

RESILIENT SEAT BUTTERFLY VALVE

LUGGED DN50 - DN600

MODEL: BFL



FEATURES AND BENEFITS

- Designed and tested in accordance with AS4795.1
- AS4795.1 OceanaMark Certified product by Iapmo R&T Oceana Licence No: OMK32103.
- WaterMark Approved product by Iapmo R&T Oceana Licence No: WM-032103.
- WSAA Accredited—Appraisal number: PA 2102
- Water Quality tested and approved to AS4020.
- End of line service/isolation, full 16 bar rating with downstream flange removed.
- Bi – directional bubble tight sealing.
- Vulcanised seat held securely in position making it suitable for vacuum applications.
- High strength one piece through shaft secured by precision taper pins provides a strong and reliable disc to stem connection that is field replaceable.
- Blow-Out proof stem ensures operator safety and eliminates OH&S issues.
- Heavy duty shaft bushing ensures disc alignment & absorbs side thrusts, reducing valve wear whilst prolonging valve life.
- Suitable for high repetition, actuated applications.
- Precision disc machining ensures mirror image of seat profile enhancing low torque operation & reduced liner wear.
- ISO interface flange allows interchange and standardisation of actuation equipment.
- Stem seal connection is ensured with moulded double “O” rings, as well as an additional upper stem seal to provide greater design integrity.
- Robust, extended neck allows easy installation of insulation and ensures bearing integrity.
- Flange seal connection is ensured with moulded double “O” rings seals eliminating the requirement for flange gaskets.
- Lockable lever handle to prevent tampering.

OPTIONS

- Actuators
 - Electric
 - Pneumatic
 - Hydraulic
- Extensions
- Lockable Gearbox
- Chain wheel Operation
- Limit Switches

APPLICATIONS

Challenger Valves and Actuators are the “**Right Choice for Valves and Actuation**” when quality matters.

Servicing industries such as:

Water & Waste Water, Mining, Desalination, Pumping, Industrial Processing, Irrigation, Materials Handling and Chemical Services.



TECHNICAL SPECIFICATION

Construction:	Lugged Concentric Seal On Body Butterfly Valve
Size:	50mm - 600mm
Pressure Rating:	PN16
Face to Face:	ISO5752 Series 20/AS4795.1
Flange Drilling:	AS4087 PN16 (Table D) AS2129 Table E ANSI B16.5 #150
Coatings:	Fusion Bonded Epoxy AS4158 AKZO Nobel R4-ES HJF01R
Temperature Range:	AS4020 Compliance EPDM 0°C to 40°C
General Application	EPDM 0-85°C (Optimum Range) -10°C to 120°C (Intermittent) Nitrile -10°C to 80°C
Pressure Testing:	AS4795.1
Mounting Pad:	ISO5211
Max Velocity:	5m/s (max) 7.5m/s (emergency)
Negative Pressure:	0.1MPa (vacuum)

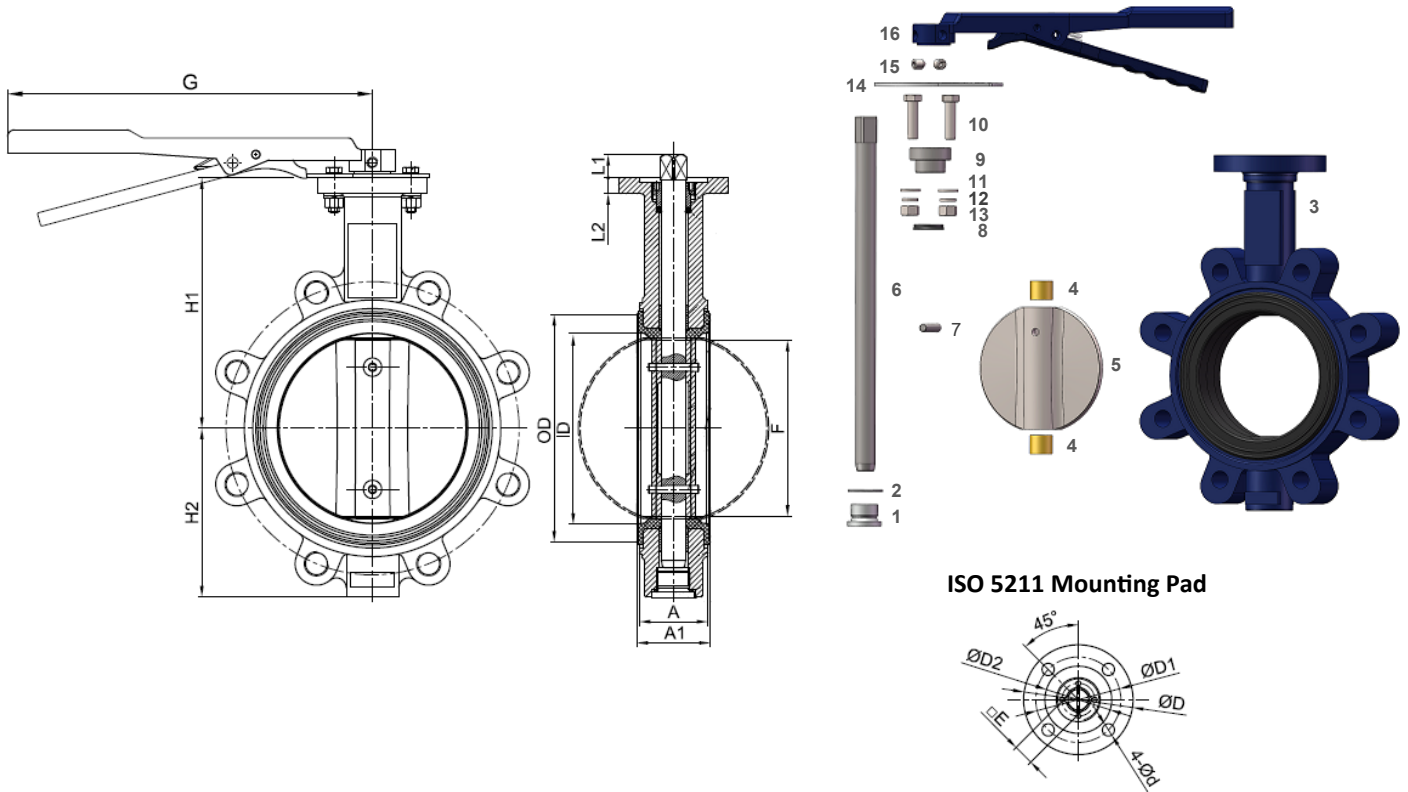
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TECHNICAL: DN50 - DN300

TECHNICAL : VALVE DETAILS

ITEM	COMPONENT	MATERIAL	GRADE	ITEM	COMPONENT	MATERIAL	GRADE
1	Plug	Stainless Steel	ASTM A276 - 304	9	Sealing Sleeve	Stainless Steel	ASTM A276 - 304
2	Sealing Gasket	PTFE		10	Hex Bolt	Stainless Steel	ASTM A276 - 316
3	Body and Vulcanized Seat	Ductile Iron Rubber	AS1831 - 450-10 AS1646 / AS681.1 - EPDM	11	Flat Washer	Stainless Steel	ASTM A276 - 316
4	Bushing	PTFE Steel Lined	PTFE / ASTM A276 - 316	12	Spring Washer	Stainless Steel	ASTM A276 - 316
5	Disc	Stainless Steel	ASTM A351 - CF8M	13	Hex Nut	Stainless Steel	ASTM A276 - 316
6	Stem	Stainless Steel	ASTM A276 - 431	14	Notch Plate	Stainless Steel	ASTM A276 - 304
7	Taper Pin	Stainless Steel	ASTM A276 - 316	15	Hex Bolt	Stainless Steel	ASTM A276 - 316
8	Y-Ring	Rubber	AS1646 / AS681.1 - EPDM	16	Lever	Ductile Iron	AS1831 - 450-10



DIMENSIONS AND WEIGHTS																						
Size	A	A1	H1	H2	L1	L2	ØD	ØD1	ØD2	4-Ød	E	F	G	ID	OD	PCD		Compatible Flanges			Weight KG	
																Table D&E	ANSI#150	Table D	Table E	ANSI#150	Lever	Gear Box
50	43	47	143	72	14	13	65	50 (F05)	35	4-7	11	24	266	56	71	114	121	4-M16	4-M16	4-UNC 5/8	5	7
65	46	50	156	78	14	13	65	50 (F05)	35	4-7	11	41	266	68	86	127	140	4-M16	4-M16	4-UNC 5/8	5	7
80	46	50	162	95	14	13	65	50 (F05)	35	4-7	11	61	266	82	102	146	152	4-M16	4-M16	4-UNC 5/8	6	8
100	52	56	177	108	18	13	90	70 (F07)	55	4-10	14	88	266	108	130	178	191	4-M16	8-M16	8-UNC 5/8	9	11
125	56	60	190	123	18	13	90	70 (F07)	55	4-10	14	108	266	127	155	210	216	8-M16	8-M16	8-UNC 3/4	11	13
150	56	60	205	117	18	13	90	70 (F07)	55	4-10	17	144	328	160	186	235	241	8-M16	8-M20	8-UNC 3/4	12	14
200	60	66	236	168	25	13	125	102 (F10)	70	4-12	17	192	386	207	239	292	299	8-M16	8-M20	8-UNC 3/4	18	21
250	68	74	267	207	25	13	125	102 (F10)	70	4-12	22	240	386	255	286	356	362	8-M20	12-M20	12-UNC 7/8	32	37
300	78	84	308	243	27	19	125	102 (F10)	70	4-12	22	290	386	307	341	406	432	12-M20	12-M24	12-UNC 7/8	45	50

COMPENSATION RINGS AND GASKETS MAY BE REQUIRED WHEN MOUNTING AGAINST SOME PIPES, PLEASE CHECK SEALING FACES.

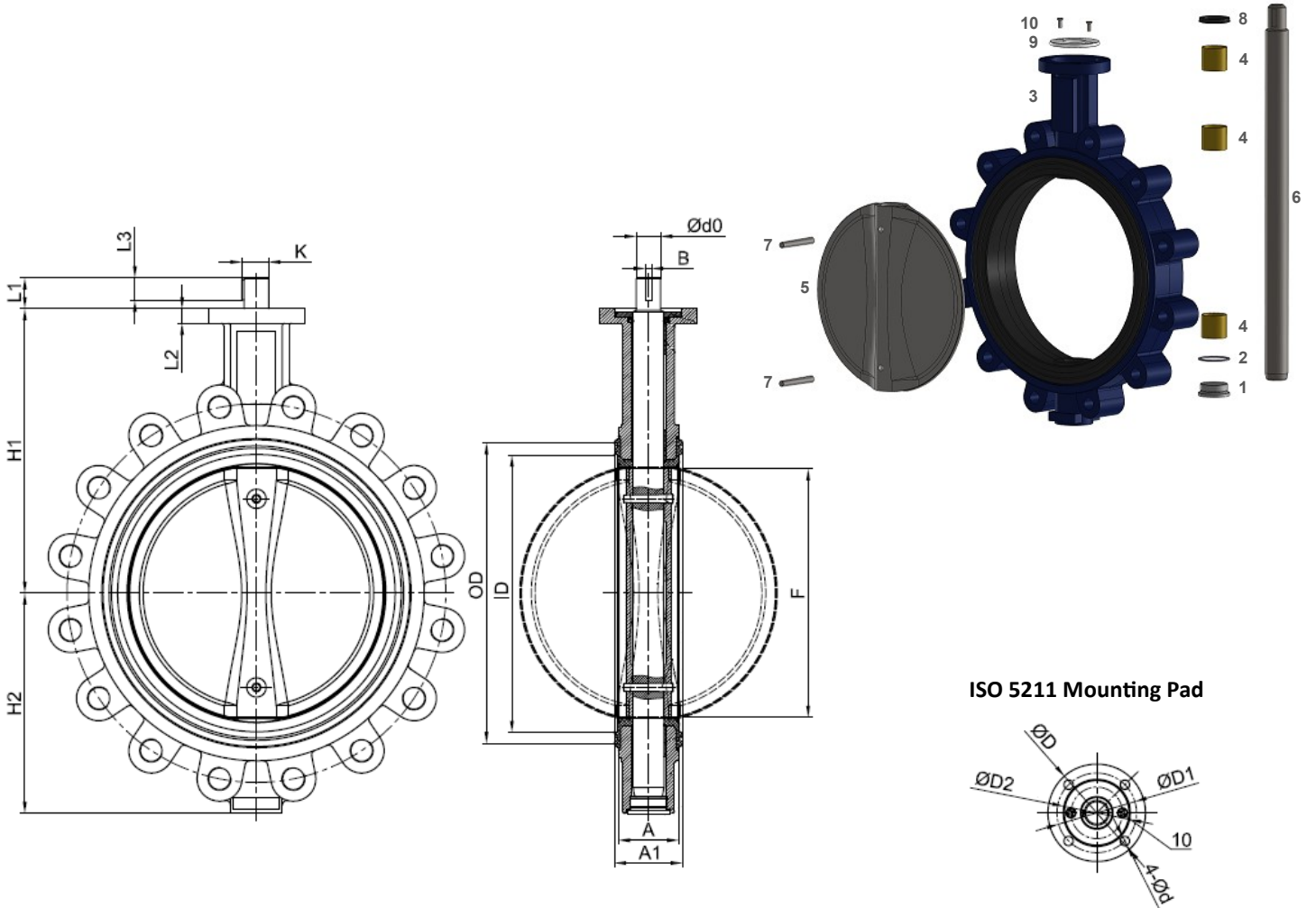
**RESILIENT SEAT BUTTERFLY VALVE
LUGGED DN50 - DN600
MODEL: BFL**



TECHNICAL: DN350

TECHNICAL: VALVE DETAILS

ITEM	COMPONENT	MATERIAL	GRADE	ITEM	COMPONENT	MATERIAL	GRADE
1	Plug	Stainless Steel	ASTM A276 - 304	6	Stem	Stainless Steel	ASTM A276 - 431
2	Sealing Gasket	PTFE		7	Taper Pin	Stainless Steel	ASTM A276 - 316
3	Body and Vulcanized Seat	Ductile Iron Rubber	AS1831 - 450-10 AS1646 / AS681.1 - EPDM	8	Y-Ring	Rubber	AS1646 / AS681.1 - EPDM
4	Bushing	PTFE Steel Lined	PTFE / ASTM A276 - 316	9	Gland	Stainless Steel	ASTM A276 - 304
5	Disc	Stainless Steel	ASTM A351 - CF8M	10	Cross Countersunk Head Screw	Stainless Steel	ASTM A276 - 316



ISO 5211 Mounting Pad

DIMENSIONS AND WEIGHTS

Size	A	A1	H1	H2	L1	L2	L3	Ød0	F	ID	OD	K	B	ØD	ØD1	ØD2	4-Ød	PCD		NØd			Weight KG	
																		Table D&E	ANSI#150	Table D	Table E	ANSI#150	Bare	Gear
*350	78	88	368	272	34	19	29.3	31.6	323	367	389	34.6	8	125	102 (F10)	86	4-12	470	476	12-M24	12-M24	12-UNC 1	70	84

*ANSI#150 IS A SPECIAL PURCHASE
COMPENSATION RINGS AND GASKETS MAY BE REQUIRED WHEN MOUNTING AGAINST SOME PIPES, PLEASE CHECK SEALING FACES.

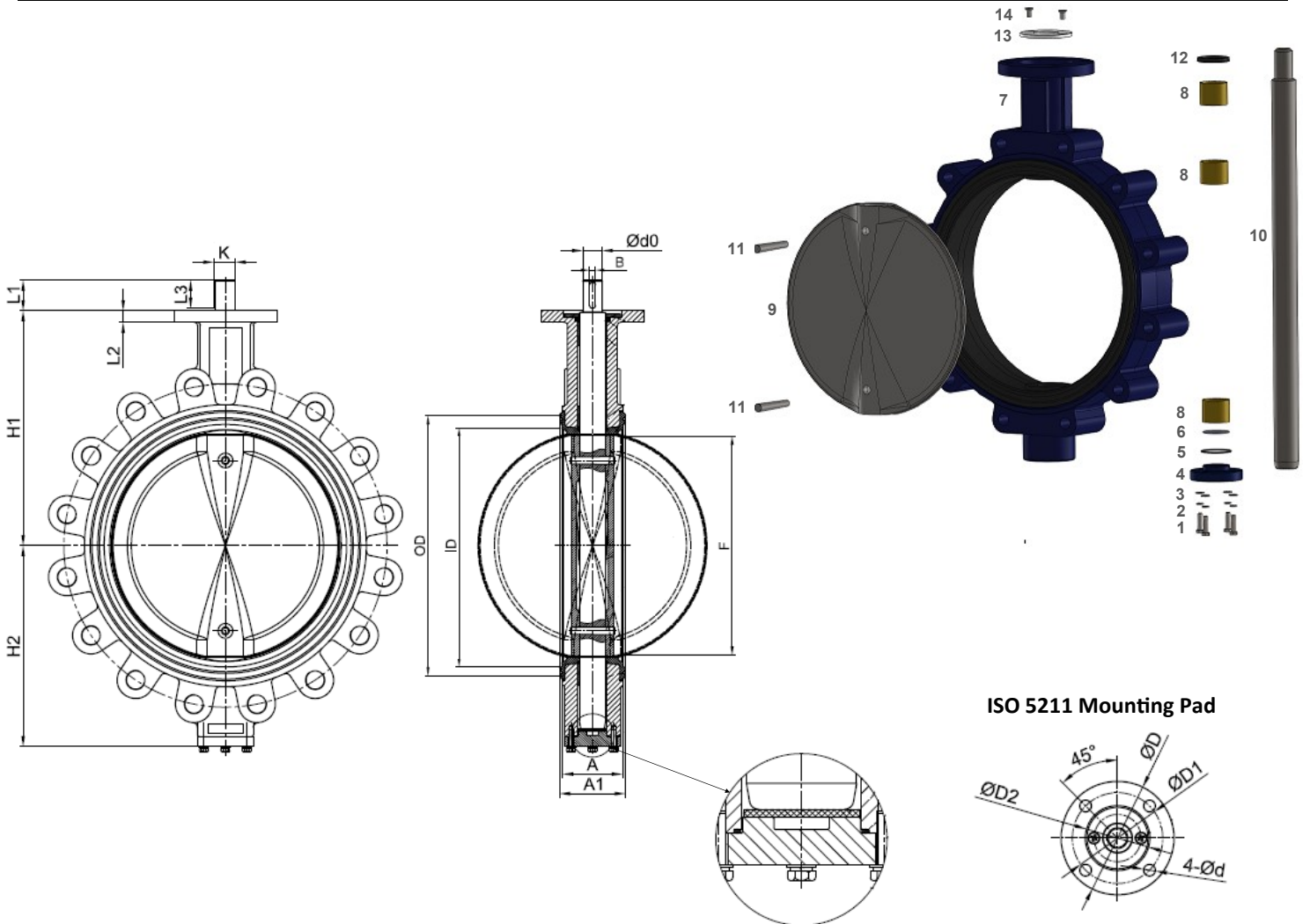
**RESILIENT SEAT BUTTERFLY VALVE
LUGGED DN50 - DN600
MODEL: BFL**



TECHNICAL: DN400-DN600

TECHNICAL: VALVE DETAILS

ITEM	COMPONENT	MATERIAL	GRADE	ITEM	COMPONENT	MATERIAL	GRADE
1	Hex Bolt	Stainless Steel	ASTM A276 - 316	8	Bushing	PTFE Steel Lined	PTFE / ASTM A276 - 316
2	Spring Washer	Stainless Steel	ASTM A276 - 316	9	Disc	Stainless Steel	ASTM A351 - CF8M
3	Flat Washer	Stainless Steel	ASTM A276 - 316	10	Stem	Stainless Steel	ASTM A276 - 431
4	Bottom Cover	Ductile Iron	AS1831 - 450-10	11	Taper Pin	Stainless Steel	ASTM A276 - 316
5	O-Ring	Rubber	AS1646 / AS681.1 - EPDM	12	Y-Ring	Rubber	AS1646 / AS681 - EPDM
6	Adjusting Gasket	Nylon		13	Gland	Ductile Iron	AS1831 - 450-10
7	Body and Vulcanized Seat	Ductile Iron Rubber	AS1831 - 450-10 AS1646 / AS681.1 - EPDM	14	Counter Sunk Head Screw	Stainless Steel	ASTM A276 - 316



DIMENSIONS AND WEIGHTS

Size	A	A1	H1	H2	L1	L2	L3	Ød0	F	ID	OD	K	B	ØD	ØD1	ØD2	4-Ød	PCD		NØd			Weight KGs	
																		Table D&E	ANSI#150	Table D	Table E	ANSI#150	Bare Shaft	Gear Box
400*	102	112	400	342	52	20	48	33.15	374	421	443	36.15	10	175	140(F14)	100	4-18	521	540	12-M24	12-M24	16-UNC 1	92	106
450*	114	124	422	372	52	20	48	38	424	447	499	41	10	175	140(F14)	100	4-18	584	578	12-M24	16-M24	16-UNC 11/8	120	141
500*	127	137	480	402	64	22	59	41.15	472	531	553	44.15	10	175	140(F14)	110	4-18	641	635	16-M24	16-M24	20-UNC 11/8	165	186
600*	154	164	562	467	70	22	69	50.65	518	619	643	54.65	16	210	165(F16)	130	4-23	756	749	16-M27	16-M30	20-UNC 11/4	210	234

*ANSI#150 IS A SPECIAL PURCHASE.
TOP AND BOTTOM FLANGE HOLES FOR DN500 AND DN600 ANSI#150 VALVES WILL HAVE DRILLED AND TAPPED BLIND HOLES.
COMPENSATION RINGS AND GASKETS MAY BE REQUIRED WHEN MOUNTING AGAINST SOME PIPES, PLEASE CHECK SEALING FACES.

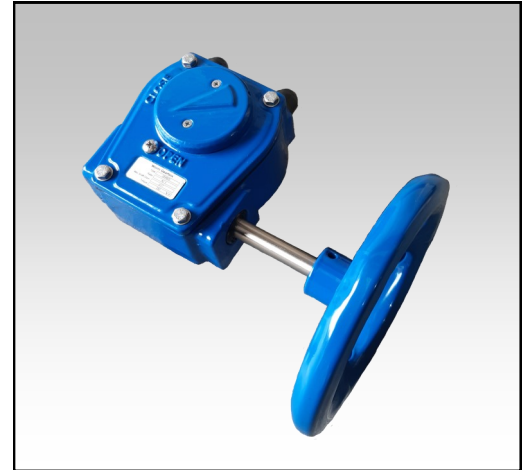
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TECHNICAL: GEARBOX

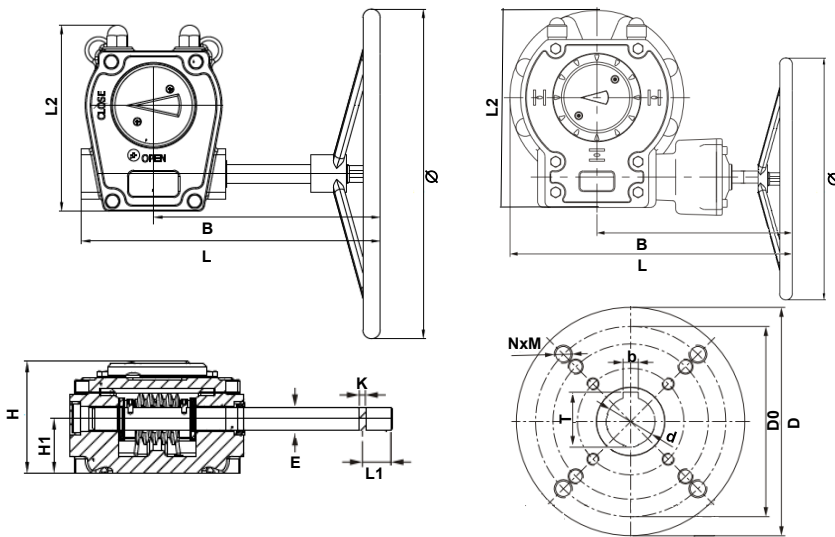
FEATURES AND BENEFITS

- Suitable for use with Butterfly, Plug and any other valve requiring quarter turn motion for thrust and torque applications.
- Ductile Iron gear box housing providing high strength and impact resistance.
- The unit is completely O-Ring sealed suitable for temporary submersion to meet IP68 Class.
- External Adjustable Stopper bolts allow for easy position accuracy of +/-5°.
- Working Temperature -20°C—120°C.
- Fusion Bonded Epoxy Coating complies with AS4158 AKZO Nobel R4-ES HJF01R



DN50-DN300

DN350-DN600



ITEM	COMPONENT	MATERIAL	GRADE
1	Housing	Ductile Iron	GGG40
2	Cover	Ductile Iron	GGG40
3	Worm Shaft	Stainless Steel	AISI304
4	Fasteners	Stainless Steel	AISI304
5	Indicator	Ductile Iron	GGG40
6	Worm	Steel	C45
7	Bearing	Stainless Steel	AISI304
8	Bushing	PAP	
9	O-rings	NBR	
10	Gasket	NBR	
11	Hand Wheel	Ductile Iron	GGG40
12	Adjustment Bolts	Stainless Steel	AISI304

DIMENSIONS—GEARBOX																			
Size mm	L	B	H	H1	E	K	L1	L2	D	D0	d	T	b	NxM	Ratio (:1)	Hand Wheel Diameter Ø	Mechanical Advantage	Max Output Torque (Nm)	No. Turns
50	198	151	65	29	12	5	17.5	119	92	50 (F05)	11*	-	-	4xM6	42	150	11.07	250	11
65	198	151	65	29	12	5	17.5	119	92	50 (F05)	11*	-	-	4xM6	42	150	11.07	250	11
80	198	151	65	29	12	5	17.5	119	92	50 (F05)	11*	-	-	4xM6	42	150	11.07	250	11
100	198	151	65	29	12	5	17.5	119	92	70 (F07)	14*	-	-	4xM8	42	150	11.07	250	11
125	198	151	65	29	12	5	17.5	119	92	70 (F07)	14*	-	-	4xM8	42	150	11.07	250	11
150	198	151	65	29	12	5	17.5	119	92	70 (F07)	17*	-	-	4xM8	42	150	11.07	250	11
200	198	151	65	39	15	5	20	119	90	102 (F10)	17*	-	-	4xM10	42	200	11.34	350	11
250	240	182	74	36	15	5	20	150	113	102 (F10)	22*	-	-	4xM10	40	240	10.8	550	10
300	240	182	74	36	15	5	20	150	113	102 (F10)	22*	-	-	4xM10	40	240	10.8	550	10
350	350	262	97	47.5	20	6	24	200	175	102 (F10)	31.6	34.6	8	4xM10	140	200	32.2	1000	35
400	350	262	97	47.5	20	6	24	200	175	140 (F14)	33.15	36.15	10	4xM16	140	200	32.2	1000	35
450	388	283	105	51	20	6	24	241	210	140 (F14)	38	41	10	4xM16	156	300	40.56	2000	39
500	388	283	105	51	20	6	24	241	210	140 (F14)	41.15	44.15	10	4xM16	156	300	40.56	2000	39
600	393	286	109	55	20	6	24	259	210	165 (F16)	50.65	54.65	16	4xM20	227	400	59.02	3250	57

* DENOTES SQUARE SHAFT 45 DEGREES OFFSET
GEARBOX INPUT TORQUE = VALVE TORQUE DEVIDE MECHANICAL ADVANTAGE.

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TECHNICAL DATA

CV VALUES

Cv is defined as the volume of water in U.S.G.P.S that will flow through a given restriction or valve opening with a pressure drop of one (1) p.s.i at room temperature.
 Recommended control angles are between 25° - 70° open.
 Preferred angle for control valve sizing is 60° - 65° open.
 Cv = 1.167Kv

Open° vs Size	Cv VALUES													
	50	65	80	100	125	150	200	250	300	350	400	450	500	600
10°	0.1	0.2	0.3	0.5	0.8	2	3	4	5	6	8	11	14	22
20°	5	8	12	17	29	45	89	151	234	338	464	615	791	1222
30°	12	20	22	36	61	95	188	320	495	715	983	1302	1674	2587
40°	24	37	39	78	133	205	408	694	1072	1549	2130	2822	3628	5605
50°	45	65	70	139	237	366	727	1237	1911	2761	3797	5028	6465	9989
60°	64	98	116	230	392	605	1202	2047	3162	4568	6282	8320	10698	16528
70°	90	144	183	364	620	958	1903	3240	5005	7230	9942	13168	16931	26157
80°	125	204	275	546	930	1437	2854	4859	7507	10844	14913	19752	25396	39236
90°	135	220	302	600	1022	1579	3136	5340	8250	11917	16388	21705	27908	43116

TORQUE DATA

Torque is the measure of the turning force on an object. For a butterfly valve the turning force is determined by the friction of the disc and the seat, bushing friction and fluid dynamic torque.

*TORQUE NOTES:

Results provided are differential pressure conditions with clean municipal water.

Torque figures provided do not include safety margin.

For conditions that vary from those noted, apply the following Application Factor Multipliers:

- Operated less than once per day x 1.2
- Dry Service with gas or air x 1.5
- Dry Service with abrasive powder x 1.7
- Lubricant oils x 0.5
- Temperature - lower than -4.5°C x 1.2
- higher than 93°C x 1.2
- For NBR (Nitrile) Seat Figures will be 1.1 times

Size	TORQUE VALUES (Nm)													
	50	65	80	100	125	150	200	250	300	350	400	450	500	600
16 BAR	8	11	15	25	35	62	129	245	340	475	730	1050	1270	2150

HOW TO ORDER								
Series	Design	Seat	Disc & Stem	Connection	Rating	Size	Actuator	Accessories
BF	L	E	E	E	4	0100	H	
Example: DN100 BF Lugged Butterfly Valve, EPDM Seat, SS Trim, Lugged AS2129 Table E, PN16 with Lever Handle								
Series			Size				Accessories	
BF = AS4795.1 Certified Seal on Body Butterfly Valve			0050 = 2" (50mm)	0150 = 6" (150mm)	0400 = 16" (400mm)	Left Blank = No Accessories		
Design			0065 = 2 1/2" (65mm)	0200 = 8" (200mm)	0450 = 18" (450mm)	CH = Chain Wheel (Drop to be specified)		
L = Lugged Construction			0080 = 3" (80mm)	0250 = 10" (250mm)	0500 = 20" (500mm)	I = Input Stop Box		
Seat			0100 = 4" (100mm)	0300 = 12" (300mm)	0600 = 24" (600mm)	T = Torque Limiter		
E = EPDM			0125 = 5" (125mm)	0350 = 14" (350mm)	L = Lockout Device			
N = Nitrile (NBR)*			Actuator			D = Dial Position Indicator		
V = Viton*			BS = ISO Bare Shaft			B = Buried Service		
Disc & Stem			H = Lever Handle DI (Not available for DN350-DN600)			X = Other (Must specify)		
E = CF8M Stainless Steel Disc & 431 Stainless Steel Stem			W = Worm Gearbox (Standard—Clock Close Only)			Note:		
Connection			WSA = SAMBO Gearbox (Anti Clockwise Close)			To include electric or pneumatic actuators, please specify the required part number as per the relevant data sheet.		
D = AS2129 Table D			WSC = SAMBO Gearbox (Clockwise Close)					
E = AS2129 Table E			WD = Declutch able Gearbox			For valve extension spindles, please specify the required part number as per the code builder on the relevant data sheet.		
A = ANSI #150			K = Gearbox with Key Cap					
Rating			X = Other (Must Specify)			Visit the Challenger website to access further data sheets.		
1 = PN3*	2 = PN6*							
3 = PN10*	4 = PN16							

* Denotes valve not certified to AS4795.1 with these options