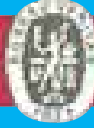


API 608
BUREAU VERITAS
Certification



008

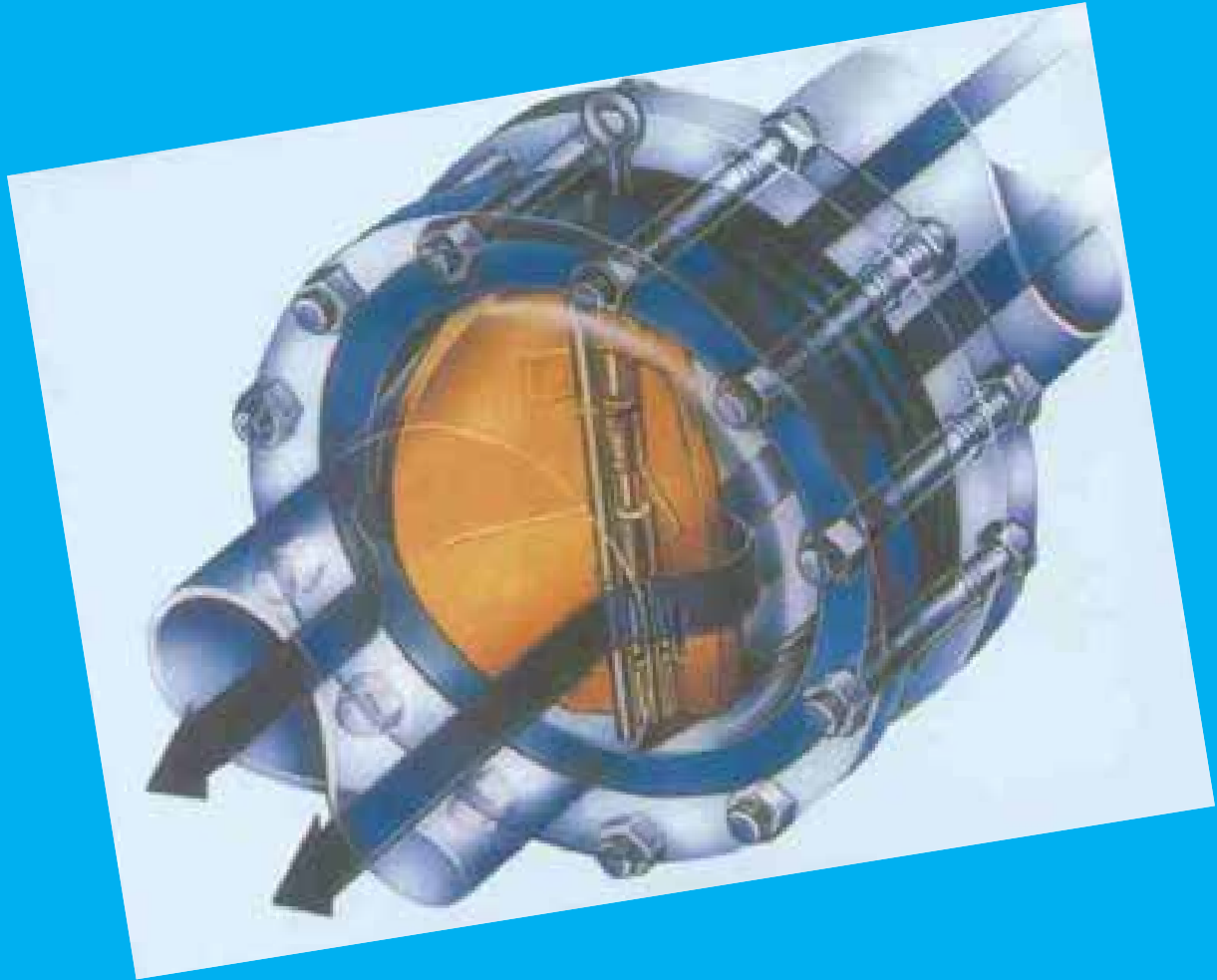


0062

Covered under
API Monogram



ADVANCE VALVES

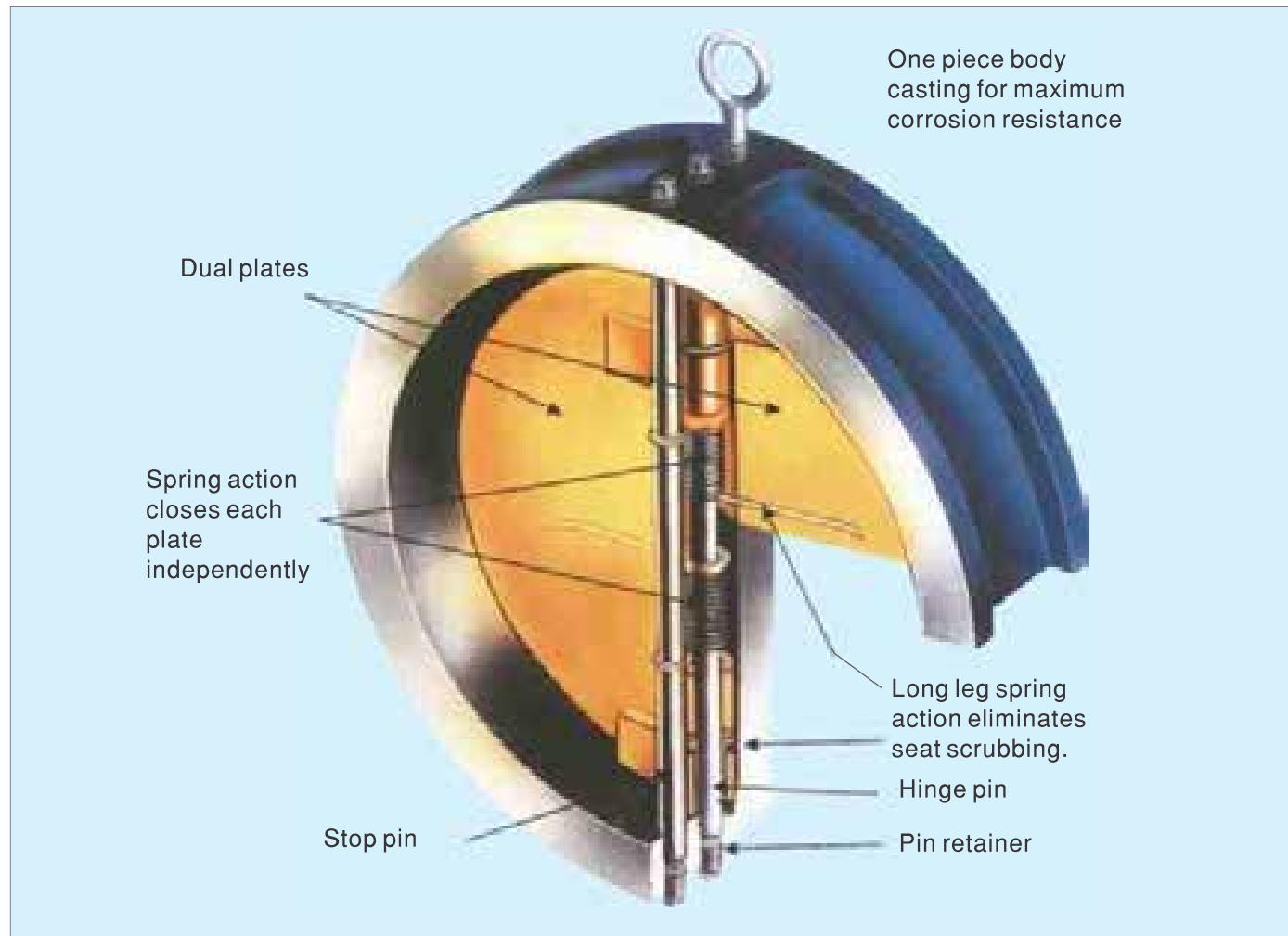


"Dual Plate Check Valve"

The High Performance Valve

More
than
3
Decades

'Advance' Dual Plate Check Valve



{Available in sizes 50mm (2") NB to 2000 mm (80") NB in pressure rating ANSI 125 to 2500 for all services.}

Design Features

The dual Plate Check Valve is an all purpose non return valve that is much stronger, lighter in weight and smaller in size compared to a conventional swing check valve or life check valve.

The Dual Plate Check Valve design is the result of attempts to solve the problems associated with swing check valve and lift check valve. The Dual Plate Check Valve employs two spring-loaded plates hinged on a central hinge pin. When the flow decreases, the plates close by torsion spring action without requiring reverse flow. This design offers the twin advantages of No Water Hammer and Non Slam simultaneously. All features put together make the Dual Plate Check Valve one of the most efficient design. It is also referred as SILENT CHECK VALVE.

The valve design conforms to APS 594 as well as API 6D except face to face dimensions of ANSI 125 cast iron valves of sizes 65mm (2½") to 300mm (12"). Valve inspection and testing conforms to API 598.

Dual Plat Check Valves are available in wafer design, flanged wafer design and extended design with flanged ends having face to face dimensions as that of a swing check valve.

STRUCTURALLY MORE SOUND DESIGN.

The valve has cylindrical body which makes the valve look like any other pipe fitting. A cylindrical body has much more uniform distribution of stress compared to a conventional swing check valve. A cylindrical body of the pressure containing part of the Dual Plate Check Valve can be designed to withstand extreme much to the weight (thickness) of valve. Thus for severe/rugged loading conditions, these valves have a distinct edge over the conventional valves both in terms of safety and economics besides general versatility.

"Advance" Dual Plate Check Valves have been designed and developed using computer based latest technique of 'Finite Element Analysis'.

HYDRAULICALLY ENGINEERED DESIGN

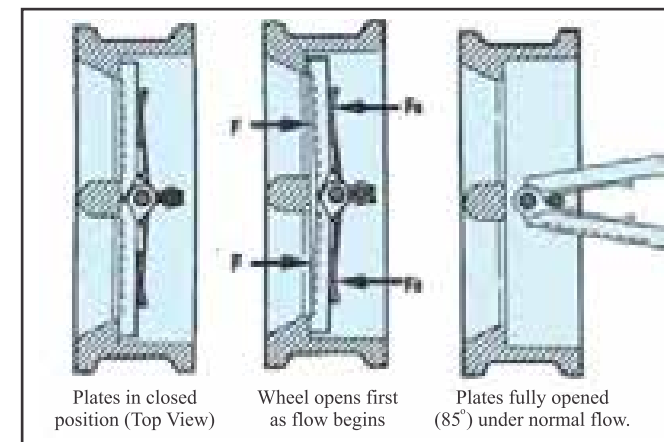
Hydraulically, the design is more versatile. In horizontal installation, the weight of the door (Plate) does not play any significant role in valve closure or opening, unlike in a conventional swing check valve where closure/opening is assisted/hampered by gravity. The opening and closing rates can be designed to suit a particular application which may be hydraulically more sensitive.

DOUBLE SPRING ACTION

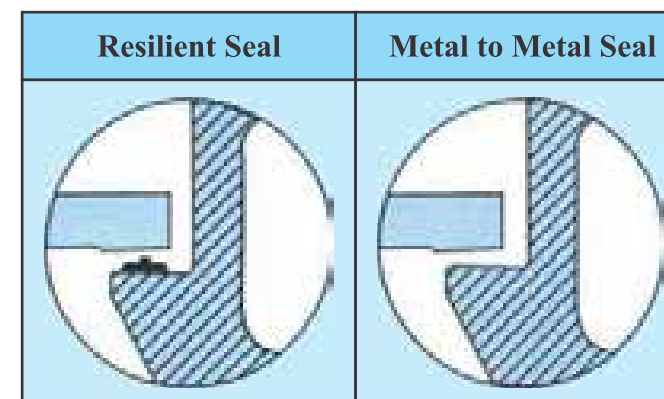
The Dual Plate Check valve above 150mm (6") NB are provided with two springs to avoid disparate forces acting on each plate as in the case of single spring design. This is to ensure even closing. This is achieved single legged or suitably designed double legged springs.

VALVE OPERATION

The plate are smaller in area and lighter in weight being two in number compared to one in a conventional swing check valve. The unique feature of plate opening (i.e., it first lifts up at heel and then swings) ensures no rubbing actions against seat. This results in lower rate of wear and tear of seals. This feature is not feasible in other designs which results in a higher rate of seal wear. This is achieved by the special spring action and hinge design.



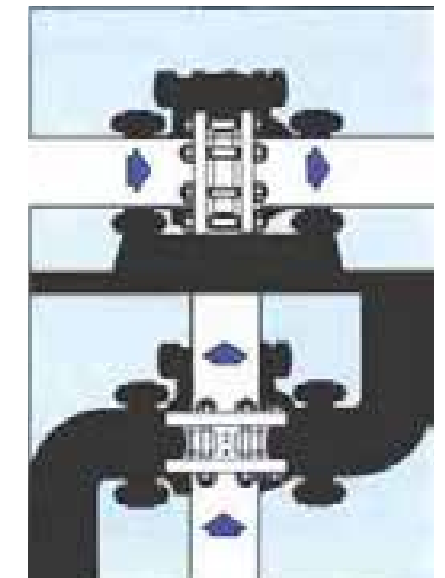
SEAL DESIGN



The valve are available with resilient seal as well as metal-to-metal seating as depicted above.

FLEXIBLE INSTALLATION (VERTICAL/HORIZONTAL)

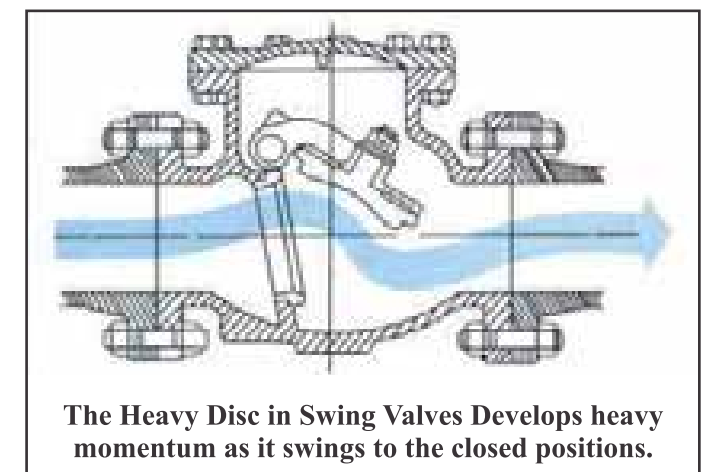
The installed valve is more rigid than an equivalent length of heavy section pipe eliminating the need for any special support etc. The spring action (in place of gravity) enables the valve to be installed in any position - vertical or horizontal.



NO WATER HAMMER

To eliminate water hammer, a Check Valve should close without any reverse flow.

Water hammer is almost non-existent since closing of the valve does not depend on back pressure and back flow. Each plate being half the size of a swing check disc, it can pass through the process flow more easily and quickly. Due to spring assisted closing, valve closure starts as soon as flow velocity reduces below the designed minimum velocity and thereafter the closing rate follows the flow velocity pattern. Therefore, the valve closes as the flow velocity reduces to zero, before the flow reverses, thus eliminating the water hammer.



The Heavy Disc in Swing Valves Develops heavy momentum as it swings to the closed positions.

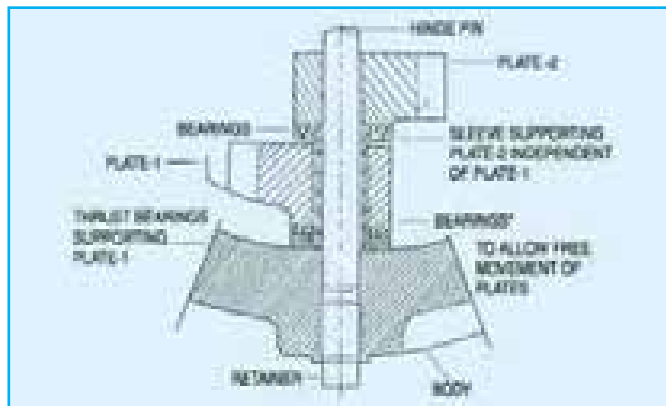
NO SLAMMING

The Dual Plate check Valve design can be classified as “Non-Slam Design” The swing disc in swing check valve is hinged at the top. The force of gravity includes high inertia as it swings to the closed position. The momentum can cause severe damage when the disc slams to the valve seat. To reduce this, one has to go for a balancing weight/ dash pot etc. This makes the valve more expensive and bulky. Furthermore, any counter weight/dash pot arrangement works counter productive in prevention of water hammer.

The two plates in Dual Plate Check Valve are hinged in the centre vertically for horizontal installations eliminating the effect of the gravity altogether. Also the momentum developed as they moved to the closed position is a fraction of what is developed in a swing check valve as the weight of each plate is 1/4th the weight of swing disc and the tip velocity is less than half. Further due to spring assisted closing the valve closes at zero flow before back (negative) flow begins. As it starts closing, the flow as such cushions the plates and seat hence the chances of slamming are negligible.

INDEPENDENT PLATE SUSPENSION

For valve sizes 450mm (18”) NB and above each plate is supported independent of each other. In any position (Horizontal or Vertical) each plate’s weight is directly transferred to the body.



SPECIAL SERVICE VALVES:

RUBBER-LINED VALVES : To meet special service requirements “Advance” Dual Plate Check Valves are available in fully rubber lined bodies, whereas internals can be of suitable alloys to meet the fluid environment.

FIRE SAFE SERVICES : To take care of differential expansion between body and long studs in fire hazardous areas, double flanged valves are available where standard set of studs can be used at each end. This design automatically eliminates the need for separate Lug type Design.

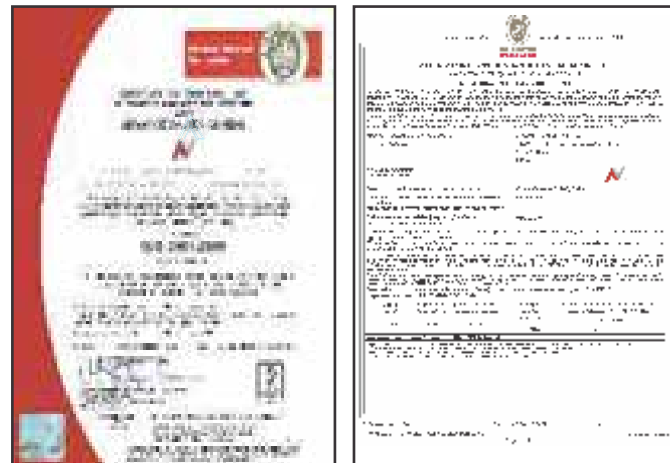
RETAINERLESS DESIGN : For hazardous, highly corrosive/toxic chemicals and hazardous gases, “Retainerless” designs are available.

SPECIAL APPLICATION VALVES : Company is equipped to offer special application valves including jacketed, IBR application, Low velocity fluid applications, or other specialized applications.

INSPECTION & APPROVAL

The Company is fully equipped with all necessary inspection and testing facilities including vacuum test.

“Advance” Valves are inherently “Quality Assured”. The Quality Management System of the company has been accredited by Bureau Veritas in accordance with IS/ISO 9001:2008 and according to European Pressure Equipment Directive 97/23/CE, Module H to use CE 0062 monogram accredited by Bureau Veritas as a recognition to its continuous commitment towards total quality.



API-6D MONOGRAM : The valves are designed and manufactured meeting all the requirement of API-6D standard and the company has acquired API-6D licence.

“Advance” Dual Plate Check Valves are widely accepted by all leading Indian and Overseas Engineering Consultants and users in all types of services viz. Water, Oil, & Gas, Fertilizers, Chemicals, Petrochemicals, Refinery, Metallurgy, Steel and Power sectors including nuclear and other areas.

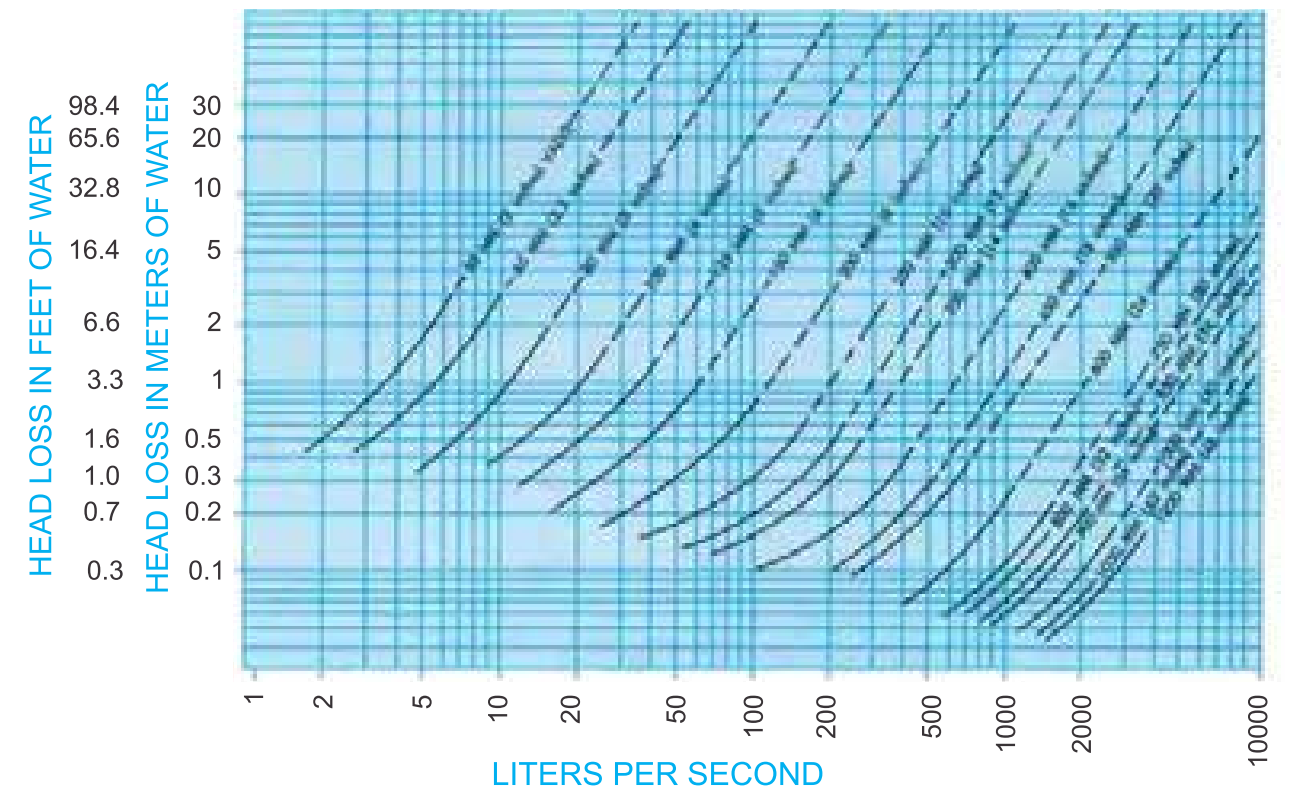
The company has the distinction of being in the select band of companies supplying valves meeting nuclear application requirements as per ASME section III.

“Advance” Valves are being exported to various countries e.g. Indonesia, Thailand, U.K., U.S.A, Gulf countries etc. Under Third party Inspection by International Inspection Agencies

Dual Plate Check Valve can be safely classified as Zero Velocity Valve. The design has everything which the other conventional valves miss. It is a valve most efficient in operation irrespective of fluid and service conditions and the easiest to handle and install in any piping system with no constraints. It truly meets the protective device criteria of a check valve (NRV).

Head Loss v/s Flow Rate

Advance Dual Plate Check Valve



The above curves show pressure drops available with standard torque springs in horizontal flow conditions as calculated. System with abnormal flow conditions or non-return function can be supplied with different torque springs to meet other hydraulic parameters.

LOWER PRESSURE DROP

The design of Dual Plate Check Valves divides the total force in half, since each plate covers only one half the area of a swing check disc. One-half the force on each plate requires one-half thickness, hence one-fourth the mass of a swing check disc.

F_f (hinge friction) plus F_s (spring force) times 0.75B (force point) minus F (force) times B (width) equals zero for equilibrium.

$$F_f(\text{Friction of Hinge}) + F_s(0.75B) - FB = 0$$

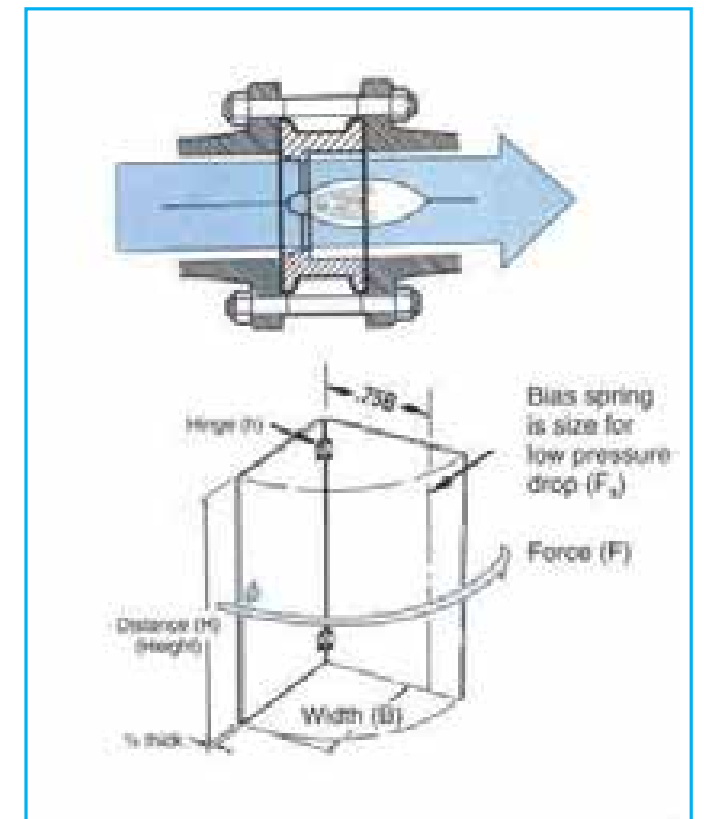
Therefore,

$$F = 0.75F_s + \frac{F_f(\text{friction of Hinge})}{B}$$

The weight of the plates does not increase the force required.

Dual Plate Check valve has much lower pressure drop due to lower force.

The best analogy between a swing check valve and Dual Plate check valve would be a door hinged from the top and a door hinged on its side with an appropriate door closure. The force required for operating the two doors can be just visualised and compared.

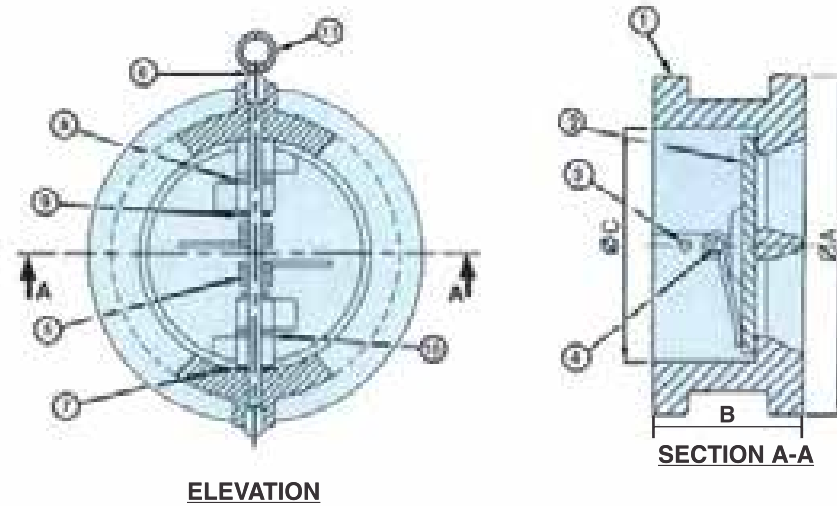


ADVANCE DUAL PLATE CHECK VALVE WAFER TYPE (MODEL AV-WP-11)

SIZE UPTO 2000 mm (80"), PRESSURE RATING UPTO 2500 CLASS

PART LIST

Item No.	PART NAME
1	Body
2	Plate
3	Stop Pin
4	Hinge Pin
5	Spring *
6	Retailer
7	Body Bearing
8	Plate Bearing
9	Spring Bearing
10	Sleeve #
11	Eyebolt **



Note :

* Single Spring upto 125mm (5")

Sleeve provided only for 450mm (18") and above (independent suspension).

** Eyebolt provided only for 200mm (8") and above.

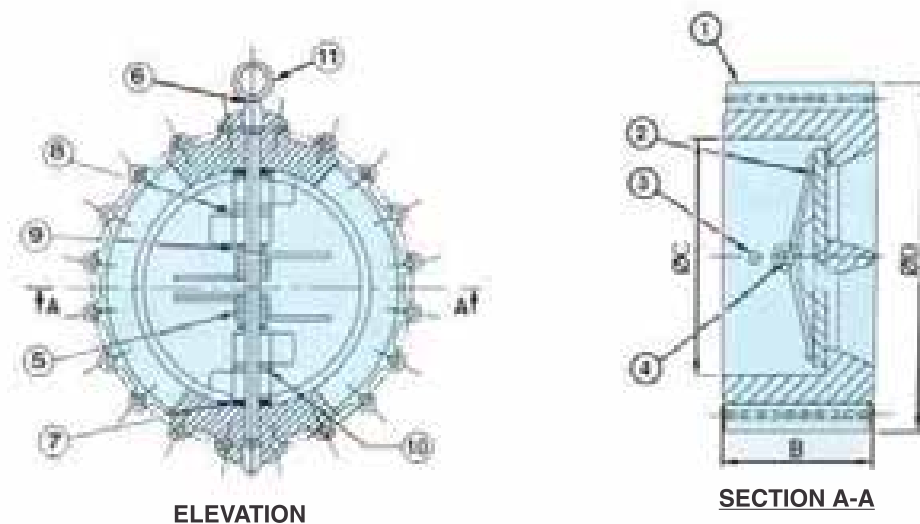
Fig. 1

ADVANCE DUAL PLATE CHECK VALVE LUGGED TYPE (MODEL AV-WL-21)

PRESSURE RATING UPTO 2500 CLASS

PART LIST

Item No.	PART NAME
1	Body
2	Plate
3	Stop Pin
4	Hinge Pin
5	Spring *
6	Retailer
7	Body Bearing
8	Plate Bearing
9	Spring Bearing
10	Sleeve #
11	Eyebolt **



Note :

1. Dimension "D" to suit customer flange specification.

2. Other dimensions and part description, refer model AV-WP-11 (Fig.1) and table 1.

3. For sizes 300 mm (12") and above model AV-WP-31 is recommended.

4. Solid Lugs are available on request.

ANSI Installation Dimensions

Advance Dual Plate Check Valve

(WAFER TYPE MODEL AV-WP-11)

TABLE 1

SIZE N.B.	ANSI RATING	FACE	DIMENSIONS (mm)		
			** (A)	(B)	(C)
50mm (2")	125	FF	101	54	60
	150	RF/RJ-22	101	60	60
	300	RF/RJ-23	107	60	60
	600	RF/RJ-23	107	60	60
	900	RF/RJ-24	140	70	47
65mm (2.5")	125	FF	120	54*	73
	150	RF/RJ-25	120	67	73
	300	RF/RJ-26	127	67	73
	600	RF/RJ-26	127	67	73
	900	RF/RJ-27	162	83	57
80mm (3")	125	FF	133	57*	89
	150	RF/RJ-29	133	73	89
	300	RF/RJ-31	145	73	89
	600	RF/RJ-31	145	73	89
	900	RF/RJ-31	165	83	73
100mm (4")	125	FF	171	64*	144
	150	RF/RJ-36	171	73	114
	300	RF/RJ-37	177	73	114
	600	RF/RJ-37	190	79	114
	900	RF/RJ-37	203	102	98
125mm (5")	125	FF	193	70*	141
	150	RF/RJ-40	193	86	141
	300	RF/RJ-41	212	86	141
	600	RF/RJ-41	238	105	141
	900	RF/RJ-41	244	159	120
150mm (6")	125	FF	218	76*	168
	150	RF/RJ-43	218	98	168
	300	RF/RJ-45	247	98	168
	600	RF/RJ-45	263	137	168
	900	RF/RJ-45	285	159	146
200mm (8")	125	FF	276	95*	219
	150	RF/RJ-48	276	127	219
	300	RF/RJ-49	304	127	219
	600	RF/RJ-49	317	165	219
	900	RF/RJ-49	355	206	190
250mm (10")	125	FF	336	108*	273
	150	RF/RJ-52	336	146	273
	300	RF/RJ-53	358	146	273
	600	RF/RJ-53	396	213	273
	900	RF/RJ-53	431	241	238
300mm (12")	125	FF	406	143*	324
	150	RF/RJ-56	406	181	324
	300	RF/RJ-57	419	181	324
	600	RF/RJ-57	453	229	324
	900	RF/RJ-57	495	292	282
350mm (14")	125	FF	447	184	356
	150	RF/RJ-59	447	184	356
	300	RF/RJ-61	482	222	356
	600	RF/RJ-61	488	273	356
	900	RF/RJ-62	517	256	325
400mm (16")	125	FF	511	191	406
	150	RF/RJ-64	511	191	406
	300	RF/RJ-65	536	232	406
	600	RF/RJ-65	562	305	406
	900	RF/RJ-66	584	384	363
450mm (18")	125	FF	546	203	457
	150	RF/RJ-68	546	203	457
	300	RF/RJ-69	593	264	457
500mm (20")	600	RF/RJ-69	609	362	457
	125	FF	603	213	508
	150	RF/RJ-72	603	219	508
550mm (22")	300	RF/RJ-73	650	292	508
	600	RF/RJ-73	679	368	508
	125	FF	659	222*	559
600mm (24")	150	RF/RJ-80	659	222*	559
	300	RF/RJ-81	703	304	559
	125	FF	714	222	610
650mm (26")	150	RF/RJ-76	714	222	610
	300	RF/RJ-77	771	318	610
	125	FF	771	248*	660
700mm (28")	150	RF	771	248*	660
	125	FF	828	305*	702
750mm (30")	150	RF	828	305*	702
	125	FF	879	305	748
800mm (32")	150	RF	879	305	748
	125	FF	936	356*	813
850mm (34")	150	RF	936	356*	813
	125	FF	987	356*	864
900mm (36")	150	RF	987	356*	864
	125	FF	1044	368	914
1000mm (40")	150	RF	1044	368	914
	125	FF	1159	406*	987
1050mm (42")	150	RF	1159	406*	987
	125	FF	1216	432	987
1100mm (44")	150	RF	1216	432	987
	125	FF	1273	432*	987
1200mm (48")	150	RF	1273	432*	987
	125	FF	1381	524	1140
1300mm (52")	150	RF	1381	524	1140
	125	FF	1480	524*	1140
1350mm (54")	150	RF	1480	524*	1140
	125	FF	1545	540*	1308
1400mm (56")	150	RF	1545	540*	1308
	125	FF	1600	540*	1308
1500mm (60")	150	RF	1600	540*	1308
	125	FF	1625	660*	1422
	150	RF	1625	660*	1422

* Face-to-face dimensions are to manufacturer's standard. For other size & ratings API 594 is referred.

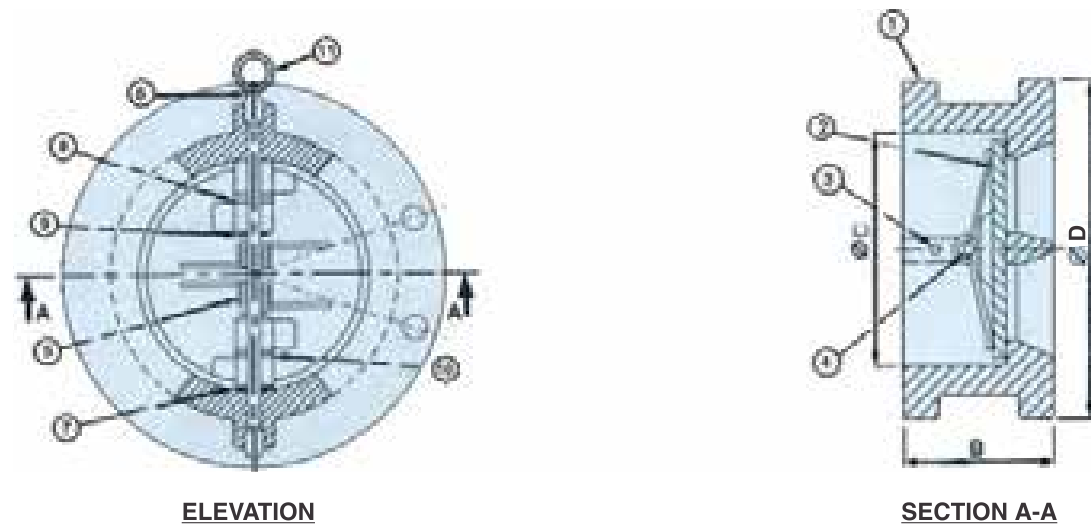
** Hub diameter @above are to suit ANSI B16.5, MSS-SP-44 and ANSI B16.47 series A dimensions. This can also be supplied to suit flange dimensions as per BS 1560, JIS, IS or any other standard as per buyer's specifications.

*** For other sizes and pressure class ANSI 2500, details available on request.

Fig. 2

ADVANCE DUAL PLATE CHECK VALVE WAFLER FLANGED TYPE (MODEL AV-WF-31)

SIZE 250 mm (10"), TO 2000MM (80") PRESSURE UPTO RATING 2500 CLASS

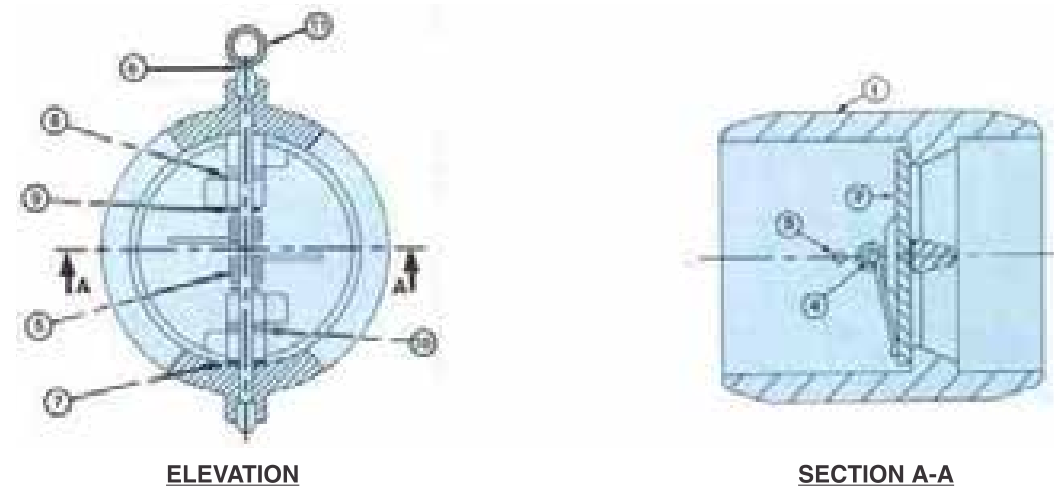


Note :
1. Dimension "D" to suit customer flange specification.
2. Other dimensions and part description, refer model AV-WP-11 (Fig.1) and Table 1.

Fig. 3

ADVANCE DUAL PLATE CHECK VALVE WELDING ENDS TYPE (MODEL AV-BW-41)

SIZE UPTO 600 mm (24"), PRESSURE RATING UPTO 2500 CLASS



Note :
1. The Dimension details will be furnished on request.
2. For part details refer model AV-WP-11 (Fig.1)

Fig. 4

ADVANCE DUAL PLATE CHECK VALVE RETAINERLESS TYPE (AV-WF-12)

SIZE UPTO 2000 mm (80"), PRESSURE RATING UPTO 2500 CLASS.

PART LIST

Item No.	PART NAME
1	Body
2	Plate
3	Stop Pin
4	Hinge Pin
5	Spring *
6	Pin Carrier
7	Body Bearing
8	Plate Bearing
9	Spring Bearing
10	Sleeve #
11	Eyebolt **

Note :
* Single Spring upto 125mm (5")
Sleeve provided only for 450mm (18") and above (independent suspension).
** Eyebolt provided only for 200mm (8") and above.
1. For dimensions see table 1.
2. Retainerless design are available in Wafler Lugged (AV-WL-22), Wafler Flanged (AV-WF-32) and extended Flanged (AV-EF-52) configuration with flanges as per customer specifications.

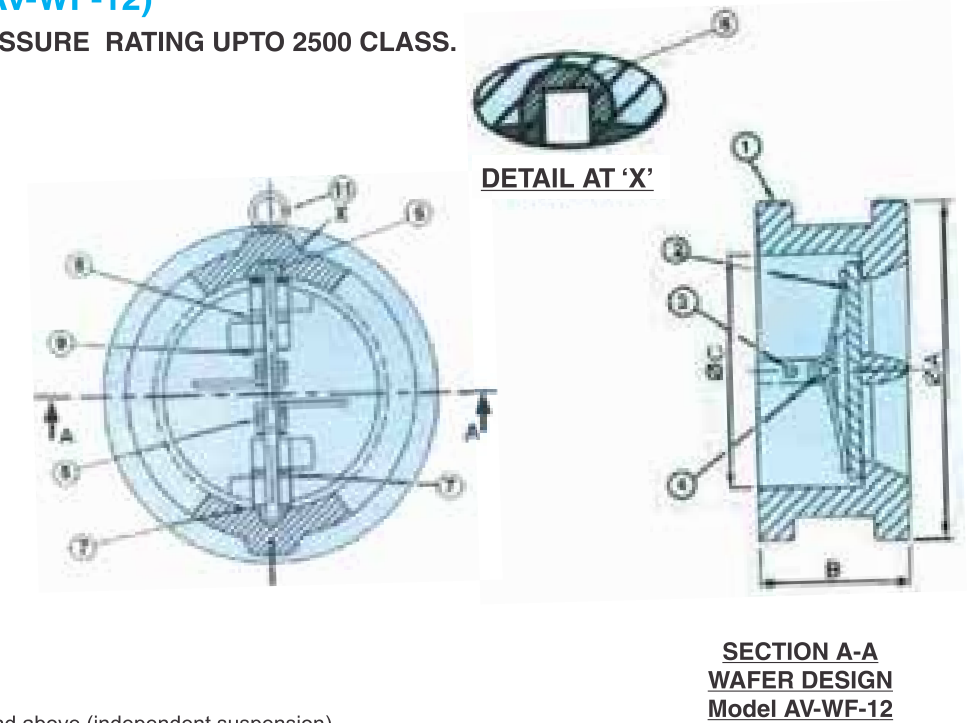


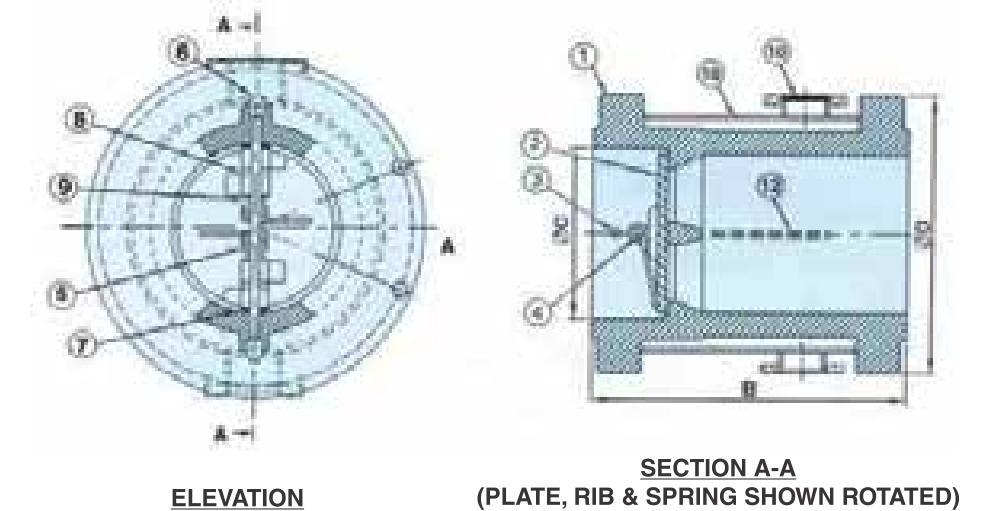
Fig. 5

ADVANCE DUAL PLATE CHECK VALVE JACKETED TYPE (MODEL AV-EF-55)

SIZE UPTO 250 mm (10"), PRESSURE RATING 150, 300 & 600 CLASS.

PART LIST

Item No.	PART NAME
1	Body
2	Plate
3	Stop Pin
4	Hinge Pin
5	Spring
6	Retainer
7	Body Bearing
8	Plate Bearing
9	Spring Bearing
10	Jacket (fab.)
11	Steam in/out Flg.
12	Baffle Plate



Note :
1. Single spring upto 125mm (5").
2. Dimension "D" is provided on request. (Flange size will be higher than normal)
3. For other dimensions see table 2.

Fig. 6

Installation Dimesions

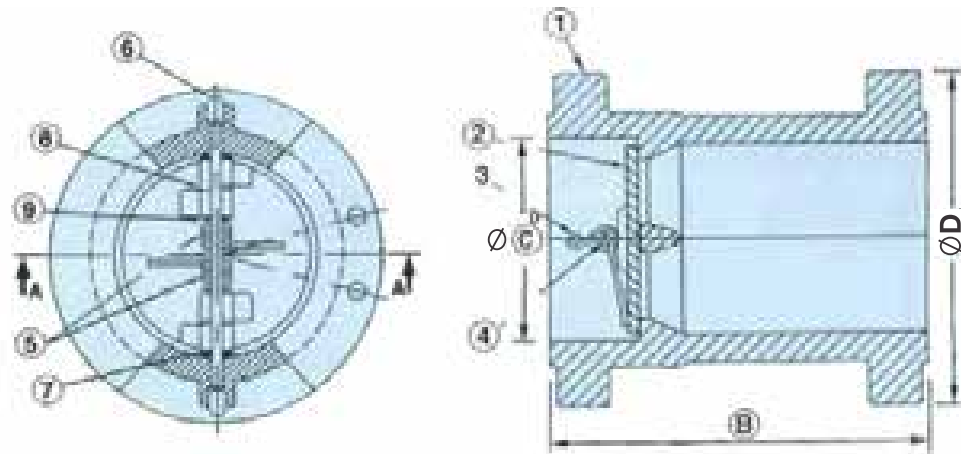
Advance Dual Plate Check Valve

MODEL AV-EF-51 (EXTENDED FLANGED TYPE)

(Face-to-face dimensions as per BS 1868 / ANSI B16.10)

PART LIST

Item No.	PART NAME
1	Body
2	Plate
3	Stop Pin
4	Hinge Pin
5	Spring •
6	Retailer
7	Body Bearing
8	Plate Bearing
9	Spring Bearing



ELEVATION

ELEVATION
Direction of Flow

• SINGLE SPRING UPTO 100 mm (4") NB

TABLE 2

SIZE N.B.	ANSI RATING	FACE	DIMENSIONS (mm)		
			** Ø D	ⓑ	ⓒ ^D
50mm (2")	150	RF/RJ-22	152	203	60
	300	RF/RJ-23	165	267	60
	600	RF/RJ-23	165	292	60
65mm (2.5")	150	RF/RJ-25	178	216	73
	300	RF/RJ-26	191	292	73
	600	RF/RJ-26	191	330	73
80mm (3")	150	RF/RJ-29	191	241	89
	300	RF/RJ-31	210	318	89
	600	RF/RJ-31	210	318	89
100mm (4")	150	RF/RJ-36	229	292	114
	300	RF/RJ-37	254	356	114
	600	RF/RJ-37	273	432	114

SIZE N.B.	ANSI RATING	FACE	DIMENSIONS (mm)		
			** Ø D	ⓑ	ⓒ ^D
150mm (6")	150	RF/RJ-43	279	356	168
	300	RF/RJ-45	318	445	168
	600	RF/RJ-45	356	559	168
200mm (8")	150	RF/RJ-48	343	495	219
	300	RF/RJ-49	381	533	219
	600	RF/RJ-49	419	660	219
250mm (10")	150	RF/RJ-52	406	622	273
	300	RF/RJ-53	445	622	273
	600	RF/RJ-53	508	787	273
300mm (12")	150	RF/RJ-56	483	699	324
	300	RF/RJ-57	521	711	324
	600	RF/RJ-57	559	838	324

Similar design can also be provided for larger sizes. Alternatively face-to-face dimensions can be matched to swing Check Valve by a separate spool piece.
 **Hub (Flange) diameter is as per ANSI B16.5 dimensions. This can also be supplied to suit flange dimensions as per BS 1560, BS 10, JIS, IS or any other standard as per buyer's specifications.

SPRING SELECTION

For standard Valve, with resilient seal, spring will be of SS 304 (or SS 316 if required) as standard. For Metal-to-Metal seating SS 316 or Inconel X-750 will be offered as required by the process conditions.

For operating temperature above 120° C only Inconel X-750 spring is recommended and used.

For proper spring selection, the service temperature, pressure and fluid conditions should be specified at enquiry stage.

SEAL

Material	Operating Temperature*	
	°C	°F
Buna-N/EPDM**	-57 to 120	-70 to 250
Viton-A**	-40 to 204	-40 to 400
Metal-to-Metal	-267 to 537	-450 to 1000

* This range of operating temperatures is for general guidance. These may vary with service conditions, body and plate material.

** Silicon Rubber can also be offered as per customer requirement.

ANSI Maximum Working Pressure

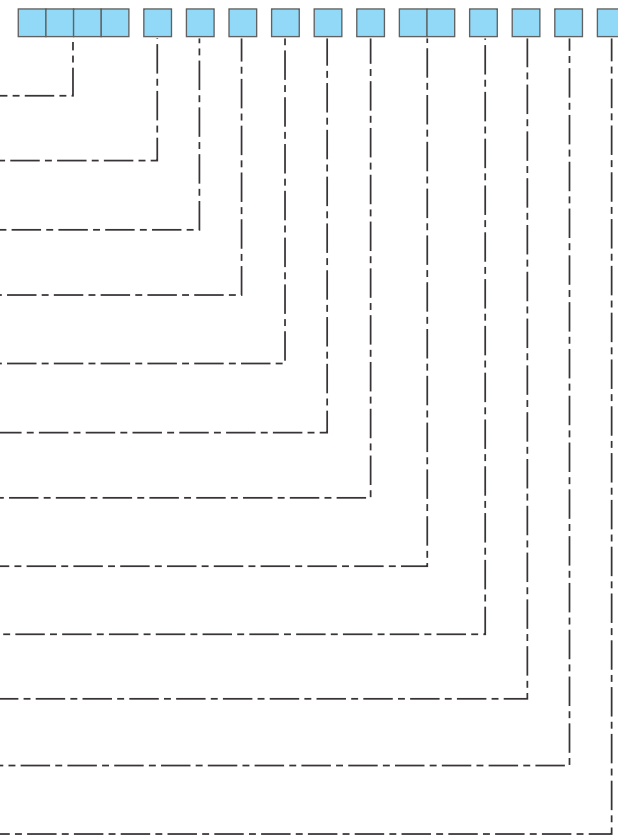
Advance Dual Plate Check Valve

TABLE 3

Temperature		Maximum Non Shock Service Pressure (ANSI B 16.34, 1981)																			
		Series 150		Series 300		Series 600		Series 900		Series 1500											
		Steel	SS 316	Steel	SS 316	Steel	SS 316	Steel	SS 316	Steel	SS 316										
°C	°F	Kg/cm ²	psi	Kg/cm ²	psi	Kg/cm ²	psi	Kg/cm ²	psi	Kg/cm ²	psi	Kg/cm ²	psi	Kg/cm ²	psi	Kg/cm ²	psi				
-29 to 38	-20 to 100	20.0	285	9.3	275	52.0	740	50.6	720	104.0	1480	101.2	1440	156.3	2220	152.1	2160	260.9	3705	253.5	3600
66	150	19.0	270	17.9	255	49.6	705	47.1	670	99.1	1410	94.2	1340	149.2	2120	100.5	2010	249.2	3540	235.5	3345
93	200	18.3	260	16.9	240	47.5	675	43.6	620	94.9	1350	87.2	1240	142.6	2025	130.9	1860	237.6	3375	217.9	3095
121	250	17.2	245	15.8	225	46.7	665	41.5	590	93.5	1330	83.0	1180	140.4	1995	124.6	1770	234.1	3325	207.3	2945
149	300	16.2	230	15.1	215	46.0	655	39.4	560	92.4	1315	78.7	1120	138.7	1970	118.3	1680	230.9	3280	196.8	2795
177	350	15.1	215	14.4	205	45.3	655	37.6	535	90.7	1290	75.6	1075	136.2	1935	113.3	1610	227.1	3225	188.7	2680
204	400	14.1	200	13.7	195	44.6	645	36.2	515	89.3	1270	72.4	1030	133.8	1900	108.4	1540	223.2	3170	180.9	2570
232	450	13.0	185	12.7	180	43.2	635	34.8	495	86.8	1235	69.6	990	129.9	1845	104.5	1485	216.9	3080	174.6	2480
260	500	12.0	170	12.0	170	42.2	615	33.7	480	84.4	1200	67.1	955	126.4	1795	101.0	1435	210.9	2995	168.3	2390
288	550	10.9	155	10.9	155	40.4	600	32.7	465	80.5	1145	65.4	930	120.7	1715	98.2	1395	201.9	2865	163.3	2320
316	600	9.8	140	9.8	140	38.7	575	31.6	450	77.0	1095	63.6	905	115.4	1640	95.4	1355	192.6	2735	158.8	2255
343	650	8.8	125	8.8	125	37.6	550	31.3	445	75.6	1075	62.6	890	113.3	1610	93.6	1330	189.0	2685	156.3	2220
371	700	7.7	110	7.7	110	37.6	535	30.2	430	74.9	1065	60.8	865	112.6	1600	91.1	1295	187.6	2665	152.1	2160
399	750	6.7	95	6.7	95	35.5	505	29.9	425	71.0	1010	59.4	845	106.3	1510	89.4	1270	177.4	2520	148.5	2110
427	800	5.6	80	5.6	80	28.8	410	29.2	415	58.0	825	58.3	830	86.9	1235	87.6	1245	145.0	2060	146.4	2075
454	850	4.4	65	4.6	65	19.0	270	28.5	405	37.6	535	56.9	810	56.6	805	85.5	1215	94.3	1340	142.9	2030
468	875	3.9	55	3.9	55	15.5	220	28.1	400	30.9	440	56.2	800	46.4	660	84.1	1195	77.4	1100	140.8	2000
482	900	3.5	50	3.5	50	12.0	170	27.8	395	24.3	345	55.5	790	36.2	515	83.0	1180	60.5	860	138.7	1970
496	925	2.8	40	2.8	40	9.5	135	27.4	390	19.3	275	54.8	780	28.8	410	82.3	1170	48.2	685	137.3	1950
510	950	2.5	35	2.5	35	7.4	105	27.1	385	14.4	205	54.5	775	21.8	310	81.6	1160	36.2	515	135.9	1930
524	975	1.8	25	1.8	25	5.3	75	26.4	375	10.9	155	52.7	750	16.1	230	79.2	1125	27.1	385	132.0	1875
538	1000	1.4	20	1.4	20	3.5	50	25.7	365	7.4	105	51.0	725	10.9	155	76.7	1090	18.3	260	128.1	1820
Hydrostatic ambient		31.6	450	29.9	425	79.1	1125	77.3	1100	152	2160	150	2170	238	3380	228	3240	396	5625	380	5400

How to Order

Figure Numbering System



Pressure Rating

Body Material

Plate Material

Body Seat

Plate Seat

Internals

Spring

Size

Facing

Flanged Std

Model

Special Service

RATING	
Pn10	10
Pn16	16
# 125	12
# 150	15
# 300	30
# 600	60
# 900	90
# 1500	A5
# 2500	B5

BODY & PLATE MATERIAL	
WCB ASTM A216	S
LCB ASTM A352	L
LCC ASTM A352	M
WC6 ASTN A217	6
CA-15 ASTM A217	E
C5 ASTM A217	2
C12 ASTM A217	1
CA6NM ASTM A352	Y
CF8M ASTM A351	C
CF3M ASTM A351	F
CF8C ASTM A351	8
Duplex Gr 4A ASTM 890/995	4
Duplex Gr 5A ASTM 890/995	5
Duplex Gr 6A ASTM 890/995	Z
Inc 625 ASTM A494 CW_6MC	N
Inc 825 ASTM A494CU5MCuC	U
CK3MCuN ASTM A351 - S31254	O

St-6	D
ASTM B367 GRC2 (Titanium)	T
Hastealloy B ASTM A494 N7M	I
Hastealloy C ASTM A494 CW12MW	V
ASTM A494 GR M35-1 N24020	Q
ASTM A494 GR M25-S N24025	P
ASTM B148 AB2 C 95800	B
ASTM A148 AB2 C 95500	R
Wc9 ASTM A217	9
ASTM A 352 LC3	X
CF8 ASTM A351	A
CF3 ASTM A351	3
ASTM A351 GR CN7M N08007	7
D2 ASTM A439	K
CF3MN ASTM A351	0
Gun Metal	G
ASTM A126 / IS 210 Cast Iron	H
ASTM A536 / ASTM 385 SGI	J
AB2 ASTM B148 UNS C95400	X
ASTM A126 GR B	X
ASTM A216 WCC	W
ASTM A395 GR 60-40-18	X
ASTM A395 GR 60-45-15	X
ASTM A494 GRADE CW2M	X
ASTM A494 GRADE CY-40-1	X
CA6NM ASTM A352 UNS J91540	Y
ASTM A 351 GR CG8M	X

BODY SEAT	
Integral	I
13% Cr. / SS-410	E
SS-304 Gr.18.8	A
SS-304L	3
SS-316 Gr.18.8.2	C
SS-316L	F
Inc. 625	N
Inc. 825	U
Monel 400 - N35-2	Q
Monel 500 - M25-S	P
AB2 C 95800	B
Stellite-6	D
Viton	Y
Buna N	G
EDPM	M

PLATE SEAT	
Integral	I
13% Cr. / SS-410	E
SS-304 Gr.18.8	A
SS-316 Gr.18.8.2	C
SS-316L	F
Inc. 625	N
Inc. 825	U
Monel 400 - N35-2	Q
Monel 500 - M25-S	P
AB2 C 95800	B
Stellite 6	D
EDPM	M

SIZE (MM)	
40	1H
50	02
65	2H
80	03
100	04
125	05
150	06
200	08
250	10
300	12
350	14
400	16
450	18
500	20
550	22
600	24
650	26
700	28
750	30
800	32
850	34
900	36
950	38
1000	40
1050	42
1100	44
1150	46
1200	48
1250	50
1300	52
1350	54
1400	56
1450	58
1500	60
1550	62
1600	64
1650	66
1700	68
1750	70
1800	72
1850	74
1900	76
1950	78
2000	80

SPRING	
SS-304	A
SS-316	C
Inconel X 750	I
Inconel X 625	N
Monel 500	P
Inconel X 718	J
Inconel X 600	L
Titanium C2	T
Alloy 20	7
DPCV Hastelloy	V

INTERNALS	
SS-304L	3
SS-321	8
SS-304	A
SS-316	C
SS-410	E
SS-316L	F
Duplex 4A	4
Duplex 5A	5
17-4PH	H
SS-431	K
Inc. 625	N
Inc. 825	U
Monel 500	P
Monel 400	Q
AB2	B
254SMO	O
Titanium	T
Hastealloy C	V
Ferrallium	0
Duplex 6A	Z
Alloy 20 CN7M / 904L	7
SS 321H	9
DPCV ASTM A479/A351 GR. CK3MCuN	S
DPCV SS-347	1
MS	O
Phosphors Bronze	B

FACING	
Flat Face Smooth	A
Flat Face Serrated	B
Raised Face Smooth	C
Raised Face Serrated	D
Ring Joint	E
Hub End	X
Butt Weld	Z
Moulded Raised Face Smooth	F

FLANGE STD	
ANSI B16.5/ANSI B16.47 A / MSS-SP-44	A
ANSI B 16.47 B	B
AWWA C 207	C
IS 6392	F
IS 1538	G
BS 4504	H
ANSI B16.1	K
BS 10 E	S
BS 10 D	T
B16.25	Z
HUB END	Y
Others	X

MODEL	
Wafer	11
Wafer Retainerless	12
Wafer Lined	13
Wafer Cladded	14
Lugged	21
Lugged Retainerless	22
Lugged Lined	23
Lugged Cladded	24
Double Flanged	31
Double Flanged Retainerless	32
Double Flanged Lined	33
Double Flanged Cladded	34
Weld Neck (Butt Weld)	41
Weld Neck (Butt Weld R/Less)	42
Long Flanged	51
Long Flanged Retainerless	52
Long Flanged Lined	53
Solid Lugged	61
Solid Lugged Retainerless	62
Solid Lugged Lined	63
Hub End	71
Hub End Retainerless	72
Hub-end cladded	74
Mono Flanged	81
Mono Flanged Retainerless	82
Mono Flanged Lined	83

SPECIAL SERVICE	
Cryogenic	C
Drilled Hole	D
Firesafe	F
GOST Certified	G
Hydrogen	H
IBR	I
Low Temp	L
Nuclear	J
Oxygen	O
CE	P
Special Spring	S
Vacuum	T
Nace	V
Drain Plug	N
Jacketed	U
6D	J

Approximate Weights

Advance Dual Plate Check Valve (MODEL AV-WP-II WAFER TYPE)

TABLE 5

SIZE NB (mm)	Weight in Kgs.			
	ANSI 125	ANSI 150	ANSI 300	ANSI 600
50	1.8	2.7	3.2	3.2
65	2.7	3.5	5.0	5.0
80	3.2	4.5	6.8	6.8
100	5.4	6.7	8.2	11.8
125	6.8	10.2	15.9	22.7
150	9.0	16.0	20.0	36.0
200	18.0	26.0	37.0	61.0
250	29.0	40.0	57.0	108.0
300	50.0	78.0	91.0	151.0
350	90.0	100.0	147.0	206.0
400	116.0	125.0	188.00	290.0
450	135.0	143.0	260.0	404.0

For other models and sizes weights can be provided on request.

Installation Instructions

(1) CLEANING

The ends of Dual Plate Check Valves are protected by rust proofing oil. Before installation, clean the same. Valve plates should be checked to ensure they are free of rust/oil.

(2) DIRECTION OF FLOW

The directions of flow in the line should coincide with the flow direction indicated by the 'arrow' cast on the body of the valve as well as marked on the name plate.

(3) HORIZONTAL PIPING

Insert the valve into the pipeline so that the Pin Retainers (Plugs) are placed in an up and down position.

(4) DISTANCE BETWEEN DUAL PLATE CHECK VALVE & BUTTERFLY

When you attach a Butterfly valve to the outlet side of the Dual Plate Check Valve, ensure that there is enough distance between the two valves so that the plates of the Dual Plate Check Valve in the open position. Also, the disc of the Butterfly Valve should not enter the Dual Plate Check Valve. Besides this maintain sufficient distance to avoid any peripheral or abnormal flow conditions.

SIZE NB (mm)	Weight in Kgs.			
	ANSI 125	ANSI 150	ANSI 300	ANSI 600
500	172	197	329	508
550	240	260	450	-
600	261	281	499	-
650	396	396	-	-
700	400	527	-	-
750	550	580	-	-
800	650	700	-	-
850	700	750	-	-
900	840	890	-	-
1000	1143	1143	-	-
1050	1270	1270	-	-
1200	1778	1778	-	-

(5) ORIENTATION OF THE VALVE TO PUMP DISCHARGE

When connecting the Dual Plate Check Valve to the pump, connect so that the flow of the pump meets evenly with the two plates of the valve for best results.

(6) As a standard, the valves are designed to operate optimally in fully open condition at pipe line flow velocity of 2 to 2.7 m/sec of water for horizontal applications. The flow velocity for vertical applications may be slightly higher than the horizontal applications. For other fluids with lesser specific gravity, please furnish details at the time of enquiry.

(7) Refer to the company for cyclic flow applications like outlet of reciprocating machines.

(8) Dual Plate Check Valves are recommended to be installed where the flow velocities across the cross-section are uniform.

Colour Code

Unless otherwise specified, the exterior surfaces of valve bodies shall be painted as per API 594 as per follows :

- Carbon & Low Alloys Steel : Aluminium
- Cast Iron : Black
- Ductile Iron : Green
- Austenitic Steel (SS) : Unpainted

Dual Plate Check Valve v/s Swing Check Valve

Advantages Summarised at a Glance

DUAL PLATE CHECK VALVE	SWING CHECK VALVE
☞ Light Weight thus easier handling and self supporting.	☞ Bulky & Voluminous thus cumbersome handling & heavier supporting system.
☞ More compact & Structurally sound design.	☞ Large & difficult to analyze from stress concentration points in critical applications due to intricate body shape.
☞ Same valve can be installed horizontally or vertically.	☞ Suitable primarily for horizontal applications.
☞ Only Check Valve which can be installed for flow upside down due to spring assisted closure.	☞ Not Possible.
☞ Low Pressure Drop and reduced Energy Loss irrespective of Pressure Ratings.	☞ Significant Pressure Loss and Energy Loss, which is still higher for higher pressure ratings.
☞ Streamlined flow - way.	☞ Swing restricted flow-way.
☞ Efficient and Positive sealing under most flow and pressure conditions. Valve close before flow reversal, at zero velocity.	☞ Always require reverse flow for closure and back pressure for effective sealing.
☞ Inherently Non-Slamming. No external devices / attachments required.	☞ External attachment required to counteract slamming.
☞ Water Hammer almost non-existent.	☞ Water hammer tendency persists.
☞ Long life and trouble-free operation.	☞ Seat & Hinge Pin require regular maintenance due to impact loads and wear by rubbing.

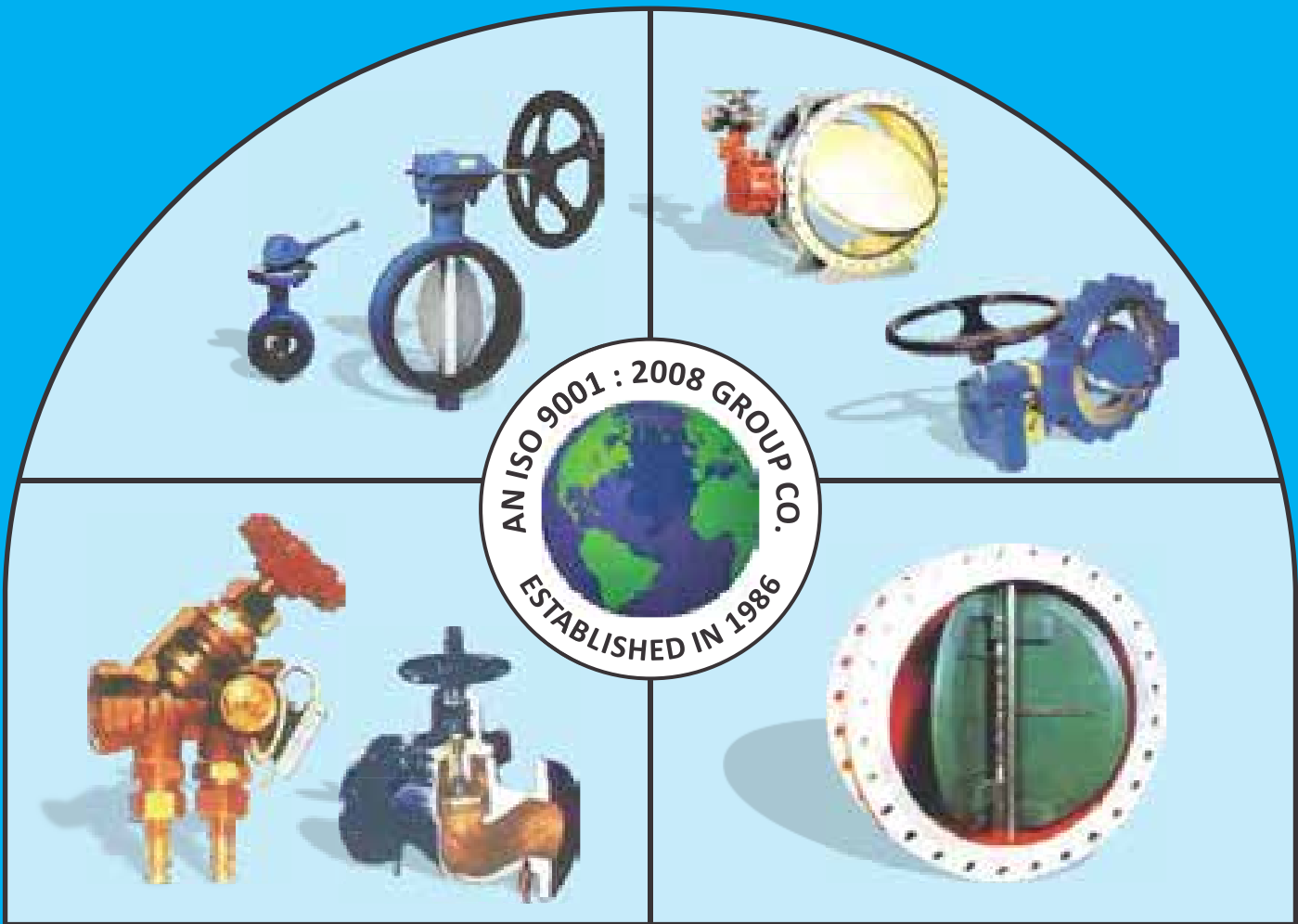
Typical Applications

The Dual Plate Check Valve is a most versatile design available in specific materials constructions to suit particular Pressure, Temperature and Fluid / Flow Characteristics. Some of the Typical Applications are as follows:

- Water** : Water Supply Systems, Fire Water Systems, Cooling Water, Chilled / Hot Water Systems, Boiler Feed Water, Sea Water, Potable Water, Raw Water etc.
- Hydrocarbons** : All Applications.
- Oil & Gas** : Onshore/Offshore, Petroleum, Lubricating Oil, Edible Oils, LPG, LNG, Sour Gas Low Temperature, Cryogenic Applications etc.
- Air & Gases** : All gases like Chlorine, Hydrogen, Nitrogen, Carbon Dioxide (Co₂), Oxygen etc.
- Metallurgical & Chemical processes** : Sugar, Pharmaceutical, Paper, Cement, Steel, Aluminium, Copper, Zinc, Power and other industries.

There is a solution to almost all NON-Return (Check Valve) problems, varying from Fire Safe Services to Cryogenic conditions, with a suitably designed Dual Plate Check Valve.

Through R & D efforts, improvements and optimisation of design is an on-going process. The design / specification provided in this catalogue are subject to change accordingly.



PRODUCT RANGE & APPLICATIONS

Type	Size Range	Rating	Design & Qualification	Application
Dual Plate Check Valve	50 - 2000 mm (2" - 80")	ANSI # 125-2500	API 594, API 6D, API 6FA, BS 6364 / ISO 28921, ISO 10497	All Services Cryogenic & Fire Safe, Retainerless, (-196°C / -321°F to 750°C / 1382°F)
Butterfly Valve - Triple Eccentric (Offset) Metal Seated High Performance	80 - 2500 mm (3" - 100")	ANSI # 150, 300, 600 & 900	API 609 Category B, API 607, ISO 15848, BS 6364 / ISO 28921, ISO 10497	All Services Cryogenic & Fire Safe, Low Emission, (-196°C / -321°F to 550°C / 1020°F)
Butterfly Valve - Concentric Integrally Moulded Liner Design	50 - 600 mm (2" - 24")	PN 10, PN 16, PN 20 & ANSI # 150	API 609 Category A, BS 5155, IS 13095, UL 1091	All kinds of Water/Chemicals/ Air/Oil/ Gases (up-to 204°C / 400°F including Vaccum services)
Butterfly Valve - Double Eccentric (Offset) High Performance	80 - 3000 mm (3" - 120")	PN 10, PN 16, PN 20, PN 25 & ANSI # 150	API 609 B Elastomer seated design	All Services up-to 200°C / 392°F
Actuated Butterfly including MOVs, On-off Remote Shut-off Valves	50 - 3000mm (2" - 120")	PN10, PN16 ANSI # 150, 300, 600, 900	API 609, SIL 3	With Electric, Pneumatic, Electro Hydraulic, Complete Hydraulic, Actuators & Instrumentation
Balancing Valve	25 - 1200 mm (1" - 48")	PN 16 & PN 20	DIN 3202 / BS 7350/ BS EN 593 Face to face as per ISO 5752 Table 8	Water, Glycol, Brine solution

ADVANCE VALVES

• **ADVANCE VALVES PVT. LTD.** • **ADVANCE VALVES GLOBAL LLP** • **ADVANCE VALVES SOLUTIONS**

Corporate Office: 142, A&B, NSEZ, Phase-2, Noida - 201305, INDIA. Phone: +91 120 4796900, Fax: +91 120 4796948
E-mail: info@advancevalves.com. Web: www.advancevalves.com

info@advancevalves.com

www.advancevalves.com

