

# IPV Wafer Butterfly Valve Customer Information Document



Series 6144



SOUTHERN AFRICA



## IPV Wafer Butterfly Valve

The AVK – IPV brand products were designed for heavy duty, difficult and critical applications in mind for the Chemical, Petro-chemical, Mining and Slurry segments. The first valves were introduced to the South African market more than 50 years ago.

Wafer Butterfly Valves is available in sizes DN50 – DN600, and PN25

The IPV Wafer Butterfly Valve design is manufactured as Split Body Design – DN50 to DN600

Valves up to 150mm are available with levers. The “Press-down” feature on these levers allows positive positioning of the disc at any of ten positions between open and closed . This is achieved by means of engagement between lever extension and accurately positioned detent notches in a ratchet plate bolted on the neck flange. The neck flange is spigotted to fit the bore of the ratchet plate, and the attachment bolt holes are radially slotted, thus allowing almost infinite adjustment. Gearboxes are fitted as standard on all IPV Butterfly Valves from 200mm to 600mm. (Lever optional when requested for DN200)



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# IPV Wafer Butterfly Valve

## Features & Benefits

- Compact wafer design easily handled and low weight
- Minimum height can be fitted in normally inaccessible areas
- Low operating torque easily operated
- Excellent fluid control good regulating characteristics
- No gaskets required
- Cost effective when compared with other types of valves.
- The IPV disc design offers improved flow characteristics
- Free from bacterial attack
- Split body design body & disc can be removed from line with actuator or controls left in line
- The “Press-down” feature on these levers allows positive positioning of the disc at any of ten positions between open and closed



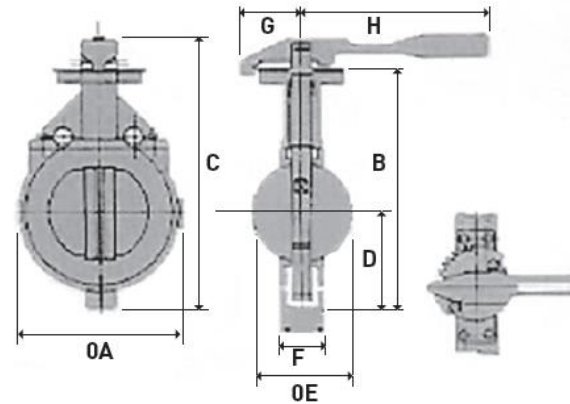
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# IPV Wafer Butterfly Valve

## Materials of Construction and Key Dimensions

Description	
Body	ASTM A216 Grade WCB
Disc	ASTM A351 Grade CF8M
Seat	Vulcanized – EPDM
Ratchet Plate	AISI Grade 316
Lever	Mild Steel
Spring	AISI Grade 302



Dimensions												The IPV valve will accept the following flanges without modifications		
Valve size in mm	PN 16	PN 25	ØA	B	C	D	ØE	F*	G	H	Mass KGs	ANSI, B16.5 Class	BS, 4504 Table	BS, 10 Table
50	X	X	84	204	255	57	48.65	45	69	261	9	150	6, 10, 16, 25	A, D, E, F
80	X	X	128	145	196	84	72.75	49	69	261	12	150	6, 10, 16, 25	A, D, E, F
100	X	X	158	286	337	100	97	54	69	261	14	150	10, 16, 25	E, F
150	X	X	212	342	393	131	145	59	69	381	20	150	10, 16, 25	D
200	X	X	270	460	460	173	194.5	66	69	381	34	150	10, 16, 25	A, D, E, F

**Note:** Other materials available on request for example – Disc & Shaft = CN7M (Alloy 20) / 904L

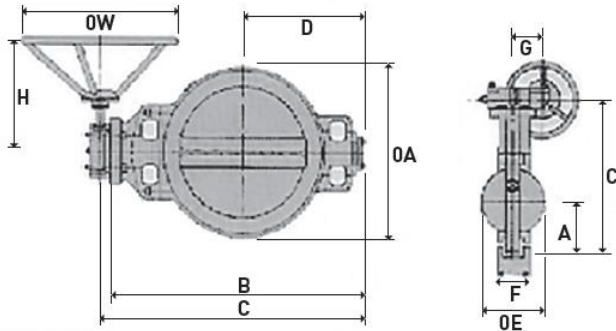


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# IPV Wafer Butterfly Valve

## Key Dimensions



\* Face to Face Dimensions comply with BS 5155 short wafer pattern in sizes DN50 to DN300. Long wafer pattern in sizes DN350 to DN600.

The face-to-face dimensions include liner. The installed face to face dimensions are in accordance with BS5155.

Actuators or gearboxes can be fitted on all sizes to meet customers requirements

Dimensions													The IPV valve will accept the following flanges without modifications		
Valve size in mm	PN 16	PN 25	ØA	B	C	D	ØE	F*	G	H	ØW	Mass KGs	ANSI, B16.5 Class	BS, 4504 Table	BS, 10 Table
100	x	x	158	286	314	100	97	54	61	181	175	14	150	10, 16, 25	E, F
150	x	x	212	342	370	131	145	59	61	181	175	20	150	10, 16, 25	D
200	x	x	270	408.5	436.5	173	194.5	66	61	213	250	34	150	10, 16, 25	A, D, E, F
250	x	x	315	474	502	207	243.6	71	61	275	250	41	150	16, 25	E, F
300	x	x	378	543.5	571.5	239	288.5	84	61	276	400	58	150	16, 25	D, E, F
350	x	x	416	638	666	304	330	130	61	276	400	88	150	10, 16, 25	D, E, F
400	x	x	475	688	716	329	379.5	143	61	360	450	107	150	10, 16, 25	
450	x	x	530	760	803	360	430	155	90	390	450	132	150	10, 16, 25	E, F
500	x	x	576	809	852	379	480	155	90	387	450	176	150	16, 25	
600	x	x	700	948	991	443	580	181	90	471	450	282	150	16, 25	

**Note:** Other materials available on request for example – Disc & Shaft = CN7M (Alloy 20) / 904L



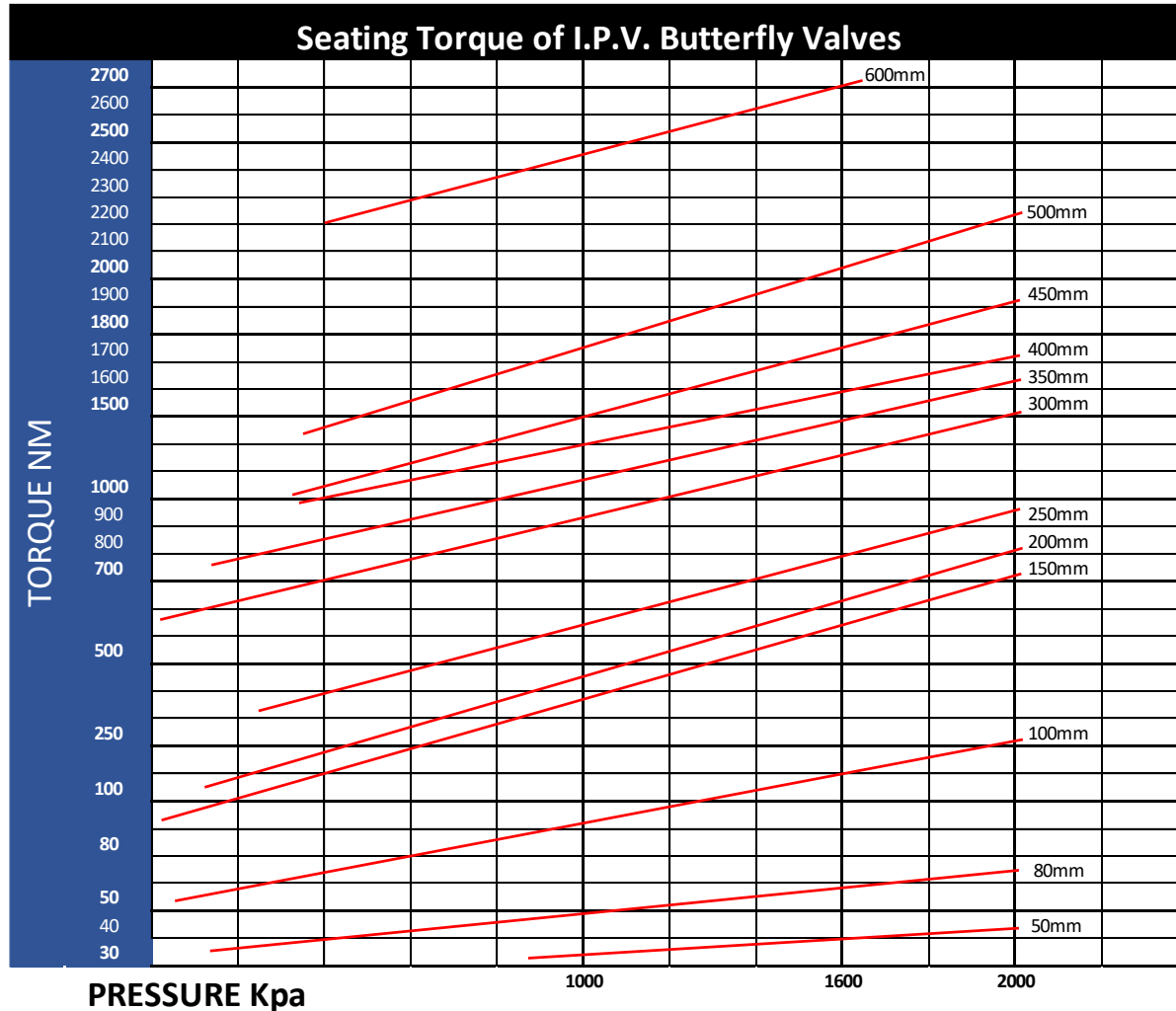
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# IPV Wafer Butterfly Valve

## Torque Information



Valve Size	Pressure Rating		
	1000 Kpa (10 Bar)	1600 Kpa (16 Bar)	2000 Kpa (20 Bar)
50mm	34 Nm	38 Nm	43 Nm
80mm	48 Nm	57 Nm	74 Nm
100mm	93 Nm	168 Nm	292 Nm
150mm	396 Nm	475 Nm	732 Nm
200mm	485 Nm	675 Nm	820 Nm
250mm	570 Nm	790 Nm	943 Nm
300mm	940 Nm	1292 Nm	1535 Nm
350mm	1317 Nm	1487 Nm	1622 Nm
400mm	1340 Nm	1585 Nm	1740 Nm
450mm	1490 Nm	1750 Nm	1940 Nm
500mm	1745 Nm	1040 Nm	2230 Nm
600mm	2468 Nm	2700 Nm	--



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# IPV Wafer Butterfly Valve



## Rotork Gearbox Detail – Includes 30% Safety Factor

### 8" (200mm) Valve – AB880 + 200mm H/Wheel

Bore Size : 30mm (1066Nm)

Key-Way Size : 8 x 7 F10

Key-Way Position : C

PCD : 102mm (4 x Holes, Drilled & Tapped M12)

### 10" (250mm) Valve – AB880 + 200mm H/Wheel

Bore Size : 30mm (1226Nm)

Key-Way Size : 8 x 7 F10

Key-Way Position : C

PCD : 102mm (4 x Holes, Drilled & Tapped M12)

### 12" (300mm) Valve – AB880 + 300mm H/Wheel

Bore Size : 30mm (1996Nm)

Key-Way Size : 8 x 7 F10

Key-Way Position : C

PCD : 102mm (4 x Holes, Drilled & Tapped M12)

### 14" (350mm) Valve – AB1250 + 300mm H/Wheel

Bore Size : 38mm (2028Nm)

Key-Way Size : 10 x 8 Special / Non Standard

Key-Way Position : C

PCD : 110mm (4 x Holes, Drilled & Tapped M12)

### 16" (400mm) Valve – AB1250 + 400mm H/Wheel

Bore Size : 38mm (2262Nm)

Key-Way Size : 10 x 8 F12

Key-Way Position : C

PCD : 125mm (4 x Holes, Drilled & Tapped M12)

### 18" (450mm) Valve – AB1250 + 400mm H/Wheel

Bore Size : 42mm (2522Nm)

Key-Way Size : 12 x 8 F12

Key-Way Position : C

PCD : 125mm (4 x Holes, Drilled & Tapped M12)

### 20" (500mm) Valve – AB1950 + 600mm H/Wheel

Bore Size : 42mm (3029Nm)

Key-Way Size : 12 x 8 F12

Key-Way Position : C

PCD : 125mm (4 x Holes, Drilled & Tapped M14)

### 24" (600mm) Valve – AB1950 + 600mm H/Wheel

Bore Size : 58mm (3510Nm)

Key-Way Size : 16 x 10 F12

Key-Way Position : C

PCD : 125mm (4 x Holes, Drilled & Tapped M14)



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# IPV Wafer Butterfly Valve

## Flow Coefficients vs Disc Angle



Flow Coefficients for I.P.V. Butterfly Valves										
Valve Size		Angle of Disc Opening								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
50mm	Kv	--	4	11	18	28	52	74	95	138
2"	Cv	--	5	13	21	32	60	85	110	160
80mm	Kv	1.7	6	15	27	42	68	106	169	233
3"	Cv	2	7	17	32	49	79	122	195	270
100mm	Kv	4	17	37	57	121	185	274	382	519
4"	Cv	5	20	43	66	140	216	320	445	600
150mm	Kv	8	34	73	155	260	407	623	848	1212
6"	Cv	10	39	84	180	300	470	720	980	1400
200mm	Kv	16	64	155	286	441	723	1082	1732	2338
8"	Cv	19	73	180	330	510	835	1250	2000	2700
250mm	Kv	34	88	242	428	727	1255	1991	2944	3927
10"	Cv	40	100	280	500	840	1450	2300	3400	4575
300mm	Kv	51	182	363	658	1169	1818	2857	4329	5822
12"	Cv	60	210	420	760	1350	2100	3300	5000	6725
350mm	Kv	126	253	481	862	1483	2361	3677	5418	7795
14"	Cv	146	293	558	1000	1721	2739	4266	6286	9043
400mm	Kv	180	341	637	1139	1948	3148	4873	7174	10195
16"	Cv	209	396	739	1321	2260	3652	5652	8321	11826
450mm	Kv	216	437	802	1439	2443	4063	6147	9070	12968
18"	Cv	352	506	930	1670	2835	4713	7130	10521	15043
500mm	Kv	301	542	1049	1821	3058	5067	7646	11619	15817
20"	Cv	340	628	1217	2113	3548	5878	8870	13478	18347
600mm	Kv	390	804	1552	2706	4505	7421	11391	16866	23613
24"	Cv	452	933	1800	3140	5226	8608	13200	19565	27391

Note: 1 Litre/second = 15.58 US gal/min

1 U S gal/min = 3,785 Litre/min

Cv – Imperial measurement

Kv – Metric measurement

### Definitions:

**Cv = The quantity of water in U.S. gallons per minute (gal/min) which will pass through a given valve opening with a pressure drop ( $\leftarrow p$ ) of 1 lb/in<sup>2</sup> at 60°F**

**Kv = The quantity of water in m<sup>3</sup>/hr which will pass through a given valve opening with a pressure drop ( $\leftarrow p$ ) of 1 bar at 16°C**

**Pressure drop = Pressure Differential or “delta P”**

**NB:** Details and Images in this document may change without prior notification



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