



proval

Catalogue 2011

Reliable Flow Control Solutions



V101 (Wafer)
V102 (Lug)
Soft
Seat
Butterfly
Valves



A210
New
Generation
Rotary
Pneumatic
Actuators



Mechanical,
Proximity
Limit
Switch
Boxes



DORUK ENDUSTRI
Valve & Automation Systems

DORUK ENDUSTRI

Valve & Automation Systems

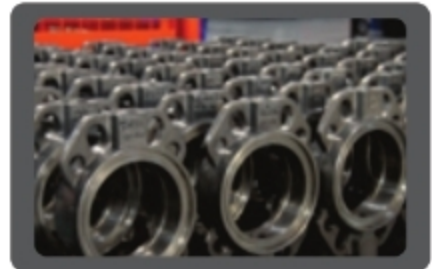
doruk endustri, since its establishment in 2001 has been the pioneer in the turkish industrial valve and actuator market with developing and manufacturing the highest quality rotary and linear valves and rotary pneumatic actuators under its registered " proval" band.














today, doruk endustir succesfully operates in 4250 sq. meters covered factory area, equipped with latest technology cnc machining centres and other conventional manufacturing equipments in dilovasi, near istanbul.

Main markets serving are chemical, petrochemical, food, water treatment, cement, shipbuilding , pulp & paper, fertilizers, suger and pharmaceutical industries. Company's main products are butterfly, ball, plug, knife, diaphragm, check, safety & relief valves and pneumatic, electric, hydraulic actuators and their accessories.

through years of field application experience, re-search and development, we have designed products to meet our customers process requirements of today's flow control industry.

PROVAL branded valves and actuators are distributed successfully in more then 40 countries worldwide.



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V101 (Wafer) / V102 (Lug) Series Proval Soft Seat Butterfly Valves

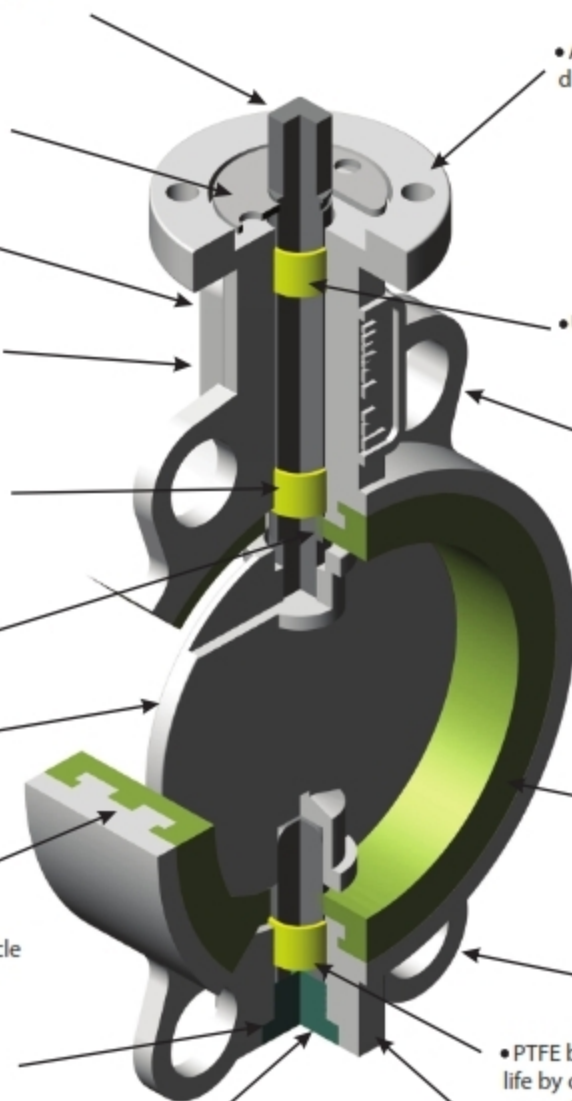
Butterfly valves, since their invention in 1960's became one of the most demanded flow control elements in industrial and domestic flow control applications due to their light weight, low pressure loss, 100% leak free operation, easy and economic automation capabilities.

Beside the soft seat applications, development of PTFE seats and metal seats of double eccentric high performance valves today, butterfly valves are used from basic water applications to industrial applications and highly corrosive severe service applications

Butterfly valves have wide range of applications in water, sea water, steel, food, paper, chemical, petrochemical and all HVAC and general industrial flow process controls.

Superiorities of New Design Proval V101 Butterfly Valves

- Flow indication marked, ISO standard valve rotating shaft
- Easy removable, anti blow-out plate
- Tag plate with all valve material and useage data including valve serial number
- Long neck for easy insulation
- PTFE bushing provides low torque and longer seat life by centering the disc and avoids leakage from stem due to non-centric rotation
- Integral o-ring system on seat avoid the leakage from stem
- 2 Pc shaft construction disc provides higher flow reates (kv) and lower pressure loss in pipeline.
- Special groove on body provides less torque figures in operation and improves the life cycle of seat
- O-ring to ensure 100% leak free operation
- Easy removable lower cap provides easy dismantling of the valve to replace any defected parts on maintenance
- According to ISO 5211 direct mount ISO pad
- Upper stem bushing
- EN1092 PN10,PN16 ANSI 125/150 and BS10 Table-D, Table-E suitable flange holes
- Wide range of seat solutions for all industrial applications
- 4 lugs for easy centering on flanges
- PTFE bushing provides low torque and longer seat life by centering the disc and avoids leakage from stem due to non-centric rotation
- Heat No for easy tracing and QC



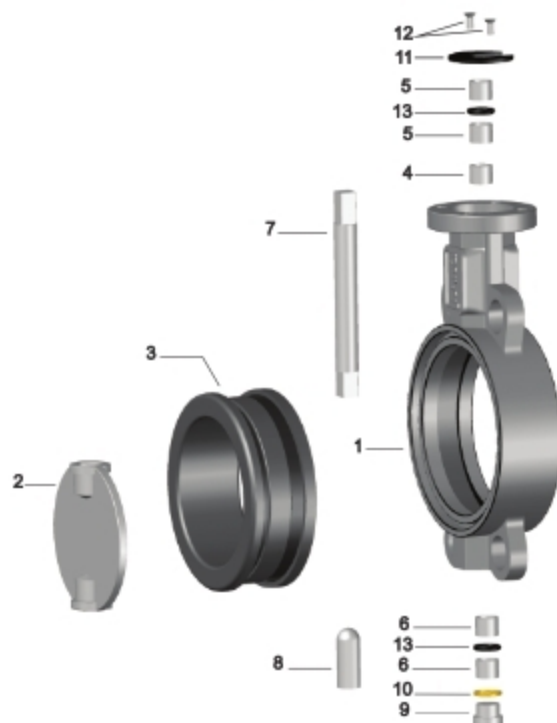
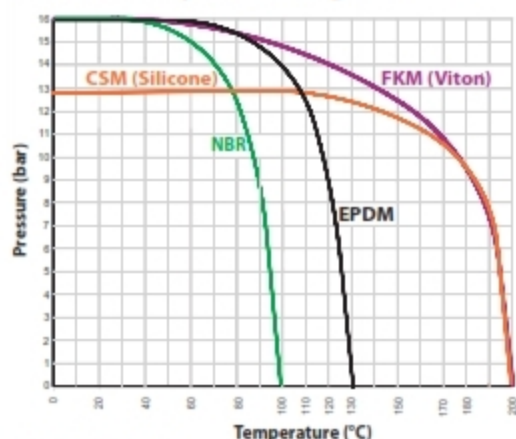
V101 (Wafer) / V102 (Lug) DN25-600 Butterfly Valves Material List

Design Standards

Design Standard	EN 558 Series 20 (DIN3202-K1)
	ISO5752 Series 20
	API609 Table 1
	BSS155 Series 4
Flange Standard	EN1092 PN 6/10/16
	ANSI B 16.15 Class 150
Top Flange Standard	ISO5211
Leakage Test Standard	EN12266-1/2
	ISO5208, Category 3
	API 598 Table 5
	ANSI B16-104, Class VI
Working Pressure	Max 16 bar
Differential Pressure	Δp 16 bar
Vacuum	Max 0.2 bar relative pressure

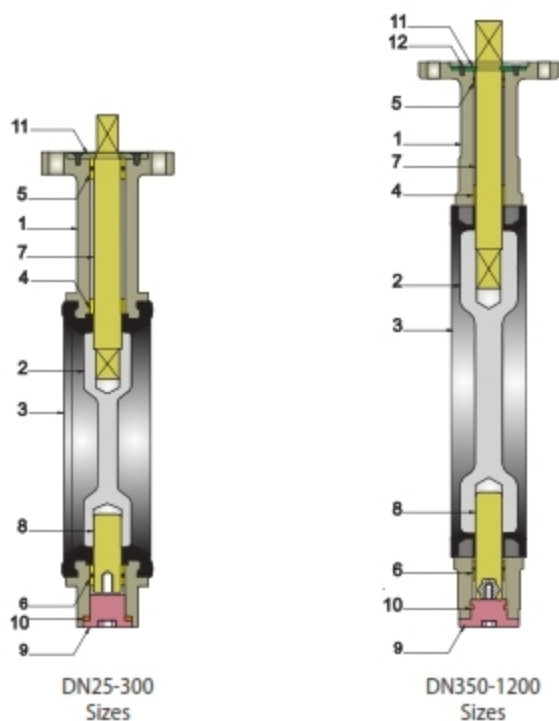


Pressure-Temperature Diagram



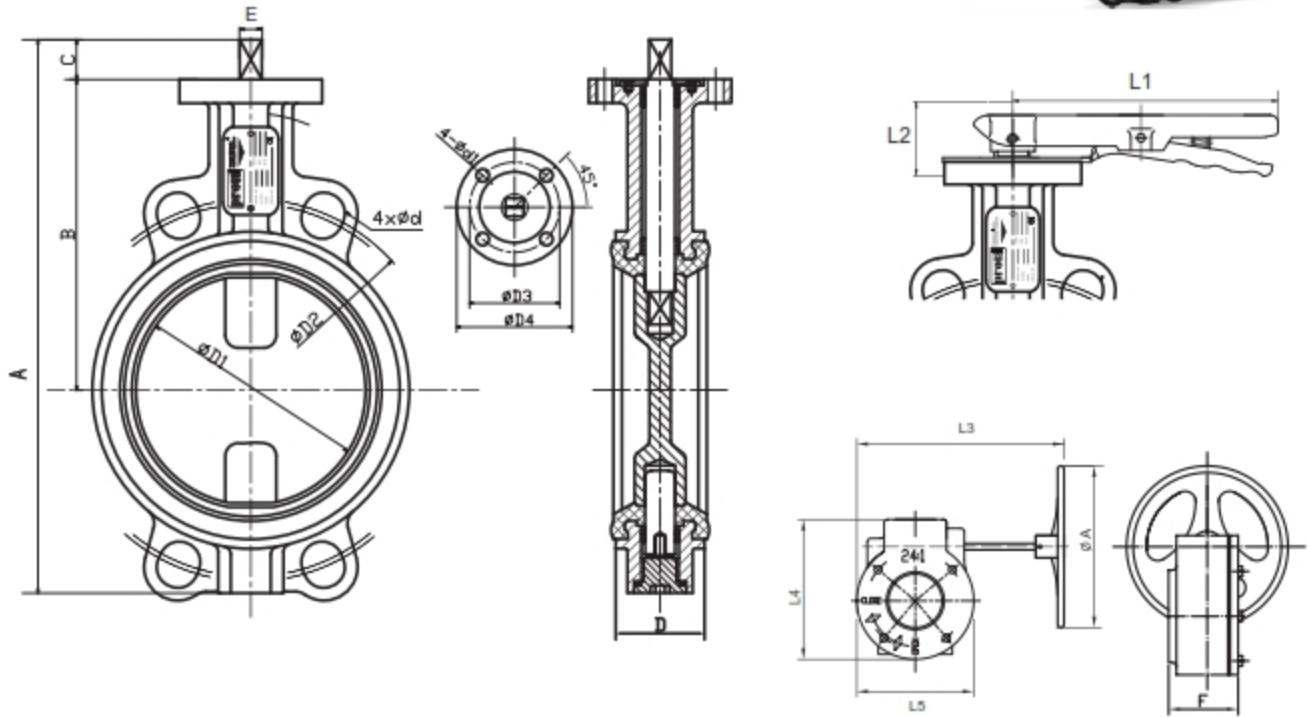
Material List

Part No	Part Name	Available Material
1	Body	Rilsan Coated GG25 Cast Iron
		Rilsan Coated GGG40 Ductile Iron
		AISI304 Stainless Steel
		AISI316 Stainless Steel
2	Disc	AISI316 Stainless Steel
		Rilsan Coated GGG40 Ductile Iron
		Aluminum Bronze
		ETFE Coated AISI316 Stainless Steel
3	Seat	EPDM (+30° C ~ +130° C)
		NBR (-20° C ~ +110° C)
		Silicon (+30° C ~ +200° C)
		Viton (-15° C ~ +200° C)
4/5/6	Bushing	PTFE
7	Upper Stem	AISI420 Stainless Steel
		AISI316 Stainless Steel
8	Low Stem	AISI420 Stainless Steel
		AISI316 Stainless Steel
9	Cap	Carbon Steel
10	O-Ring	NBR / Copper
11	Stopper Plate	Carbon Steel
12	Screw	Stainless Steel
13	O-Ring	EPDM/NBR/Viton/Silicon





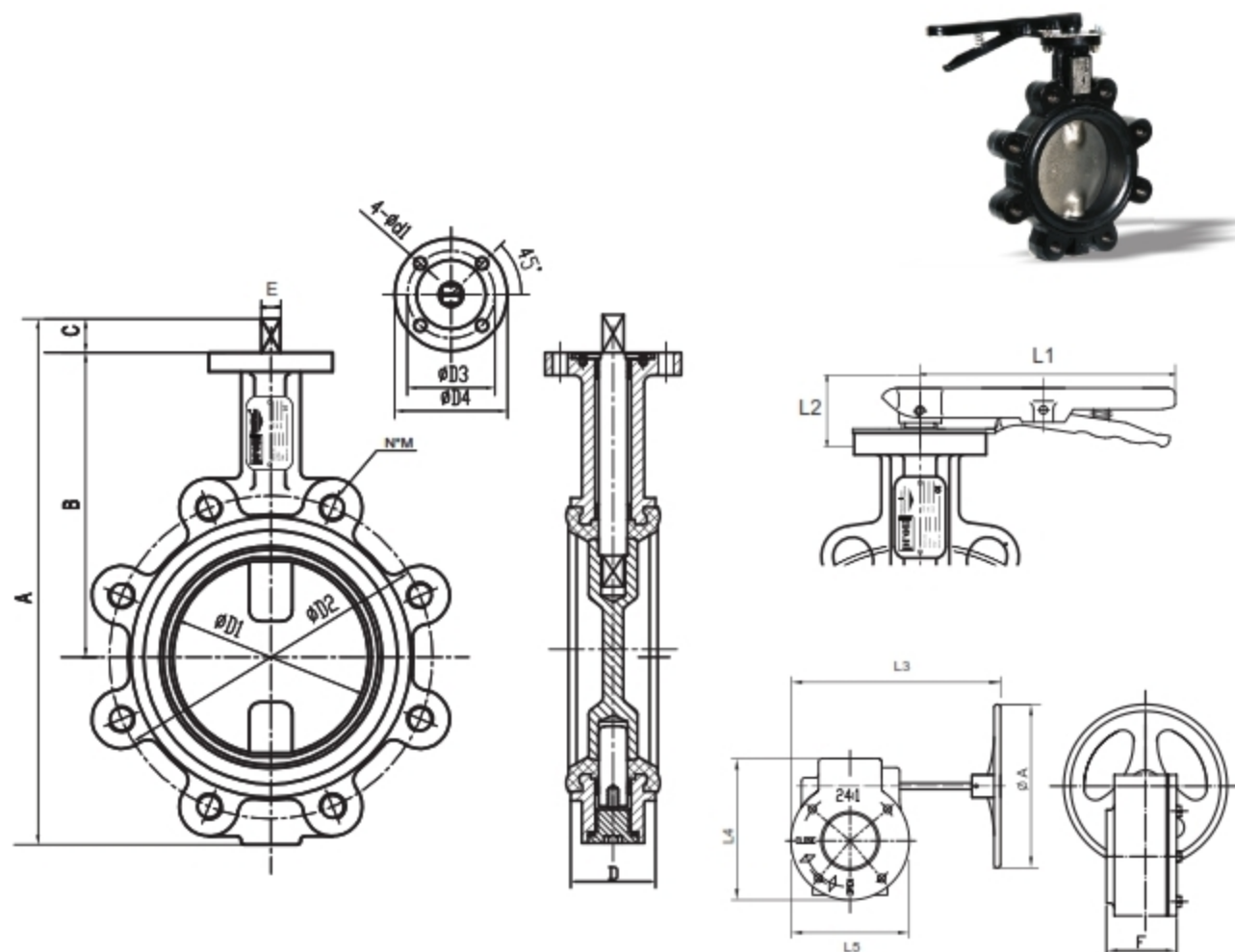
V101 Wafer Type DN25-300 Butterfly Valves



Dimensions (mm)

Size (DN)	ØD1	ØD2	ØD3	ØD4	4-Ød	4-Ød1	A	B	C	D	E	L1	L2	L3	L4	L5	ØA	F	Weight (Kg)		
																			Free Shaft	Lever Op.	Gear Op.
25/32	31,5	85	42	55	18	6	145	92	12	33	9	100	28	245	125	105	152	68	1,0	1,3	6,2
40	38	110	42	55	18	6	155	98	12	33	9	100	28	245	125	105	152	68	1,0	1,3	6,2
50	50,8	125	50	65	18	7	205	126	16	43	9	180	28	245	125	105	152	68	2,1	1,3	7,3
65	65,1	145	50	65	18	7	218	133	16	46	9	180	28	245	125	105	152	68	2,5	2,8	7,7
80	78,5	160	50	65	18	7	244	150	16	46	9	180	28	245	125	105	152	68	3,0	3,3	8,2
100	102,0	180	70	90	18	10	295	170	19	52	11	284	28	245	125	105	152	68	4,8	5,2	10,0
125	125,1	210	70	90	18	10	321	181	25	56	14	284	28	245	125	105	152	68	6,6	7,0	11,8
150	150,1	240	70	90	22	10	349	196	25	56	14	284	28	245	125	105	152	68	7,5	7,9	12,7
200	199,8	295	102	125	22	12	428	238	30	60	17	350	38	400	185	153	300	85	13,8	14,9	26,1
250	248,3	355	102	125	26	12	487	258	39	68	22	350	38	400	185	153	300	85	21,2	22,3	33,5
300	298,3	410	102	125	26	12	574	300	39	78	22	350	38	400	185	153	300	85	31,5	42,6	45,9

V102 Lug Type DN50-300 Butterfly Valves

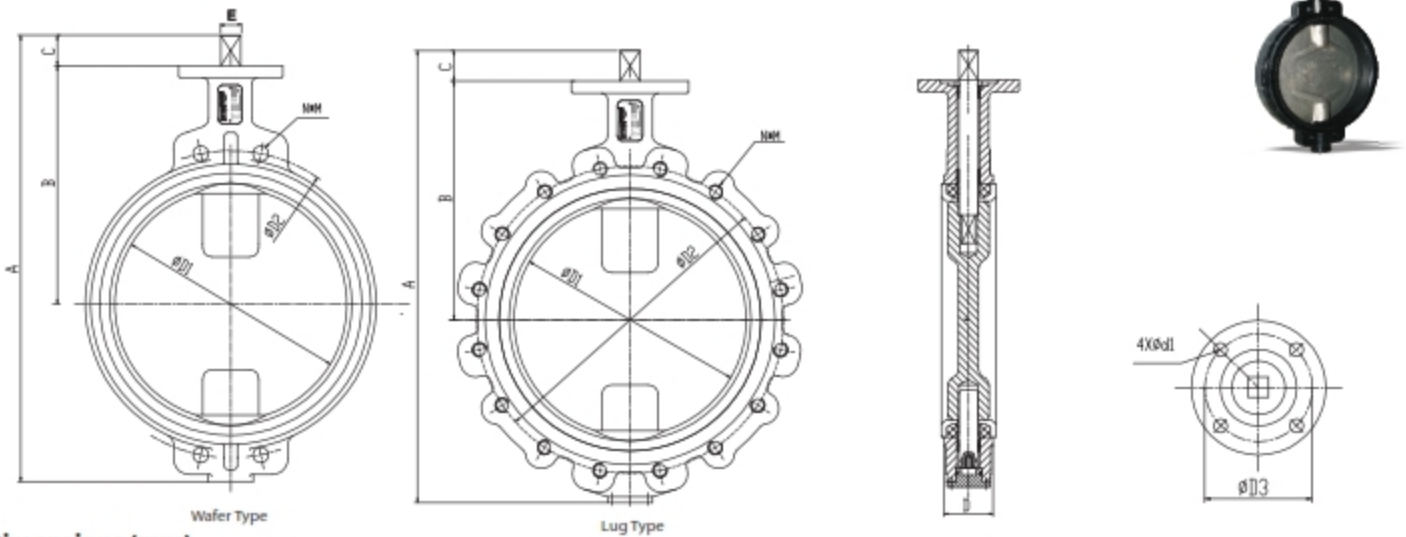


Dimensions (mm)

Size (DN)	ØD1	ØD3	ØD4	PN10		PN16		4-ød1	A	B	C	D	E	L1	L2	L3	L4	L5	ØA	F	Weight (Kg)		
				ØD2	nxM	ØD2	nxM														Free Shaft	Lever Op.	Gear Op.
50	50,8	50	65	125	4xM16	125	4xM16	7	205	126	16	43	9	180	28	245	125	105	152	68	3,8	4,1	9,0
65	65,1	50	65	145	4xM16	145	4xM16	7	218	133	16	46	9	180	28	245	125	105	152	68	4,3	4,6	9,5
80	78,8	50	65	160	4xM16	160	4xM16	7	244	150	16	52	9	180	28	245	125	105	152	68	4,8	5,1	10,0
100	102,0	70	90	180	8xM16	180	8xM16	10	295	170	19	56	11	284	28	245	125	105	152	68	7,8	8,2	13,0
125	125,1	70	90	210	8xM16	210	8xM16	10	321	181	25	58	14	284	28	245	125	105	152	68	10,3	10,7	15,5
150	150,1	70	90	240	8xM20	240	8xM20	10	349	196	25	60	14	284	28	245	125	105	152	68	12,3	12,7	17,5
200	199,8	102	125	295	8xM20	295	12xM20	12	428	238	30	60	17	350	38	400	185	153	300	85	17,1	18,2	29,4
250	248,3	102	125	350	12xM20	355	12xM24	12	487	258	39	68	22	350	38	400	185	153	300	85	29,1	30,2	41,4
300	298,3	102	125	400	12xM20	410	12xM24	12	574	300	39	78	22	350	38	400	185	153	300	85	49,8	50,9	64,2



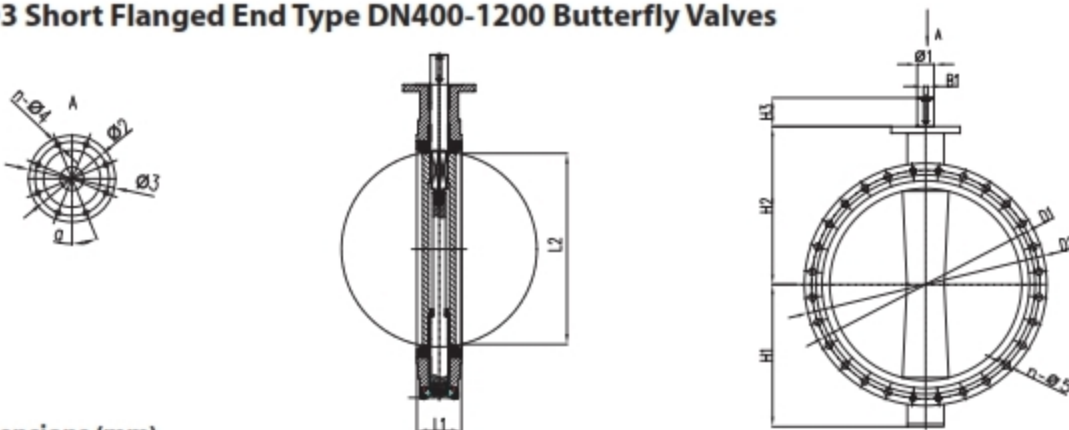
V101 Wafer Type / V102 Lug Type DN350-600 Butterfly Valves



Dimensions (mm)

Size (DN)	ØD1	ØD3	ØD4	PN10		PN16		4-Ød1	A	B	C	D	E	ØD3	Weight (Kg)			
				ØD2	nxM	ØD2	nxM								Wafer Type		Lug Type	
															Free Shaft	Gear Op.	Free Shaft	Gear Op.
350	333	102	125	460	16xM20	470	16xM24	12	680	358	45	78	36	F12	41,3	55,7	69,0	83,5
400	340	140	175	515	16xM24	525	16xM27	18	748	400	51	102	36	F14	61,0	93,0	90,0	125,0
450	440	140	175	565	20xM24	585	20xM27	18	788	422	51	114	36	F14	79,0	111,0	119,0	151,0
500	490	140	175	620	20xM24	650	20xM30	18	885	480	57	127	36	F14	128,0	162,5	179,0	213,5
600	593,0	165	210	725	20xM27	770	20xM33	23	1086	562	70	154	46	F16	188,0	236,0	253,0	301,0

V103 Short Flanged End Type DN400-1200 Butterfly Valves



Dimensions (mm)

Size (DN)	H1	H2	H3	D1		D2	Ø 1	Ø 2	Ø 3	n-Ø4	n-Ø5		L1	L2	B1
				PN10	PN16						PN10	PN16			
400	308	400	72	515	525	488	33.2	140	175	4-18	4-26	4-30	102	380	10
450	341	422	72	565	585	539	38	140	175	4-18	4-26	4-30	114	428	10
500	381	460	82	620	650	593	41.2	165	210	4-22	4-26	4-33	130.3	474	10
600	476	563	82	725	770	693	50.7	254	300	4-18	4-30	4-36	152	573	16
700	520	626	82	840	840	910	63.4	254	300	4-18	24-30	24-36	163	676	18
800	591	709	82	950	950	1025	63.4	254	300	4-18	24-34	24-39	188	773	18
900	656	720	118	1050	1050	1125	75	254	300	4-18	28-34	28-39	203	841	20
1000	721	800	142	1160	1170	1255	85	298	350	4-22	28-36	28-42	216	941	22
1200	844	941	142	1380	1390	1485	105	298	350	4-22	32-39	32-48	276	1127	28

V101 / V102 Series Kv Flow Coefficient Values (m³/h)

Size (DN)	Valve Opening Percentage							
	20°	30°	40°	50°	60°	70°	80°	90°
25/32	0,5	1,5	6	11	16	25	33	35
40	0,7	2,1	8	15	20	32	43	40
50	1,4	10	14	25	39	52	67	90
65	2,5	11	24	45	79	120	175	220
80	8	24	50	96	151	239	329	418
100	14	29	67	135	185	350	560	810
125	27	66	131	232	353	535	880	1020
150	36	92	204	365	650	910	1370	2140
200	43	180	350	580	1005	1610	3020	4040
250	125	360	660	1105	1820	3140	7560	8460
300	198	548	998	1595	2610	5050	7550	8600

Notes: Kv values indicate the flow capacity as m³/h at Dp 1 bar differential pressure and ambient temperature.

Butterfly valves may partially provide linear flow in between 30° to 90° disc opening position.



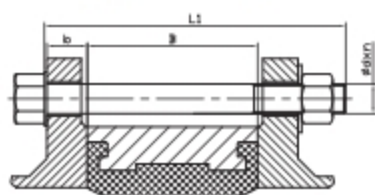
Pneumatic Act. Operated Silicon Seat Butterfly Valve

V101 - V102 Series Torque Figures (Nm)

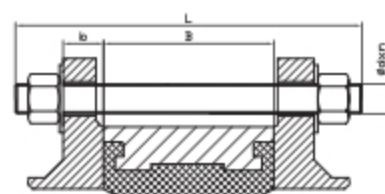
Size (DN)	25/32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
Working Pressure	PN10	4	5	6	13	17	28	42	82	140	205	285	420	680	880	1510	2750
	PN16	5	7	8	16	23	36	55	90	190	240	350	520	810	1450	1680	3120

Notes : Above given torque values are calculated according to ambient temperature and liquid media. For dry applications please increase the figures by 50% and gas application by 30%. Please also add 30% for safety margin on actuator sizing.

Wafer Type Butterfly Valves Flange Bolt Dimensions



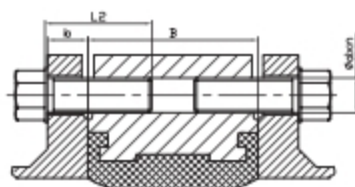
Assembly With Bolt and Nuts



Assembly With Stud and Nuts

Size (DN)	B	PN10					PN16					ASA150				
		b	L	L1	d	n	b	L	L1	d	n	b	L	L1	d	n
25	28	16	100	80	M12	4	16	100	80	M12	4	15	110	90	1/2" 13 UNC	4
32	33	16	110	90	M16	4	16	110	90	M16	4	16	110	90	1/2" 13 UNC	4
40	33	16	130	90	M16	4	16	130	90	M16	4	18	120	100	1/2" 13 UNC	4
50	43	18	130	110	M16	4	18	130	110	M16	4	19	140	110	5/8" 11 UNC	4
65	46	18	140	110	M16	4	18	140	110	M16	4	22	140	120	5/8" 11 UNC	4
80	52	20	150	120	M16	8	20	140	120	M16	8	24	160	130	5/8" 11 UNC	4
100	56	20	150	120	M16	8	20	150	120	M16	8	24	160	130	5/8" 11 UNC	8
125	56	22	160	130	M16	8	22	160	130	M16	8	25	170	140	3/4" 10 UNC	8
150	56	22	160	130	M20	8	22	160	130	M20	8	25	170	140	3/4" 10 UNC	8
200	60	24	170	140	M20	8	24	170	140	M20	12	29	190	160	3/4" 10 UNC	8
250	68	26	180	154	M20	12	26	190	160	M24	12	30	200	170	7/8" 9 UNC	12
300	78	26	200	170	M20	12	28	210	180	M24	12	32	220	190	7/8" 9 UNC	12
350	78	26	200	170	M20	16	30	210	180	M24	16	35	240	200	1" 8 UNC	12
400	102	26	230	200	M24	16	32	250	210	M24	16	37	240	220	1" 8 UNC	16
450	114	28	250	210	M24	20	34	260	230	M27	20	40	290	250	1 1/8" 7 UNC	16
500	127	28	260	230	M24	20	34	280	240	M30	20	43	310	270	1 1/8" 7 UNC	20
600	154	28	300	260	M27	20	36	320	280	M33	20	48	360	310	1 1/4" 7 UNC	20

Lug Type Butterfly Valves Flange Bolt Dimensions



Assembly With Bolts

Size (DN)	B	PN10				PN16				ASA150			
		b	L2	d	n	b	L2	d	n	b	L2	d	n
50	43	18	40	M16	4	18	40	M16	4	19	45	5/8" 11 UNC	4
65	46	18	40	M16	4	18	40	M16	4	22	45	5/8" 11 UNC	4
80	52	20	40	M16	8	20	40	M16	8	24	45	5/8" 11 UNC	4
100	56	20	45	M16	8	20	45	M16	8	24	50	5/8" 11 UNC	8
125	56	22	50	M16	8	22	50	M16	8	25	50	3/4" 10 UNC	8
150	56	22	50	M20	8	22	50	M20	8	25	50	3/4" 10 UNC	8
200	60	24	55	M20	8	24	55	M20	12	29	60	3/4" 10 UNC	8
250	68	26	60	M20	12	26	60	M24	12	30	65	7/8" 9 UNC	12
300	78	26	60	M20	12	28	65	M24	12	32	70	7/8" 9 UNC	12
350	78	26	60	M20	16	30	65	M24	16	35	70	1" 8 UNC	12
400	102	26	65	M24	16	32	70	M24	16	37	75	1" 8 UNC	16
450	114	28	65	M24	20	34	70	M27	20	40	80	1 1/8" 7 UNC	16
500	127	28	65	M24	20	34	70	M30	20	43	80	1 1/8" 7 UNC	20
600	154	28	70	M27	20	36	75	M33	20	48	80	1 1/4" 7 UNC	20

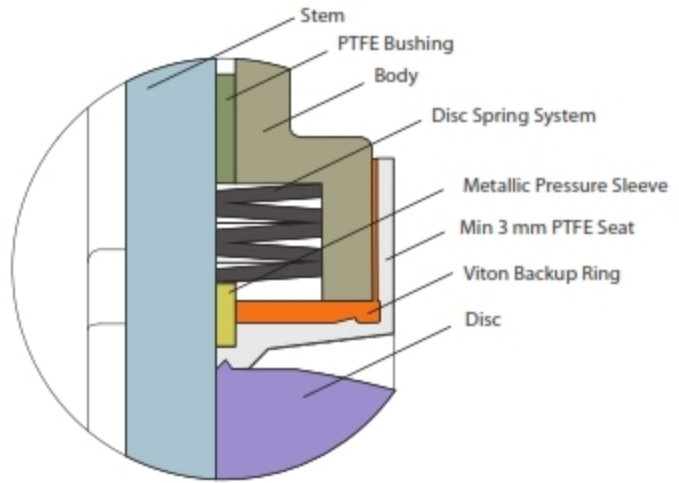
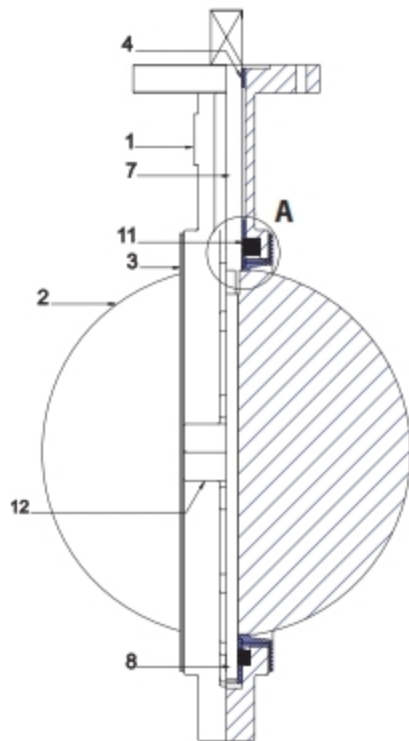


V108 Wafer / V109 Lug Type PTFE Seated Butterfly Valves

PROVAL V108 Series PTFE seat butterfly valves are of 2 pc body construction with spring loaded bearings. The superior design of PROVAL PTFE Seat Butterfly Valves provide high protection on stem sealing and ensures 100% leak free operation. V108-109 series valves are suitable for use in corrosive lines even in toxic process lines.

Fully PTFE lined valves with min 3 mm PTFE coating on disc can be used in extremely corrosive pipelines.

Design Specifications / Material List



A-A Details

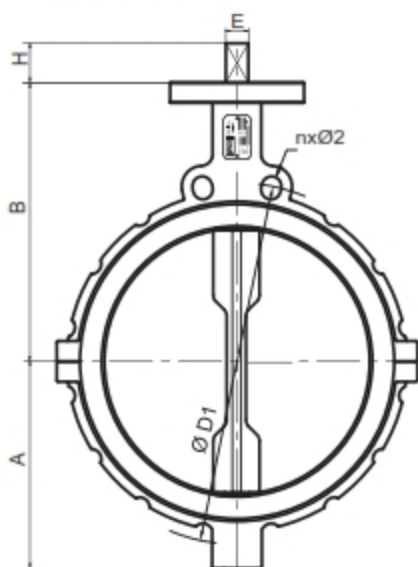


Material List

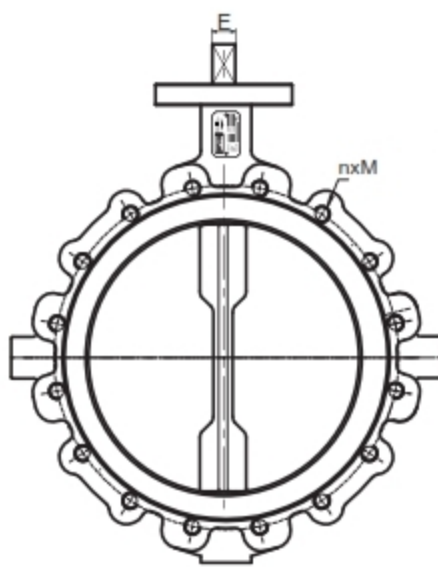
Part No	Part Name	Description of Materials
1	Body	GG25 Cast Iron
		GGG40 Ductile Iron
		AISI304 Stainless Steel
		AISI316 Stainless Steel
2	Disc	AISI316 Stainless Steel
		PTFE Lined Carbon Steel
3	Seat	PTFE + EPDM (-30° C ~ +150° C)
		PTFE + Viton (-30° C ~ +190° C)
4/5/6	Bushing	PTFE
7	Upper Stem	AISI316 Stainless Steel
8	Lower Stem	AISI316 Stainless Steel
10	O-Ring	NBR
11	Disc Spring	Stainless Steel
12	Bolt	Stainless Steel

V108 Wafer / V109 Lug Type PTFE Seat Butterfly Valves

Dimensions (mm)



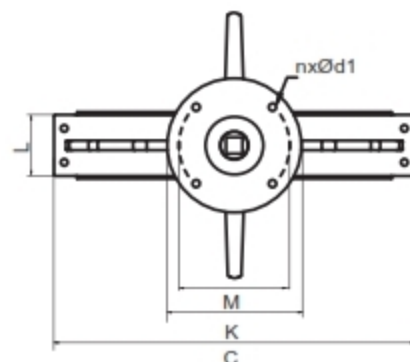
Wafer Type



Lug Type



Lug Type
Fully PTFE Lined Lever Operated
Butterfly Valve



Dimensions (mm)

Size (DN)	PN10		PN16		4-Ød1	A	B	C	H	L	E	K	M
	ØD1	nxM	ØD1	nxM									
50	125	4xM16	125	4xM16	7	77	135	130	16	43	11	77	50
65	145	4xM16	145	4xM16	7	91	138	150	16	46	11	77	50
80	160	8xM16	160	8xM16	7	95	138	164	16	52	11	77	50
100	180	8xM16	180	8xM16	10	121	149	188	19	56	14	92	70
125	210	8xM16	210	8xM16	10	125	173	220	25	56	14	92	70
150	240	8xM20	240	8xM20	10	150	187	252	25	60	17	92	70
200	295	8xM20	295	12xM20	12	182	225	305	30	68	22	115	102
250	350	12xM20	355	12xM24	12	226	247	370	39	78	22	115	102
300	400	16xM20	410	12xM24	12	260	285	430	39	56	27	140	125
350	460	16xM20	470	16xM24	12	275	335	470	45	60	36	140	125
400	515	16xM24	525	16xM27	12	305	410	565	51	68	36	197	140
450	565	20xM24	585	20xM27	12	338	440	620	51	68	46	197	140
500	620	20xM24	650	20xM30	12	375	495	695	57	78	46	197	140



Pneumatic Act. Op.
PTFE Seat, AISI316 Disc
Butterfly Valve

Flow Coefficient Kv (m³/h) and Operating Torque Values (Nm)

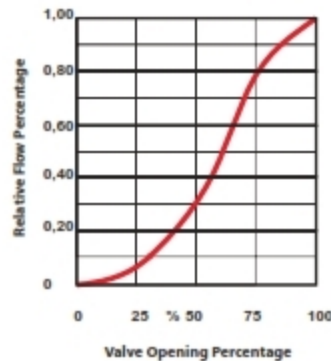
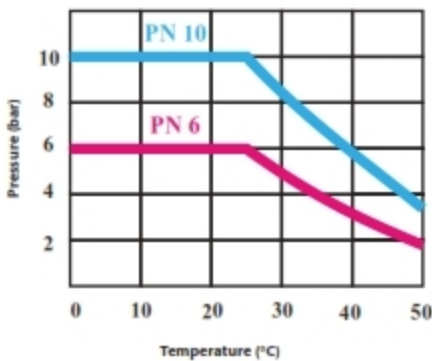
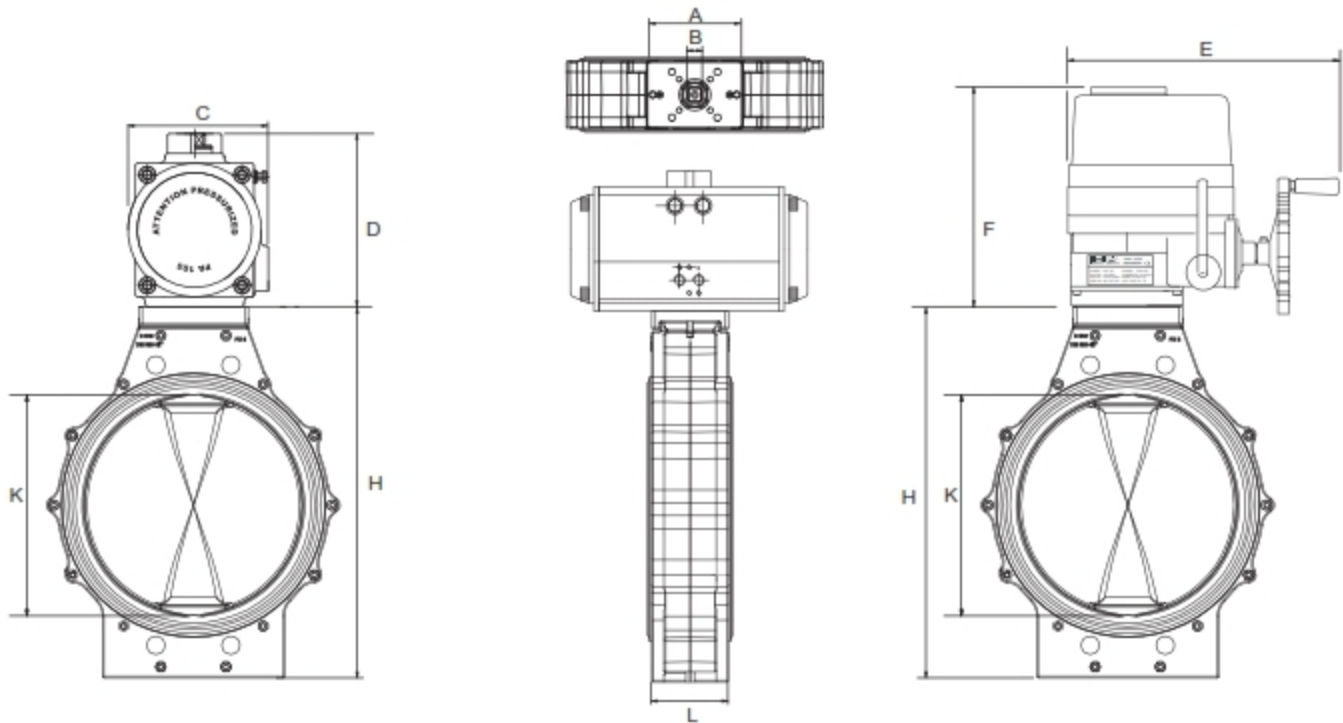
Size (DN)	Valve Opening Angle									Operating Torques (Nm)	
	10°	20°	30°	40°	50°	60°	70°	80°	90°	0 bar	10 bar
50	0,77	4,84	11,43	15,01	19,22	27,52	39,86	52,24	57,22	16	23
65	0,87	5,23	13,37	23,35	41,92	60,48	95,81	125,75	143,71	22	32
80	3,59	14,47	23,87	35,99	60,87	97,22	143,69	194,79	201,05	30	44
100	4,41	18,26	31,94	46,90	73,65	121,27	189,25	283,32	391,59	50	77
125	10,96	23,03	41,91	79,36	129,96	214,54	351,69	521,40	610,47	75	103
150	18,14	33,22	65,82	119,87	206,08	330,89	504,14	830,26	941,90	100	120
200	36,42	61,40	147,89	253,36	432,34	669,52	1038,68	1653,41	1881,41	170	327
250	59,17	135,44	234,17	412,00	638,57	1051,99	1656,38	2766,13	3877,71	270	383
300	80,74	174,44	280,66	494,78	861,16	1459,35	2526,80	4306,87	5280,75	400	500



V115 U-PVC Butterfly Valves

V115 Series, U-PVC butterfly valves are mainly used in water, wastewater, pool as well as industrial applications. UV resistant and antioxidant additives on body and disc material provides longer life cycle and more healthy application of U-PVC butterfly valves

Direct mount ISO5211 top flange provides easy automation solutions for V115 series U-PVC Butterfly valves



Pneumatic Actuator
U-PVC Butterfly Valve

Dimensions (mm)

Size (DN)	Size (D)	B	ISO 5211 Flange	L	A	H	ØK	Pn. Act. Model	C	D	Elc. Act. Model	E	F	Torque (Nm)	Kv (m3/h)
50	63	11	F05 / F07	42	110	211	65	52 DA	72	92	PRO 040	125	145	12	110
65	75	11	F05 / F07	42	110	211	65	52 DA	72	92	PRO 040	125	145	18	110
80	90	11	F05 / F07	42	110	235	80	63 DA	83	108	PRO 040	125	145	20	245
100	110	14	F05 / F07	48	110	258	100	75 DA	95	120	PRO 060	125	150	30	390
125	125-140	14	F05 / F07	60	110	290	125	75 DA	95	120	PRO 060	125	150	50	690
150	160	14	F07 / F10	68	151	331	150	83 DA	100	130	PRO 080	130	211	60	995
200	200-225	14	F07 / F10	82	151	403	200	92 DA	108	140	PRO 160	338	259	80	2100
250	250-280	22	F07 / F10	94	151	457	250	105 DA	122	153	PRO 160	338	259	160	3195
300	315	22	F07 / F10	106	151	512	300	125 DA	142	175	PRO 240	338	259	290	5100

V110 (Wafer) / V112 (Lug) Series High Performance Butterfly Valves

PROVAL V110 Series PTFE seat high performance valves are of double eccentric design and are widely used in chemical, petrochemical, power, steel plants and general industrial applications as well as shipbuilding industries.



PROVAL V110 Series high performance valves are available from DN50 to DN1200 sizes in wafer, lug and flanged pattern.

Double eccentric design ensures 100% leak free operation, longer life cycle on seal and seat materials and provides lower operating torques and economic actuation even in higher pressure applications.

V110 Series valves can be supplied with hand levers and gear boxes as manual valves as well as with pneumatic, electric or hydraulic actuators

Proval V110 series valves are Bureau Veritas design approved and can be inspected in accordance with 3.1.C for use in shipbuilding industry.

Applicable Standards

Design Standards	ISO5752
	API 609
Flange Standards	EN1092-1
	ANSI B 16.15 Class 150 / 300
Top Flange Standard	ISO 5211
Leakage Test Standard	EN 12266/1-2
	ISO 5208
	API 598
	ANSI B16-104 Class IV
Pressure Class	Max 40 Bar (PN)
	Max Class 300 (ANSI)
Fire-Safe Standard	API607



V110 Series High Performance Valves Kv Flow Coefficient Values (m3/h)

Size (DN)	Valve Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	0,9	9,4	23,1	34,1	51,2	70,8	90,4	113,4	119,4
65	0,9	9,4	23,1	34,1	51,2	70,8	90,4	113,4	119,4
80	1,7	17,1	42,6	62,3	93,8	131,4	170,6	213,2	221,8
100	3,4	27,3	68,2	102,4	153,5	213,2	272,9	341,2	358,3
125	5,9	46,9	119,4	170,6	255,9	366,8	469,2	580,1	614,2
150	9,4	76,8	196,2	290,1	435,1	605,6	776,2	972,4	1023,6
200	17,1	127,9	332,6	477,6	725,1	1015,1	1296,6	1620,7	1706
250	25,6	204,7	511,8	742,1	1117,4	1569,5	2013,1	2507,8	2644,3
300	34,1	307,1	784,8	1134,5	1706	2388,4	3070,8	3838,5	4051,8
350	46,9	383,8	963,9	1398,9	2132,5	2985,5	3838,5	4691,5	4990,1
400	63,9	554,4	1364,8	1961,9	2985,5	4179,7	5373,9	6696,1	7079,9
450	81,1	682,4	1706	2473,7	3753,2	5203,3	6738,7	8444,7	8871,2
500	106,6	853	2303,1	3326,7	5032,7	6994,6	8956,5	11089	11771,4
600	170,6	1450	3753,2	5373,9	8103,5	11344,9	14501	18168,9	19192,5

V110 Series Torque Values (Nm)

DN (mm)	V110		V120		V130	
	PN10	PN16	PN10	PN16	PN10	PN16
50	10	15	39	59	69	89
65	10	20	49	69	79	99
80	20	30	69	79	89	118
100	39	49	79	99	118	158
125	64	89	158	167	138	167
150	94	118	227	266	167	177
200	148	182	296	355	296	335
250	246	296	345	414	325	355
300	394	493	552	690	502	591
350	788	985	837	995	847	995
400	985	1182	1034	1212	1024	1251
450	1231	1478	1241	1428	1202	1507
500	1478	1724	1576	1970	1576	1970
600	3103	3743	1822	2463	1822	2463

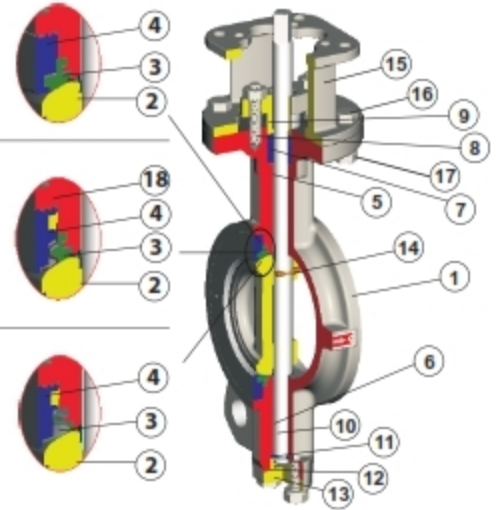


V110 Series (Wafer) / V112 Series (Lug) Type Double Eccentric High Performance Valves

V110 Series PTFE Seat Valves : PTFE/RTFE Seat high performance valves can be used between -30°C to 210°C temperatures and available in PN16/25/40 bar pressure ranges.

V120 Series PTFE/Metal Seat Valves : PTFE/RTFE Seat high performance valves can be used between -30°C to 210°C temperatures and available in PN16/25/40 bar pressure ranges. For over temperatures than 210°C PTFE melts out and than valves are becoming metal/metal seat type.

V130 Series Metal/Metal Seat Valves : Metal/Metal seat valves are used in higher temperature applications over than 210°C, up to max 450°C temperature conditions and available in PN16/25/40 bar pressure ranges.



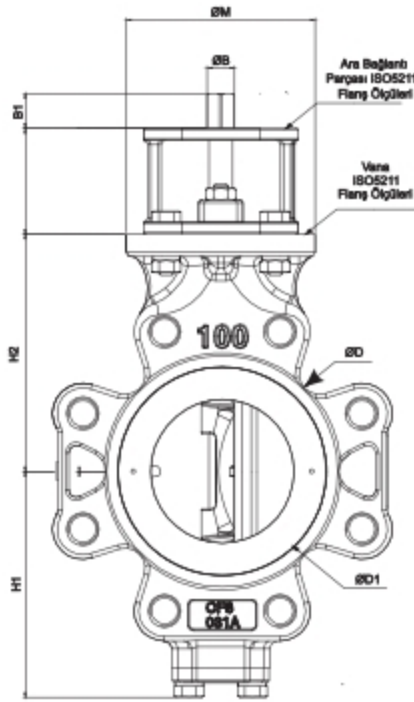
Material List

		V110 Standard PTFE Seat HP Butterfly Valves	V120 Fire-Safe Type HP Butterfly Valves	V130 Metal/Metal Seat HP Butterfly Valves
No	Part Name	Material	Material	Material
1	Body	A216 WCB Carbon Steel	A216 WCB Carbon Steel	A216 WCB Carbon Steel
		AISI304 Stainless Steel	AISI304 Stainless Steel	AISI304 Stainless Steel
		AISI316 Stainless Steel	AISI316 Stainless Steel	AISI316 Stainless Steel
		AISI317 Stainless Steel	AISI317 Stainless Steel	AISI317 Stainless Steel
2	Disc	AISI304 Stainless Steel	AISI304 Stainless Steel	AISI304 Stainless Steel
		AISI316 Stainless Steel	AISI316 Stainless Steel	AISI316 Stainless Steel
		AISI317 Stainless Steel	AISI317 Stainless Steel	AISI317 Stainless Steel
3	Seat	PTFE	AISI316 + PTFE	AISI316 Stainless Steel
		PTFE + %15 Glassfiber	AISI316 + PTFE + %15 Glassfiber	
		PTFE + %15 Graphite	AISI316 + PTFE + %15 Graphite	
4	Retainer	AISI316 Stainless Steel	AISI316 Stainless Steel	AISI316 Stainless Steel
5	Bushing	PTFE+AISI316	PTFE+AISI316	AISI316 Stainless Steel
6	Bushing	PTFE+AISI316	PTFE+AISI316	AISI316 Stainless Steel
7	Packing Ring	PTFE	Graphite	Graphite
		PTFE+%15 Glassfiber		
8	Stud	AISI304 Stainless Steel	AISI304 Stainless Steel	AISI304 Stainless Steel
9	Gland	AISI304 Stainless Steel	AISI304 Stainless Steel	AISI304 Stainless Steel
10	Stem	AISI316 Stainless Steel	AISI316 Stainless Steel	AISI316 Stainless Steel
11	Thrust Ring	AISI316 Stainless Steel	AISI316 Stainless Steel	AISI316 Stainless Steel
12	Seal	PTFE	Graphite	Graphite
13	Bottom Cap	A216 WCB Carbon Steel	A216 WCB Carbon Steel	A216 WCB Carbon Steel
		AISI304 Stainless Steel	AISI304 Stainless Steel	AISI304 Stainless Steel
		AISI316 Stainless Steel	AISI316 Stainless Steel	AISI316 Stainless Steel
		AISI317 Stainless Steel	AISI317 Stainless Steel	AISI317 Stainless Steel
14	Pin	AISI316 Stainless Steel	AISI316 Stainless Steel	AISI316 Stainless Steel
15	Yoke	A216 WCB Carbon Steel	A216 WCB Carbon Steel	A216 WCB Carbon Steel
		Stainless Steel	Stainless Steel	Stainless Steel
16	Bolt	Stainless Steel	Stainless Steel	Stainless Steel
17	Nut	Stainless Steel	Stainless Steel	Stainless Steel
18	Packing	-	Graphite	Graphite

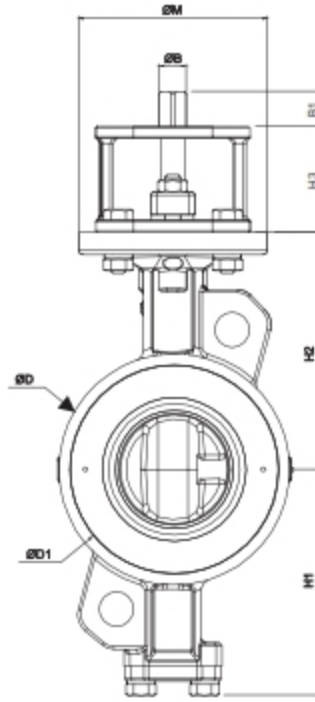
V110 Series (Wafer) / V112 Series (Lug) Type Double Eccentric High Performance Valves



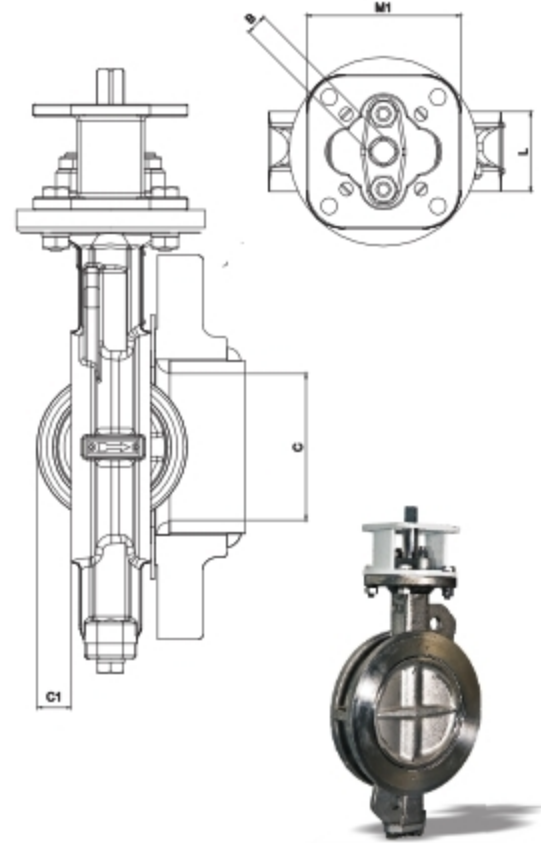
Dimensions



V112 Series
Lug Type Butterfly Valves



V110 Series
Wafer Type Butterfly Valves



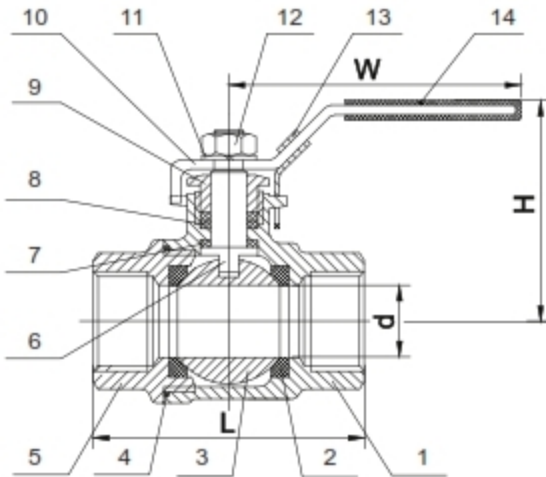
Dimensions (mm)

Size (DN)	L	H1	H2	H3	ØD	ØD1	Min C	C1	ISO5211		ØB	B	B1	Weight (Kg)		
									Top Flange	M1				Wafer	Lug	
50	43	99	118	60	92	37	49,5	2	F07	F05	70	14	11	18	3,9	4,9
65	46	110	125	60	108	63	62,3	15	F07	F05	70	14	11	18	4,5	5,5
80	47	128	140	70	126	78	78	22	F10	F07	102	18	14	23	7	8,5
100	53	150	157	70	153	95	93	25	F10	F07	102	18	14	23	9	14
125	57	163	170	70	184	118	120	36	F10	F07	102	22	17	23	12	18
150	56	176	185	70	212	143	149	50	F10	F07	102	22	17	23	13,5	19,5
200	62	206	220	80	268	188	196	70	F12	F10	125	25	19	28	22	31
250	68	238	260	80	326	236	243	90	F12	F10	125	28	22	28	32	47
300	78	269	290	100	375	282	289	106	F14	F12	160	35	27	37	48	67
350	78/92	306	326	100	416	322	329	125	F14	F12	160	36	27	37	66	81
400	102	342	370	120	476	371	377	140	F16	F14	195	48	36	47	107	143
450	114	370	395	120	534	418	423	157	F16	F14	195	48	36	47	130	163
500	127	399	430	120	588	466	471	177	F16	F14	195	60	46	56	163	230
600	154	455	490	150	692	570	572	210	F25	F16	300	60	46	56	278	377



V201 2Pc Body, AISI316, BSP Threaded End, Full Bore Ball Valves

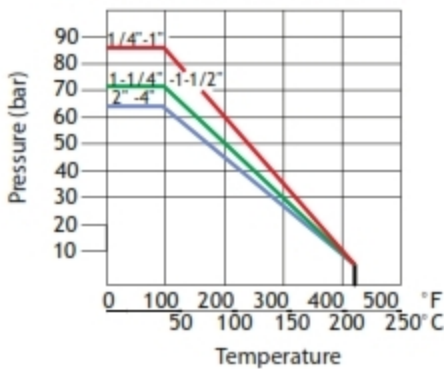
DIN
DIN3202-M3
Face to Face



Material List

No	Part Name	Material	Qty
1	Body	CF8M	1
2	Ball Seat	R-PTFE (%15)	2
3	Ball	AISI316	1
4	Body Gasket	PTFE	1
5	Cap	CF8M	1
6	Stem	AISI316	1
7	Thrust Washer	PTFE	1
8	Stem Packing	PTFE	1
9	Gland Nut	AISI304	1
10	Handle	AISI304	1
11	Spring Washer	AISI304	1
12	Nut	AISI304	1
13	Lock Device	AISI304	1
14	Handle Cover	Plastic	1

Pressure Temperature Diagram

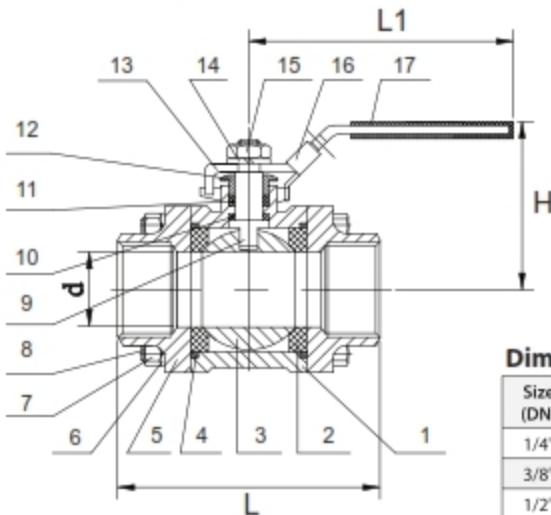


Dimensions (mm)

Size (DN)	d	L	H	L1	Weight (Kg)
1/4"	11	50	50	100	0,22
3/8"	12,5	60	50	100	0,30
1/2"	15	75	52	100	0,34
3/4"	20	80	57	115	0,52
1"	25	90	78	150	0,78
1-1/4"	32	110	88	150	1,23
1-1/2"	40	120	95	180	2,00
2"	50	140	100	180	2,98
2-1/2"	65	185	120	254	6,05
3"	80	205	130	254	9,90
4"	100	240	160	285	16,60

V202 3Pc Body, AISI316, BSP Threaded End, Full Bore Ball Valves

DIN
DIN3202-M3
Face to Face



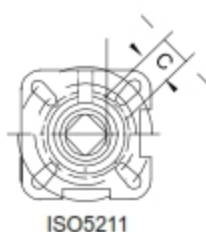
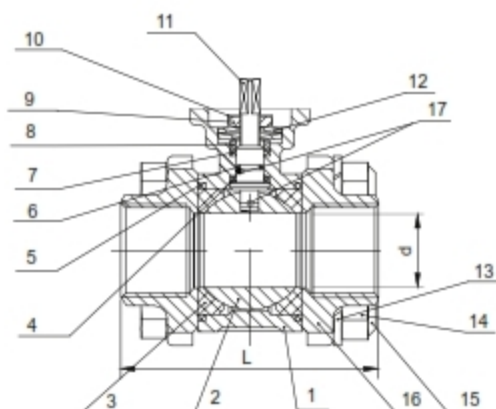
Material List

No	Part Name	Material	Qty
1	Body	AISI316	1
2	Ball Seats	R-PTFE (%15)	2
3	Ball	AISI316	1
4	Body Gasket	PTFE	2
5	Cap	AISI16	2
6	Washer	AISI304	4 (Max 12)
7	Nut	AISI304	4 (Max 12)
8	Bolt	AISI304	4 (Max 6)
9	Stem	AISI316	1
10	Stem Seal	PTFE	1
11	Packing	PTFE	1
12	Ring Seal	AISI304	1
13	Lever	AISI304	1
14	Spring Washer	AISI304	1
15	Nut	AISI304	1
16	Handle Locking	AISI304	1
17	Handle Cover	Plastic	1

Dimensions (mm)

Size (DN)	d	L	H	L1	Torque (N.m)	Weight (Kg)
1/4"	11	50	51	105	4	0,40
3/8"	12,5	60	51	105	4	0,42
1/2"	15	75	53	118	5	0,45
3/4"	20	80	60	118	8	0,73
1"	25	90	75	150	10	1,04
1-1/4"	32	110	80	150	14	1,65
1-1/2"	40	120	88	182	18	2,25
2"	50	140	95	182	25	3,15
2-1/2"	65	185	121	254	48	6,50
3"	80	205	135	254	75	9,60
4"	100	240	158	285	110	16,40

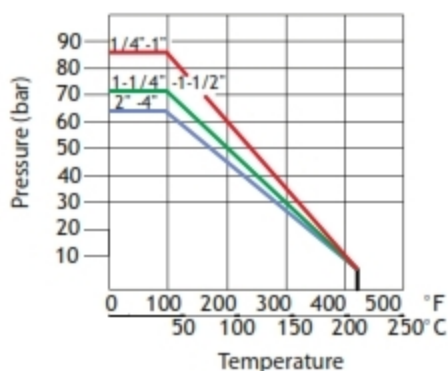
V203 Direct Mount Pad, AISI316, BSP Threaded End, Full Bore Ball Valves



Material List

No	Part Name	Material	Qty
1	Body	AISI316	1
2	Ball	AISI316	1
3	Ball Seats	R-PTFE (%15)	2
4	Stem Ring	PTFE	1
5	Body Gasket	PTFE	2
6	Stem O-Ring	Viton	1
7	Packing	PTFE	1
8	Pressure Sleeve	AISI304	1
9	Nut	AISI304	1
10	Nut Locking	AISI304	1
11	Stem	AISI316	1
12	Disc Springs	AISI301	2
13	Washer	AISI304	4 (Max 12)
14	Nut	AISI304	4 (Max 12)
15	Bolts	AISI304	4 (Max 6)
16	Cap	AISI16	2
17	Anti-Static Device	AISI12	2

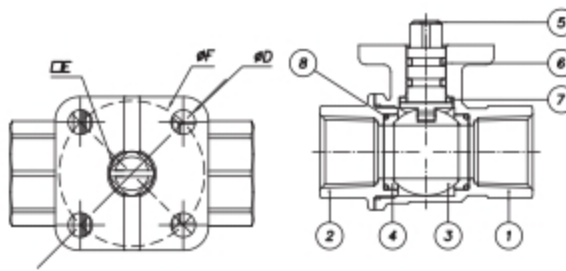
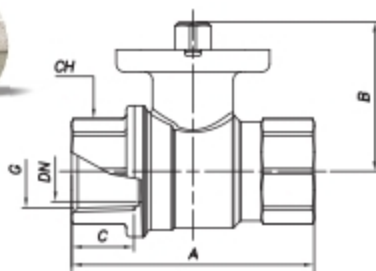
Pressure Temperature Diagram



Dimensions (mm)

Size (DN)	d	L	C	ISO5211 Top Flange	Torque (N.m)	Weight (Kg)
1/4"	11	50	9	F03	4	0,46
3/8"	12,5	60	9	F03	4	0,48
1/2"	15	75	9	F03	5	0,51
3/4"	20	80	11	F04/F05	8	0,89
1"	25	90	11	F04/F05	10	1,27
1-1/4"	32	110	14	F05/F07	14	2,04
1-1/2"	40	120	14	F05/F07	18	3,00
2"	50	140	14	F05/F07	25	3,80
2-1/2"	65	185	17	F07/F10	48	7,80
3"	80	205	17	F07/F10	75	12,40
4"	100	240	17	F07/F10	110	20,80

V204 Direct Mount Pad, Brass, BSP Threaded End, Full Bore Ball Valves



Material List

No	Part Name	Material	Qty
1	Body	CW617N Nickel Coated Brass	1
2	Cap	CW617N Nickel Coated Brass	1
3	Ball	CW617N Nickel Coated Brass	2
4	Ball Seats	PTFE	2
5	Stem	CW617N Nickel Coated Brass	1
6	Ring	NBR 80 sh	2
7	Seat	PTFE	1
8	Ring	NBR 70 sh	2

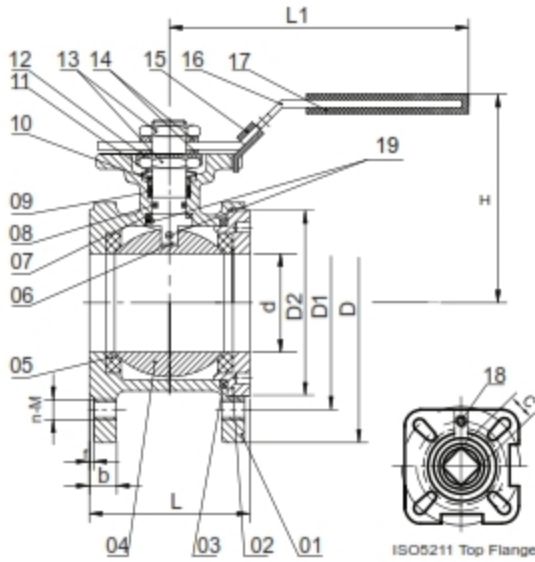
Dimensions (mm)

DN	G	CH	A	B	C	D	E	F	PN	Torque (Nm)	Kv
15	1/2"	24,5	62	37	15	6	9	F03	64	2,1	16,3
20	3/4"	31	68	39,5	16,3	6	9	F03	40	2,4	29,5
25	1"	38	82	50,5	19	6	9	F03	40	2,8	43
32	1-1/4"	48	95	55,5	21,4	6	9	F03	25	3,1	89
40	1-1/4"	54	107	75	21,4	7	11	F05	25	4,3	230
50	2"	67	125	82	25,7	7	11	F05	25	5,2	265
65	2-1/2"	84	151	102,5	30,2	6,5	14	F05	16	20	518
80	3"	99	174	121	33,3	8,5	14	F07	16	44	820
100	4"	122	199	131,5	32,6	8,5	14	F07	16	80	1180





V205 Wafer Type, Direct Mount Pad, Full Bore Flanged Ball Valves



Proval V205 Series ball valves are compact type short wafer body design with direct actuator mounting pad to allow easy actuation.

Proval V205 series ball valves are Bureau Veritas design approved and can be inspected in accordance with 3.1.C for use in marine applications

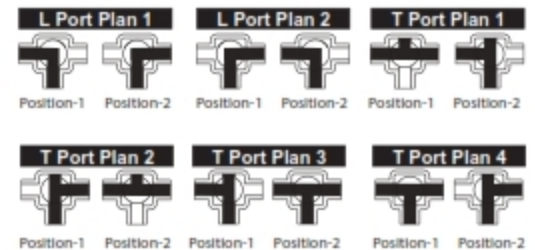
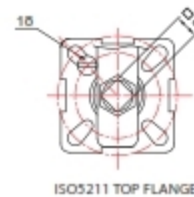
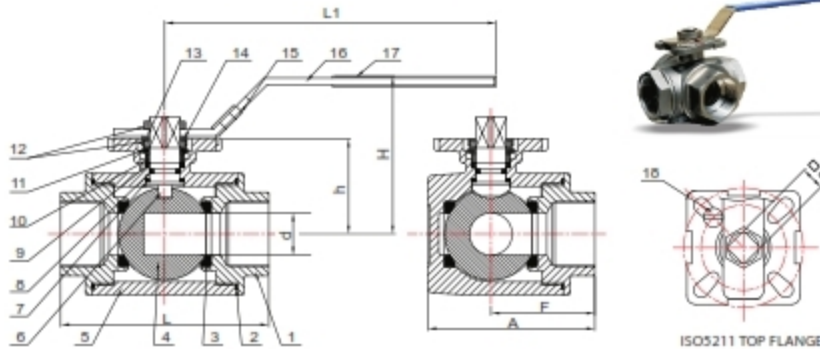
Material List

No	Part Name	Material (AISI316)	Material (A216WCB)	Qty
1	Body	AISI316	WCB	1
2	Cap	AISI316	WCB	1
3	Body Gasket	PTFE	PTFE	1
4	Ball	AISI316	AISI316	1
5	Ball Seats	R-PTFE (%15)	R-PTFE (%15)	2
6	Stem	AISI316	AISI316	1
7	Washer	PTFE	PTFE	1
8	O-Ring	Viton	Viton	1
9	Stem Seat	PTFE	PTFE	1
10	Pressure Sleeve	AISI304	AISI304	1
11	Disc Spring	AISI301	AISI301	2
12	Nut Locking	AISI304	AISI304	1
13	Nut	AISI304	AISI304	2
14	Washer	AISI304	AISI304	2
15	Lever Locking	AISI304	AISI304	1
16	Lever	AISI304	AISI304	1
17	Lever Cover	Plastic	Plastic	1
18	Stopper Pin	AISI304	AISI304	1
19	Anti-Static Device	AISI316	AISI316	2

Dimensions (mm)

Size (DN)	d	L	D	D1	D2	b	f	H	L1	C	ISO5211 Top Flange	n-M	Torque (N.m)	Weight (Kg)
15	15	36	95	65	45	12	2	70	115	9	F03	4-M12	5	1,11
20	20	38	105	75	58	12	2	78	115	9	F03	4-M12	8	1,48
25	25	50	115	85	68	12	2	90	160	11	F04/F05	4-M12	10	1,95
32	32	53	140	100	78	14	2	100	160	11	F04/F05	4-M16	14	3,10
40	40	65	150	110	88	15	3	105	200	14	F05/F07	4-M16	18	4,18
50	50	78	165	125	102	16	3	125	200	14	F05/F07	4-M16	25	5,37
65	65	98	185	145	122	16	3	140	155	17	F07/F10	4-M16	48	8,18
80	76	118	200	160	138	18	3	145	255	17	F07/F10	8-M16	75	11,92
100	94	140	220	180	158	18	3	175	300	17	F07/F10	8-M16	110	16,92

V207 L / T Port , Direct Mount Pad, BSP Threaded End 3 Way Ball Valves



Material List

No	Part Name	Material	Qty
1	Cap	AISI316	3
2	Gasket	PTFE	3
3	Ball Seats	PTFE	4
4	Ball	AISI316	1
5	Body	AISI316	1
6	Stem	AISI316	1
7	Thrust Washer	PTFE	1
8	O-Ring	Viton	1
9	Stem Packing	PTFE	1
10	Stem Ring	AISI316	1
11	Ball Washer	AISI301	1
12	Nut	AISI304	1
13	Plate Washer	AISI301	1
14	Nut Stopper	AISI304	1
15	Lock Device	AISI304	1
16	Handle	AISI304	1
17	Handle Sleeve	Plastic	1
18	Stop Pin	AISI304	1

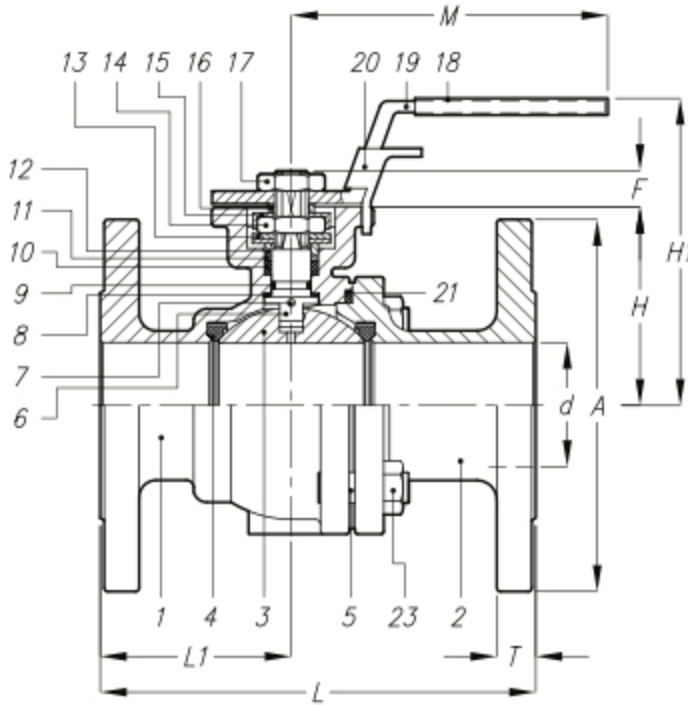
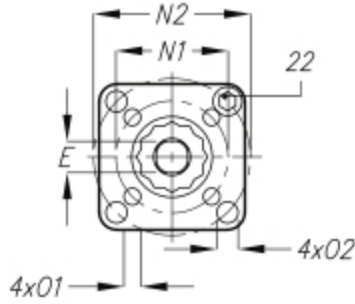


Size (DN)	d	L	H	H1	F	A	J	ISO5211 Top Flange	Torque (N.m)	Weight(Kg)
1/4"	9,5	75	66	130	37,5	57,5	9	F03/F04	8	0,70
3/8"	11	75	66	130	37,5	57,5	9	F03/F04	8	0,67
1/2"	12	75	66	130	37,5	57,5	9	F03/F04	8	0,73
3/4"	15	85	72	161	42,5	65,5	11	F04/F05	9	0,94
1"	20	100	77	161	50	79	11	F04/F05	15	1,38
1-1/4"	25	122	92	203	61	97	14	F05/F07	20	2,89
1-1/2"	32	131	96	203	65,5	106,5	14	F05/F07	30	3,60
2"	40	158	107	203	79	129	14	F05/F07	45	6,21
2-1/2"	49	178	135	254	101	167	17	F07/F10	50	8,72
3"	60	202	147	254	101	167	17	F07/F10	80	12,81
4"	75	246	160	310	123	203	17	F07/F10	1100	21,60

V206 2Pc Body, Flanged End Full Bore Ball Valves



Dimensions



Proval V206 Series ball valves are 2 pc body according to DIN3202-F4 Standard. Direct ISO5211 top flange provides direct actuator assembly on V206 series ball valves.

Material List

No	Part Name	Material
1	Body	AISI316 St. Steel
2	Cap	AISI316 St. Steel
3	Ball	AISI316
4	Ball Seats	PTFE
5	Bolts	AISI316
6	Stem	AISI316
7	Anti-Static Device	AISI316
8	Stem Bushing	PTFE
9	Stem O-Ring	Viton
10	Packing	PTFE
11	Pressure Sleeve	AISI316
12	Metal Ring	AISI316
13	Disc Springs	AISI316
14	Stem Nut	AISI316
15	Not Locking	AISI316
16	Spacer Sleeve	AISI316
17	Stem Nut	AISI316
18	Hand Lever Cover	Plastik
19	Hand Lever	AISI304
20	Lever Locking	AISI304
21	Body Gasket	PTFE
22	Stem Stopper	AISI304
23	Nut	AISI316

Dimensions (mm)

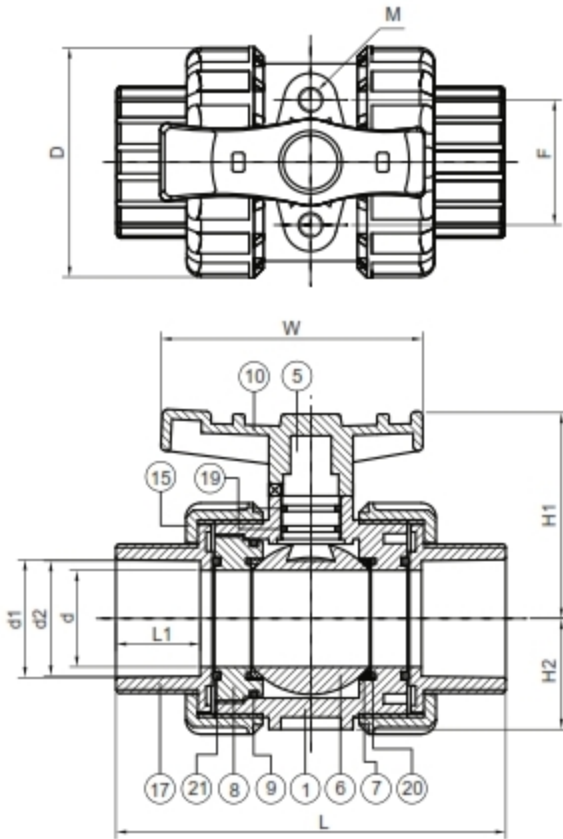
Ölçü DN	d	PN16	PN40	E	F	H	H1	L	PN16	PN40	M	N1	N2	1	2	PN16	PN40	PN16	PN40
		A	A						L1	L1						T	T	m(kg)	m(kg)
15	15.0	95	95	9	9	48.0	79.0	115	-	49.5	145	36	42	6	6	16	16	-	2.4
20	20.0	105	105	9	9	53.0	84.0	120	-	54.0	145	36	42	6	6	18	18	-	3.2
25	25.0	115	115	11	11	58.5	90.5	125	-	56.0	175	42	50	6	7	18	18	-	4.2
32	32.0	140	140	11	11	71.0	103.0	130	-	57.4	175	42	50	6	7	18	18	-	5.5
40	38.0	150	150	14	14	76.0	111.0	140	-	58.0	194	50	70	7	9	18	18	-	6.9
50	50.0	165	165	14	14	85.0	120.0	150	-	63.0	194	50	70	7	9	20	20	-	9.5
65	63.5	185	185	17	17	101.5	150.0	170	69.0	64.0	265	70	102	9	11	18	22	13.8	13.8
80	76.0	200	200	17	17	111.5	160.0	180	74.5	69.5	265	70	102	9	11	20	24	17.7	17.8
100	100.0	220	235	22	22	140.0	182.0	190	83.0	78.0	400	-	102	-	11	20	24	25.2	30.5
125	125.0	250	270	27	27	183.0	260.0	325	153.0	160.0	600	-	125	-	14	22	26	60.0	62.5
150	150.0	285	300	27	27	202.0	280.0	350	162.0	176.0	800	-	125	-	14	22	28	71.8	73.8
200	200.0	340	375	27	27	252.5	279.5	400	191.0	221.0	-	-	125	-	14	24	34	127.0	152.0



V209 Socket Fusion U-PVC Ball Valves

PROVAL V209 Series U-PVC ball valves are designed for use from basic water applications to corrosive chemical applications where UPVC resists.

V209 series U-PVC ball valves are easy to mount actuators with their ISO5211 direct mount pad kits.



Technical Specifications,

- Fusion bonded ends
- Full bore design
- Max working pressure 10 bar
- EPDM/Viton alternative seal materials
- Direct actuator mounting st. steel bracket & couplings
- Handle with integrated to adjust/remove the union bushings



Material List

No	Part Name	Qty	Water Type	Acid Type
1	Body	1	UPVC	UPVC
5	Stem	1	UPVC	UPVC
6	Ball	1	UPVC	UPVC
7	Ball Seats	2	PTFE	PTFE
8	Threaded Spacer	1	UPVC	UPVC
10	Lever	1	ABS	ABS
15	Union Nut	2	UPVC	UPVC
17	Union End	2	UPVC	UPVC
19	Stem O-Ring	2	EPDM	VITON
9	Spacer Seal	1	EPDM	VITON
20	End Seal	2	EPDM	VITON
21	Spacer Seal	2	EPDM	VITON
22	Bracket & Coupling	1	SS304	SS304

Dimensions (mm)

Size Inch/DN	d	d1	d2	D	L	L1	W	H1	H2	F	M
1/2" (15)	15	20,3	20,1	53	104	22,5	65,8	49	24,5	31	M6
3/4" (20)	20	25,3	25,1	61	115	26	78,6	60	29,5	33	M6
1" (25)	25	32,3	32,1	71	131	30	86,7	68	34	40	M6
1 1/4" (32)	32	40,3	40,1	83	147	32	97,4	76	38	52	M6
1 1/2" (40)	40	50,3	50,1	96	164	35	108,6	85	45	52	M8
2" (50)	50	63,3	63,1	116	210	40	132	97	55	70	M8
2 1/2" (65)	65	75,3	75,1	150	240	46	150	180	70	83	M8

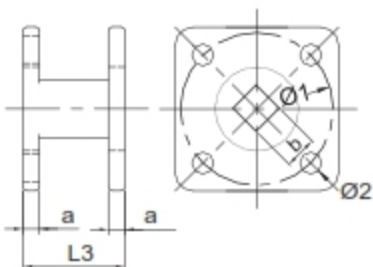


Electric Act. Op.
PVC Ball Valve



Pneumatic Act. Op.
PVC Ball Valve

Bracket & Coupling Dimentions (mm)



Size Inch/DN	b	ISO 5211	Ø2	a	L3	Torque (Nm)
1/2" (15)	9	F04	6	4,5	28	15
3/4" (20)	9	F04	6	4,5	28	21
1" (25)	11	F04-F05	7	5	50	24
1 1/4" (32)	11	F04-F05	7	5	50	33
1 1/2" (40)	11	F05	8	6	50	40
2" (50)	11	F05	8	6	50	52
2 1/2" (65)	17	F07-F10	10-12	6	70	90

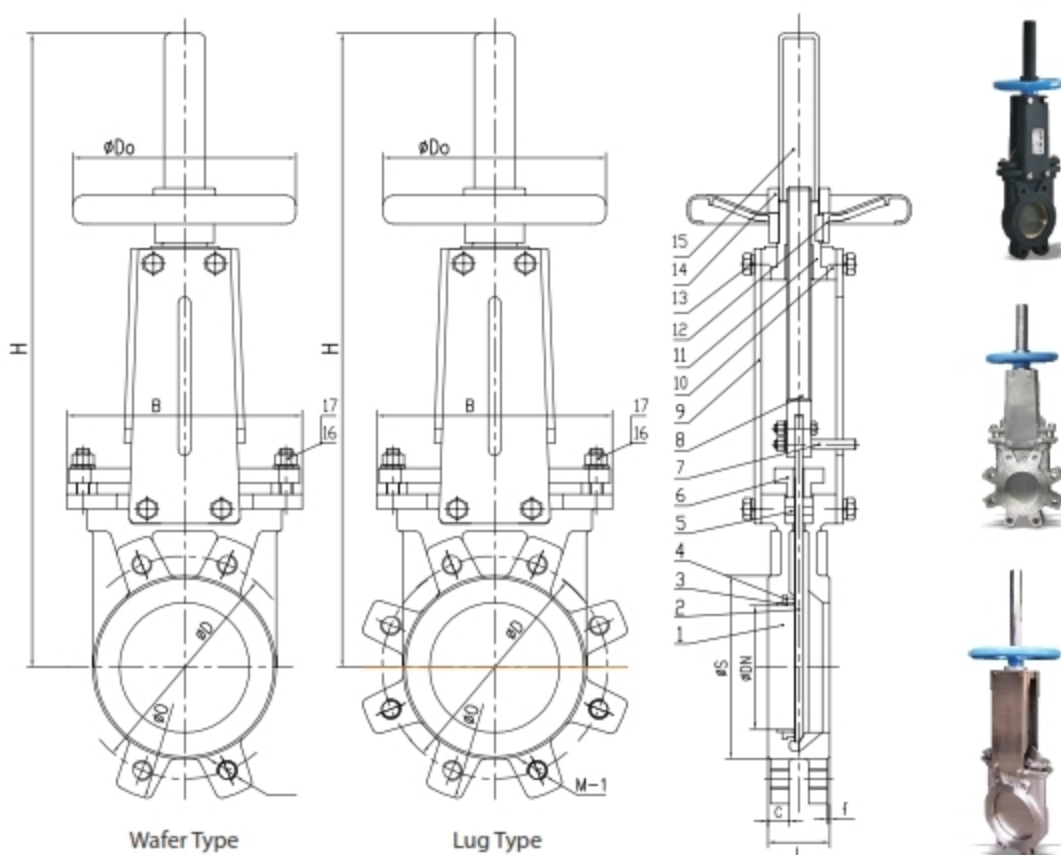
Notes: Given torque figures are for liquid application at ambient temperature conditions



ISO5211 Direct Mount Pad
PVC Ball Valve

V301 (Wafer) / V302 (Lug) Type Manual Knife Gate Valves

V301 Series Knife gate valves are used in the pulp & paper industry, water management, waste-water management, chemical, power, steel plants and other industrial applications.



No	Description	Material
1	Body	GG25
		GGG40
		WCB
		SS304
		SS316
2	Gate	SS304 SS316
3	Retainer Ring	304/316
4	Sealing Ring	EPDM
		Viton
		NBR
		Metal
5	Packing	PTFE+Silicone
6	Packing gland	GGG40/SS316
7	Indicator	SS304
8	Stem	SS420/SS316
9	Support plates	ASTM A36
10	Steel block	ASTM A105
11	Stem nut	ASTM B62
12	Hand wheel	ASTM A126
13	Bolt	ASTM A193 B8
14	Hand wheel cap	ASTM A105
15	Protector	ASTM A36
16	Bolt	ASTM A193 B8
17	Nut	ASTM A194 8

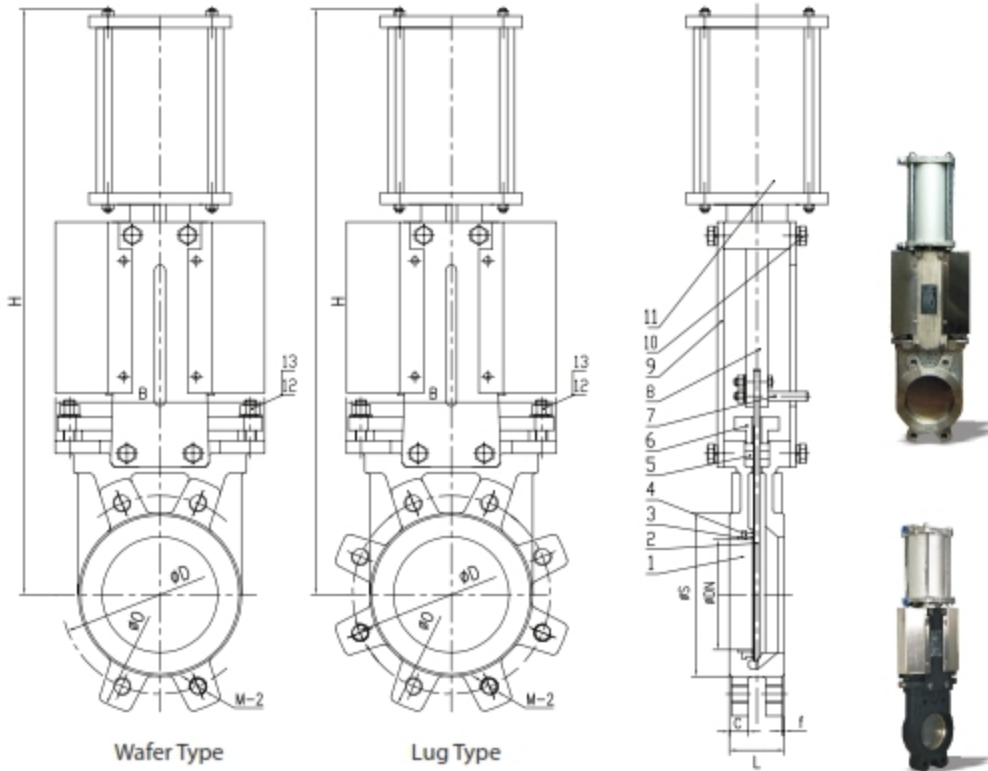
Dimensions (mm)

Size (DN)	L	ØO	ØD	S	C	f	B	H	ØDo	Wafer PN10 Flanges			Lug PN10 Flanges		Weight (Kg)	
										M	⊕	○	M	⊕	Wafer	Lug
50	40	165	125	95	16	2	136	375	180	M16	4	-	M16	4	7,0	7,0
65	40	185	145	110	16	2	151	420	180	M16	4	-	M16	4	8,0	8,0
80	50	200	160	127	17	2	170	450	200	M16	4	4	M16	8	11,0	14,0
100	50	220	180	148	17	2	190	512	200	M16	4	4	M16	8	12,0	14,0
125	50	250	210	174	17	2	212	570	220	M16	4	4	M16	8	15,0	17,0
150	60	285	240	199	21	2	230	665	250	M20	4	4	M20	8	21,0	24,0
200	60	340	295	250	21	2	286	825	300	M20	4	4	M20	8	29,0	32,0
250	70	395	350	308	24	2	338	1000	350	M20	8	4	M20	12	46,0	50,0
300	70	445	400	360	24	2	388	1155	350	M20	8	4	M20	12	66,0	72,0
350	96	505	460	416	33	2	460	1310	400	M20	12	4	M20	16	92,0	99,0
400	100	565	515	466	35	2	520	1475	500	M24	12	4	M24	16	125,0	133,0
450	106	615	565	518	36	2	580	1660	500	M24	16	4	M24	20	180,0	189,0
500	110	670	620	572	37	2	620	1860	600	M24	16	4	M24	20	233,0	243,0
600	110	780	725	664	37	2	720	2150	700	M27	16	4	M27	20	320,0	334,0

* Please consult with the sales department for larger dimensions and special configurations.

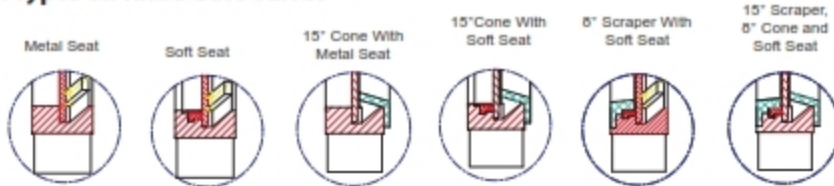


V301 (Wafer) / V302 (Lug) Type Knife Gate Valves With Pneumatic Actuators



No	Description	Material
1	Body	GG25
		GGG40
		WCB
		SS304
		SS316
2	Gate	SS304
		SS316
3	Retainer Ring	304/316
4	Sealing Ring	EPDM
		Viton
		NBR
		Metal
5	Packing	PTFE+Silicone
6	Gland follower	GGG40
7	Position indicator	SS304
8	Air cylinder stem	SS304
9	Support plates	ASTM A36
10	Bolt	ASTM A193 B8
11	Pneumatic actuator	Aluminum
12	Bolt	ASTM A193 B8
13	Nut	ASTM A194 8
14	Hand wheel cap	ASTM A105
15	Protector	ASTM A36
16	Bolt	ASTM A193 B8
17	Nut	ASTM A194 8

Seat Types on Knife Gate Valves

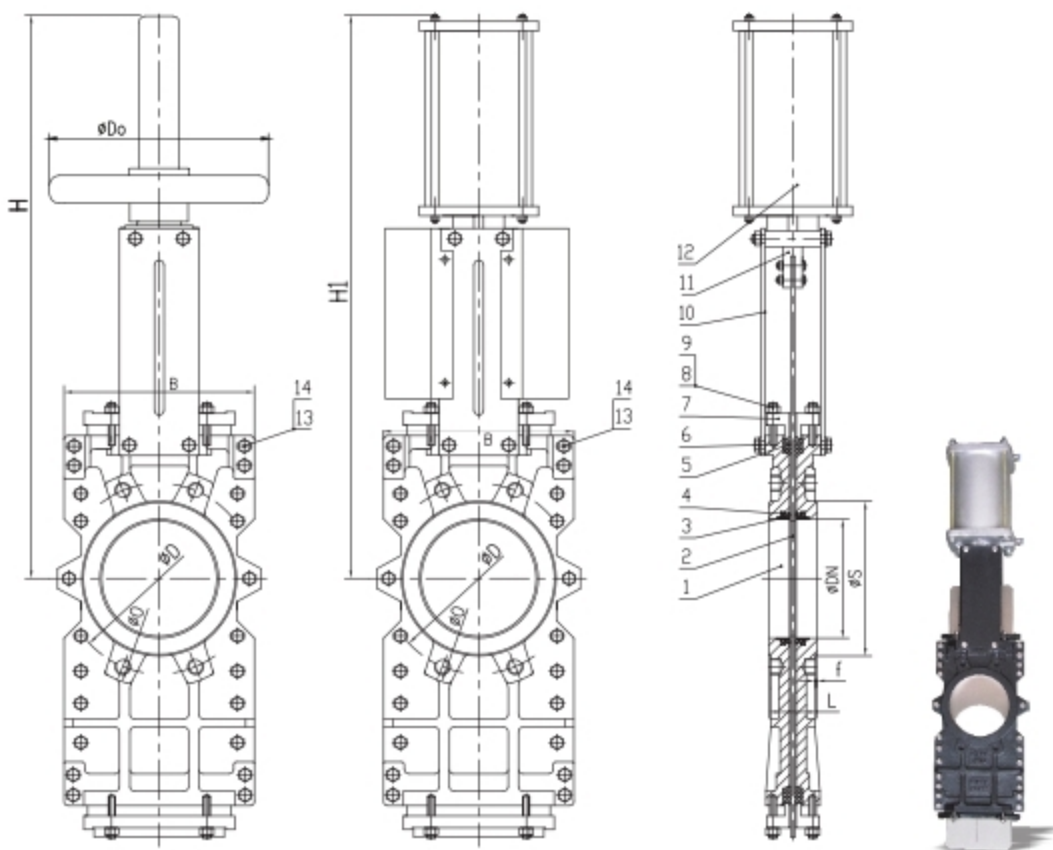


Dimensions (mm)

Size (DN)	L	ØO	ØD	S	C	f	B	H	S	Wafer PN10 Flanges			Lug PN10 Flanges		Weight (Kg)	
									(B.S.P)	M	⊕	○	M	⊕	Wafer	Lug
50	40	165	125	95	16	2	136	430	1/4"	M16	4	-	M16	4	7,0	7,0
65	40	185	145	110	16	2	151	460	1/4"	M16	4	-	M16	4	9,0	9,0
80	50	200	160	127	17	2	170	510	1/4"	M16	4	4	M16	8	12,0	13,0
100	50	220	180	148	17	2	190	570	1/4"	M16	4	4	M16	8	14,0	16,0
125	50	250	210	174	17	2	212	660	1/4"	M16	4	4	M16	8	22,0	24,0
150	60	285	240	199	21	2	230	720	1/4"	M20	4	4	M20	8	25,0	28,0
200	60	340	295	250	21	2	286	890	1/4"	M20	4	4	M20	8	38,0	41,0
250	70	395	350	308	24	2	338	1120	3/8"	M20	8	4	M20	12	65,0	69,0
300	70	445	400	360	24	2	388	1230	3/8"	M20	8	4	M20	12	77,0	83,0
350	96	505	460	416	33	2	460	1370	3/8"	M20	12	4	M20	16	125,0	132,0
400	100	565	515	466	35	2	520	1570	3/8"	M24	12	4	M24	16	165,0	173,0
450	106	615	565	518	36	2	580	1720	1/2"	M24	16	4	M24	20	235,0	244,0
500	110	670	620	572	37	2	620	1850	1/2"	M24	16	4	M24	20	306,0	316,0
600	110	780	725	664	37	2	720	2150	1/2"	M27	16	4	M27	20	494	508,0

V303 Through Conduit Type Manual/Pneumatic Type Knife Gate Valves

V303 Through conduit type knife gate valves are made of two pcs body parts that are bolted together. These valve are bidirectional with equal maximum differential pressure resistance from the both flow directions. Through conduit knife gate valves are ideally used in pneumatic transport of abrasive powders and high concentration paper stock



No	Description	Material
1	Body	GG25
		GGG40
		WCB
		SS304
		SS316
2	Gate	SS304 SS316
3	Retainer Ring	304/316
4	Sealing Ring	EPDM
		Viton
		NBR
		Metal
5	Packing	PTFE+Silicone
6	Bolt	SS304
7	Gland follower	GGG40
8	Bolt	SS304
9	Nut	SS304
10	Support plates	ASTM A36
11	Air cylinder stem	SS304
12	Pneumatic actuator	Aluminum
13	Bolt	SS304
14	Nut	SS304

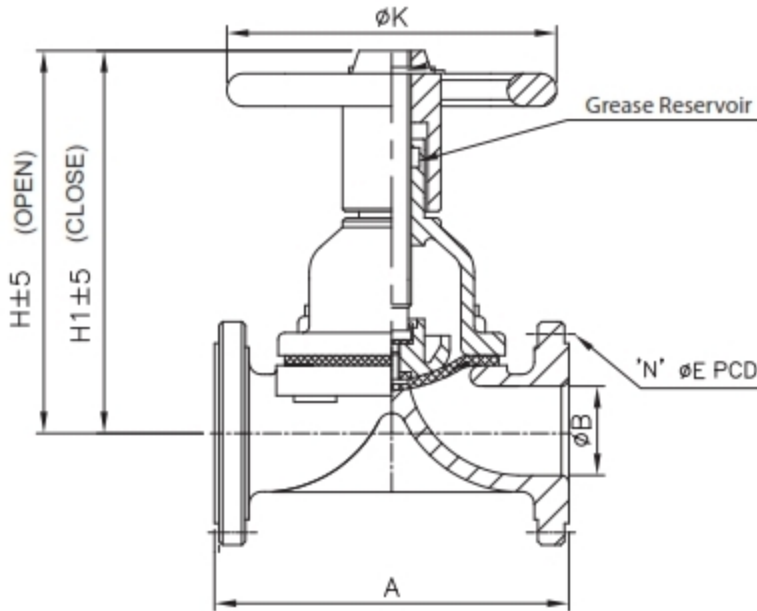
Dimensions (mm)

Size (DN)	L	ØO	ØD	S	C	f	B	H	H1	S (B.S.P)	Wafer PN10 Flanges		Weight (Kg)		
											M	⊕	○	Manual	Pneumatic
50	40	165	125	95	16	2	136	470	560	1/4"	M16	4	-	12,0	14,0
65	40	185	145	110	16	2	151	525	600	1/4"	M16	4	-	14,0	16,0
80	50	200	160	127	17	2	170	565	660	1/4"	M16	4	4	16,0	18,0
100	50	220	180	148	17	2	190	640	740	1/4"	M16	4	4	20,0	23,0
125	50	250	210	174	17	2	212	715	860	1/4"	M16	4	4	29,0	34,0
150	60	285	240	199	21	2	230	830	950	1/4"	M20	4	4	35,0	41,0
200	60	340	295	250	21	2	286	1030	1150	1/4"	M20	4	4	62,0	73,0
250	70	395	350	308	24	2	338	1250	1320	3/8"	M20	8	4	89,0	105,0
300	70	445	400	360	24	2	388	1450	1550	3/8"	M20	8	4	110,0	128,0
350	96	505	460	416	33	2	460	1640	1720	3/8"	M20	12	4	174,0	210,0
400	100	565	515	466	35	2	520	1850	1960	3/8"	M24	12	4	266,0	310,0
450	106	615	565	518	36	2	580	2075	2150	1/2"	M24	16	4	326,0	380,0
500	110	670	620	572	37	2	620	2325	2300	1/2"	M24	16	4	372,0	450,0
600	110	780	725	664	37	2	720	2690	2700	1/2"	M27	16	4	445,0	640,0



V401 Weir Type Diaphragm Valves

V401 Weir Type diaphragm valves are available as BS5156 short and DIN3202-F1 long face to face in a wide range of body and lining materials to meet the customers requirements.



Material List

Part Name	Available Materials
Body/Bonnet	GG25 CI
	GGG40 DI
	WCB Steel
	AS1304 SS
	AS1316 SS
Diaphragm	EPDM
	NBR
	Butyl
	Viton
	Silicone
	PTFE



Flanged End
Weir Type Diaphragm Valve



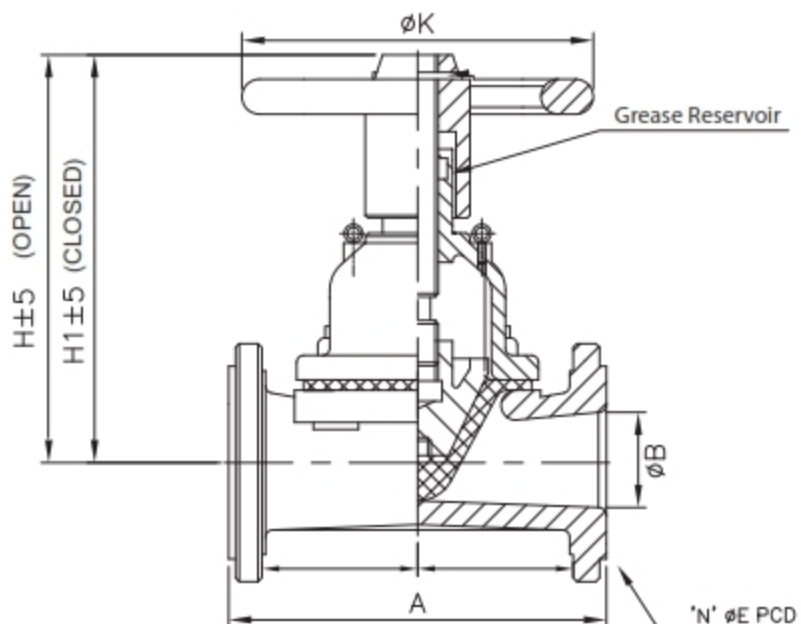
Pneumatic Act. Op. Flanged End
Weir Tip Diaphragm Valve

Dimensions (mm)

Size (DN)	A (Unlined Body)		A (Rubber Lined Body)		ØB	ØK	H (Open)	H1 (Closed)	PN10			Weight (Kg)	
	BS5156	DIN3202F1	BS5156	DIN3202F1					PCD	ØE	Nº	BS5156	DIN3202F1
15	108	130	114	136	15	100	110,0	102,0	65	14	4	2,3	2,7
20	117	150	123	156	21	100	108,0	100,0	75	14	4	3,2	3,5
25	127	160	133	166	26	120	122,5	120,0	85	14	4	4,2	4,4
32	146	180	152	186	32	120	130,5	118,0	100	18	4	6,4	6,6
40	159	200	165	206	38	120	131,5	119,0	110	18	4	7,5	8,5
50	190	230	196	236	51	164	194,5	177,0	125	18	4	12,0	12,5
65	216	290	222	296	64	185	220,0	196,0	145	18	4	18,0	19,0
80	254	310	260	316	76	200	279,0	249,0	160	18	8	23,0	25,0
100	305	350	313	358	102	220	293,5	261,0	180	18	8	34,0	36,0
125	356	400	364	408	127	250	309,5	272,0	210	18	8	50,0	52,0
150	406	480	414	488	152	285	413,0	362,0	240	22	8	69,0	75,0
200	521	600	529	608	203	340	475,5	413,0	295	22	8	150,0	160,0
250	635	730	643	738	254	395	595,5	523,0	350	22	12	220,0	235,0
300	749	850	757	858	305	445	748,0	653,0	400	22	12	300,0	315,0

V402 Straight Through Type Diaphragm Valves

V402 Straight Through Type diaphragm valves are available as B55156 short and DIN3202-F1 long face to face in a wide range of body and lining materials to meet the customers requirements.



Fully Lined Body
St. Through Diaphragm Valve



Stainless Steel Body
St. Through Diaphragm Valve

Material List

Part Name	Available Materials
Body/Bonnet	GG25 CI
	GGG40 DI
	WCB Steel
	AS304 SS
	AS316 SS
Diaphragm	EPDM
	NBR
	Butyl
	Viton
	Silicone
	PTFE

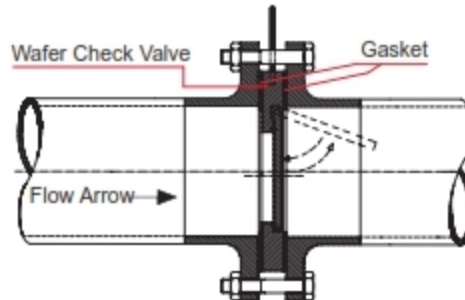
Dimensions (mm)

Size (DN)	A (Unlined Body)		A (Rubber Lined Body)		ØB	ØK	H (Open)	H1 (Closed)	PN10			Weight (Kg)	
	B55156	DIN3202F1	B55156	DIN3202F1					PCD	ØE	N°	B55156	DIN3202F1
15	108	130	114	136	15	100	110,0	102,0	65	14	4	3,3	3,8
20	117	150	123	156	21	100	108,0	100,0	75	14	4	3,6	4,0
25	127	160	133	166	26	120	122,5	120,0	85	14	4	4,3	4,8
32	146	180	152	186	32	120	130,5	118,0	100	18	4	6,5	7,5
40	159	200	165	206	38	120	131,5	119,0	110	18	4	7,0	8,0
50	190	230	196	236	51	164	194,5	177,0	125	18	4	10,5	11,5
65	216	290	222	296	64	185	220,0	196,0	145	18	4	15,5	16,5
80	254	310	260	316	76	200	279,0	249,0	160	18	8	22,5	25,5
100	305	350	313	358	102	220	293,5	261,0	180	18	8	30,0	32,0
125	356	400	364	408	127	250	309,5	272,0	210	18	8	44,0	46,0
150	406	480	414	488	152	285	413,0	362,0	240	22	8	63,0	69,0
200	521	600	529	608	203	340	475,5	413,0	295	22	8	112,0	126,0
250	635	730	643	738	254	395	595,5	523,0	350	22	12	170,0	185,0
300	749	850	757	858	305	445	748,0	653,0	400	22	12	158,0	273,0



V701 Wafer Type Check Valves

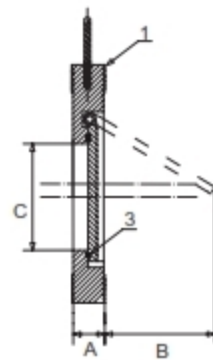
Proval V701 Series wafer check valves are used to prevent the back flow in water lines, HVAC, marine and other industrial applications



Material List

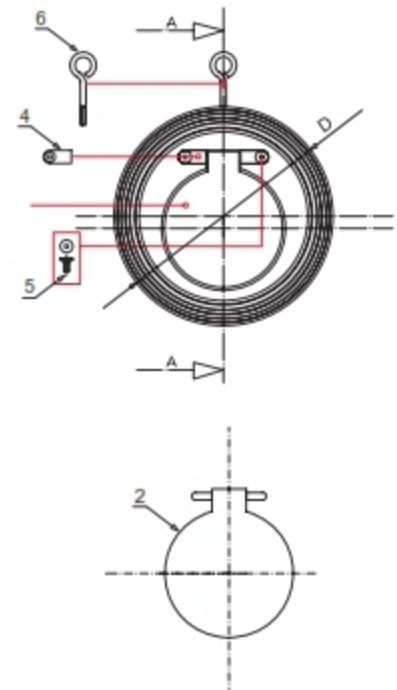
No	Part Name	Available Materials
1	Body	ASTM A105/AISI304/AISI316/AISI316L/Bronze
2	Disc	AISI316/AISI316L/Bronze
3	O-Ring Seal	EPDM/NBR/Viton/Silicon/PTFE/Bronze
4	Ear	AISI316
5	Bolt	AISI316
6	Hanger	Galvanized Steel

A-A Section



Dimensions (mm)

Size (DN)	A	B	C	D					Weight (Kg)
				PN6	PN10	PN16	PN25	ANSI150	
40	14	30	22	88	95	95	95	86	0,7
50	14	35	32	98	109	109	109	105	0,9
65	14	48	40	118	129	129	129	124	1,2
80	14	60	54	134	144	144	144	137	1,5
100	18	78	70	154	164	164	170	175	2,4
125	18	98	92	184	195	195	198	195	3,4
150	20	117	112	209	220	220	228	220	4,6
200	22	160	154	264	275	275	285	279	7,5
250	26	200	200	319	330	330	343	340	13,1
300	32	235	240	375	380	387	403	410	20,4
350	38	258	270	425	440	448	460	448	32,0
400	44	300	310	475	490	495	517	514	48,0
450	50	331	360	530	540	557	567	548	63,0
500	56	268	405	580	596	617	624	605	87,0
600	62	435	486	680	695	734	731	715	130,0



V702 Disco Type Check Valves

Proval V702 Series disco check valves are used to prevent the back flow in water lines, HVAC, marine and other industrial applications



Material List

No	Part Name	Materials			
1	Body	Brass	GGG40 D.I	AISI316	AISI316L
2	Disc	AISI304	GGG40 D.I	AISI316	AISI316L
3	Spring	AISI304	AISI304	AISI316	AISI316L

* GGG40 Ductile Iron Check Valves are Powder Epoxy Coated

Body Materials According to Sizes

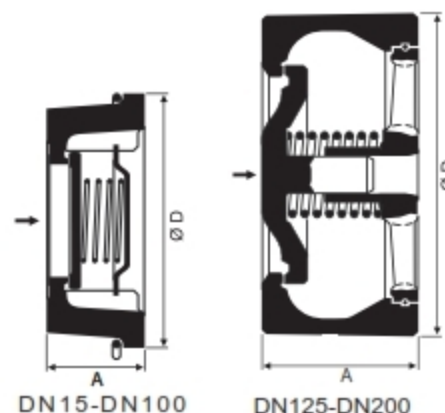
No	Size	Brass	GGG40	AISI316	AISI316L
1	DN15-100	•		•	•
2	DN125-DN200		•	•	•

Max Working Pressures (bar) According to Body Materials

No	Size	Brass	GGG40	AISI316	AISI316L
1	PN10/16	•	•	•	•
2	PN40			•	•

Dimensions (mm)

Size (DN)	15	20	25	32	40	50	65	80	100	125	150	200
A	16	19	22	28	32	40	46	50	60	90	106	140
ØD	40	47	56	72	82	95	115	132	152	184	209	264

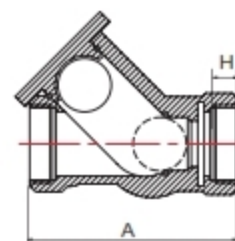


V704 Ball Check Valves

Proval V704 Series ball check valves are used in slurries to prevent the back flow.

Material List

No	Part Name	Material
1	Body	Epoxy Coated (DN20-DN100), GGG40 D.I (DN125-DN250)
2	Ball	DN20-DN40 Resine, DN50-DN100 Rubber Lined Aluminum
3	O-Ring Seal	EPDM/NBR
4	Cap	Epoxy Coated (DN20-DN100), GGG40 D.I (DN125-DN250)
5	Bolt	AISI316



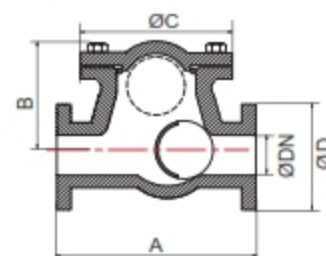
Threaded End Ball Check Valve

Threaded End Ball Check Valve Dimensions (mm)

Size (Inch)	1"	1-1/4"	1-1/2"	2"	2-1/2"
A	114	132	145	174	200
H	17	18	20	22	22
Weight (Kg)	1,5	2	2,6	3,8	6,1

Flanged End Ball Check Valve Dimensions (mm)

Size (DN)	20	25	40	50	65	80	100	125	150	200	250
A	117	127	159	200	210	260	300	350	400	500	670
ØD	PN10/16	105	115	150	165	185	200	220	250	285	395
	ASA 125/150	99	108	127	153	178	190	228	254	280	406
B	65	65	87	120	120	150	175	205	255	374	405
ØD	70	70	85	120	135	180	210	250	285	340	450
Weight (Kg)	5	5	8	10	15	20	25	40	63	85	156

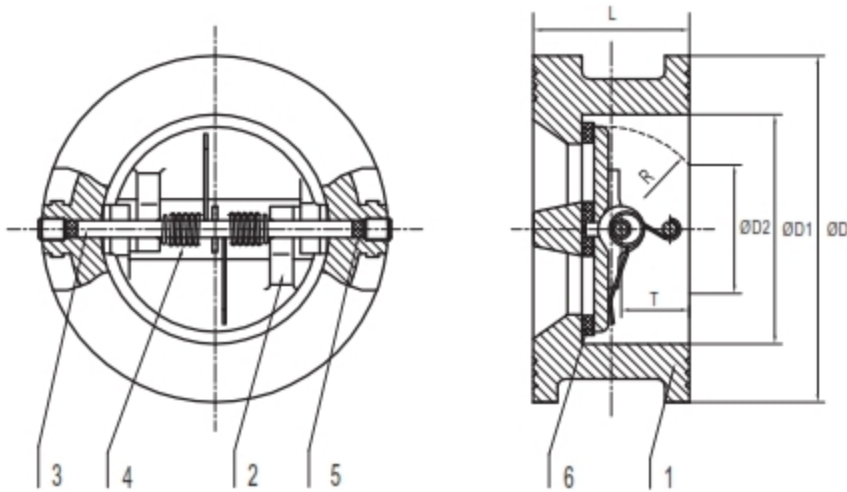


Flanged End Ball Check Valves



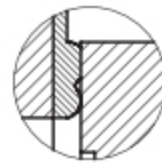
V703 Dual Plate Check Valves

Proval V703 Series Dual Plate Check Valves are used to prevent the back flow in water, HVAC and other industrial applications. Spring closed check valves allow assembly both in vertical and horizontal pipe lines and have minimum pressure loss in comparison with other type check valves.



B

6 : 1



Design Standards

Design Standard	API6D
Flange Standards	ANSI 150, PN6, 10, 16, 25, 40
Face to Face Standards	EN558-1 / API594

Material List

No	Part Name	Materials
1	Body	GG25, GGG40, AISI304, AISI316
2	Disc	GGG40, AISI304, AISI316, Bronz
3	Stem	AISI316
4	Spring	AISI316
5	Bushing	PTFE
6	Seal	EPDM, NBR, PTFE, Viton

Dimensions (mm)

Size (DN)	ØD	ØD1	ØD2	L		R	T
				EN 558-1	API 594		
50	107	65	43,3	43	54	28,8	19
65	127	80	60,2	46	54	28,8	20
80	142	94	66,4	64	57	36,1	28
100	162	117	90,8	64	64	43,4	27
125	192	145	116,9	70	70	52,6	30
150	218	170	144,6	76	76	65,7	31
200	273	224	198,2	89	95	78,6	33
250	328	265	233,7	114	108	104,4	40
300	378	310	279,05	114	143	127	43
350	438	360	327,87	127	184	148,3	45
400	489	410	375,88	140	191	172,4	52
450	555	450	414,06	152	203	197,4	58
500	594	505	467,83	152	213	217,8	58
600	690	624	569,59	178	222	241	63

V800 Threaded / Flanged End Pinch Valves

Proval pneumatic pinch valves are widely used in mining industries in high mechanical abrasive applications, slurries and other industrial applications.

Proval V800 pinch valve sleeves can be replaced easily. Pneumatic pinch valves are to be operated by a 3/2 way solenoid valve.

Main application areas ;

Mining , Metallurgy , chemical , water treatment and other general industrial applications.

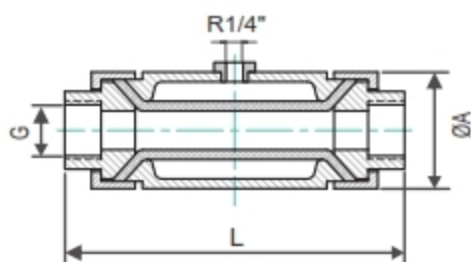
In order to ensure 100% tightness, pipe line pressure must be min. Δp 1,5 bar lower than air supply pressure.



Flanged End Pinch Valve

Threaded End Pinch Valves (1/2" - 2")

Available Body Materials : Carbon Steel / Stainless Steel



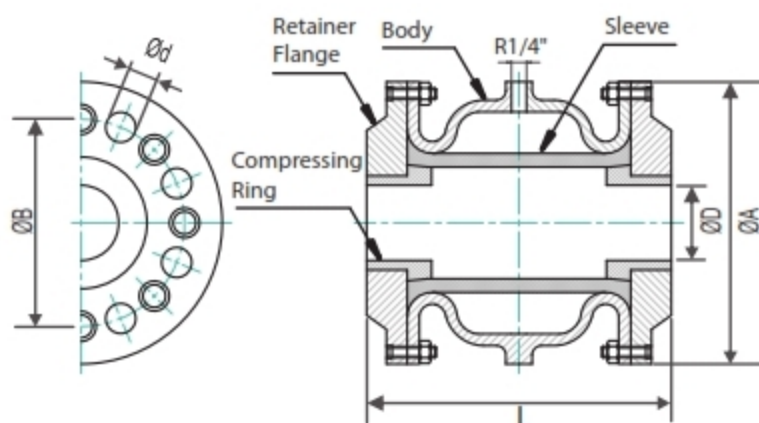
Threaded End Pinch Valve

Dimensions (mm)

Size (DN)	G	L	ØA
15	1/2"	135	60
20	3/4"	142	60
25	1"	145	75
32	1-1/4"	170	90
40	1-1/2"	200	110
50	2"	220	120

Flanged End Pinch Valves (DN40-DN250)

Available Body Materials : Alu Casting / Ductile Iron



Flanged End Pinch Valve

Dimensions (mm)

DN	ØD	L	ØA	ØB	Ød	n
40	40	155	150	110	18	4
50	60	166	165	125	18	4
65	60	183	185	145	18	4
80	75	220	200	160	18	8
100	100	280	220	180	18	8
125	120	348	250	210	18	8
150	145	418	285	240	22	8
200	190	555	340	295	22	8
250	250	610	390	350	22	12



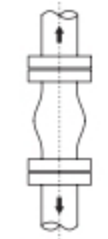
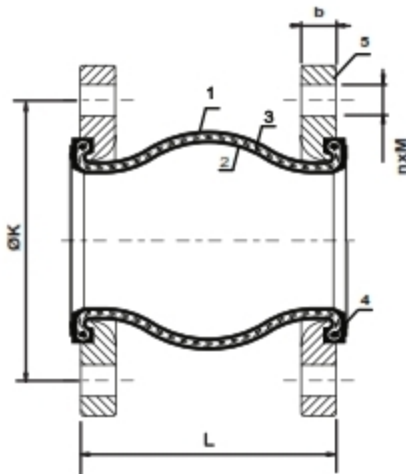
K100 Rubber Expansion Joints

Rubber expansion joints are used in pipelines to,

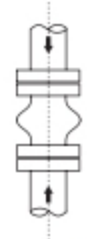
- * Absorb mechanical vibrations caused by machines and pumps
- * Reduce sound transmission caused by pumping fluids in pipe lines
- * Reduce stress compensating for axial, lateral and angular movements caused by contraction and expansion of pipe lengths due to thermal changes



Movements,



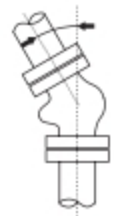
Axial Elongation



Axial Compression



Lateral Movement



Angular Movement

Material List

No	Part Name	Material
1	Inner Lining	EPDM or NBR
2	Outer Lining	GGG40, AISI304, AISI316, Bronze
3	Middle Lining	Nylon Cord Fabric
4	Wire	Hardened Steel
5	Flange	St37 or Stainless Steel

Dimensions (mm)

Size (DN)	Pressure Class	L (mm)	K (mm)	b (mm)	n (Qty)	Bolt Diameter (mm)	Max Allowable Movement			
							Axial Elongation (mm)	Axial Compression (mm)	Lateral Movement (mm)	Angular Movement
32	PN10/16	95	100	16	4	16	6	9	9	15°
40	PN10/16	95	110	18	4	16	6	10	9	15°
50	PN10/16	105	125	18	4	16	7	10	10	15°
65	PN10/16	115	145	20	8	16	7	13	11	15°
80	PN10/16	135	160	20	8	16	8	15	12	15°
100	PN10/16	150	180	22	8	16	10	19	13	15°
125	PN10/16	165	210	24	8	16	12	19	13	15°
150	PN10/16	180	240	24	8	20	12	20	14	15°
200	PN10/16	210	295	24	8	20	16	25	22	15°
250	PN10	230	350	28	12	20	16	25	22	15°
	PN16		355	28	12	24				
300	PN10	245	400	28	12	20	16	25	22	15°
	PN16		410	30	12	24				
350	PN10	255	460	28	12	20	16	25	22	15°
	PN16			32	12	24				
400	PN10	255	515	30	12	24	16	25	22	15°
	PN16			34	12	27				
450	PN10	255	565	30	16	24	16	25	22	15°
	PN16			32	16	27				
500	PN10	255	620	32	16	24	16	25	22	15°
	PN16			36	16	30				
600	PN10	255	725	36	16	27	16	25	22	15°
	PN16			44	16	33				

S100 General Purpose Pilot Operated Solenoid Valves

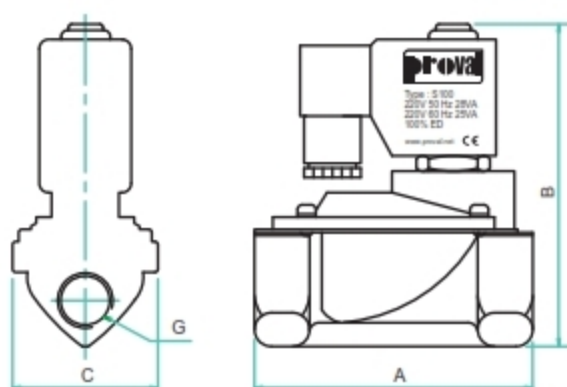
PROVAL S100 series general purpose solenoid valves are used in water, air, oils and other industrial applications limited with the diaphragm material and pressure range. Viton (FKM) diaphragms allows S100 solenoid valves to be used in partially chemical corrosive lines.

Pilot operated solenoid valves requires min 0.5 bar line pressure to ensure 100% leak free operation.

S100 solenoid valves are available as NO - Normally Open and NC - Normally Closed versions.

LED type connectors provides continuous visual indication of valve open/close position.

Dimensions



NC - Normally Closed Solenoid Valve



NO - Normally Open Solenoid Valve

Dimensions

Size (G)	A	B	C	Orifice	Kv	Cv
1/4"	30	62	22	2,3	2,0	2,3
3/8"	66	104	48	13	3,8	4,5
1/2"	66	104	48	13	3,8	4,5
3/4"	74	111	58	25	10,2	12
1"	96	120	70	25	10,2	12
1-1/4"	129	137	96	38	18,8	22
1-1/2"	129	137	96	38	25,6	30
2"	161	158	112	50	40,9	48



Solenoid Valve With Timer

Technical Specifications

Type	Pilot Operated General Purpose Solenoid Valves
Minimum Working Pressure	0,5 bar
Maksimum Working Pressure	16,0 bar
Viscosity	50 CST
ED	100% ED
Working Temperatures	EPDM (-5°C ~ +130°C) / FKM (-5°C ~ +150°C)
Body Material	Brass (EN 1503-4)
Diaphragm Materials	EPDM / FKM-Viton (Optional)

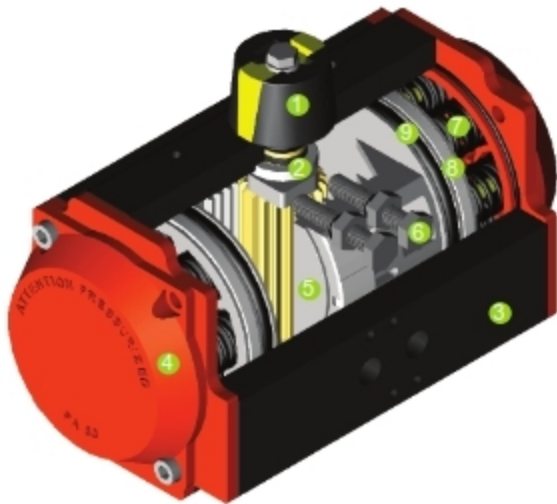
Options / Spare Parts

 Coil	 Diaphragm
 Timer	 Socket



A210 New Generation Pneumatic Actuators

Innovative new design PROVAL ProAir (PA) Type pneumatic actuators are rack & pinion design, available in both double acting and spring return types. New design actuators are equipped as standard with both opening and closing travel adjustment bolts. In addition the state of the art technology of PA Type actuators reduced the size while generating higher torque output values.



Multiple Choice of Colors



Marking of Actuators

Actuators are carrying a detailed label for size and pressure data etc.



Technical Specifications

1. Indicator

Position indicator with NAMUR is convenient for mounting accessories such as limit switch box, positioner and so on.

2. Pinion

The pinion is high-precision and integrative, made from nickelled-alloy steel, fully conform to the latest standards of ISO5211, DIN3337, NAMUR. The dimensions can be customized and the stainless steel material is available.

3. Actuator Body

According to the different requirements, the extruded aluminum alloy ASTM6005. Body is treated as hard anodized, alternative can be Epoxy PTFE or Nickel plated for very aggressive environments.

4. End Caps

Die casting aluminum powder polyester Epoxy coated or PTFE/Nickel plated for very aggressive environments

5. Pistons

The twin rack pistons are made from die-casting aluminum. Symmetric mounting position long cycle life and fast operation reversing rotation by simply inverting pistons

6. Travel Adjustment

The two independent external travel stop adjustment bolts can adjust ± 5° at both opening and closing directions easily and precisely. 0-90° full scale limit position adjustment is also available optionally.

7. High Performance Springs

Pre-loaded coating springs are made from the high quality material for resistant to corrosion and longer cycle life, which can be dismantled safely and conventionally to satisfy different requirements of torque by changing quantity of springs.

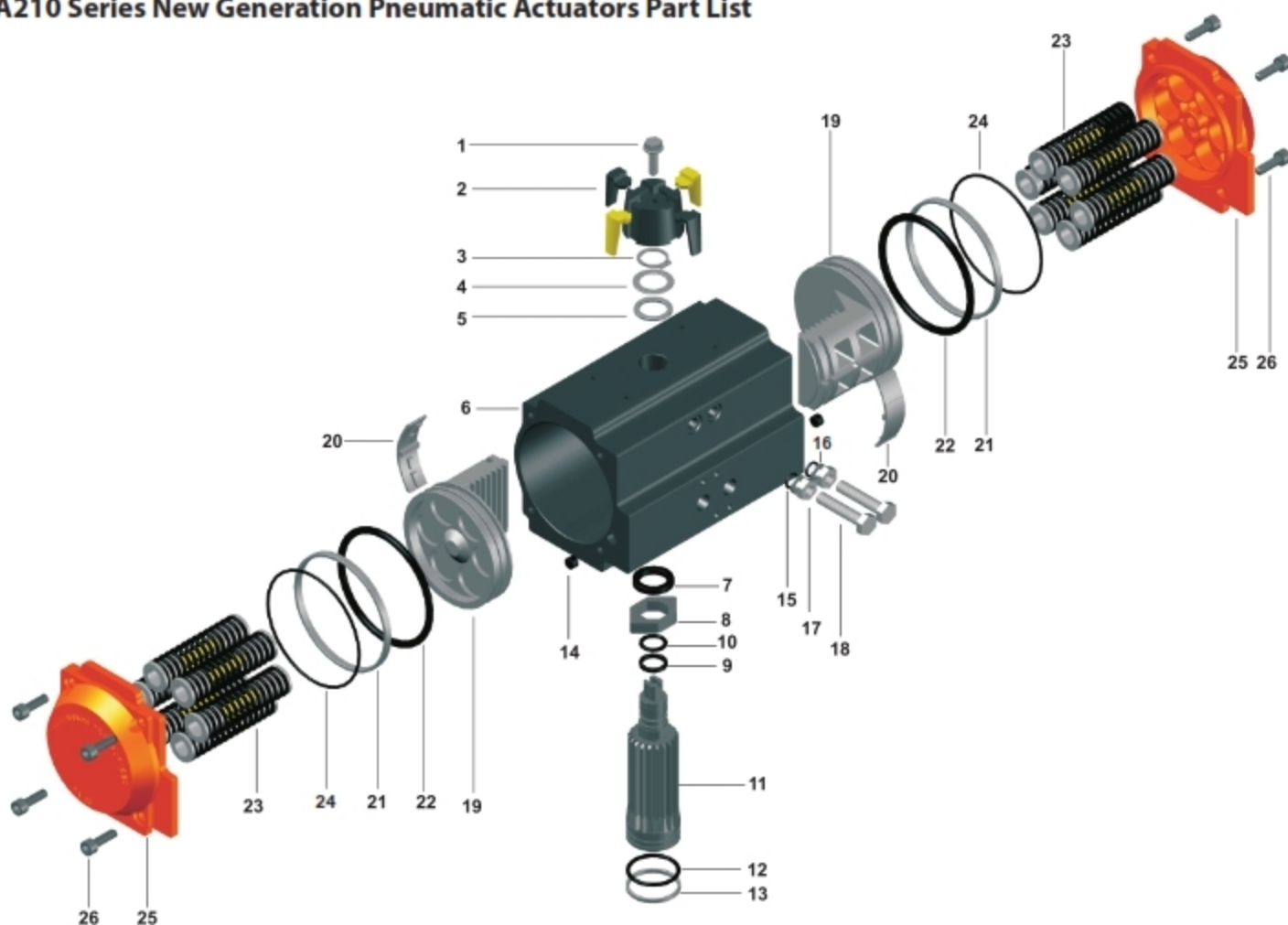
8. Bearings & Guides

Made from low friction, long-life compound material, to avoid the direct contact between metals. The maintenance and replacement are easy and convenient.

9. O-Rings

NBR rubber O-rings provide trouble-free operation at standard temperature ranges. For high and low temperature applications Viton and Silicone seals are available optionally.

A210 Series New Generation Pneumatic Actuators Part List

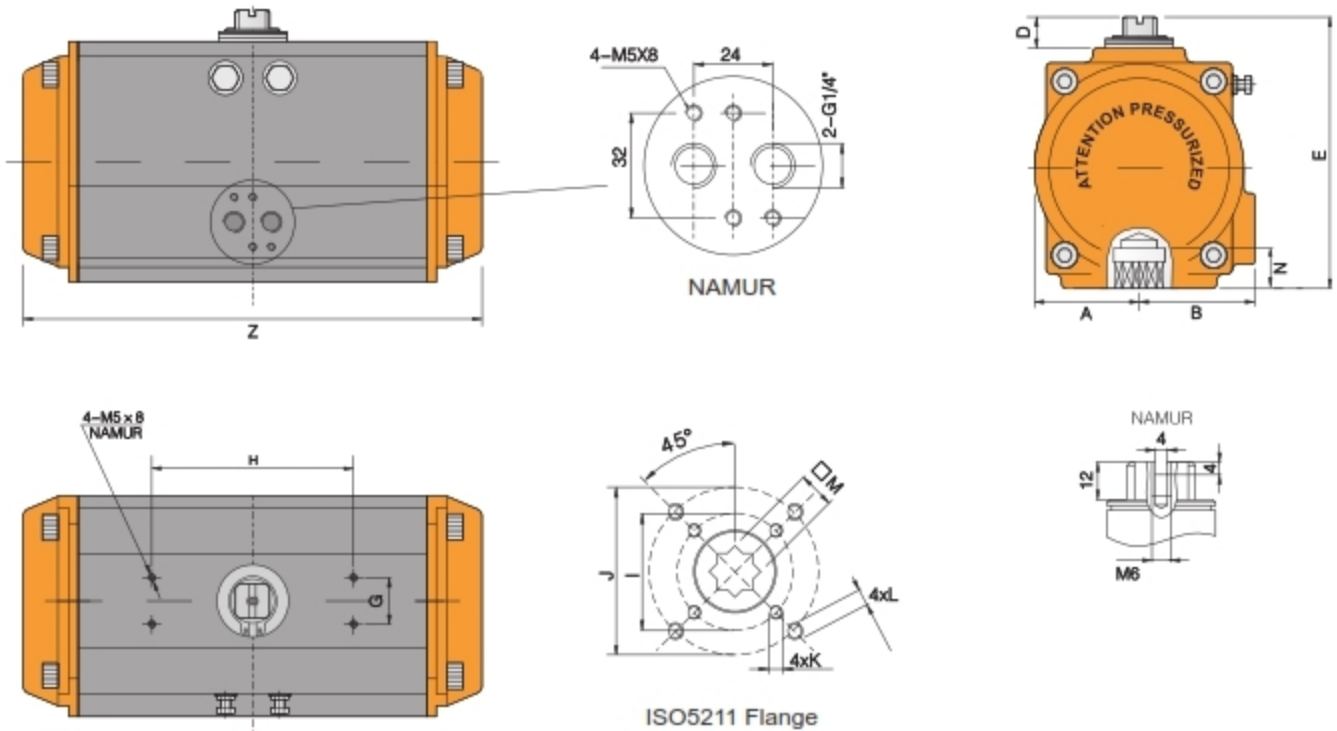


No.	Description	Qty	Standard Material	Protection	Optional Material
1	Indicator Screw	1	Carbon Steel	Galvanizing	
2	Indicator	1	Plastic		
3	Circlip	1	Stainless Steel		
4	Metal Washer	1	Stainless Steel		
5	Washer	1	Engineering Plastics		
6	Body	1	Extruded aluminum alloy	Hard anodizing	Stainless Steel
7	Inner Washer	1	Engineering Plastics		
8	Cam	1	Alloy Steel		
9	Pinion Upper Bearing	1	Engineering Plastics		Viton/Silicone
10	Pinion Upper O-Ring	1	NBR		
11	Pinion	1	Alloy steel	Nickel plated	Stainless Steel
12	Pinion Lower O-Ring	1	NBR		
13	Pinion Lower Bearing	1	Engineering Plastics		
14	Sealant	2	NBR		Viton/Silicone
15	Adjustment Screw O-Ring	2	NBR		Viton/Silicone
16	Washer (Adjustment Screw)	2	Stainless Steel		
17	Nut (Adjustment Screw)	2	Stainless Steel		
18	Limit Adjustment Screw	2	Stainless Steel		
19	Piston	2	Cast Aluminum/casting		Stainless Steel
20	Slide Piston	2	Engineering Plastics		
21	Slide Guide	2	Engineering Plastics		
22	Piston O-Ring	2	NBR		Viton/Silicone
23	Cardridge Springs	0~12	Spring Steel	Cataphoresis coating	
24	End Cap O-Ring	2	NBR		Viton/Silicone
25	End Cap	2	Cast Aluminum	powder polyester painted ect	Stainless Steel
26	Cap Screw	8	Stainless Steel		



A210 New Generation Pneumatic Actuators Dimensions and Weight Information

Dimensions



Dimensions (mm)

Model	A	B	D	E	G	H	I	J	K	L	M	N	Z	Air Supply
PA 40	40	36	20	81	30	80	Ø36	Ø50	M5x8	M6x10	9-11	14	121	NAMUR G1/4"
PA 52	30	41,5	20	92	30	80	Ø36	Ø50	M5x8	M6x10	9-11	14	147	NAMUR G1/4"
PA 63	36	47	20	107,5	30	80	Ø50	Ø70	M6x10	M8x13	9-11-14	18	168	NAMUR G1/4"
PA 75	42	53	20	119,5	30	80	Ø50	Ø70	M6x10	M8x13	11-14	18	184	NAMUR G1/4"
PA 83	46	57	20	128,7	30	80	Ø50	Ø70	M6x10	M8x13	14-17	21	204	NAMUR G1/4"
PA 92	50	58,5	20	136,8	30	80	Ø50	Ø70	M6x10	M8x13	14-17	21	262	NAMUR G1/4"
PA 105	57,5	64	20	153	30	80	Ø70	Ø102	M8x13	M10x16	17-22	26	268	NAMUR G1/4"
PA 125	67,5	74,5	20	175	30	80	Ø70	Ø102	M8x13	M10x16	22	26	296	NAMUR G1/4"
PA 140	75	77	20	191,5	30	80	Ø102	Ø125	M10x16	M12x20	27	31	390	NAMUR G1/4"
PA 160	87	87	20	217	30	80	Ø102	Ø125	M10x16	M12x20	27	31	454	NAMUR G1/4"
PA 190	103	103	30	260	30	130		Ø140		M16x25	36	40	525	NAMUR G1/4"
PA 210	113	113	30	285	30	130		Ø140		M16x25	36	40	532	NAMUR G1/4"
PA 240	130	130	30	318	30	130		Ø165		M20x25	46	50	610	NAMUR G1/4"
PA 270	147	147	30	356	30	130		Ø165		M20x25	46	50	722	NAMUR G1/2" NAMUR G1/4"

Actuator Weights (Kg/Pc)

Model	PA 40	PA 52	PA 63	PA 75	PA 83	PA 92	PA 105	PA 125	PA 140	PA 160	PA 190	PA 210	PA 240	PA 270
Spring Return	-	1,5	2,2	2,9	3,6	5,5	6,7	10,4	14,4	23,3	46,1	53,2	73,3	115,9
Double Acting	0,7	1,4	2,1	2,7	3,3	5,0	5,9	9,0	12,0	19,0	39,1	44,1	59,0	93,6

Air Consumption of Actuators (Lt/Stroke)

Model	PA 40	PA 52	PA 63	PA 75	PA 83	PA 92	PA 105	PA 125	PA 140	PA 160	PA 190	PA 210	PA 240	PA 270
Opening (Lt)	0,06	0,12	0,21	0,30	0,43	0,64	0,95	1,6	2,5	3,7	5,9	7,5	11,0	17,0
Closing (Lt)	0,08	0,16	0,23	0,34	0,47	0,73	0,88	1,4	2,2	3,2	5,4	6,8	9,0	14,0

Notes : Air consumption for spring return actuators has to be calculated only for opening while closing will be by means of spring force.



Working Principle of Double Acting Actuators

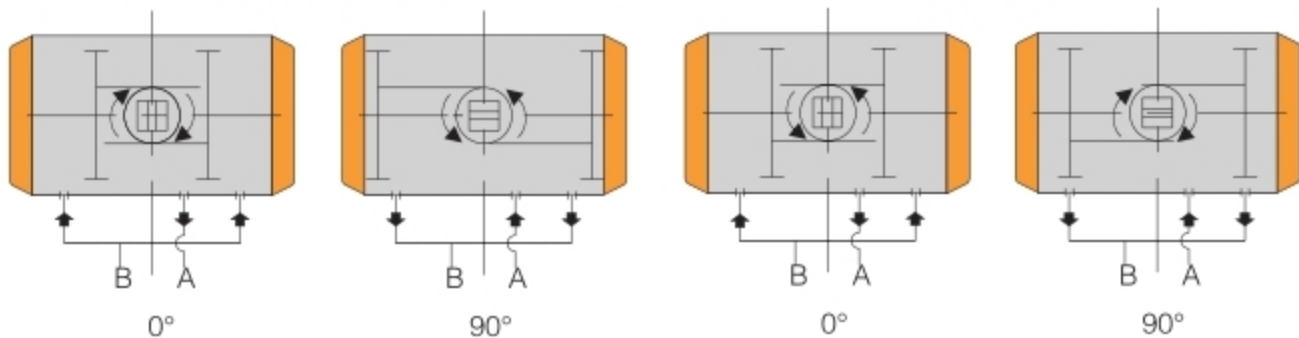
Double acting actuators are rotating by supplying air to desired position of operation. For rotating the actuator opposite side its necessary to supply air the opposite side.

Counter Clockwise Rotation (CCW) : Air to Port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port B. Air to Port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from Port A.

Clockwise Rotation (CW) : Air to Port A forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from Port B. Air to Port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port A.

Counter Clockwise Rotation (CCW)

Clockwise Rotation (CW)



Double Acting Actuators Torque Output Values (Nm)

Model	Air Supply Pressure (bar)									
	2	2,5	3	4	4,5	5	5,5	6	7	8
PA 40DA	6,0	7,6	9,1	12,1	13,6	15,1	16,6	18,1	21,1	24,2
PA 52DA	8,0	10,0	12,0	16,0	18,0	20,0	21,9	23,9	27,9	31,9
PA 63DA	14,6	18,2	21,9	29,2	32,8	36,5	40,1	43,8	51,1	58,4
PA 75DA	20,1	25,1	30,1	40,1	45,1	50,2	55,2	60,2	70,2	80,3
PA 83DA	31,4	39,2	47,0	62,7	70,5	78,4	86,2	94,1	109,7	125,4
PA 92DA	45,1	56,4	67,7	90,3	101,6	112,9	124,1	135,4	158,0	180,6
PA 105DA	66,1	82,7	99,2	132,2	148,8	165,3	181,8	198,4	231,4	264,5
PA 125DA	100,3	125,4	150,5	200,6	225,7	250,8	275,9	301,0	351,1	401,3
PA 140DA	171	213,8	256,5	342,0	384,8	427,5	470,3	513,0	598,5	684,0
PA 160DA	266,0	332,5	399,0	532,0	598,5	665,0	731,5	798,0	931,0	1064,0
PA 190DA	425,6	532,0	638,4	851,2	957,6	1064,0	1170,4	1276,8	1489,6	1702,4
PA 210DA	532,0	665,0	798,0	1064,0	1197,0	1330,0	1463,0	1596,0	1862,0	2128,0
PA 240DA	769,5	961,9	1154,3	1539,0	1731,4	1923,8	2116,1	2308,5	2693,0	3078,0
PA 270DA	1169,0	1462,0	1754,5	2339,3	2631,7	2924,1	3216,5	3508,9	4093,7	4678,6



Working Principle of Single Acting Actuators

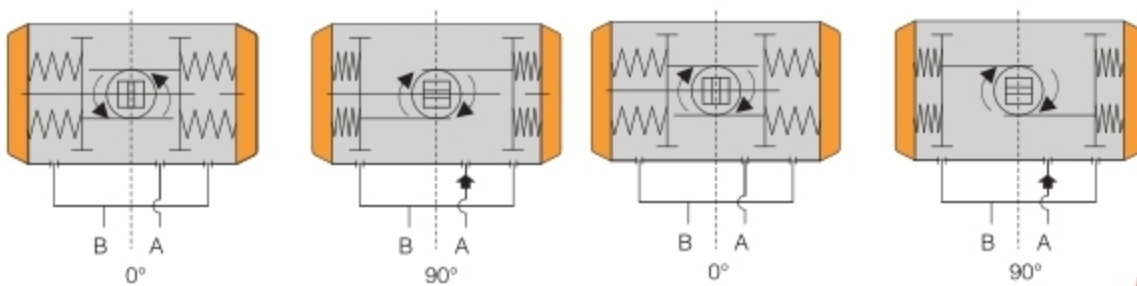
Spring return (single acting) actuators are rotating one side by air compression into actuators while the return is automatically performed by means of springs.

Counter Clockwise Rotation (CCW) : Air to port A forces the pistons outwards, causing the springs to compress, The pinion turns counterclockwise while air is being exhausted from port B. Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.

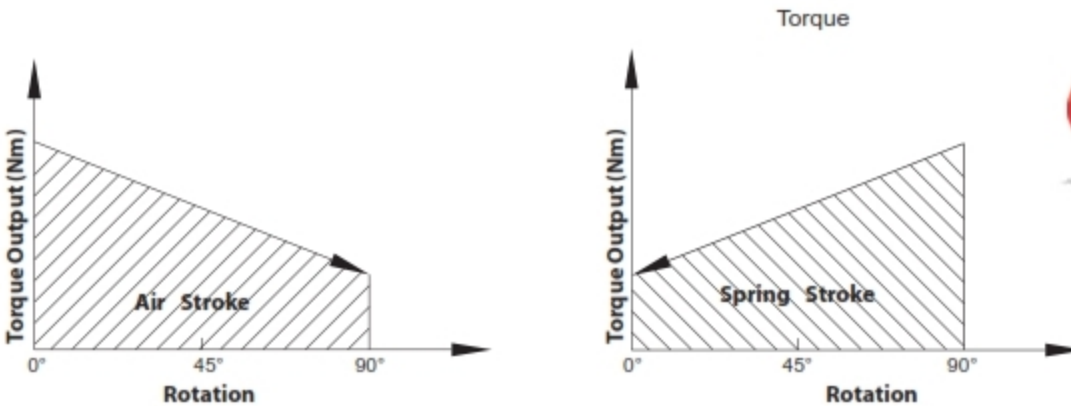
Clockwise Rotation (CW) : Air to port A forces the pistons outwards, causing the springs to compress, The pinion turns clockwise while air is being exhausted from port B. Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns counterclockwise while air is being exhausted from port A.

Clockwise Rotation (CW)

Counter Clockwise Rotation (CCW)

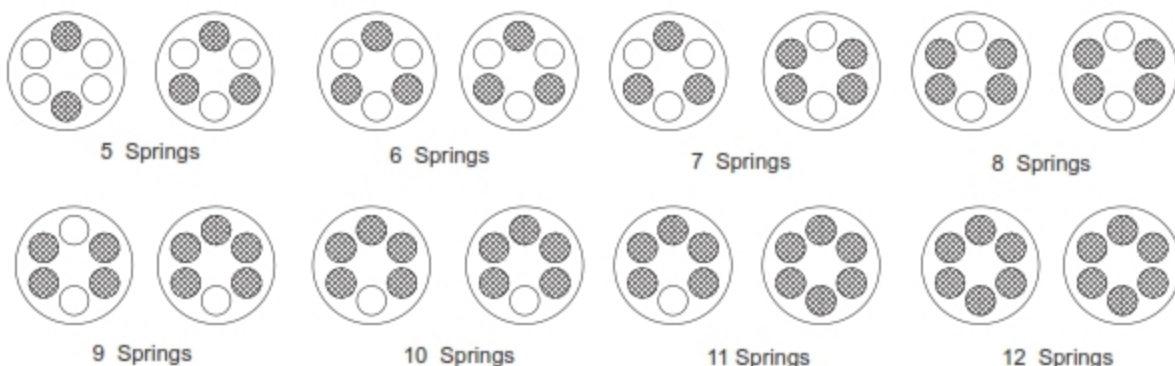


Torque Graphic of Spring Return Actuators



Positioning of Springs on Actuators

Springs should be positioned as below,



Single Acting Actuators Torque Output Values (Nm)

OUTPUT TORQUES OF SPRING RETURN ACTUATORS (Nm)																	
Air Supply		Air to Springs Torque Output Values (Nm)														Spring Torque (Nm)	
Model	Nr Of Springs	2.5Bar		3Bar		4Bar		5Bar		6Bar		7Bar		8Bar		90°	0°
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°		
		Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop
PA 52SR	5	5.7	3.8	7.6	5.7											6.2	4.3
	6	4.9	2.5	6.9	4.5	10.9	8.5									7.4	5.0
	7	4.0	1.3	6.0	3.3	9.8	7.3	14.0	10.4							8.6	5.9
	8			5.2	2.0	9.2	6.0	13.2	9.1	17.2	14.1					9.9	6.7
	9			4.3	0.8	8.3	4.8	12.3	7.9	16.3	12.8	20.3	16.8			11.1	7.6
	10					7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6			12.4	8.5
	11					6.6	2.3	10.6	5.4	14.6	10.4	18.6	14.3	22.6	18.3	13.6	9.3
	12							9.7	4.2	13.8	9.1	17.8	12.2	21.8	17.1	14.8	10.2
PA 63SR	5	11.4	7.7	15.0	11.4	22.3	14.9									10.4	6.8
	6	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9							12.5	8.2
	7	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9							14.6	9.6
	8			10.9	5.1	18.2	12.4	25.5	19.8	32.8	27.0	40.1	34.3			16.7	10.9
	9					16.8	10.4	24.1	17.7	31.4	24.9	38.7	32.2			18.8	12.3
	10					1.4	8.2	22.8	15.6	30.0	22.8	37.3	30.1	44.7	37.4	20.9	13.7
	11							21.5	13.5	28.7	20.7	36.0	28.0	43.3	35.3	22.9	15.0
	12							20.0	11.4	27.3	18.6	34.6	25.9	41.9	33.3	25.0	16.4
PA 75SR	5	14.5	10.6	19.4	15.5	29.5	25.7									14.5	10.5
	6	12.4	7.6	17.3	12.6	27.4	22.7	37.5	32.8							17.4	12.7
	7	10.4	4.8	15.2	9.7	25.3	19.9	35.4	29.9							20.3	14.8
	8			13.1	6.8	23.1	16.9	33.3	27.0	43.2	37.0	53.3	47.0			23.2	16.9
	9					21.0	14.1	31.2	24.1	41.1	34.1	51.2	44.2			26.1	19.0
	10					19.0	11.1	28.8	21.2	39.0	31.2	49.1	41.2	59.1	51.2	29.0	21.1
	11							27.0	18.3	37.0	28.3	47.0	38.4	57.0	48.4	31.9	23.2
	12							24.9	15.4	34.9	25.4	44.9	35.4	54.9	45.4	34.7	25.3
PA 83SR	5	23.3	16.1	31.1	24.0	46.8	39.7									23.0	15.8
	6	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7							27.6	19.0
	7	17.0	6.9	24.8	14.8	40.5	30.5	56.2	46.2							32.2	22.1
	8			21.7	10.1	37.4	25.8	53.1	41.5	68.8	57.2	84.5	72.9			36.8	25.3
	9					34.2	21.3	49.9	37.0	65.6	52.6	81.2	68.3			41.4	28.5
	10					31.0	16.6	46.7	32.3	62.4	48.0	78.1	63.7	93.8	79.3	46.0	31.6
	11							43.6	27.7	59.3	43.4	75.0	59.1	90.6	74.8	50.6	34.8
	12							40.4	23.2	56.1	38.9	71.7	54.5	87.4	70.2	55.2	38.0
PA 92SR	5	33.1	22.0	44.2	33.2	66.8	55.9									34.4	23.3
	6	28.4	15.2	39.6	26.4	62.2	49.0	84.8	71.6							41.2	28.0
	7	23.8	8.2	34.9	19.4	57.5	42.1	80.2	64.7							48.1	32.7
	8			31.3	12.6	52.9	35.2	75.5	57.9	98.1	80.5	120.7	103.0			55.0	37.3
	9					48.2	28.4	70.9	51.0	93.5	73.6	116.0	96.1			61.9	42.0
	10					43.6	21.5	66.2	44.1	88.8	66.7	111.3	89.2	134.0	111.8	68.7	46.7
	11							61.5	37.2	84.1	59.9	106.6	82.4	129.2	105.0	75.6	51.4
	12							56.8	30.4	79.4	53.0	101.9	75.5	124.5	98.1	82.5	56.0
PA 105SR	5	51.0	33.4	67.5	49.9	100.6	83.0									49.2	31.6
	6	44.7	23.5	61.1	40.0	94.2	73.2	127.3	106.2							59.1	38.0
	7	38.4	13.7	54.9	30.3	87.9	63.4	121.0	96.4							68.9	44.3
	8			48.5	20.4	81.6	53.5	114.7	86.5	147.7	119.6	180.8	152.7			78.7	50.6
	9					75.3	43.7	108.4	76.8	141.5	109.8	174.5	142.9			88.6	56.9
	10					68.9	33.4	102.0	66.5	135.1	99.6	168.2	132.6	201.2	165.7	98.4	63.3
	11							95.7	57.0	128.7	90.1	161.8	123.1	194.8	156.2	108.3	69.6
	12							89.4	47.5	122.5	80.6	155.5	113.6	188.6	146.7	118.1	75.9



Single Acting Actuators Torque Output Values (Nm)

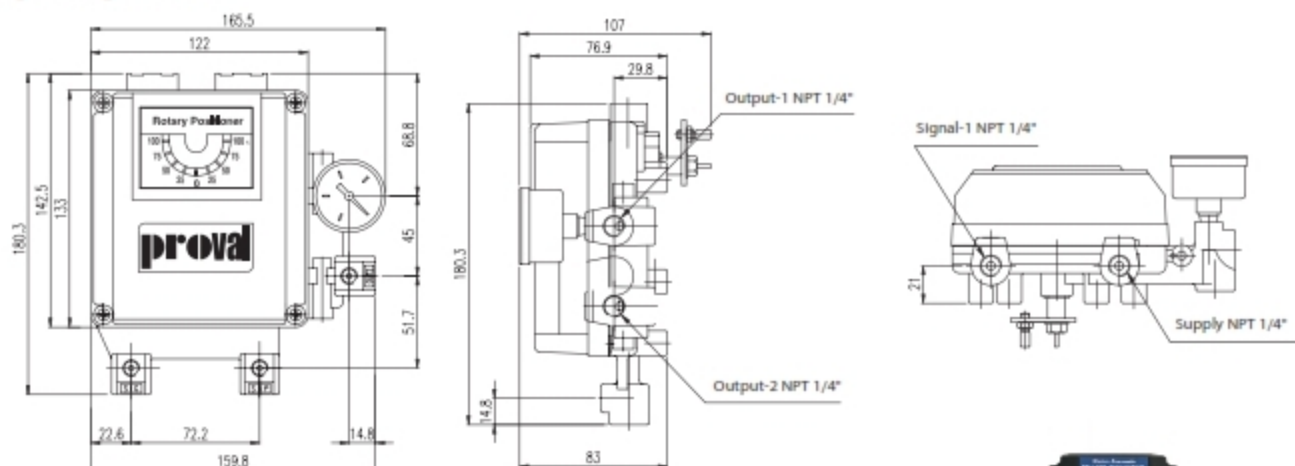
OUTPUT TORQUES OF SPRING RETURN ACTUATORS (Nm)																	
Air Supply		Air to Spring Torque Output Values (Nm)														Spring Torque (Nm)	
Model	Nr Of Springs	2.5Bar		3Bar		4Bar		5Bar		6Bar		7Bar		8Bar		90°	0°
		0° Start	90° Stop	0° Start	90° Stop	0° Start	90° Stop	0° Start	90° Stop	0° Start	90° Stop	0° Start	90° Stop	0° Start	90° Stop	Start	Stop
PA 125SR	5	73	47	98	72	148	122									79	52
	6	63	31	88	56	138	107	188	157							94	63
	7	52	15	77	40	127	90	178	141							110	73
	8			67	25	117	75	167	125	217	176	268	226			125	84
	9					107	59	157	109	207	159	257	210			141	94
	10					96	44	146	94	196	144	247	194	297	245	157	105
	11							136	78	186	128	236	178	286	228	173	115
	12							125	63	176	113	226	163	276	213	188	125
PA 140SR	5	128	85	171	127	256	213									129	86
	6	111	59	154	102	239	187	325	273							155	103
	7	94	33	137	76	222	162	308	247							181	120
	8			120	50	205	136	291	221	376	307	462	392			206	137
	9					187	110	273	196	358	281	444	367			232	155
	10					170	84	256	169	341	255	427	340	512	426	258	172
	11							238	143	324	229	409	314	495	400	284	189
	12							221	118	307	203	392	289	478	374	310	206
PA 160SR	5	193	124	259	191	392	324									208	140
	6	165	83	232	149	365	282	498	415							250	168
	7	137	41	203	107	336	240	469	373							292	196
	8			176	66	309	199	442	237	575	465	708	598			333	223
	9					280	157	413	290	546	423	679	556			375	251
	10					253	115	386	248	519	381	652	514	785	647	417	279
	11							358	207	491	340	624	473	757	606	458	307
	12							330	165	463	298	596	431	729	564	500	335
PA 190SR	5	332	222	438	329	651	542									309	200
	6	292	161	398	267	611	480	824	693							371	240
	7	252	99	358	205	571	418	784	631							433	280
	8			318	143	531	356	744	569	957	782	1169	995			495	320
	9					491	295	704	507	917	720	1130	933			557	360
	10					451	233	664	446	877	658	1090	871	1302	1084	618	400
	11							624	384	837	597	1050	809	1263	1022	680	440
	12							584	322	797	535	1010	748	1223	960	742	480
PA 210SR	5	390	285	523	418	789	684									380	275
	6	335	209	468	342	734	608	1000	874							456	330
	7	280	133	413	266	679	532	945	798							532	385
	8			358	190	624	456	890	722	1156	988	1422	1254			608	440
	9					569	380	835	646	1101	912	1367	1178			684	495
	10					514	304	780	570	1046	836	1312	1102	1578	1368	760	550
	11							725	494	991	760	1257	1026	1523	1292	836	605
	12							670	418	936	684	1202	950	1468	1216	912	660
PA 240SR	5	552	409	744	600	1129	985									554	410
	6	470	297	662	489	1047	874	1432	1259							665	492
	7	388	187	580	379	964	764	1349	1149							775	575
	8			498	268	883	653	1267	1037	1652	1422	2037	1807			886	656
	9					800	542	1185	926	1569	1311	1954	1696			998	739
	10					718	431	1103	816	1488	1201	1872	1586	2257	1970	1108	821
	11							1021	705	1406	1090	1791	1474	2176	1859	1219	903
	12							939	594	1323	979	1708	1363	2093	1748	1330	985
PA 270SR	5	903	675	1195	968	1779	1552									787	560
	6	790	519	1083	811	1667	1396	2252	1981							943	672
	7	679	361	972	654	1556	1238	2141	1823							1101	783
	8			860	497	1444	1081	2029	1666	2614	2252	3199	2836			1258	895
	9					1332	923	1917	1509	2502	2094	3087	2678			1416	1007
	10					1220	767	1805	1352	2390	1937	2974	2521	3560	3107	1572	1119
	11							1693	1194	2278	1779	2862	2364	3448	2949	1730	1231
	12							1582	1037	2167	1623	2751	2207	3336	2792	1887	1342

A230 Pneumatic / Electropneumatic Positioners

Proval positioners are used for modulating service of rotary pneumatic actuators. They can be applied on a rotary actuator to control a butterfly, ball, plug valve or a damper.

Positioners are available as, pneumatic, electro-pneumatic or smart (digital) type depending on customers process requirements.

A230 PRP Pneumatic Positioners (P/P) : Pneumatic positioners are working with 3-15 PSI air signal and can be applied both on double and single acting actuators.

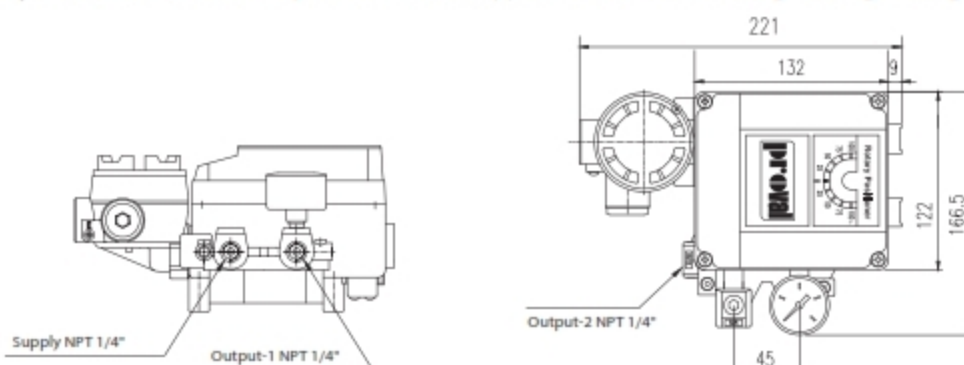


Description	Proval Brand, A230 PRP Series P/P Positioners
Type	Rotary Tip (90° Part Turn)
Body Material	Powder Epoxy Coated Aluminum Die Casting
Input Signal	3-15 PSI
Output Signal	Optionally DC 4/20 mA or 0-1 kOhm
Explosion Proof	Ex dm IIB
Air Consumption	3 lt/min
Working Temp.	-20° C / +70° C
Flow Capacity	80 lt/min

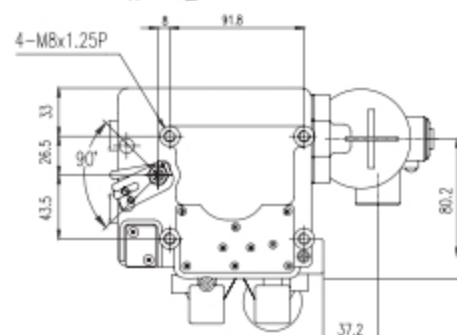


A230 PRE

A230 PRE Electro-Pneumatic Positioners (E/P) : E/P Positioners are working with DC 4-20 mA or 0-10 Volt input signal and generate modulating control on rotary or linear valves. A230 PRE positioners can be applied on both double acting and single acting actuators.



Description	Proval Brand, A230 Series Pneumatic Positioners
Type	Rotary Type (90° Part Turn)
Body Material	Powder Epoxy Coated Aluminum Die Casting
Input Signal	DC 4/20 mA
Output Signal	Optionally DC 4/20 mA or 0-1 kOhm
Explosion Proof	Ex dm IIB
Air Consumption	3 lt/min
Working Temp.	-20° C / +70° C
Flow Capacity	80 lt/min





A240 NAMUR Type 3/2 - 5/2 Convertible Solenoid Valves

Proval A240 type solenoid valves are designed for direct assembly on rotary type NAMUR interface pneumatic valve actuators.

Technical Specifications,

- * Direct mounting on NAMUR interface actuators
- * Easy convertible between 3/2 and 5/2 way (DA or SR) by replacing the o-ring position
- * Lockable manual operator
- * Standard IP65 enclosure single coil (spring return)

Optional Specifications,

- * Dual coil construction
- * Ex m II T5 explosion proof coil

Technical Specifications

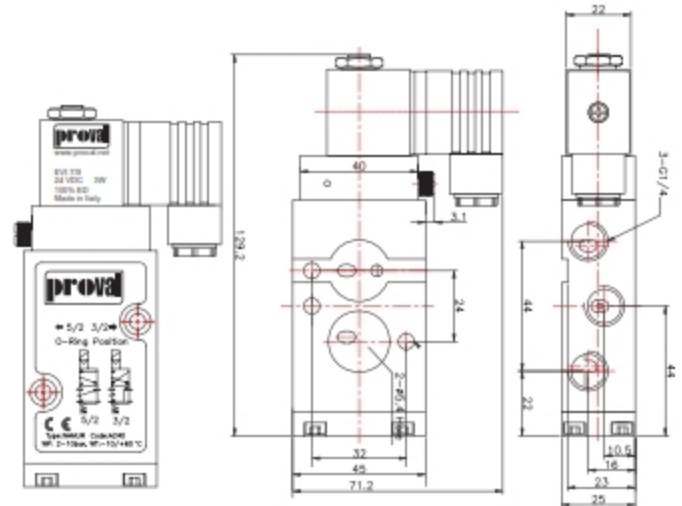
Power Supply	12 VDC	24 VDC	24 VAC	110 VAC	220 VAC
Power Consumption	3W	3W	5VA	5VA	5VA
Air Supply	G 1/4"				
Working Pressure	2 - 10 bar				
Protection Class	IP65 (Optional Ex m II T5 ATEX)				
Working Temperature	-10 °C ~ + 70 °C				
Flow Capacity	720 Lt/min				

Accessories for Solenoid Valves

Model	Description
A240PB	9mm Coil, IP65
A240PBX	9mm Coil, Exproof "m" Class
A240SP	Standard Socket
A240SPL	Socket with LED



NAMUR Type Solenoid Valves



A240 PBX



A240 PB

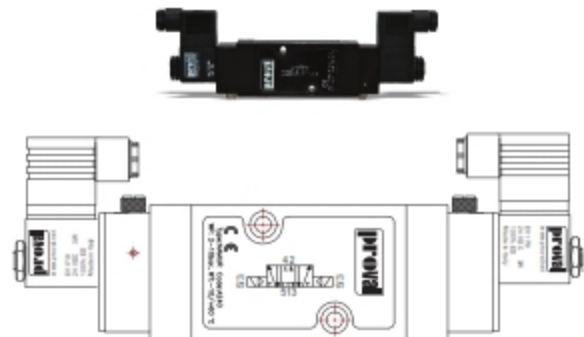
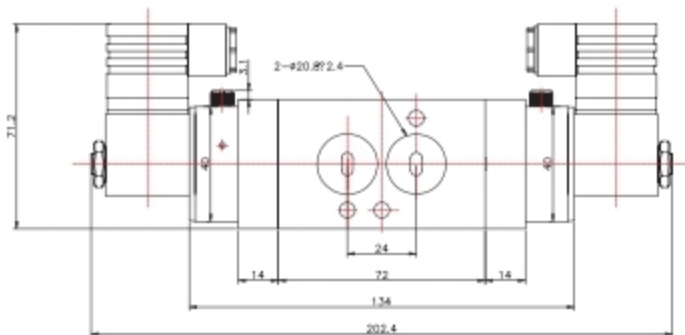


A240 SPL

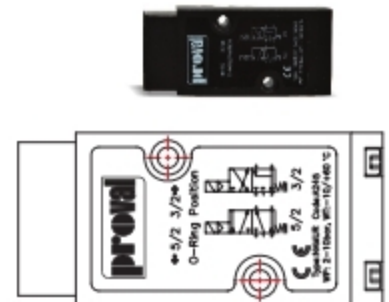
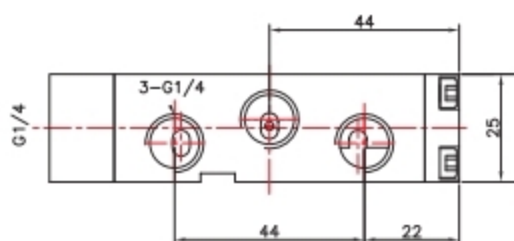
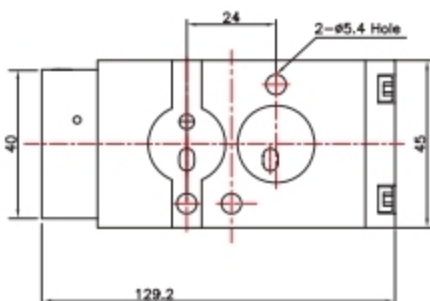


A240 SP

A244 NAMUR Type 5/3 Dual Coil Solenoid Valves



A245 NAMUR Type Air Pilot Operated Solenoid Valves



A241 (3/2) / A242 (5/2) Type Solenoid Valves

Proval A241 and A242 Series air solenoid valves can be used single or assembled on a rack from 2 to 10 pcs.

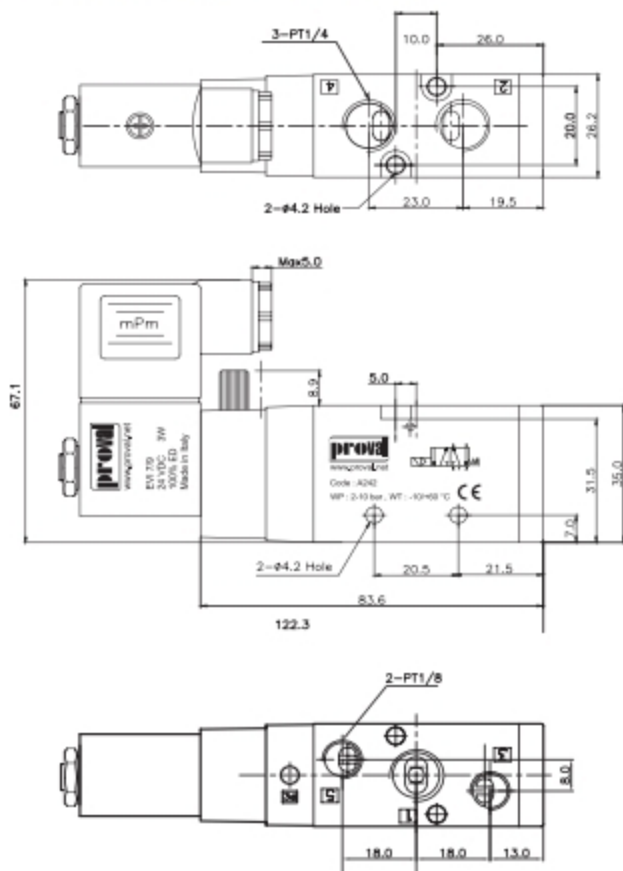


Single Coil Solenoid Valves

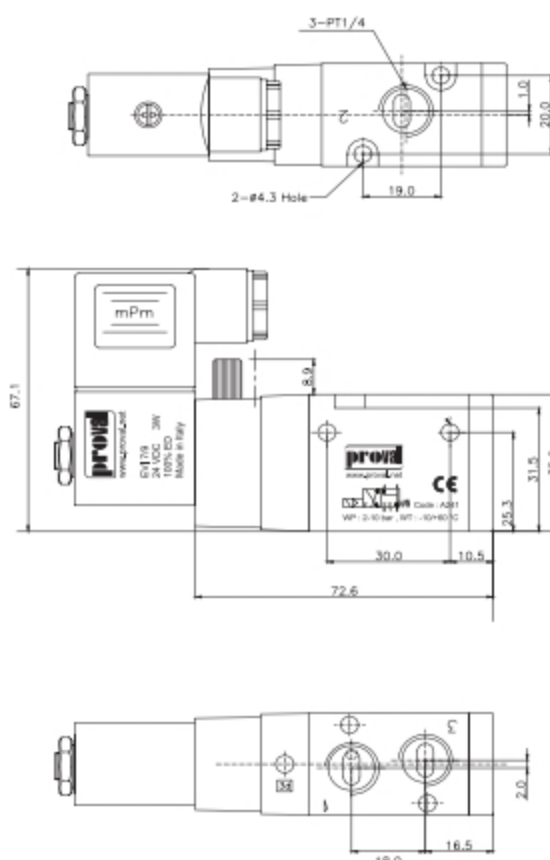


Dual Coil Solenoid Valves

A242 (5/2) Type Solenoid Valves



A241 (3/2) Type Solenoid Valves



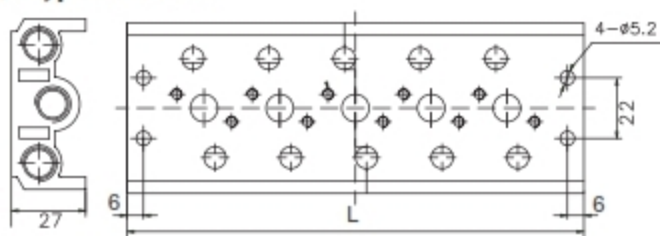
Material List

Part Name	Material
Body	Hard Anodised Aluminum Extrusion
Piston	Aluminum Extrusion
Screw	AISI316 Stainless Steel
Spring	AISI316 Stainless Steel
Seal	NBR

Technical Specifications

Power Supply	12 VDC	24 VDC	24 VAC	110 VAC	220 VAC
Power Consumption	3W	3W	5VA	5VA	5VA
Air Supply	G 1/4"				
Working Pressure	2 - 10 bar				
Protection Class	IP65 (Optional) Eex m I T5 ATEX				
Working Temperature	-10 °C ~ +70 °C				
Flow Capacity	720 Lt/min				

5/2 Type Valve Rack



Nr. of Valves	2	3	4	5	6
L (mm)	56	84	111	139	166
Nr. of Valves	7	8	9	10	
L (mm)	194	211	249	276	



A250 Limit Switch Boxes

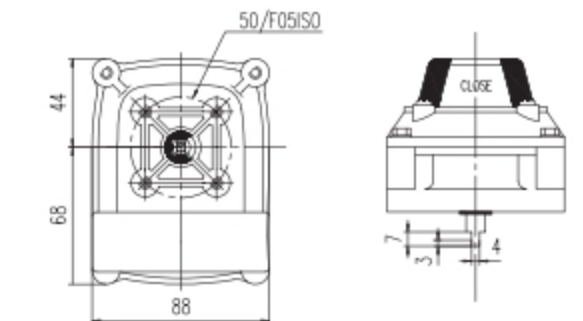
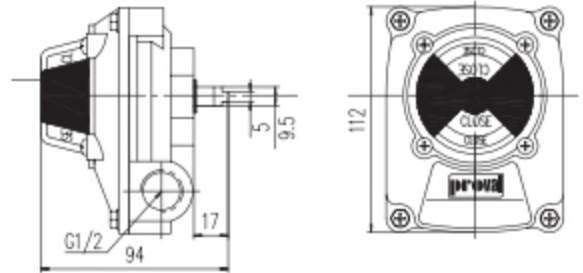
PROVAL A250 Series limit switch boxes are used on rotary valve actuators to generate open/close signal and monitor the valve position.

Technical Specifications,

- * 3D continuous visual position indicator
- * Easy adjustable spring forced CAM system
- * Standard IP67 enclosure
- * 2 pcs Open/Close mechanical or proximity switches
- * Easy adjustable brackets and suitable for all NAMUR VDI/VDE interface actuators
- * 8 strips on terminal box allows direct connection of solenoid valve inside the switch box.

Optional,

- * Exe d II B T6 Explosion Proof Type



Material List

Part Name	Material
Body	Powder Epoxy Coated Alu Die Cast
Indicator	Transparent Plastic
Bolt	AISI316 St. Steel
Stem	AISI316 St. Steel
Seal	EPDM

Type of Limit Switch Boxes	
Model	Description
A250 PSM	IP67, O/C 3D Indicator, Open/Close Mechanical Sw. Box
A250 PSP	IP67, O/C 3D Indicator, Open/Close Proximity Sw. Box
A250 PSXM	IP67, O/C 3D Indicator, Open/Close Exp. Proof Mechanical Sw. Box
A250 PSXP	IP67, O/C 3D Indicator, Open/Close Exp. Proof Proximity Sw. Box



A250 PSM-PSP
Standard Switch Boxes

Technical Specifications

Item Code	Protectin Class	Working Temperature	Cable Gland	Terminal	Indicator	Switch Type
A250 PSM	IP67	-20 °C ~ + 80 °C	2 x M20 / PG13.5	8 Strips	3 D 0 ~ 90° Open-Close	Mechanical Micro / V3 Switches
A250 PSP	IP67	-20 °C ~ + 80 °C	2 x M20 / PG13.5	8 Strips	3 D 0 ~ 90° Open-Close	Proximity PNP / NPN Switches

Bracket Dimensions

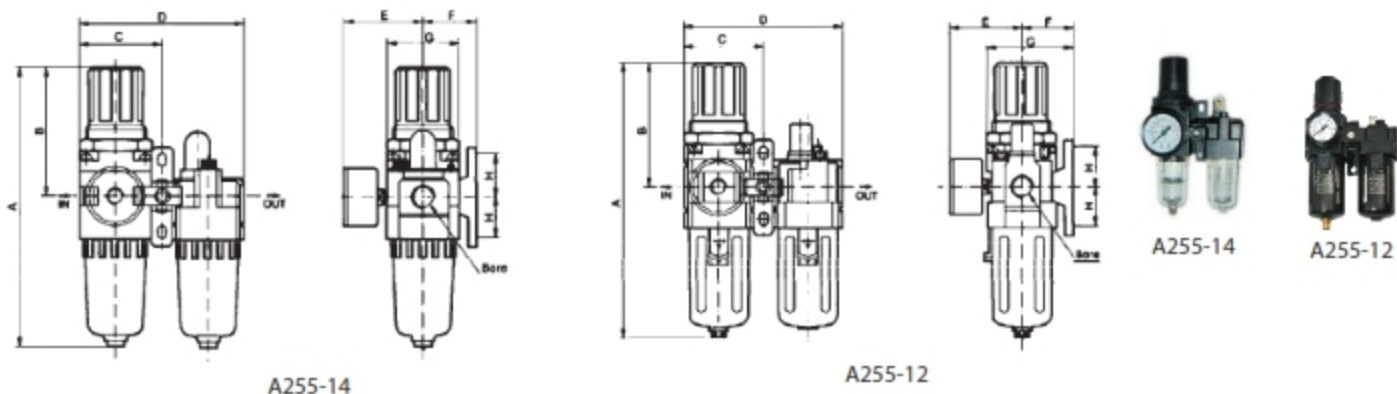
Model	Bracket Type	Mounting Dimensions
MB-1		30x80 H: 20
MB-2		30x80 - 30x130 H: 20-30 Adjustable
MB-3		30x80 - 30x130 H: 40-50 Adjustable



A250 PSXM-PSXP
Exe d II BT6 Explosion Proof
Limit Switch Boxes

A255 FRL Units

Proval A255 Series FRL units are used to filter, regulate and lubricate the pneumatic air.



Dimensions (mm)

Model	Inlet	A	B	C	D	E	F	G	H
A255-14	G1/4"	165	78	45	90	56.8	30	40	24
A255-12	G1/2"	262	112	77	154	70,5	41	70	40

Pneumatic Fittings, Hoses, Manual Override Gearboxes

Model	Description
A141-6	6 mm PU Hose (200 Mt/Roll)
A141-8	8 mm PU Hose (100 Mt/Roll)
A141-10	10 mm PU Hose (100 Mt/Roll)
A141-12	12 mm PU Hose (100 Mt/Roll)
A142-186	1/8" - 6mm Straight One Touch Fittings
A142-188	1/8" - 8mm Straight One Touch Fittings
A142-146	1/4" - 6mm Straight One Touch Fittings
A142-148	1/4" - 8mm Straight One Touch Fittings
A142-1410	1/4" - 10mm Straight One Touch Fittings
A142-1412	1/4" - 12mm Straight One Touch Fittings
A142-1210	1/2" - 10mm Straight One Touch Fittings
A142-1212	1/2" - 12mm Straight One Touch Fittings
A143-186	1/8" - 6mm Angle One Touch Fittings
A143-188	1/8" - 8mm Angle One Touch Fittings
A143-146	1/4" - 6mm Angle One Touch Fittings
A143-148	1/4" - 8mm Angle One Touch Fittings
A144-186	1/8" - 6mm Angle One Touch Fittings
A144-188	1/8" - 8mm Angle One Touch Fittings
A144-146	1/4" - 6mm Angle One Touch Fittings
A145-18	1/8" Silencers
A145-14	1/4" Silencers
A146-18	1/8" Speed Reducer with Silencer
A146-14	1/4" Speed Reducer with Silencer
A147-14	1/4" Air Valve
A148-XXXX	Square Reducers 9-11, 9-14, 11-14, 11-17, 14-17, 14-22, 17-22, 17-27, 22-27, 22-36, 27-36
A149-6	6mm Connection Fittings
A149-8	8mm Connection Fittings

Model	Description
A280 MOA-1	300 Nm Torque Output Manual Override Gearboxes
A280 MOA-2	550 Nm Torque Output Manual Override Gearboxes
A280 MOA-3	1200 Nm Torque Output Manual Override Gearboxes
A280 MOA-4	2000 Nm Torque Output Manual Override Gearboxes
A280 MOA-5	3600 Nm Torque Output Manual Override Gearboxes
A280 MOA-6	9000 Nm Torque Output Manual Override Gearboxes
A280 MOA-7	13000 Nm Torque Output Manual Override Gearboxes
A280 MOA-8	21000 Nm Torque Output Manual Override Gearboxes



A143



A142



A146



A144



A148



A149



A141



A147



A280



A145



A100 Quarter Turn Electric Actuators

Technical Specifications

Protection Class	IP67 (Optional IP68)
Power Supply	24 VDC, 110/220 VAC/1Ph/50/60/Hz, 380/440/VAC/3Ph/50/60/Hz $\pm 10\%$
Control Power Supply	110/220 VAC/3Ph/50/60/Hz $\pm 10\%$
Duty Cycle (On-Off)	S2: 10 Min ~ 30 Min / S4: 20~50%
Duty Cycle (Proportional)	S4, 30~50%, 300~1200 Start/Hour
Motor	Induction Motor
Limit Switch	2 Pcs Each Open/Close (SPDT 250VAC/10A) Switches (1 pc Wet and 1 Pc Dry for Each)
Torque Switch	1 Pc Each for Open/Close (SPDT 250VAC/10A) Switches (for Pro 160 and over sizes)
Stall Protection (Set Temp.)	Built In Thermal Protection, Open $150^{\circ} \text{C} \pm 5^{\circ} \text{C}$, Close $97^{\circ} \text{C} \pm 15^{\circ} \text{C}$
Travel Angle	90° ($0^{\circ} \sim 100^{\circ}$)
Position Indicator	Continuous Mechanical Indicator
Manual Override	Declutchable Manual Override for PRO100 and Over Sizes, Key Operator for 20/40/80
Self Locking	Provided by Double Worm Gearing
Mechanical Stopper	1 Each, External Adjustable for Open and Close Travels
Heater	Anticondensation Heater 5W (110/220 VAC)
Cable Glands	2 - PF 3/4" (1/2" for PRO 40 / 80 / 80 sizes)
Lubrication	EP Type Grease
Terminal Block	Screw and Lever Push Type
Ambient Temperature	Standart Actuators : $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$ Proportional Actuators: $-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$
Ambient Humidity	90%RH Max (Non Condensing)
Anti Vibration	XYZ 10g, 02~34Hz, 30 Min.
External Coating	Dry Powder Polyester Coating



PRO 160
Electrical Actuator



Elc. Actuator Operated
Butterfly Valve

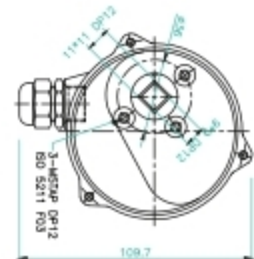
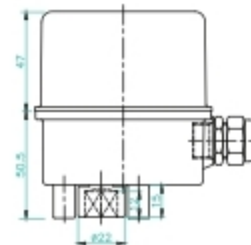


Electric Actuator With
Local Control Unit

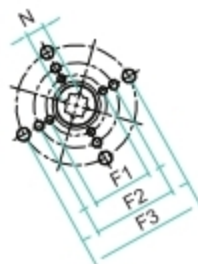
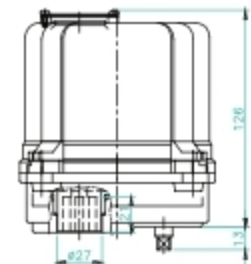
Optional Accessories

Explosion Proof Type (Ex d B IIT4)
IP68 Protection Class (10 mt. Head 100 Hours)
Auxiliary Limit Switches (Max 2 Pcs for Each End)
Potentiometer (1 K Ohm)
RPC - 4-20 mA Remote Proportional Control Unit
Auxiliary Torque Switches (Max 2 Pcs for Each End)
Local Control Unit
4-20 mA Position Transmitter
Fail-Safe Battery Back-Up

PRO 020 Dimensions



PRO 040 Dimensions

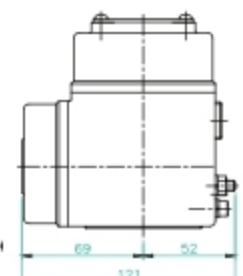
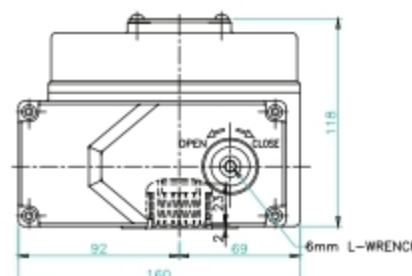


PRO 040 - PRO 080 Model Electric Actuators

Model	Pro 020	Pro 040	Pro 080
Torque	25 Nm	40 Nm	80 Nm
F1/F2/F3	F03	F03/F05/F7	F05/F7
N	11mm	14mm	17mm
O-C Time*	11 Seconds	14 Seconds	16 Seconds
Weight (Kg)	1 Kg	3 Kg	3,5 Kg

* O-C Time indicates the operating time for 90° degree rotation.

PRO 080 Dimensions



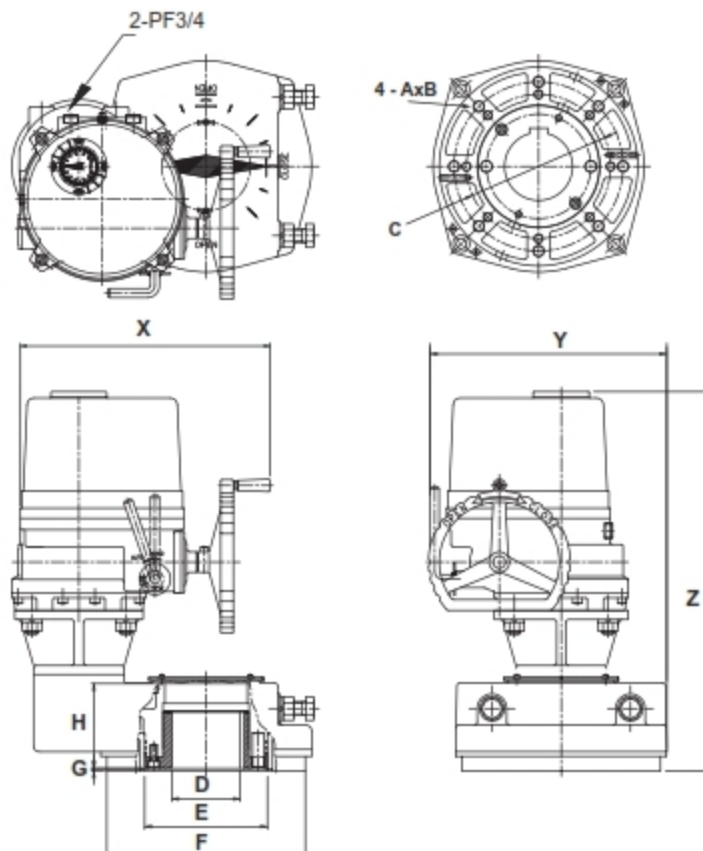
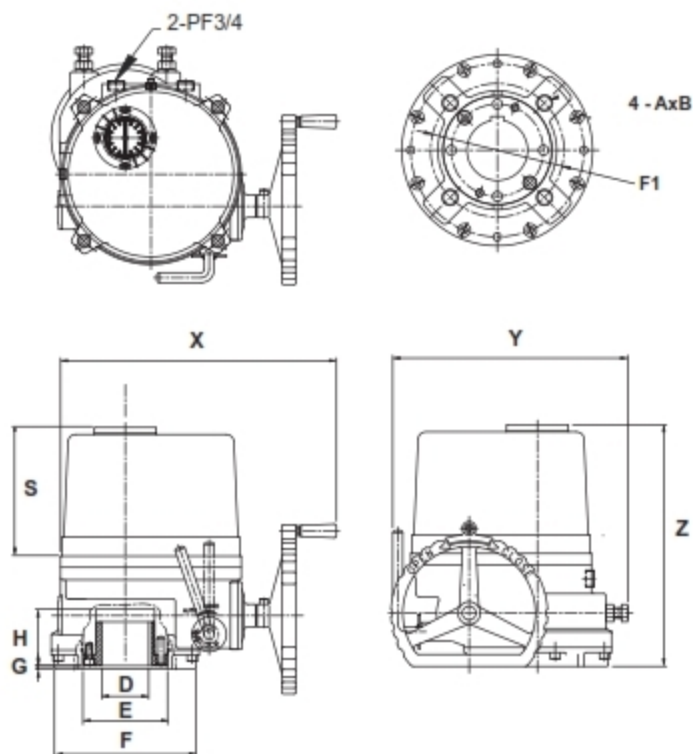
PRO100 - PRO9000 Model Electric Actuators

Model	Pro 0100	Pro 0160	Pro 0240	Pro 0350	Pro 0500	Pro 0800	Pro 1100	Pro 2000	Pro 3000	Pro 6000	Pro 9000
Torque	100 Nm	160 Nm	240 Nm	350 Nm	500 Nm	800 Nm	1100 Nm	2000 Nm	3000 Nm	6000 Nm	9000 Nm
ISO Flange	F07	F07-F10	F07-F10	F10-F12	F10-F12	F12-F14	F12-F14	F16	F16	F25-F30	F25-F30
C	Ø70	Ø70	Ø70	Ø102	Ø102	Ø125	Ø125	Ø165	Ø165	Ø254	Ø254
		Ø102	Ø102	Ø125	Ø125	Ø140	Ø140			Ø298	Ø298
A	M8	M8/M10	M8/M10	M10/M12	M10/M12	M12/M16	M12/M16	M20	M20	M20	M20
B	14	14/17	14/17	17/21	20/25	20/25	32	32	32	35	35
D (Key)	Ø22	Ø25	Ø25	Ø40	Ø40	Ø48	Ø48	Ø75	Ø75	Ø120	Ø120
D (Square)	□ 20	□ 23	□ 23	□ 34	□ 34	□ 40	□ 40	□ 64	□ 64	□ 84	□ 84
E	Ø50	Ø58.5	Ø80	Ø80	Ø95	Ø95	Ø95	Ø135	Ø135	Ø216	Ø216
F	Ø88	Ø125	Ø125	Ø148	Ø148	Ø178	Ø178	Ø226	Ø226	Ø350	Ø350
G	3	3	3	3	3	3	3	5	5	5	5
H	37	57	57	62	62	67	67	90	90	149	149
S	100	115	115	145	145	170	170	250	250	250	250
X	258	338	338	357	357	380	380	440	440	440	440
Y	172	229	229	244	244	287	287	312	312	417	417
Z	220	259	259	288	288	313	313	385	385	668	668
O-C Time *	21 Sn	26 Sn	26 Sn	31 Sn	31 Sn	39 Sn	39 Sn	59 Sn	59 Sn	178 Sn	178 Sn
Weight (Kg)	7	15	15	20	20	25	25	42	42	152	152

* O-C Time indicates the operating time for 90° degree rotation.

PRO 100 - PRO 3000 Model Electric Actuators

PRO 6000 - PRO 9000 Model Electric Actuators





A110 Series Multiturn Electric Actuators

A110 series multiturn actuators are ideally used in gates, dampers and all rotary and linear valves directly or in combination with a multiturn gearbox. Automatic phase discriminators, IP68 protection class and local control unit is a standard features in A110 series actuators.

Technical Specifications

Protection Class	IP68
Power Supply	220 VAC/1Ph/50/60/Hz, 380/440/VAC/3Ph/50/60/Hz $\pm 10\%$
Control Power Supply	110/220 VAC/3Ph/50/60/Hz $\pm 10\%$
Duty Cycle (On-Off)	S2: 10 Min ~ 30 Min / S4: 20~50%
Duty Cycle (Proportional)	S4, 30~50%, 300~1200 Start/Hour
Motor	Induction Motor
Limit Switch	2 Pcs Each Open/Close (SPDT 250VAC/10A) Switches (1 pc Wet and 1 Pc Dry for Each)
Torque Switch	1 Pc Each for Open/Close (SPDT 250VAC/10A) Switches
Stall Protection (Set Temp.)	Built In Thermal Protection, Open $150^{\circ}C \pm 5^{\circ}C$, Close $97^{\circ}C \pm 15^{\circ}C$
Travel Angle	Multiturn
Position Indicator	Continuous Mechanical Indicator
Manual Override / Control	Decatchable Manual Override for Fail Position, Standard Local Control Unit
Self Locking	Provided by Double Worm Gearing
Heater	Anticondensation Heater 5W (110/220 VAC)
Cable Glands	2 x PF 1" and 1x PF1-1/2"
Lubrication	EP Type Grease
Terminal Block	Screw and Lever Push Type
Ambient Temperature	Standart Actuators : $-20^{\circ}C \sim +70^{\circ}C$ Proportional Actuators: $-10^{\circ}C \sim +60^{\circ}C$
Ambient Humidity	90%RH Max (Non Condensing)
Anti Vibration	XYZ 10g. 02~34Hz, 30 Min.
External Coating	Dry Powder Polyester Coating



Multiturn Electric Actuator With Local Control Unit



Damper Type Electric Actuator



Multiturn Electric Actuator With Local Control Unit

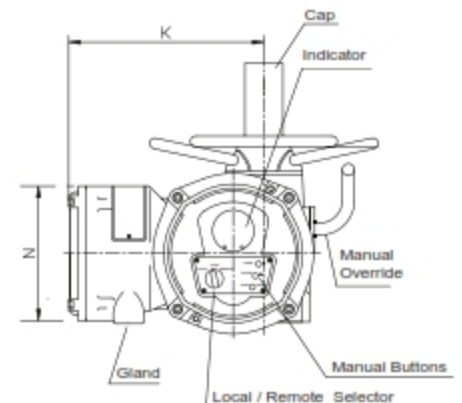
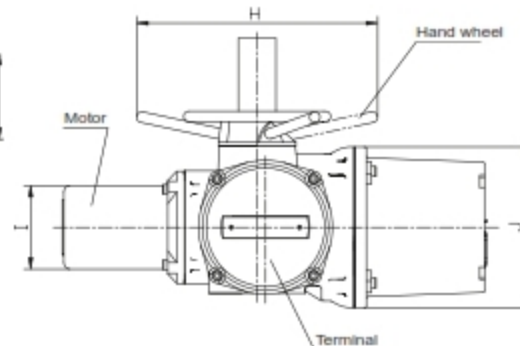
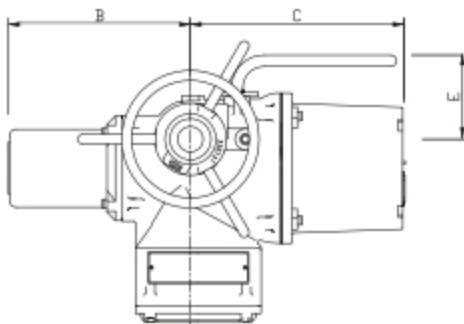
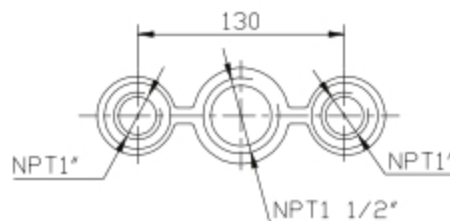


Multiturn Gear Box

Optional Accessories

Explosion Proof Type (Ex d B I T4)
Auxiliary Limit Switches (Max 2 Pcs for Each End)
Potentiometer (1 K Ohm)
RPC - 4-20 mA Remote Proportional Control Unit
Auxiliary Torque Switches (Max 2 Pcs for Each End)
4-20 mA Position Transmitter
Fieldbus Communication

Cable Gland Dimensions



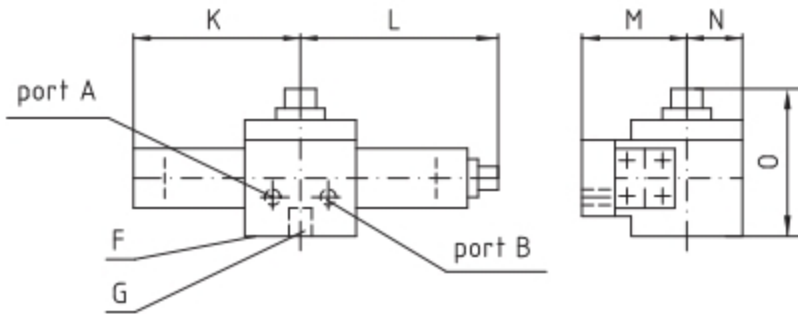
A110 Series Multiturn Electric Actuators

Model	ISO5211 Top Flange	Dimensions (mm)										RPM		Torque Output (Nm)				Weight (kg)
		Type-A Max. (Rising Stem)	Non Rising Stem	A	B	C	D	E	F	G	H	380VAC		220VAC				
												50Hz	60Hz	On-Off	Modulating	On-Off	Modulating	
PM01	F10	32	26	257	301	119	318	110	212	177	257	18	21	45	-	-	-	32
												24	29	45	▪	▪	▪	32
												36	43	35	▪	▪	▪	32
												48	57	35	▪	▪	▪	32
												72	86	35	▪	▪	▪	32
												96	115	30	▪	▪	▪	32
PM02	F10	32	26	257	301	119	318	110	212	177	257	18	21	80	50	▪	▪	32
												24	29	80	50	▪	▪	32
												36	43	80	50	▪	▪	32
												48	57	80	40	▪	▪	32
												72	86	45	25	▪	▪	32
												96	115	40	-	-	-	32
PM03	F10	32	26	257	301	119	318	110	212	177	257	18	21	110	95	65	40	32
												24	29	110	95	60	40	32
PM04	F14	38	38	354	387	121	652	134	212	177	278	18	21	250	180	165	100	52
												24	29	250	180	140	85	52
												36	43	205	125	130	80	52
												48	57	205	125	125	80	52
												72	86	160	80	80	50	52
												96	115	130	-	60	-	52
PM05	F14	38	38	354	387	121	652	134	212	177	278	18	21	450	360	200	120	52
												24	29	450	360	200	120	52
												36	43	300	240	150	90	52
												48	57	240	200	130	80	52
												72	86	240	140	100	60	52
												96	115	230	-	70	-	52
PM06	F16	54	54	352	401	119	793	145	212	177	301	18	21	600	540	400	240	75
												24	29	600	540	350	210	75
												36	43	500	300	300	180	75
												48	57	420	260	270	160	75
												72	86	350	220	200	140	75
												96	115	220	-	170	-	75
PM07	F25	64	64	483	502	183	793	190	212	177	483	18	21	1100	-	-	-	200
												24	29	1100	-	-	-	200
												36	43	780	-	-	-	200
												48	57	680	-	-	-	200
												72	86	550	-	-	-	200
												96	115	420	-	-	-	200
PM08	F30	70	70	522	502	183	440	190	214	177	522	18	21	1500	-	-	-	230
												24	29	1500	-	-	-	230
												36	43	1300	-	-	-	230
												48	57	1000	-	-	-	230
												72	86	800	▪	▪	▪	230
												96	115	550	▪	▪	▪	230
PM09	F30	70	70	522	502	183	440	190	214	177	522	18	21	2000	▪	▪	▪	230
												24	29	2000	▪	▪	▪	230
												36	43	1700	▪	▪	▪	230
												48	57	1350	▪	▪	▪	230
												72	86	1100	▪	▪	▪	230
												96	115	700	▪	▪	▪	230
PM09.1	F30	70	70	522	502	183	440	190	214	177	522	24	21	2500	-	-	-	230
												36	29	2500	-	-	-	230
PM10	F30	70	70	522	502	183	440	190	214	177	522	24	29	3000	-	-	-	230
												36	29	3000	-	-	-	230
PM10.1	F30	70	70	522	502	183	440	190	214	177	522	18	21	3500	▪	▪	▪	230
												24	29	3500	▪	▪	▪	230
												36	43	2000	▪	▪	▪	230
												48	57	1600	▪	▪	▪	230
												72	86	1400	▪	▪	▪	230
												96	115	1200	▪	▪	▪	230



A300 Double Acting Hydraulic Actuators

Proval hydraulic actuators are used in rotary valves especially in marine applications.

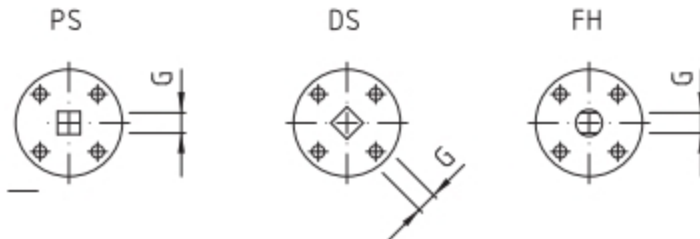


Proval hydraulic actuators main specifications

- Easy maintenance and repair
- High reliability due to basic construction
- Adjustable closed position
- Approved for marine used

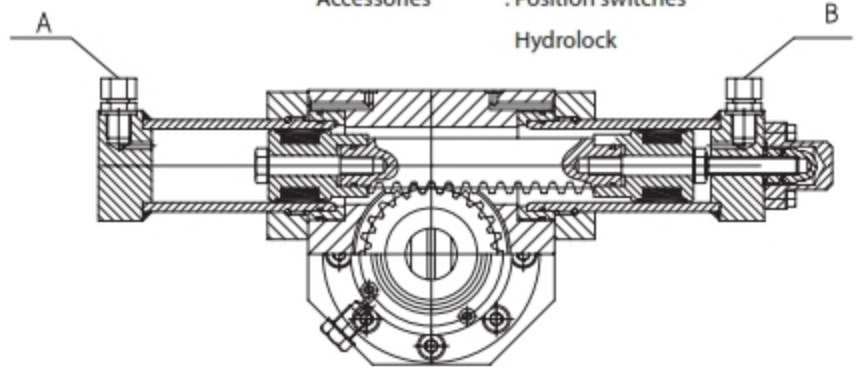
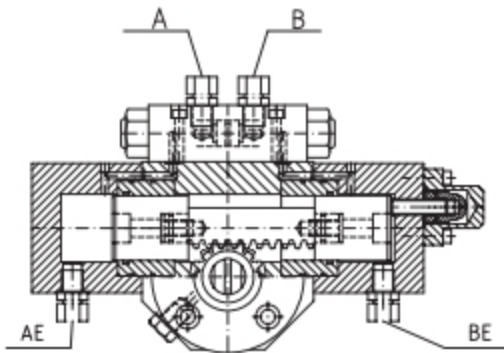


Stainless Steel Actuator



Tecnical Specifications

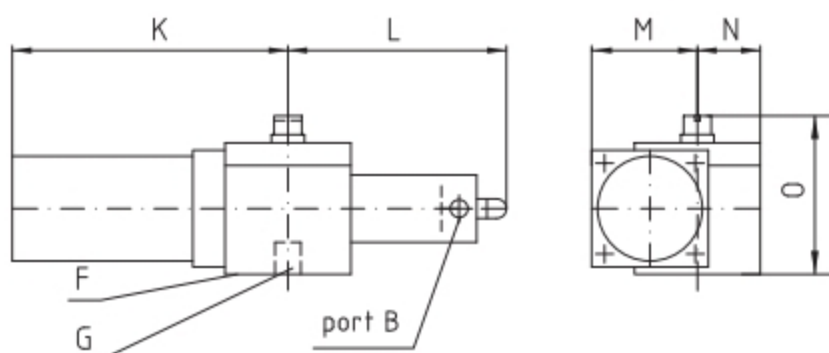
- Working Type : Double / Single Acting
- Design Type : Rack-Pinion
- Work. Pressure : Standard 100 bar
- Travel Angle : $\pm 2^\circ$ adjustable 90°
- Assembly Type : Any Position
- Emergency Op. : Couplings for hand pump
- Accessories : Position switches
Hydrolock



Dimensions (mm)

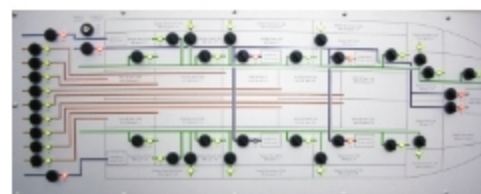
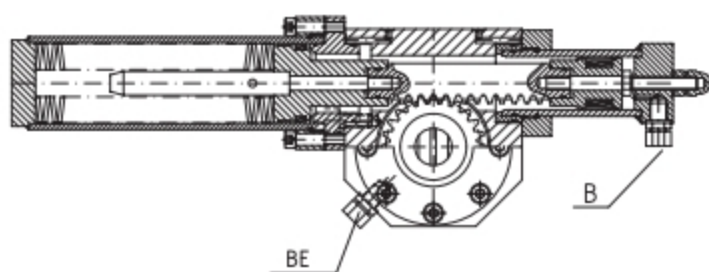
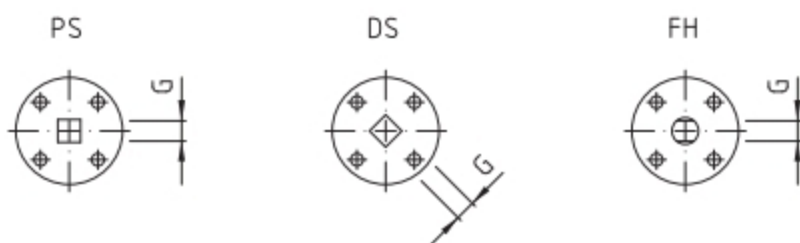
Model	K	L	M	N	O	F	Max. G			Torque Output
							PS	DS	FH	
A300PC0090	92	115	60	46	110	F05-F07	14	14	14	90 Nm
A300PC0225	121	158	71	47	130	F05-F07	17	17	17	225 Nm
A300PC0410	182	220	90	60	170	F07-F10	24	24	22	410 Nm
A300PC0640	182	220	90	60	170	F10-F12	24	24	22	640 Nm
A300PC0920	182	225	100	60	170	F12-F14	30	30	27	920 Nm
A300PC2170	220	275	115	90	195	F14-F16	40	40	40	2170 Nm

A300 Single Acting Hydraulic Actuators



Optional Accesories

- Hydro-Lock
- Special Coating for Submerged Actuators
- Manual Hand Pump
- Bal last / Cargo System Control Units
- Linear Type for Globe / Gate Valves



Mimic Control Panel



Hydraulic Power Pack



Solenoid Valve Box

Dimensions(mm)

Model	K	L	M	N	O	F	Max. G			Torque Output
							PS	DS	FH	
A300PT0035	166	110	60	46	96	F05-F07	14	14	14	35 Nm
A300PT0090	230	148	80	47	115	F05-F07	17	17	17	90 Nm
A300PT0165	320	210	100	60	155	F07-F10	24	24	22	165 Nm
A300PT0280	425	205	105	60	155	F10-F12	24	24	22	280 Nm
A300PT0370	425	215	110	60	155	F12-F14	30	30	27	370 Nm
A300PT0870	640	265	135	90	180	F14-F16	40	40	40	870 Nm



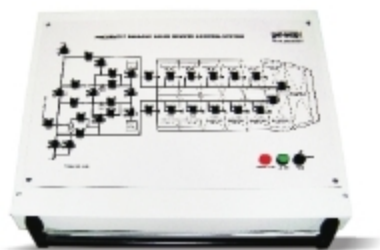
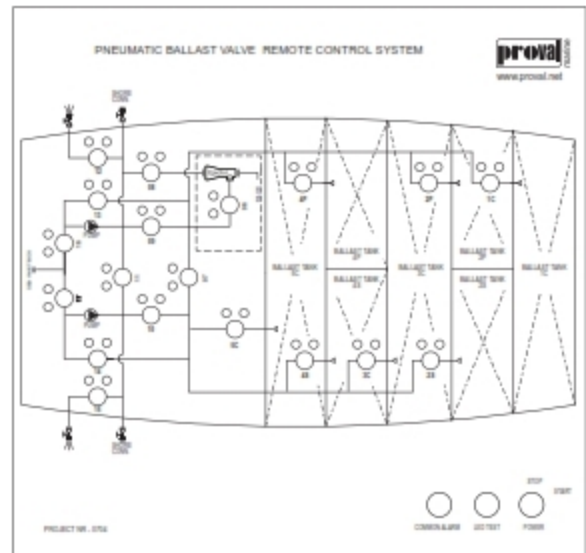
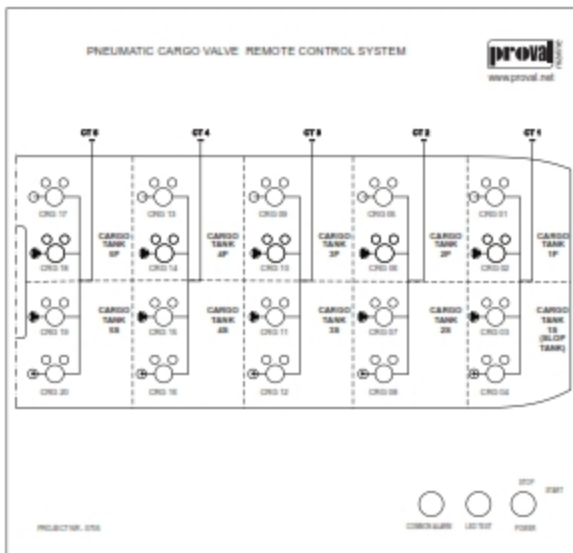
Proval Pneumatic Ballast / Cargo / Fuel Oil Valve Remote Control Systems

Proval pneumatic VRC systems are used in marine to control ballast, cargo or fuel oil valve automation systems.



Superiorities of Proval Pneumatic VRC Systems

- Environment friendly solution especially in submerged systems. In comparison with conventional hydraulic systems there is no oil pressure in pneumatic systems to cause external leakage to ballast tanks.
- System runs on volumetric control principle and generates 100% reliable valve position signals
- There is no power outside the control box and is safe for explosive areas
- Can be operated with basic mimic diagrams or touch pad screens or PC based systems
- Lower risk caused in pipelines in comparison with hydraulic systems (100 bar) due to lower supply pressure (6 bar)
- There is no pressure in supply pipe lines while the system is off
- There is no need for additional power packs etc. System just requires 6 bar air supply and 24VDC power supply
- It requires lower space in comparison with hydraulic systems
- Approved for marine use by all major classification societies



Ballast System Control Panel



Trim System Control Panel

V500 Pneumatic Angle Seat Valves

Proval V500 Series pneumatic angle seat valves are suitable for water, steam, gases and chemicals for open-close applications. The V500 series valves are having a large use on filling and textile machines.

Due to their superior engineered design, PROVAL V500 Series angle seat valves offer an excellent

flow control with low pressure loss. Valves can be installed in any position preferably with actuator face up. All actuators are having 360° rotating possibility.

PROVAL V500 Series angle seat valves are manufactured in spring return Normally Open (NO), Normally Closed (NC) and Double Acting (DA) versions.

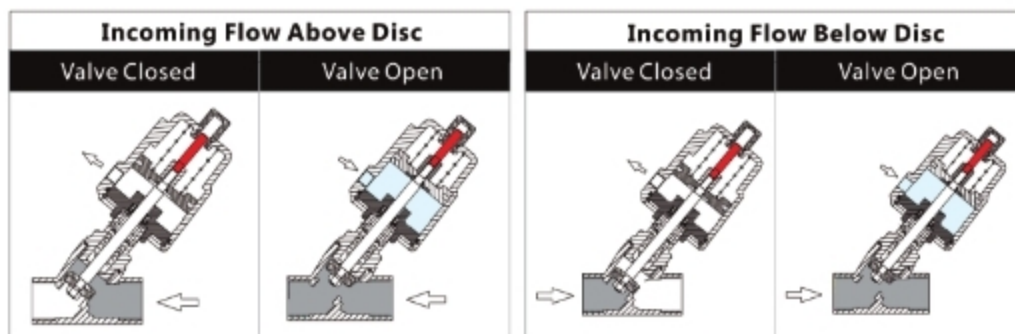


Flow Directions,

Valves can be assembled in different directions of flow.

Incoming flow above disc can handle higher working pressure.

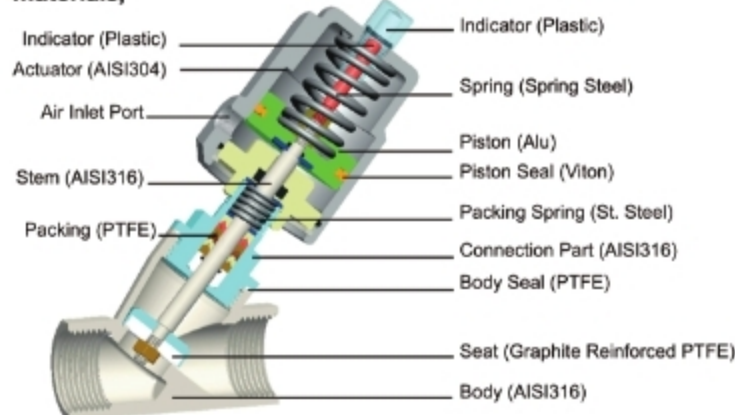
Incoming flow below disc guarantees no water hammer during operation.



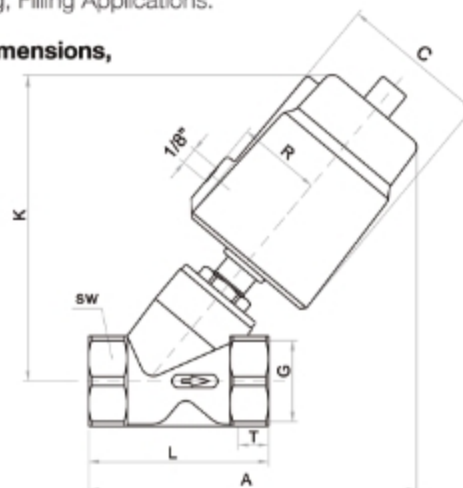
Applications,

Water, Steam, Gas, Chemicals, Pharmaceuticals, Textile Industry Dying & Printing, Filling Applications.

Materials,



Dimensions,



Dimensions and Technical Values,

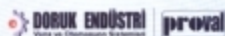
Size (DN)	Thread (G)	Orifice (mm)	Kv (m ³ /h)	Actuator Size	C	R	K	A	T	L	SW	Incoming Flow Above Disc		Incoming Flow Below Disc	
												Max. Working Pressure	Control Pressure	Max. Working Pressure	Control Pressure
10	3/8"	13	3,8	40	50,5	27	111	119	12	68	27	16 bar	3,0-4,5 bar	11 bar	3,0 bar
				50	60	33	124	131				16 bar	3,0-3,5 bar	14 bar	3,0 bar
15	1/2"	13	4,7	40	50,5	27	111	119	15	68	27	16 bar	3,0-4,5 bar	11 bar	3,0 bar
				50	60	33	124	131				16 bar	3,0-3,5 bar	14 bar	3,0 bar
20	3/4"	18	9,5	50	60	33	128	136	16	75	32	16 bar	3,0-4,0 bar	11 bar	3,0 bar
25	1"	24	18,1	50	60	33	136	145	17	90	40	16 bar	3,0-4,5 bar	4 bar	3,0 bar
				63	75	41	162	169				16 bar	3,0-3,5 bar	14 bar	4,5 bar
32	1-1/4"	31	23,1	63	112	41	174	187	21	116	50	16 bar	3,0-5,5 bar	6 bar	4,5 bar
				90	75	57	220	229				16 bar	2,5-3,5 bar	16 bar	5,0 bar
40	1-1/2"	35	32,9	63	75	41	175	187	21	116	56	16 bar	3,0-6,5 bar	5 bar	4,5 bar
				90	112	57	222	230				16 bar	2,5-4,0 bar	16 bar	5,0 bar
50	2"	45	52,8	63	75	41	183	201	22	138	69	12 bar	3,0-7,0 bar	6 bar	5,0 bar
				90	112	57	232	244				16 bar	2,5-4,5 bar	10 bar	5,0 bar
65	2-1/2"	61	82,6	90	112	57	262	282	26	178	85	10 bar	2,5-6,0 bar	7 bar	5,0 bar

CERTIFICATE



Management system as per
DIN EN ISO 9001 : 2008

In accordance with TÜV NORD CERT procedures, it is hereby certified that



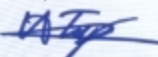
Doruk Endüstri Vana ve Otomasyon Sistemleri San. ve Tic. Ltd. Şti.
Mermerçiler San. Sit., 1. Cad., 32. Sok., No 10, Köşeler Köyü, Dilovası,
TR-41480 Kocaeli,
Turkey

operates a management system in line with the above standard for the following scope

Design, manufacturing and sales of industrial valves and actuators

Certificate Registration No. 44 102 092605
Audit Report No. TR 1315

Valid until 2012-12-20



Certification Body
at TÜV NORD CERT GmbH

Issued, 2009-12-21

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH Langenmarkthasse 20 45141 Essen www.tuv-nord-cert.com



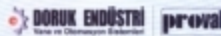
-1640

СЕРТИФИКАТ



Системы менеджмента в соответствии с
DIN EN ISO 9001 : 2008

В соответствии с процедурами TÜV NORD CERT настоящим подтверждается, что



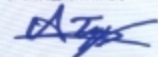
Doruk Endüstri Vana ve Otomasyon Sistemleri San. ve Tic. Ltd. Şti.
Mermerçiler San. Sit., 1. Cad., 32. Sok., No 10, Köşeler Köyü, Dilovası,
TR-41480 Kocaeli,
Турция

применяет систему менеджмента в соответствии с указанными стандартами для следующей области действия

Конструирование, производство и продажа промышленной трубопроводной арматуры и приводов

Регистрационный номер сертификата: 44 102 092605
Отчет об аудите №: TR 1315

Действителен до: 2012-12-20



Сертификационный орган
в TÜV NORD CERT GmbH

г. Стадлен, 2009-12-21

Процесс сертификации проведен в соответствии с процедурами аудиторского и сертификационного TÜV NORD CERT и подлежит регулярным инспекционным аудитам.

TÜV NORD CERT GmbH Langenmarkthasse 20 45141 Essen www.tuv-nord-cert.com



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DECLARATION OF CONFORMITY UYGUNLUK DEKLARASYONU

Equipments of Protective Systems intended for use in Potential Explosive Atmosphere Directive 94/9/CE
Parlayıcı ve patlayıcı ortamlarda kullanıma yönelik ekipman ve koruyucu sistemlere yönelik 94/9/CE Direktif

Name and Address of Manufacturer :
Erişici Adı ve Adresi



Mermerçiler OSB 1 Cad. 32 Sok. No:10 Köşeler Köyü Dilovası Kocaeli TR
Tel : +90 262 728 14 74 – Fax : +90 262 728 14 77

Product Description :
Ürün Tanımı

AZ10 PA Series Double / Single Acting Pneumatic Valve Actuators
AZ10 PA Serisi Çift ve Tek Etkil Endüstriyel Vana Aktüatörleri

Declares :
Deklarasyon

That the above mentioned equipment, after having been evaluated, is in accordance with the
Yukarıda belirtilen ekipmanların değerlendirilmesinden sonra, yukarıda belirtilen standartlara uygunluk uyarınca editore tir

94/9/CE - ATEX

Group/Grup II Category/Kategori 2



Eventually Applied Rules and Technical Specifications :
Uygulanabilir Kurallara ve Teknik Özelliklere

ISO5211 – VDI/VDE 3845



Mehmet Kahya / Manager
15.12.2009 – Dilovası / KOCAELİ TR



DORUK ENDUSTRI

Valve & Automation Systems

Merm Dilovasi / Kocaeli Turkey
Ercler Osb. 1 Cadde 32 Sokak No. Koseler
Koyu,41480 Dilovasi / Kocaeli TURKEY

Tel : +90 262 7281474 - Fax : +90 262 7281477

www.dorukendustri.com | info@dorukendustri.com