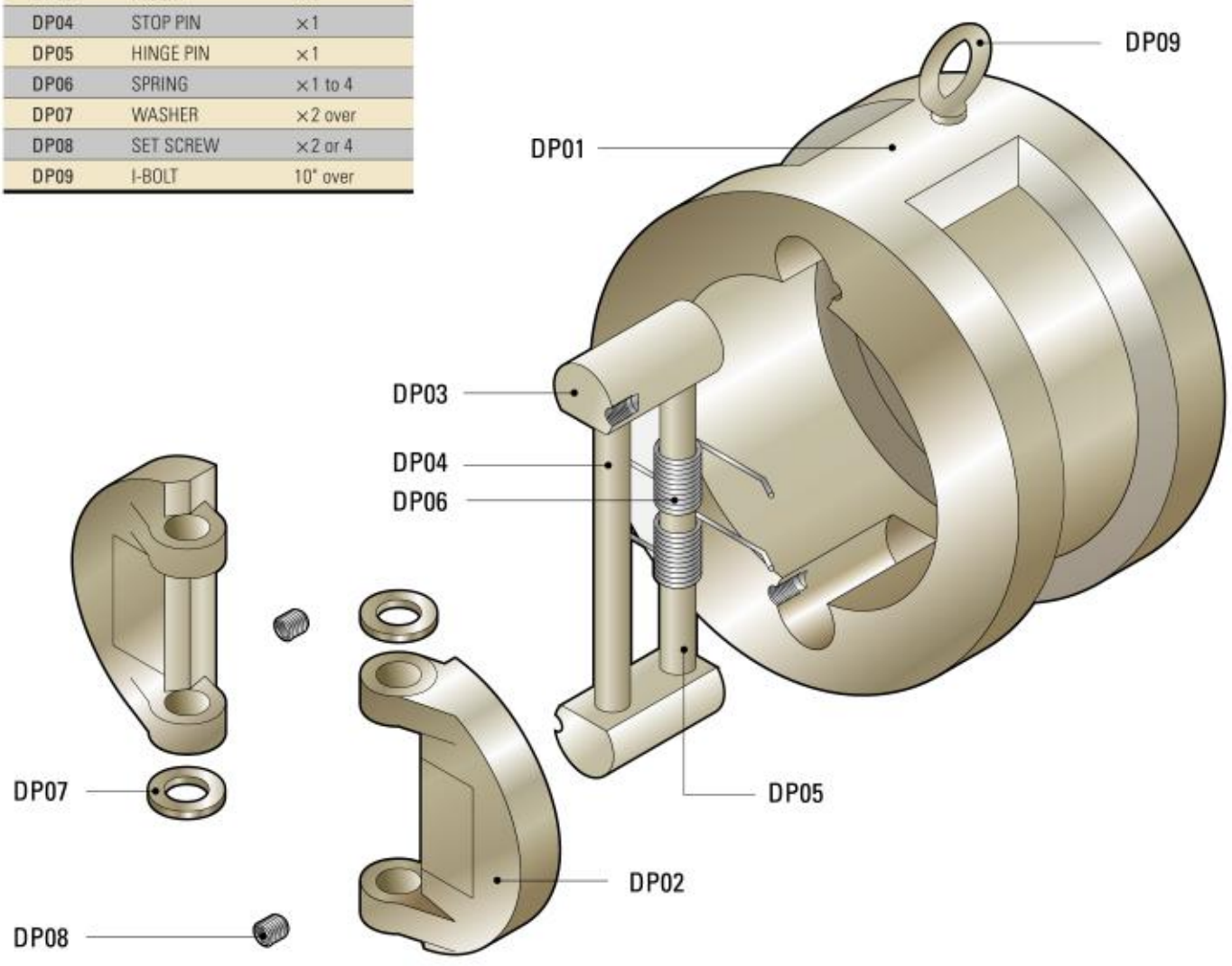
Dual Plate Check Valves

Design Features

S&W Patent Design (Korean Register No. 0276779) doesn't have any holes bored through to the body wall being different from many competitors. This unique design prohibits shell leakage originally and functions perfectly in large size of valves and high rating valve's application. S&W utilizes set screws to retain two pin guides that house both the hinge and stop pins. This allows for quick disassembly of the valve without the use of force or special tools other than wrench. This unique feature ensures that today's and future's valve fugitive emission requirements are met.

Valve's components		
DP01	BODY	×1
DP02	DISC	×2
DP03	INSERT	×2
DP04	STOP PIN	×1
DP05	HINGE PIN	×1
DP06	SPRING	×1 to 4
DP07	WASHER	×2 over
DP08	SET SCREW	×2 or 4
DP09	I-BOLT	10" over



Note Eyebolt is equipped with valve 10" and larger.

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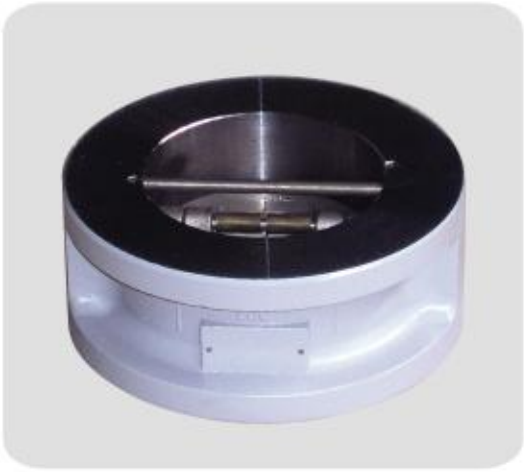
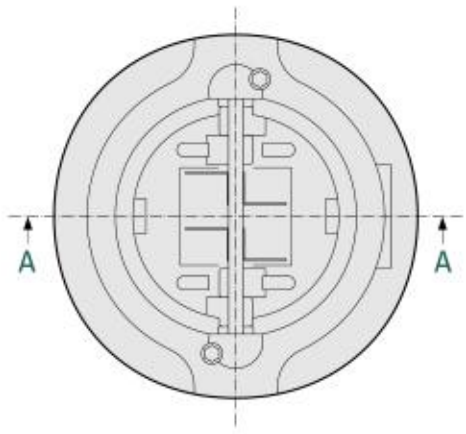
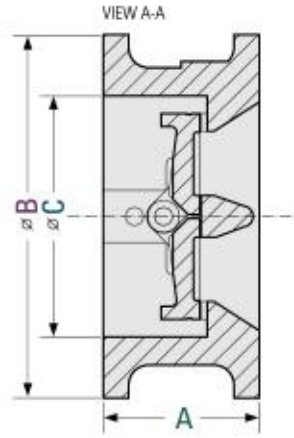
Type S&W Wafer Body Dimension







Dimension Data (Class 125-2500)

Stud Selection

SIZE in (mm)	ANSI Rating	End Facing	A in (mm)	B in (mm)	C in (mm)	Q'ty	Dia in (mm)	Length in (mm)	Weight kg
18(450)	125	FF	8.00(203)	21.61(549)	18.00(457)	16	1.13(29)	14.50(368)	127.3
	150	RF	8.00(203)	21.61(549)	18.00(457)	16	1.13(29)	14.50(368)	141.8
	300	RF	10.38(264)	23.50(597)	18.00(457)	24	1.25(32)	18.88(480)	295.5
	600	RF/RJ-69	14.25(362)	24.13(613)	18.00(457)	20	1.63(41)	25.25(641)	395.5
	900	RF/RJ-70	17.75(451)	25.13(638)	18.00(457)	20	1.88(48)	34.50(876)	610.9
	1500	RF/RJ-71	18.44(468)	27.75(705)	18.00(457)	16	2.75(70)	39.75(1010)	793.2
20(500)	125	FF	8.38(213)	23.86(606)	20.16(512)	20	1.13(29)	15.25(387)	177.3
	150	RF	8.38(213)	23.86(606)	20.16(512)	20	1.13(29)	15.13(384)	214.5
	300	RF	11.50(292)	25.51(648)	20.16(512)	24	125(32)	20.50(521)	364.1
	600	RF/RJ-73	14.50(368)	26.88(683)	20.16(512)	24	1.63(41)	26.25(667)	543.6
	900	RF/RJ-74	17.75(451)	27.50(699)	20.16(512)	20	2.00(51)	32.50(826)	639.1
	1500	RF/RJ-75	20.98(559)	29.76(902)	20.16(512)	16	3.00(76)	44.25(1124)	1278.2
24(600)	125	FF	8.75(222)	28.28(718)	23.75(603)	20	1.25(32)	16.25(413)	268.2
	150	RF	8.75(222)	28.25(718)	23.75(603)	20	1.25(32)	16.25(413)	358.2
	300	RF	12.50(318)	30.50(775)	23.75(603)	24	1.50(38)	22.75(578)	526.4
	600	RF/RJ-77	17.25(438)	31.13(791)	23.75(603)	24	1.88(48)	30.75(781)	819.1
	900	RF/RJ-78	19.50(495)	33.00(838)	23.75(603)	20	2.50(64)	38.00(965)	1233.2
	1500	RF/RJ-79	22.00(559)	35.50(902)	23.75(603)	16	3.50(89)	48.50(1232)	2712.7
26(650)	125	FF	11.26(286)	30.51(775)	24.78(629)	24	1.25(32)	20.39(518)	455
	150	RF	11.26(286)	30.51(775)	24.78(629)	24	1.25(32)	20.39(518)	455
	300	RF	14.01(356)	32.87(835)	24.78(629)	28	1.63(41)	24.75(628)	620
	600	RF/RJ-73	17.99(457)	34.13(867)	24.78(629)	28	1.87(47)	31.50(800)	978
	900	RF/RJ-100	20.98(533)	34.76(883)	24.78(629)	20	2.75(69)	38.75(984)	144.6

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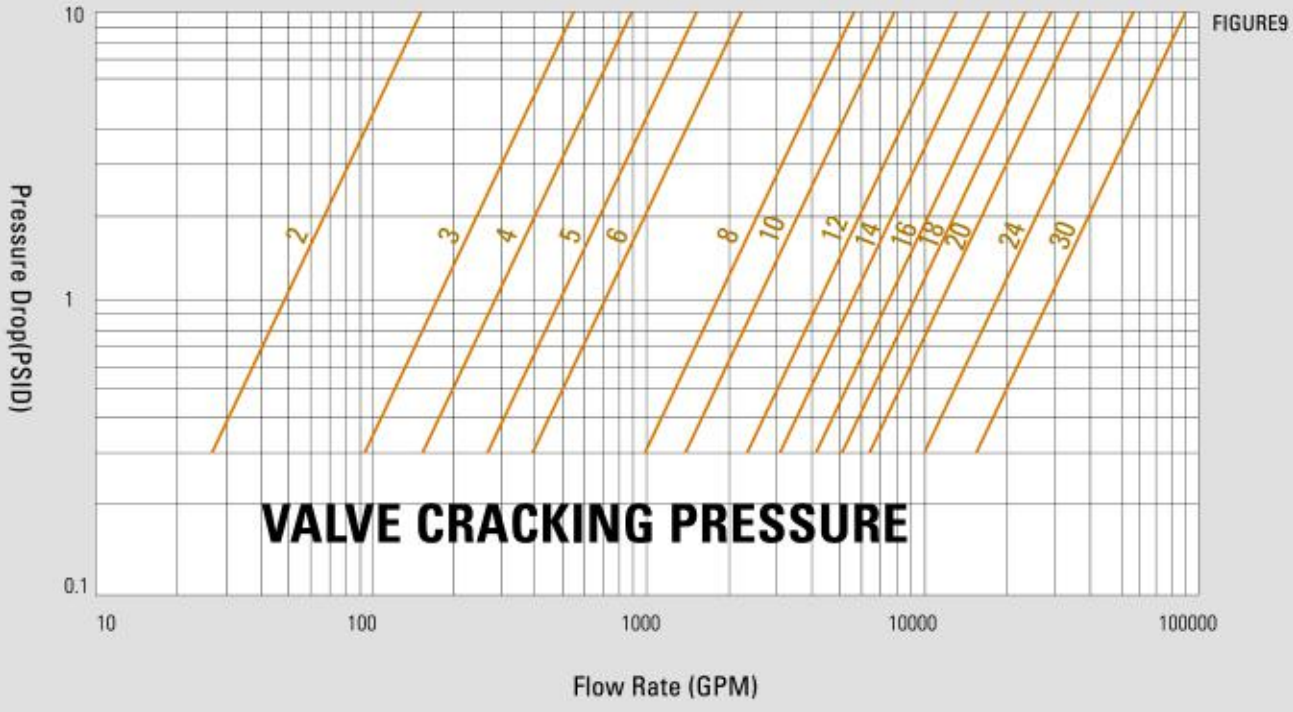
Dimension Data (Class 125-2500)

Stud Selection

SIZE in (mm)	ANSI Rating	End Facing	A in (mm)	B in (mm)	C in (mm)	Q'ty	Dia in (mm)	Length in (mm)	Weight kg
28(700)	125	FF	12.64(321)	32.76(832)	27.64(702)	28	1.25(32)	22.01(559)	511
	150	RF	12.64(321)	32.76(832)	27.64(702)	28	1.25(32)	22.01(559)	511
	300	RF	15.00(381)	35.39(899)	27.64(702)	28	1.62(41)	26.25(666)	769
	600	RF/RJ-94	19.00(483)	35.98(914)	27.64(702)	28	2.00(51)	33.00(838)	1073
	900	RF/RJ-101	22.52(572)	37.24(946)	27.64(702)	20	3.00(76)	41.00(1041)	1795
30(750)	125	FF	12.00(305)	34.84(885)	30.12(765)	28	1.25(32)	21.00(533)	536
	150	RF	12.00(305)	34.84(885)	30.12(765)	28	1.25(32)	21.00(533)	536
	300	RF	14.49(368)	37.52(953)	30.12(765)	28	1.75(44)	26.50(673)	835
	600	RF/RJ-95	19.88(505)	38.27(972)	30.12(765)	28	2.00(51)	34.13(867)	1269
	900	RF/RJ-102	25.00(635)	39.72(1009)	30.12(765)	20	3.00(76)	44.00(1117)	2217
32(800)	125	FF	14.01(356)	37.00(940)	30.87(784)	28	1.50(38)	24.63(626)	690
	150	RF	14.01(356)	37.00(940)	30.87(784)	28	1.50(38)	24.63(626)	690
	300	RF	15.98(406)	39.60(1006)	30.87(784)	28	1.88(48)	28.75(730)	1027
	600	RF/RJ-96	20.98(533)	40.23(1022)	30.87(784)	28	2.25(57)	36.00(914)	1418
	900	RF/RJ-105	25.98(660)	42.24(1073)	30.87(784)	28	3.25(83)	46.25(1175)	2620
36(900)	125	FF	14.50(368)	41.25(1048)	34.00(864)	32	1.50(38)	25.88(657)	840
	150	RF	14.50(368)	41.25(1048)	34.00(864)	32	1.50(38)	25.88(657)	840
	300	RF	19(483)	44(1118)	34.00(864)	32	2(51)	32.5(826)	1269
	600	RF	25(635)	44.5(1130)	34.00(864)	28	2.5(64)	45(1143)	2120
	900	RF	28.25(718)	47.25(1200)	34.00(864)	20	3.5(89)	50.75(1289)	3259
40(1000)	125	FF	15.98(406)	45.75(1162)	38.86(987)	36	1.50(38)	26.36(669)	1190
	150	RF	17.00(432)	45.75(1162)	38.86(987)	36	1.50(38)	27.38(695)	1190
	300	RF	21.5(546)	43.88(1114)	38.86(987)	32	1.625(41)	35(889)	1825
	600	RF	26(660)	45.5(1156)	38.86(987)	32	2.25(57)	44.25(1124)	3750
	900	RF	30(762)	49.25(1251)	38.86(987)	24	3.5(89)	53.75(1365)	3972
42(1050)	125	FF	17.00(432)	47.99(1219)	39.21(996)	36	1.50(38)	28.88(734)	1500
	150	RF	17.00(432)	47.99(1219)	39.21(996)	36	1.50(38)	28.88(734)	1500
	300	RF	22.28(568)	46(1262)	39.21(996)	32	1.63(41)	37(340)	2630
	600	RF	27.63(702)	48(1219)	39.21(996)	28	2.5(64)	47.13(1197)	3135
	900	RF	31(787)	51.25(1302)	39.21(996)	24	3.5(89)	59.25(1505)	3670
48(1200)	125	FF	20.63(524)	54.49(1384)	46.97(1193)	44	1.50(38)	33.38(848)	2200
	150	RF	20.63(524)	54.49(1384)	46.97(1193)	44	1.50(38)	33.38(848)	2200
	300	RF	24.75(629)	52.13(1324)	46.97(1193)	32	1.88(48)	40.5(1029)	3909
	600	RF	31(787)	54.75(1391)	46.97(1193)	32	2.75(70)	54(1372)	4416
54(1350)	125	FF	21.26(540)	60.86(1546)	47.95(1218)	44	1.75(44)	38.25(972)	2700
	150	RF	21.25(540)	60.86(1546)	47.95(1218)	44	1.75(44)	38.25(972)	2700
	300	RF	28.25(718)	58.75(1492)	47.95(1218)	28	2.25(57)	47.25(1200)	3878

Dual Plate Check Valve Pressure Drop-Liquids (Sizes 2"-30")



Note

1. Pressure drop curves are based on water flow.
2. Valve cracking pressure is equal to or less then 0.3 psid.
3. Valve cracking pressure increases to between 0.75 and 1.25 psid when installed vertically with flow upwards.

Method of Calculating Flow

Liquid Flow

$$C_V = Q\sqrt{\frac{G}{\triangle P}} \qquad Q = C_V\sqrt{\frac{\triangle P}{G}} \qquad \triangle P = G\left(\frac{Q}{C_V}\right)^2$$

Gas Flow

$$C_V = \frac{Q}{963}\sqrt{\frac{GT}{\triangle P\,(P_1 + P_2)}} \qquad Q = 963\,C_V\sqrt{\frac{\triangle P\,(P_1 + P_2)}{GT}}$$

Saturated Vapour

$$C_V = \frac{W}{K}\sqrt{\frac{1}{\triangle P\,(P_1 + P_2)}} \qquad W = C_V K\sqrt{\triangle P\,(P_1 + P_2)}$$

Superheated Vapour

$$C_V = \frac{W(1+0.0007T_{SH})}{K}\sqrt{\frac{1}{\triangle P\,(P_1 + P_2)}} \qquad C_V = \frac{C_V K}{(1+0.0007T_{SH})}\sqrt{\triangle P\,(P_1 + P_2)}$$

Variables

- C_V = Valve Coefficient
- $\triangle P$ = $(P_1 - P_2)$ Pressure Drop
- P_1 = Inlet Pressure (PSIA)
- P_2 = Outlet Pressure (PSIA)
- G = Specific Gravity
- Water = 1.0 at 60°F and I ATM
- Air = 1.0 at 60°F and I ATM
- Q = Flow
- Liquid = USGPM
- Gas = SCFH
- T = Absolute Temperature (°F + 460)
- K = Constant For Vapours
- T_{SH} = Superheat (°F) / Total Temperature Minus Saturation Temperature
- W = Ibs. Per Hour (LB/H)