



پترو صنعت انرژی



## QUALITY FEATURES ABRO

### RESILIENT SEATED VALVE P 011-A

#### SHAFT RETAINER

The shaft retainer guarantees blow-out resistance of the shaft.

#### MULTIPLE BEARINGS

The shafts have multiple bearings. Optimal guidance even after many years of use. No contact corrosion.

#### NARROW TOLERANCES

Precision-machined bodies form the basis for perfect seating of the liner and precise positioning of the shaft.

#### DOUBLE- SIDED PROFILES

Double-sided profiles ensure the sleeve-body engagement in the outer body recess.

#### ROUND COLLAR

The collars at the shaft locations ensure accurate positioning of the liner within the valve body - sizes DN 250 and larger have an integral vulcanized in steel ring.

#### CONTINUOUS FORMING LOBE

The continuous forming lobe fits perfectly in the relevant groove of the body, stabilising the liner.

#### CONVEX FORM OF THE LINER

The end connection sealing faces of the liner have a convex form. During assembly of the valve into the pipeline controlled deformation of the volume of the liner achieved when clamping between flanges. This controlled deformation restricts any increase in operating torque and eliminates damage to or destruction of the elastomers.

#### POLISHED SEALING SURFACES

The sealing surfaces are mirror polished and guarantee low torque combined with tightness.

## WAFLER BUTTERFLY VALVE TYPE P 011-A ABRO

PIE through the simple construction and the great variation in materials, butterfly valves are broadly applied for various media such as water and air, but also chemical and aggressive media. Butterfly valves are used for open/close purposes, but are also suitable for simple regulating purposes, especially designed for the use in following markets:

Butterfly valves feature the following four general design options:

### TECHNICAL DATA

Nominal diameter:	DN 50 - DN 1800
Face-to-face:	EN 558 Series 20 ISO 5752 Series 20 API 609 Table 1
Flange accommodation:	EN 1092 PN 6/10/16 ASME Class 150 AS 4087 PN 16
Flange Surface Design:	EN 1092 Form A /B ASME RF, FF
Top flange:	EN ISO 5211
Marking:	EN 19
Tightness check:	EN 12266 (Leakage rate A) ISO 5208, Category 3
Temperature range:	-40°C to +200°C (depending on pressure, medium and material)
Operating pressure:	max. 16 bar



### FEATURES

For easy adaption of both manual and automatic actuators the valve is executed with a top flange according to the ISO 5211 standard. Applications of series P 011 A butterfly valves can be found amongst others in general industrial and maritime & petrochemical systems for media such as (ballast) water, gases, hydrocarbons and light corrosive media up to a maximum of 16 bar (PN 16 execution).

- Absolutely tight sealing with flow in either direction
- The valve body and disc are accurately machined which results in low operating torque and long service life and reliability
- Two shaft bearings prevent shaft deflection and guarantee optimum guidance even after many years of operational service
- Four flange mounting holes ensure correct valve location when installing
- Can be installed in any desired position
- Vertical & Horizontal Or any angle

## WAFER BUTTERFLY VALVE TYPE P 011-A ABRO

Available Sizes: DN 50 - DN 400

### GENERAL APPLICATIONS:

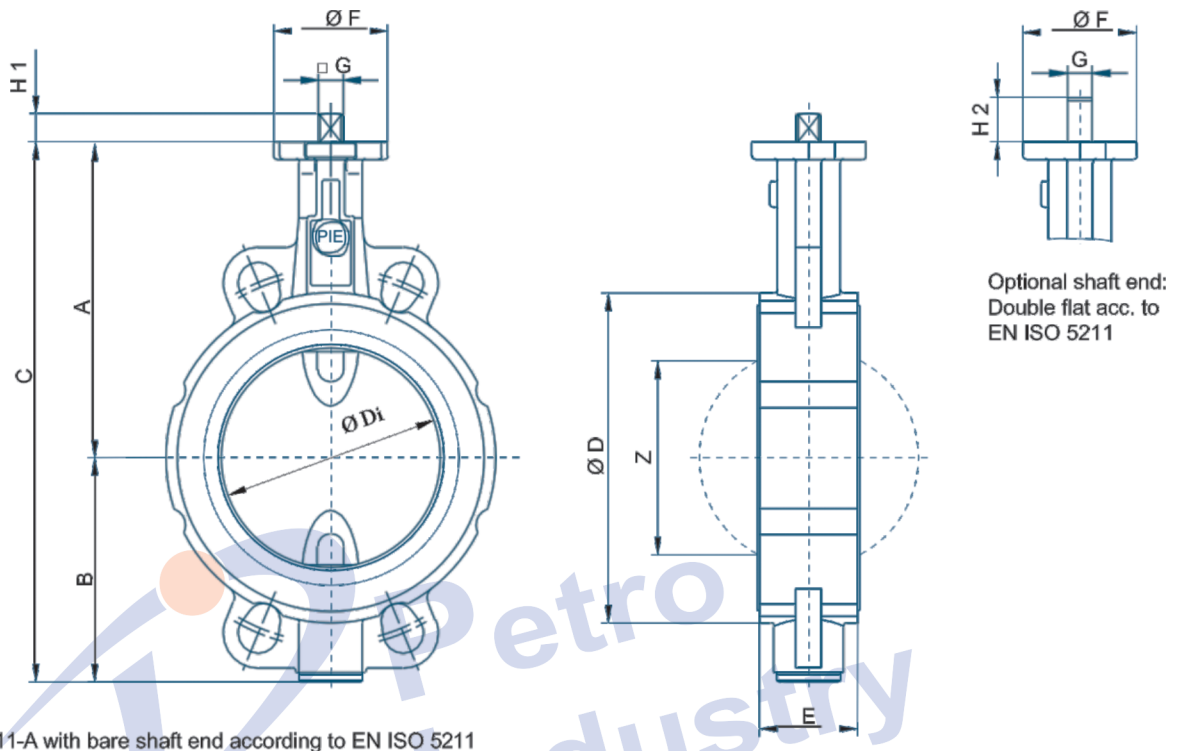
- General industry
- Maritime sector
- Chemical and petrochemical industries
- Potable water piping systems
- Water treatment plants
- Pneumatic materials handling technology
- Power generation industry
- Heating and air treatment



### Ring type

This type is suitable for mounting between flanges acc. to DIN or ANSI ductile cast iron butterfly valve, ring type with centric disc, through-going shaft and replaceable rubber liner. Body fitted with four centering holes and suitable for installation between flanges rated DIN PN 10/16 and ANSI 150#. Short Face To Face acc. to ISO 5752 table 5 short, API 609, DIN 3202 K1 and BS 5155. The body is fitted with a top flange rated ISO 5211 as required for mounting of various manual controls or automatic controls. This type of butterfly valve is general used in systems for water, gases, hydrocarbons and light corrosive media up to a maximum of 16 bar (PN 16 model).

# WAFLER BUTTERFLY VALVE TYPE P 011-A ABRO



Z 011-A with bare shaft end according to EN ISO 5211

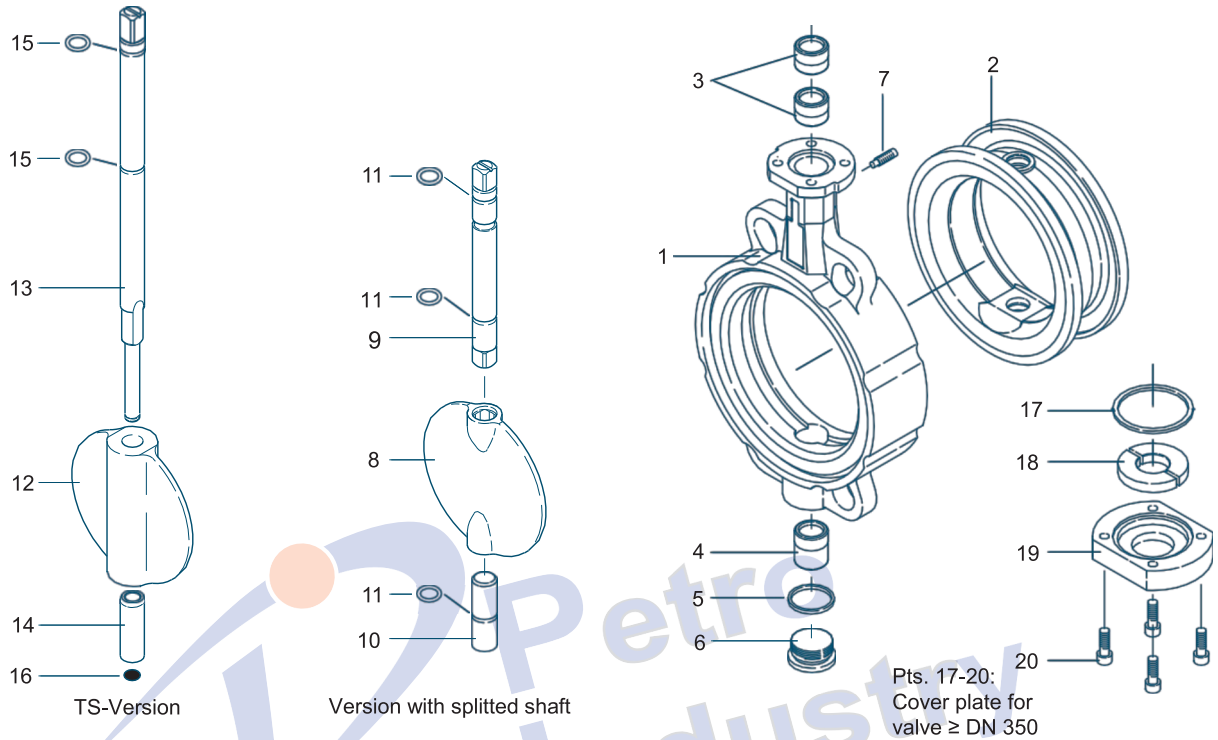
DN [mm]	Size [in]	Dimensions [mm]											Weight [kg] (GG 25)		
		A	B	C	D	Di	E	F	Flange	G	H1	H2	Z	2 Piece shaft	TS- shaft
20	¾	104	45	149	59	31,5	33	54	F04	11	12	19	-	1,3	-
25	1	104	45	149	63	31,5	33	54	F04	11	12	19	-	1,3	-
32	1¼	104	50	154	68	31,5	33	54	F04	11	12	19	-	1,4	-
40		113	66	179	80	38	33	54	F04	11	12	19	22	1,8	-
50	2	126	84	210	95	48,5	43	54	F04	11	12	19	25	2,2	-
65	2½	134	93	227	115	63,5	46	54	F04	11	12	19	45	2,9	-
80	3	157	104	261	138	78,5	46	65	F05	14	16	25	65	4,0	4,5
100	4	167	115	282	158	98,5	52	65	F05	14	16	25	85	5,2	5,8
125	5	180	127	307	188	123,5	56	65	F05	14	16	25	111	6,9	7,5
150	6	203	150	353	212	148	56	90	F07	17	19	30	139	9,5	11,0
200	8	228	176	404	268	199	60	90	F07	17	19	30	190	13,2	15,0
250	10	266	212	478	320	248	68	125	F10	22	24	39	240	22,5	25,5
300	12	291	237	528	370	296	78	125	F10	22	24	39	287	31,5	35,0
350	14	332	269	601	408	338	78	150	F12	*	*	-	330	39,4	45,0
400	16	363	314	677	470	388	102	150	F12	*	*	-	378	58,7	64,5
450	18	397	335	732	530	430,5	114	210	F16	*	*	-	417	91,0	95,5
500	20	437	371	808	574	494,5	127	210	F16	*	*	-	474	107,0	113,5
600	24	498	469	967	675	590	154	300	F16/F25	*	*	-	563	171,0	198,0
700	28	581	507	1088	772	680	165	300	F16/F25	*	*	-	660	251,0	304,0
800	32	630	556	1186	874	780	190	300	F25	*	*	-	757	355,0	375,0
900	36	696	617	1313	973	880	203	300	F25	*	*	-	860	456,0	498,0
1000	40	771	675	1446	1070	980	216	350	F30	*	*	-	956	570,0	718,0
1200	48	880	810	1690	1510	1170	254	350	F30	*	*	-	1154	-	1156,0

\* According to mounted actuator

Subject to change without notice

# WAFER BUTTERFLY VALVE TYPE P 011-A ABRO

## MATERIAL SPEZIFICATION AND PARTS LIST



Pt.	Description	Material	Material-No.	ASTM	Pt.	Description	Material	Material-No.	ASTM
1	<b>Body</b>				9/10	<b>Shafts</b>			
	Aluminium alloy	G-AISI9Cu3	3.2163	B 380.1		Stainless Steel	X39CrMo17-1	1.4122	
		G-AISI10Mg	3.2381	361.1			X14CrMoS17	1.4104	430 F
	Grey Cast Iron	GG-25	0.6025	40 B			X5/(X2)CrNiMo17-12-2	1.4401/1.4404	316
	Nodular Cast Iron	GGG-40	0.7040	60-40-18			Hastelloy	2.4883	Hastelloy
		GGG-40.3	0.7043			Aluminum Bronze	CuAl10Ni	2.0975	
	Carbon Steel	GS-C25	1.0619	WCB	11	<b>O-ring</b>			
	Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M		NBR	Nitrile butadiene rubber		
2	<b>Seat</b>					FPM	Fluorocarbon rubber		
	NBR	Nitrile butadiene rubber			12	<b>TS-disc</b>			
	EPDM	Ethylene propylene diene monomer rubber				Nodular Cast Iron	GGG-40	0.7040	60-40-18
	CSM	Chlorosulfonated polyethylene rubber				Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M
	FPM	Fluorocarbon rubber				Aluminium Bronze	G-CuAl10Ni	2.0975	C 95800
	VSI	Silicone rubber				Coating	Halar, Rilsan		
	SBR-green	Styrene butadiene rubber				Surface quality	electropolished, mirror finished		
3/4	<b>Bearing bush</b>				13	<b>TS-shaft</b>			
	Brass	MS 58	2.0401	B 45		Stainless Steel	X14CrMoS17	1.4104	430 F
	Polyamide	PA 66					X39CrMo17-1	1.4122	
	PTFE	Polytetrafluorethylene					X5CrNiMo17-12-2	1.4401	316
5	<b>Seal DIN 7603</b>					Aluminum Bronze	CuAl10Ni	2.0975	
	Copper	Cu		Copper	14	<b>Sleeve</b>			
6	<b>Plug screw DIN 908</b>					Stainless Steel	X5CrNi18-10	1.4301	304
	Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M	15	<b>O-ring</b>			
7	<b>Set screw DIN 915</b>					NBR	Nitrile butadiene rubber		
	Steel	45 H galvanized				FPM	Fluorocarbon rubber		
	Stainless Steel	A4-70		B8M	16	<b>Retaining ring</b>			
8	<b>Disc</b>					Stainless Steel	X39CrMo17-1	1.4122	
	Steel	St 52.3	1.0570	572-50	17	<b>O-ring</b>			
	Stainless Steel	G-X5CrNiMo19-11-2	1.4301	304		NBR	Nitrile butadiene rubber		
		G-X6CrNiMo18-10	1.4408	CF8M	18	<b>Shaft retainer</b>			
		X2CrNiMo17-12-2	1.4404	316 L			MS 58	2.0401	B 45
		X6CrNiMoTi17-12-2	1.4571	316 Ti	19	<b>Cover plate</b>			
		G-X2CrNiMoN26-7-4	1.4469	F 51		Grey Cast Iron	GG-25	0.6025	40 B
		Hastelloy	2.4883	Hastelloy	20	<b>Screw</b>			
	Aluminium Bronze	G-CuAl10Ni	2.0975	C 95800		Steel	45 H galvanized		
	Coating	Halar, Rilsan, NBR, EPDM				Stainless Steel	A2-70		B 8
	Surface quality	electropolished, mirror finished					A4-70		B8M
									Other materials upon request

Subject to change without notice

## WAFER BUTTERFLY VALVE TYPE P 011-A ABRO

The values listed in the table are initial breakaway torques, taken with liquids and lubricant media.

Please regard these as approximate values, as the objective value depends on different factors like pressure, medium, rubber, quality, temperature ... etc.

- Our engineers look forward to help you with exact values for your application.

- Powdery (non-lubricant) media  
Md x 1,3

- Dry gases/high viscous media  
Md x 1,2

DN [mm]	Size [in]	Adapted disc size pressure rating			
		3 bar disc	6 bar disc	10 bar disc	16 bar disc
20	¾	5	5	5	-
25	1	5	5	5	-
32	1¼	5	5	5	-
40	1½	8	8	8	8
50	2	9	9	9	9
65	2½	18	18	18	18
80	3	8	10	18	24
100	4	9	18	28	37
125	5	15	22	45	59
150	6	36	45	78	125
200	8	59	76	140	200
250	10	150	180	200	240
300	12	200	240	280	360
350	14	350	540	610	700
400	16	420	620	750	850
450	18	720	746	860	1500
500	20	900	1100	2255	3690
600	24	1050	2100	3000	5830
700	28	1560	2240	3450	8100
800	32	2070	3800	6600	11200
900	36	2700	4900	7100	14500
1000	40	4600	6780	11500	24400
1200	48	7800	12000	21000	44000

All values in Nm

DN [mm]	Size [in]	Opening angle $\alpha^\circ$							
		20°	30°	40°	50°	60°	70°	80°	90°
20	¾	-	3,46	5,95	7,97	9,7	11,2	12,8	14,5
25	1	-	3,53	7,33	11,5	15,8	20,0	24,0	27,3
32	1¼	-	2,56	7,97	15,5	24,2	33,0	40,8	46,6
40	1½	0,94	4,96	11,9	20,7	30,4	40,2	49,0	55,8
50	2	3,84	10,1	20,7	34,4	49,7	65,2	79,5	91,2
65	2½	9,5	16,6	39,1	72,6	113	157	199	235
80	3	15,6	20,6	51,4	102	165	234	304	368
100	4	24,9	39,8	96,5	183	288	398	503	589
125	5	51,8	67,2	135	256	428	652	926	1250
150	6	76,5	97,3	197	375	629	957	1360	1830
200	8	137	187	373	697	1160	1760	2510	3400
250	10	227	271	563	1090	1850	2830	4010	5390
300	12	287	409	820	1550	2610	4050	5880	8120
350	14	399	488	1070	2110	3590	5480	7760	10400
400	16	557	703	1360	2600	4470	7060	10400	14600
450	18	716	907	1810	3440	5830	8980	13000	17800
500	20	875	1110	2250	4280	7180	10900	15500	20900
600	24	1230	1550	3150	6010	10090	15400	21800	29400
700	28	1100	1770	3590	6610	10900	16400	23200	31400
800	32	1670	2680	5450	10000	16500	24900	35200	47600
900	36	1960	3150	6390	11800	19300	29200	41300	55900
1000	40	2430	3890	7910	14600	23900	36100	51100	69100
1200	48	3500	5620	11400	21000	34500	52100	73800	99800

Subject to change without notice

## LUG TYPE BUTTERFLY VALVE P 014-A ABRO

## TECHNICAL DATA

Nominal diameter:	DN 50 - DN 500
Face-to-face:	EN 558 Series 20 ISO 5752 Series 20 API 609 Table 1
Flange accommodation:	EN 1092 PN 6/10/16 ASME Class 150 AS 4087 PN 16
Flange Surface Design:	EN 1092 Form A/B ASME RF, FF
Top flange:	EN ISO 5211
Marking:	EN 19
Tightness check:	EN 12266 (Leakage rate A) ISO 5208, Category 3
Temperature range:	-40°C to +200°C (depending on pressure, medium and material)
Operating pressure:	max. 16 bar



Lug type butterfly valve with threaded holes. This type enables the one-sided lugging of pipes.

## FEATURES

This type is suitable for mounting between flanges acc. to DIN or ANSI by means of the tapped holes. Also can serve as a dead-end valve at maximum operating pressure. lug type with centric disc, Two piece shaft supported by bronze radial bearings for smooth operation, rubber lined body. The rubber liner is vulcanized on a phenolic ring which forms a cartridge inserted in the body ensuring reduced torque and a long lifetime. This liner extends along the valve faces, eliminating the use of gaskets.



## LUG TYPE BUTTERFLY VALVE P 014-A ABRO

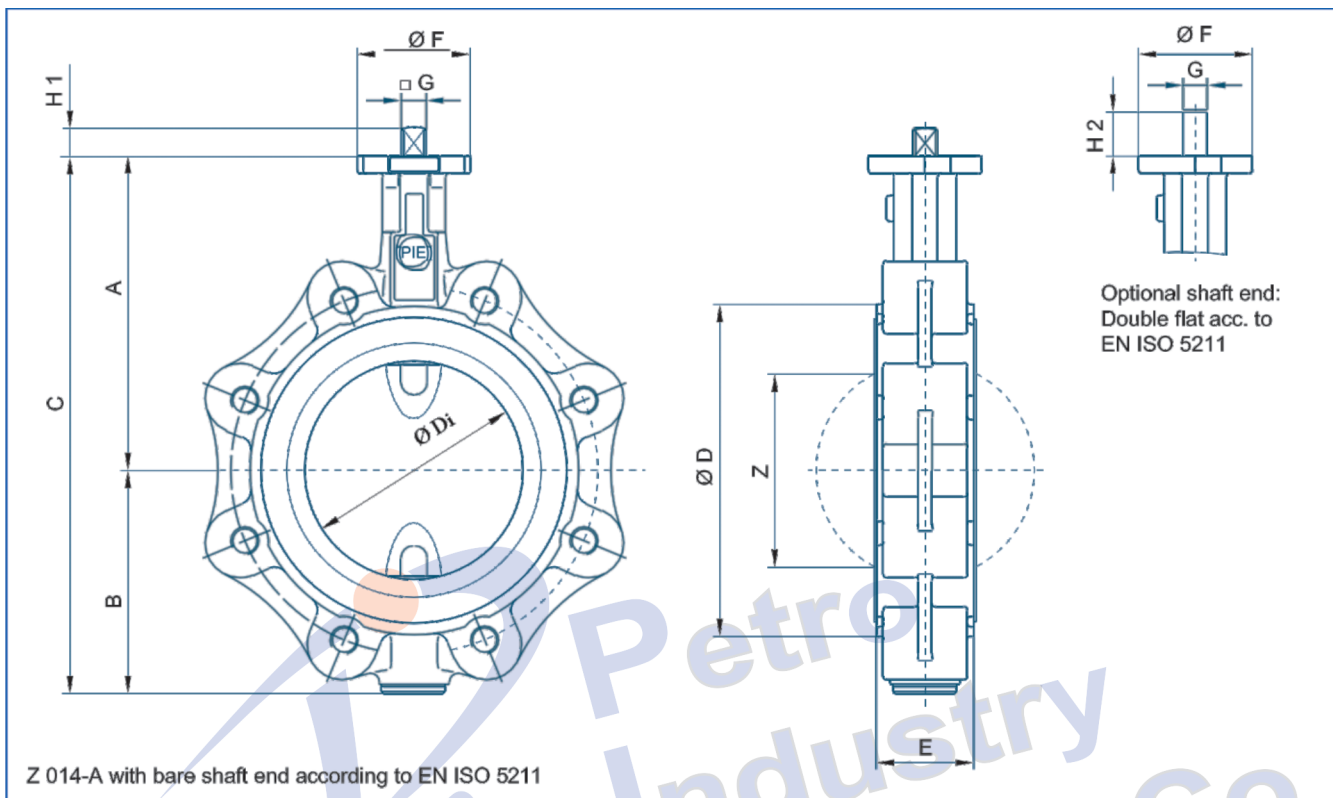
- Absolutely tight sealing with flow in either direction
- The valve body and disc are accurately machined which results in low operating torque and long service life and reliability
- Triple shaft bearings prevent shaft deflection and guarantee optimum guidance even after many years of operating service
- Can be disassembled, material-specific recycling possible
- Single flange mounting is possible

### GENERAL APPLICATIONS

- Maritime sector
- Chemical and petrochemical industries
- Potable water piping systems
- Water treatment plants
- Pneumatic materials handling technology
- Power generation industry
- Heating and air treatment
- Food industry
- Civil engineering



LUG TYPE BUTTERFLY VALVE P 014-A ABRO



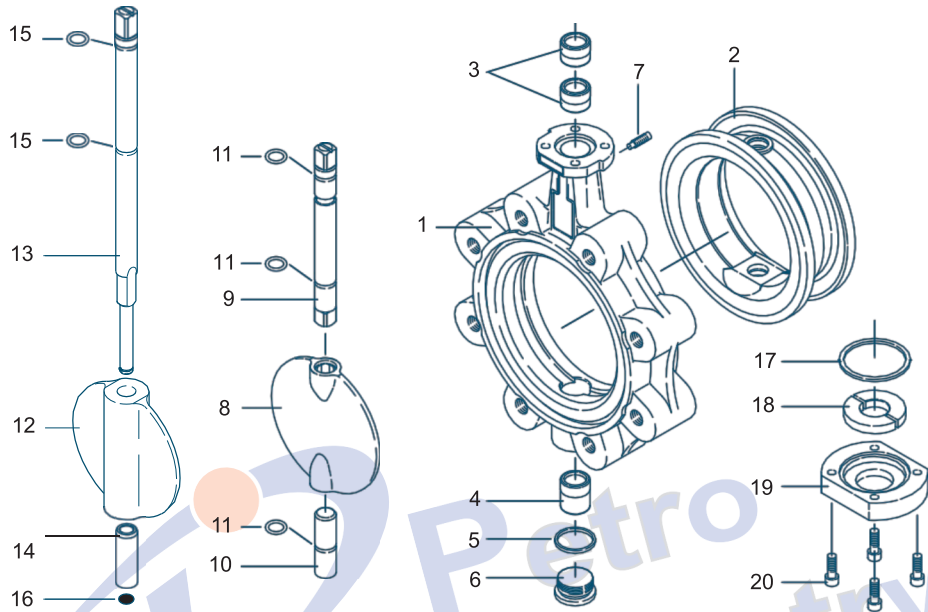
DN [mm]	Size [in]	Dimensions [mm]												Weight[kg] (GG-25)	
		A	B	C	D	Di	E	F	Flange	G	H1	H2	Z	Splitted shaft	TS- shaft
20	¾	104	45	149	63	31,5	33	54	F04	11	12	19	-	2,1	-
25	1	104	45	149	63	31,5	33	54	F04	11	12	19	-	2,1	-
32	1¼	104	50	154	68	31,5	33	54	F04	11	12	19	-	2,1	-
40	1½	113	66	179	80	38	33	54	F04	11	12	19	22	4,0	-
50	2	126	84	210	95	48,5	43	54	F04	11	12	19	25	4,8	-
65	2½	134	93		115	63,5	46	54	F04	11	12	19	45	5,5	-
80	3	157	104	261	138	78,5	46	65	F05	14	16	25	65	8,6	9,1
100	4	167	115	282	158	98,5	52	65	F05	14	16	25	85	9,8	10,4
125	5	180	127	307	188	123,5	56	65	F05	14	16	25	111	10,1	10,7
150	6	203	150	353	210	148	56	90	F07	17	19	30	139	13,1	14,6
200	8	228	176	404	268	199	60	90	F07	17	19	30	190	18,8	20,6
250	10	266	212	478	320	248	68	125	F10	22	24	39	240	29,5	32,5
300	12	291	237	528	370	296	78	125	F10	22	24	39	287	37,0	40,5
350	14	332	269	601	408	338	78	150	F12	*	*	-	330	54,8	60,4
400	16	363	314	677	470	388	102	150	F12	*	*	-	378	81,5	87,3
450	18	397	335	732	530	430,5	114	210	F16	*	*	-		101,4	105,9
500	20	437	371	808	574	494,5	127	210	F14/F16	*	*	-	474	136,3	142,8
600	24	498	469	967	675	590	154	300	F16/F25	*	*	-	563	240,5	267,5

\* According to mounted actuator

Subject to change without notice

LUG TYPE BUTTERFLY VALVE P 014-A ABRO

MATERIAL SPECIFICATION AND PARTS LIST



Pt.	Description	Material	Material-No.	ASTM	Pt.	Description	Material	Material-No.	ASTM
1	<b>Body</b>				9/10	<b>Shafts</b>			
	Nodular Cast Iron	GGG-40	0.7040	60-40-18		Stainless Steel	X14CrMoS17	1.4104	430 F
	Carbon Steel	Gs-C25	1.0619	WCB			X5/(X2)CrNiMo17-12-2	1.4401/1.4404	316
2	<b>Seat</b>						Hastelloy	2.4883	Hastelloy
	NBR	Nitrile butadiene rubber			11	<b>O-ring</b>			
	EPDM	Ethylene propylene diene monomer rubber				NBR	Nitrile butadiene rubber		
	CSM	Chlorosulfonated polyethylene rubber				FPM	Fluorocarbon rubber		
	FPM	Fluorocarbon rubber			12	<b>TS-disc</b>			
	VSI	Silicon rubber				Nodular Cast Iron	GGG-40	0.7040	60-40-18
	SBR-green	Styrene butadiene rubber				Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M
3/4	<b>Bearing bush</b>					Aluminium Bronze	G-CuAl10Ni	2.0975	C 95800
	Brass	MS 58	2.0401	B 45		Coating	Halar, Rilsan		
	Polyamide	PA 66				Surface quality	electropolished, mirror finished		
	PTFE	Polytetrafluorethylene			13	<b>TS-shaft</b>			
5	<b>Seal DIN 7603</b>					Stainless Steel	X14CrMoS17	1.4104	430 F
	Copper	Cu		Copper			X39CrMo17-1	1.4122	
6	<b>Plug screw DIN 908</b>						X5CrNiMo17-12-2	1.4401	316
	Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M	14	<b>Sleeve</b>			
7	<b>Plug screw DIN 915</b>					Stainless Steel	X5CrNi18-10	1.4301	304
	Steel	45 H galvanized			15	<b>O-ring</b>			
	Stainless Steel	A4-70		B8M		NBR	Nitrile butadiene rubber		
8	<b>Disc</b>					FPM	Fluorocarbon rubber		
	Steel	ST 52.3	1.0570	572-50	16	<b>Retaining ring</b>			
	Stainless Steel	X5CrNi18-10	1.4301	304		Stainless Steel	X39CrMo17-1	1.4122	
		G-X5CrNiMo19-11-2	1.4408	CF8M	17	<b>O-ring</b>			
		X2CrNiMo17-12-2	1.4404	316 L		NBR	Acrylonitrile butadiene rubber		
		X6CrNiMoTi17-12-2	1.4571	316 Ti	18	<b>Shaft retainer</b>			
		G-X2CrNiMoN26-7-4	1.4469	F 51		Brass	MS 58	2.0401	B 45
					19	<b>Cover plate</b>			
	Aluminium Bronze	G-CuAl10Ni	2.0975	C 95800		Grey Cast Iron	GG-25	0.6025	40 B
	Coating	Halar, Rilsan, NBR, EPDM			20	<b>Screw</b>			
	Surface quality	electropolished, mirror finished				Steel	45 H galvanized		
						Stainless Steel	A2-70		B 8
							A4-70		B8M
	Other materials upon request								

Subject to change without notice

# LUG TYPE BUTTERFLY VALVE P 014-A ABRO

## TORQUE

- The values listed in the table are initial breakaway torques, taken with liquids and lubricant media.

- Please regard these as approximate values, as the objective value depends on different factors like pressure, medium, rubber, quality, temperature ... etc.

- Our engineers look forward to help you with exact values for your application.

- Powdery (non-lubricant) media  
Md x 1,3

- Dry gases/high viscous media  
Md x 1,2

DN [mm]	Size [in]	Adapted Disc Size Pressure Rating			
		3 bar disc	6 bar disc	10 bar disc	16 bar disc
20	¾	5	5	5	-
25	1	5	5	5	-
32	1¼	5	5	5	-
40	1½	8	8	8	8
50	2	9	9	9	9
65	2½	18	18	18	18
80	3	8	10	18	24
100	4	9	18	28	37
125	5	15	22	45	59
150	6	36	45	78	125
200	8	59	76	140	200
250	10	150	180	200	240
300	12	200	240	280	360
350	14	350	540	610	700
400	16	420	620	750	850
450	18	720	746	860	1500
500	20	900	1100	2255	3690
600	24	1050	2100	3000	5830

All values in Nm

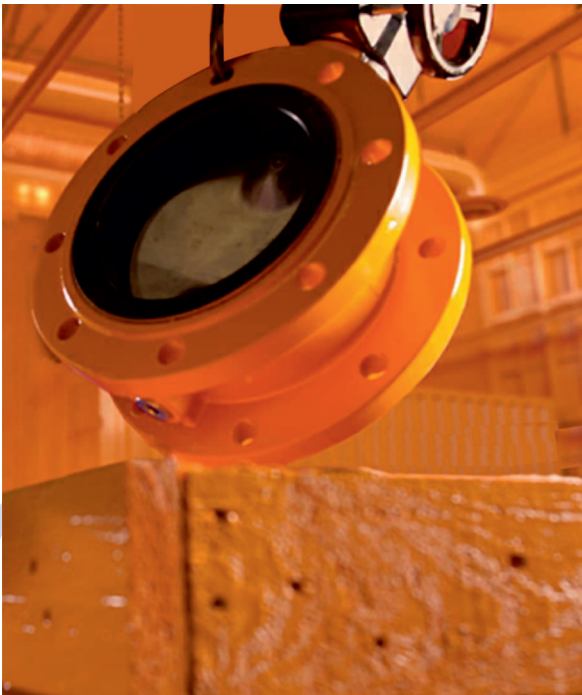
DN [mm]	Size [in]	Opening angle α°							
		20°	30°	40°	50°	60°	70°	80°	90°
20	¾	-	3,46	5,95	7,97	9,7	11,2	12,8	14,5
25	1	-	3,53	7,33	11,5	15,8	20,0	24,0	27,3
32	1¼	-	2,56	7,97	15,5	24,2	33,0	40,8	46,6
40	1½	0,94	4,96	11,9	20,7	30,4	40,2	49,0	55,8
50	2	3,84	10,1	20,7	34,4	49,7	65,2	79,5	91,2
65	2½	9,5	16,6	39,1	72,6	113	157	199	235
80	3	15,6	20,6	51,4	102	165	234	304	368
100	4	24,9	39,8	96,5	183	288	398	503	589
125	5	51,8	67,2	135	256	428	652	926	1250
150	6	76,5	97,3	197	375	629	957	1360	1830
200	8	137	187	373	697	1160	1760	2510	3400
250	10	227	271	563	1090	1850	2830	4010	5390
300	12	287	409	820	1550	2610	4050	5880	8120
350	14	399	488	1070	2110	3590	5480	7760	10400
400	16	557	703	1360	2600	4470	7060	10400	14600
450	18	716	907	1810	3440	5830	8980	13000	17800
500	20	875	1110	2250	4280	7180	10900	15500	20900
600	24	1230	1550	3150	6010	10090	15400	21800	29400

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## DOUBLE FLANGED BUTTERFLY VALVE P012-A ABRO

This type is connected with the counter flanges in the pipe sections by means of the two cast flanges, used as ship side valve according to the rules of various classification bureaus.

An additional characteristic of butterfly valves are the various different types of liner. For example, there are butterfly valves with a bonded or a replaceable rubber liner. In these cases, the medium only comes into contact with the lining and disc of the valve.



Soft seated double flanged butterfly valve designed for high pressure applications. The combination of vulcanized liner and thrugoing shaft allows pressure loads up to 25 bar.

### TECHNICAL DATA

Nominal diameter:	DN 50 - DN 1000
Face-to-face:	EN 558 Series 13 ISO 5752 Series 13
Flange accommodation:	EN 1092 PN 6/10/16/25 ASME B16.5 / B16.47 ASME Class 150 (PS max=19 bar) ASME Class 300 (PS max=25 bar) AS/NZS 4087 PN 16 / PN21 / PN35 AS 2129 Tab.E / Tab.F JIS B 2220 10K Flange accommodation not in all Sizes available. Others on request
Flange Surface Design:	EN 1092 Form A / B ASME RF, FF
Top flange:	EN ISO 5211
Marking:	EN 19
Tightness check:	EN 12266 (Leakage rate A) ISO 5208, Kategorie 3
Temperature range:	-40°C to +200°C (depending on pressure, medium and material)
Operating pressure:	max. 25 bar
Differential pressure:	max. $\Delta p$ 25 bar
Vakuum:	up to 1 mbar absolute

### FEATURES

- Butterfly valve in double flanged design
- Can be installed in any desired position
- Triple shaft bearings
- Single flange mounting possible
- Maintenance-free
- Vulcanized liner and thrugoing shaft for high pressure applications
- Adjustable bearings up to DN600  $\geq$  16 bar



## DOUBLE FLANGED BUTTERFLY VALVE P012-A ABRO

For corrosive media, the lining can also be manufactured from PTFE. /Epdm /NBR  
Rubber-lined butterfly valves are in general suitable for operating pressures up to around 16 bar, and temperatures up to a maximum of 120 degrees Celsius (PTFE  $\pm$  200 degrees Celsius). For higher pressures and temperatures or media for which normal rubber-lined butterfly valves are not suitable, High Performance butterfly valves can be used. This type of valve can be made with a PTFE seat, optionally in fire safe version, or with a metal sealing ring. Because of the fact that with High Performance butterfly valves the body comes into contact with the medium, a careful choice of suitable body material is needed. The body can be built standard in steel or stainless steel.

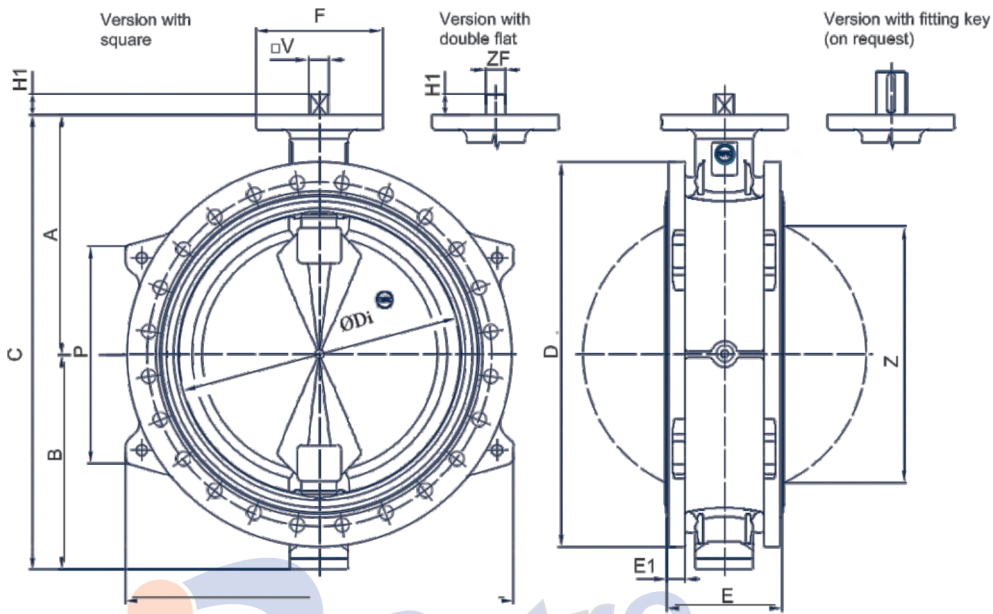
### GENERAL APPLICATIONS

- Offshore
- Water and waste water technology
- Power plants
- Desalination technology
- Trunk mains
- Pipeline applications
- Pumping stations

Adjustable bearings ensure tightness even with max. pressure loads. This feature allows refixing during operation.



# DOUBLE FLANGED BUTTERFLY VALVE P012-A ABRO



DN [mm]	Size [inch]	Dimensions [mm]														Bearings fixed adjustable	Weight [kg] (EN-JS1030)	
		A	B	C	Ø Di	Ø D	E1	E	Ø F	Flange	ZF/V	H1	N	P	Z			
50	2	126	84	210	48	165	18	108	54	F04	11	12	-	-	-	x	-	6
65	2 1/2	134,5	93,5	228	63	185	18	112	54	F04	11	12	-	-	-	x	-	10
80	3	157	104	261	78	200	20	114	65	F05	14	16	-	-	-	x	-	12
100*	4	168	127	295	98	254	22	127	65	F05	14	16	-	-	-	x	-	18
100	4	168	114	282	98	228	20	127	65	F05	14	16	-	-	-	x	-	18
125*	5	180	140	320	123	280	26	140	90	F05	14	16	-	-	-	x	-	24
150*	6	203	150	353	148	285	22	140	90	F07	17	19	-	-	56	x	-	26
150	6	203	153	356	148	305	29	140	90	F07	17	19	-	-	56	x	-	30
200	8	229	177	406	198	345	24	152	90	F07	17	19	-	-	131	x	-	30
200*	8	260	215	475	198	381	30	152	125	F10	17	20	-	-	131	x	-	56
250	10	266	213	479	248	406	26	165	125	F10	22	24	-	-	189	x	-	40
250*	10	305	250	555	248	445	28	165	150	F12	22	24	-	-	189	x	-	79
250*	10	266	215	481	248	430	27	165	125	F10	22	24	-	-	189	x	-	57
250*	10	305	250	555	248	430	21	165	150	F12	22	24	-	-	189	x	-	75
300	12	291	237	528	296	483	28	178	125	F10	22	24	-	-	240	x	-	73
300*	12	350	285	635	296	521	33	178	150	F12	22	24	-	-	240	x	-	110
300*	12	335	285	620	296	515	36	178	150	F12	22	24	520	150	240	x	-	108
350	14	332	278	610	337	533	33	190	150	F12	**	**	540	300	282	x	-	103
350*	14	390	322	712	338	584	32	190	175	F14	27	29	590	300	282	x	-	150
400	16	363	322	685	390	597	32	216	175	F12/F14	**	**	610	310	328	x	-	150
400	16	363	322	685	390	580	32	216	150	F12	**	**	-	-	328	x	-	140
400*	16	435	360	795	390	660	42	216	210	F16	27	29	665	200	328	x	-	215
400*	16	430	360	790	390	648	37	216	175	F14	27	29	-	-	328	x	-	210
450*	18	397	368	765	426	640	33	222	175	F14	36	38	680	310	367	x	-	179
450*	18	465	385	850	426	711	37	222	210	F16	36	38	720	300	367	x	-	250
500	20	437	404	841	489	715	38	229	210	F14/F16	**	**	740	350	436	x	-	204
500*	20	500	415	915	489	775	44	229	300	F25	**	**	790	370	436	x	-	310
600	24	498	469	967	581	840	42	267	300	F16/F25	**	**	870	420	521	-	x	330
600	24	498	469	967	581	790	45	267	300	F14/F16/F25	**	**	-	-	521	x	-	467
600*	24	580	500	1080	581	914	44	267	300	F25	**	**	930	440	521	-	x	457
700	28	581	526	1107	674	935	46	292	350	F25/F30	**	**	940	510	612	-	x	480
700*	28	635	560	1195	674	995	50	292	350	F30	**	**	1010	350	612	-	x	600
800	32	630	591	1221	781	1060	52	318	350	F25/F30	**	**	1080	450	717	-	x	598
800	32	660	590	1250	781	1060	50	318	350	F25/F30	**	**	1070	600	717	-	x	666
800*	32	660	595	1255	781	1085	55	318	415	F35	**	**	1100	450	717	-	x	760
900*	36	800	685	1485	881	1185	61	330	415	F30/F35	**	**	1210	600	821	-	x	941
900	36	800	685	1485	881	1185	52	330	350	F25/F30	**	**	1190	620	821	x	-	932
900	36	696	645	1341	881	1122	52	330	300	F25	**	**	-	-	821	x	-	650
1000*	40	771	680	1451	980	1290	51	410	475	F30/F35/F40	**	**	1300	680	895	-	x	1100
1000	40	771	675	1446	980	1255	56	410	415	F25/F30/F35	**	**	1270	680	895	-	x	1092
1000	40	850	725	1575	980	1275	59	410	475	F35/F40	**	**	1310	600	895	x	-	1245
1000*	40	850	725	1575	980	1275	62	410	475	F35/F40	**	**	1310	600	895	-	x	1239
1000*	40	850	725	1575	980	1360	67	410	475	F35/F40	**	**	1370	600	895	-	x	1426
1200	48	935	810	1745	1176	1511	54	470	475	F35/F40	**	**	1520	800	1083	-	x	1722
1200*	48	1004	862	1866	1176	1575	63	470	560	F40/F48	**	**	1590	800	1085	-	x	1785
1200	48	905	810	1715	1176	1455	60	470	350	F25/F30	**	**	1475	600	1083	x	-	1440
1400*	56	1120	958	2078	1372	1795	86	530	560	F48	**	**	1830	800	1271	-	x	3060

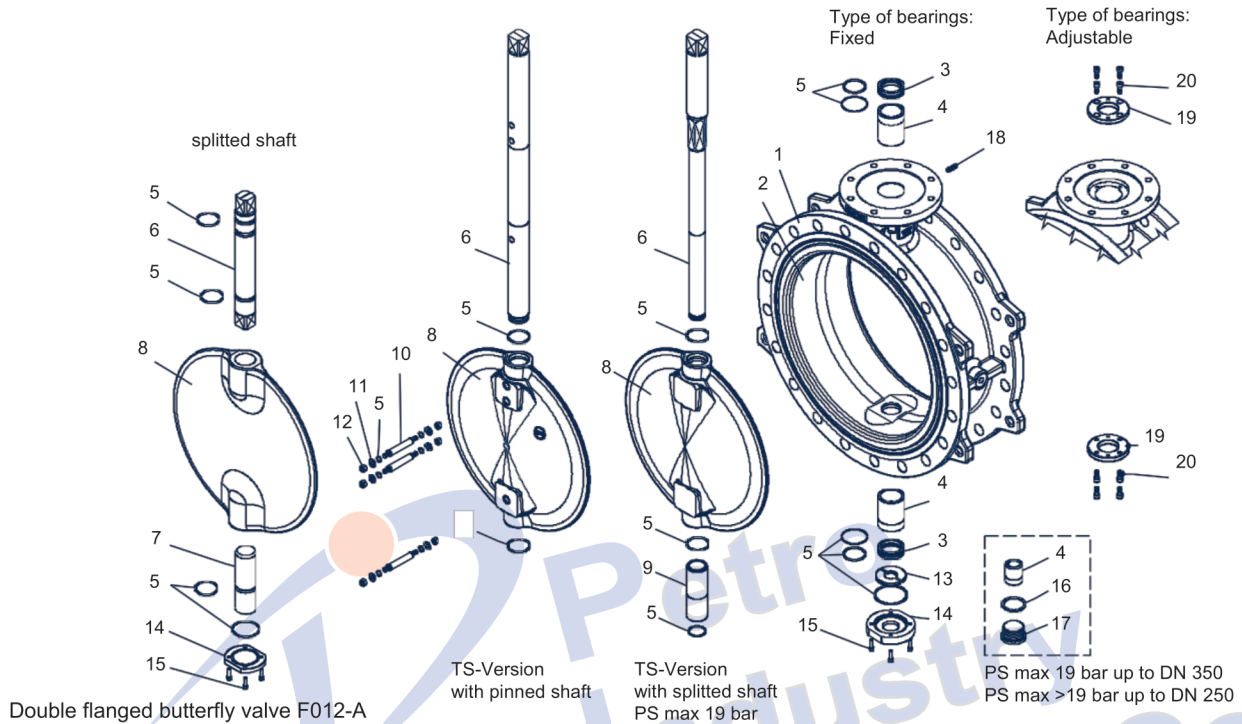
\*Operating pressure ≥19 bar

\*\*In accordance to the actuator

Subject to change without notice

# DOUBLE FLANGED BUTTERFLY VALVE P012-A ABRO

## MATERIAL SPECIFICATION AND PARTS LIST



Pos.	Description	Material	Material-No.	Pos.	Description	Material	Material-No.			
1	Body	Nodular Cast Iron	EN-GJS-400-15	10	Taper pin	Stainless Steel	X5CrNi18-10			
		Carbon Steel	GP240GH			EN-JS1030	1.4301	G-X5CrNiMo19-11-2*	1.4408*	
2	Seat/vulcanization	NBR	Nitrile butadiene rubber	11	Washer	Stainless Steel	A4			
		EPDM	Ethylene propylene diene monomer rubber			12	Hex nut	Stainless Steel	A4	
3/4	Bearing bush	Brass	CuZn39Pb3	13	Shaft retention	Brass	CuZn39Pb3			
			CW614N			14	Cover plate	Sectional steel	S235JR	
5	O-Ring	NBR	Nitrile butadiene rubber	15	Screw	Nodular Cast Iron	EN-GJS-400-15			
		EPDM	Ethylene propylene diene monomer rubber			16	Seal DIN 915	Steel	45 H galvanized	
6/7	Shaft	X14CrMoS17	1.4104	17	Plug screw DIN 908	Cooper	Cu			
		X2CrNiMo17-12-2	1.4122			18	Threaded pin DIN 915	Machining steel	11SMnPb30	
		X5/(X2)CrNiMo17-12-2	1.4401/1.4404					Stainless Steel	G-X5CrNiMo19-11-2	1.4408
		G-X5CrNiMo19-11-2	1.4408			19	Clamping ring	Steel	45 H galvanized	
		G-X2CrNiMoN26-7-4	1.4462					Stainless Steel	X5CrNiMo17-12-2	1.4401
		CuAl10Fe5Ni5-C	1.4469			20	Cylinder screw	Sectional steel	S235JR	
X5CrNiCuNb 16-4*	1.4452*	Stainless Steel	A4							
8	Disc	Nodular Cast Iron	EN-GJS-400-15	18	Threaded pin DIN 915	Stainless Steel	G-X5CrNiMo19-11-2			
		Stainless Steel	G-X5CrNiMo19-11-2			1.4408	19	Clamping ring	Steel	45 H galvanized
			G-X2CrNiMoN26-7-4*			1.4469*			Stainless Steel	X5CrNiMo17-12-2
		Aluminium Bronze	CuAl10Fe5Ni5-C			CC333G	20	Cylinder screw	Sectional steel	S235JR
Coating	Halar, Rilsan, Nonstick		Stainless Steel	A4						
	Surface quality	electropolished, mirror finished								
9	Sleeve	Stainless Steel	X5CrNi18-10							

\*Materials for valves  $\geq 19$  bar

Subject to change without notice



# DOUBLE FLANGED BUTTERFLY VALVE P012-A ABRO

## TORQUE

- The values listed in the table are initial breakaway torques, taken with liquids and lubricant media.

- Please regard these as approximate values, as the objective value depends on different factors like pressure, medium, rubber, quality, temperature ... etc.

- Our engineers look forward to help you with exact values for your application.

- Powdery (non-lubricant) media  
Md x 1,3

- Dry gases/high viscous media  
Md x 1,2

DN [mm]	Size [in]	Operating pressure						
		3 bar disc	6 bar disc	10 bar disc	16 bar disc	19 bar disc	21 bar disc	25 bar disc
50	2	5	7	7	9	-	-	30
65	2½	7	9	13	18	-	-	40
80	3	8	10	18	24	-	-	58
100		9	18	28	37	53	66	90
125	5	15	22	45	59	-	-	150
150	6	36	45	78	125	156	182	230
200	8	59	76	140	200	242	278	350
250	10	150	180	200	240	355	440	600
300	12	200	240	280	360	570	710	950
350	14	350	540	610	700	910	1080	1400
400	16	420	620	750	850	1320	1610	2050
450	18	720	746	860	1500	2000	2410	3200
500	20	900	1100	2255	3690	4170	4630	5500
600	24	1050	1800	3000	5830	6550	7130	8000
700	28	1600	2240	3450	8100	9860	11100	13000
800	32	2200	3900	6600	11200	14250	16450	20000
900	36	2800	4900	7100	14500	19150	229000	30000
1000	40	4800	6760	11500	24400	30500	35300	44000
1200	48	7800	12000	21000	44000	53800	62300	78000
1400	48	-	-	-	-	77100	90900	116000

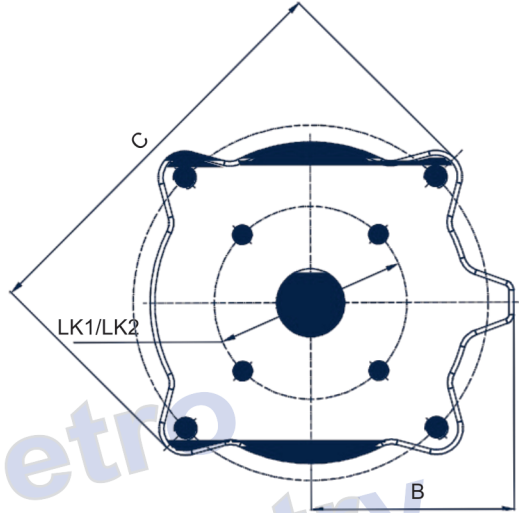
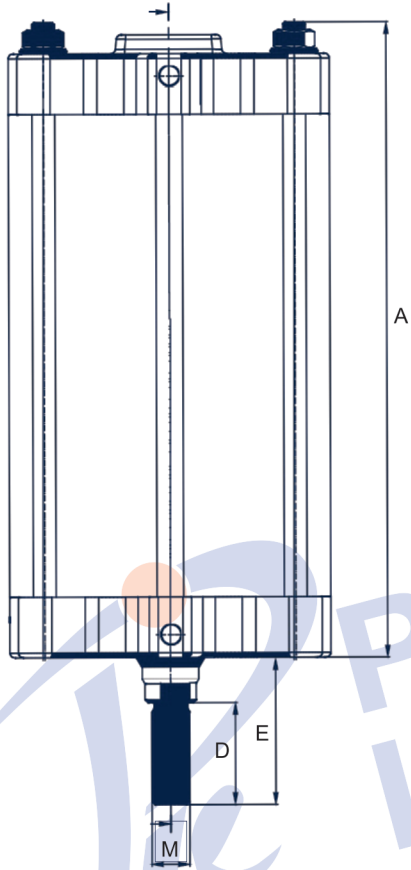
\*Maximum torques (Nm)

DN [mm]	Size [in]	Opening angle α°							
		20°	30°	40°	50°	60°	70°	80°	90°
50	2	3,84	10,1	20,7	34,4	49,7	65,2	79,5	91,2
65	2½	9,5	16,6	39,1	72,6	113	157	199	235
80	3	15,6	20,6	51,4	102	165	234	304	368
100	4	24,9	39,8	96,5	183	288	398	503	589
125	5	51,8	67,2	135	256	428	652	926	1250
150	6	76,5	97,3	197	375	629	957	1360	1830
200	8	137	187	373	697	1160	1760	2510	3400
250	10	227	271	563	1090	1850	2830	4010	5390
300	12	287	409	820	1550	2610	4050	5880	8120
350	14	399	488	1070	2110	3590	5480	7760	10400
400	16	557	703	1360	2600	4470	7060	10400	14600
450	18	716	907	1810	3440	5830	8980	13000	17800
500	20	875	1110	2250	4280	7180	10900	15500	20900
600	24	1230	1550	3150	6010	10090	15400	21800	29400
700	28	1100	1770	3590	6610	10900	16400	23200	31400
800	32	1670	2680	5450	10000	16500	24900	35200	47600
900	36	1960	3150	6390	11800	19300	29200	41300	55900
1000	40	2430	3890	7910	14600	23900	36100	51100	69100
1200	48	3500	5620	11400	21000	34500	52100	73800	99800
1400	66	5150	8260	16780	30900	50700	76500	108000	147000

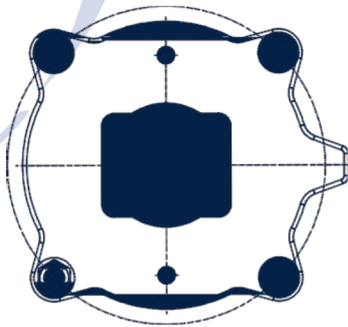
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PNEUMATIC ACTUATOR ABRO

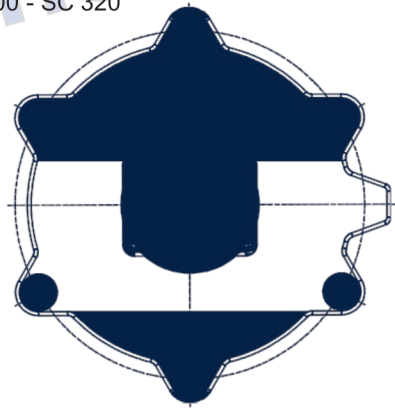
SC 100 - SC 320



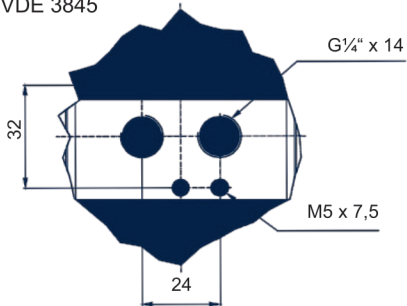
SC 100 - SC 160



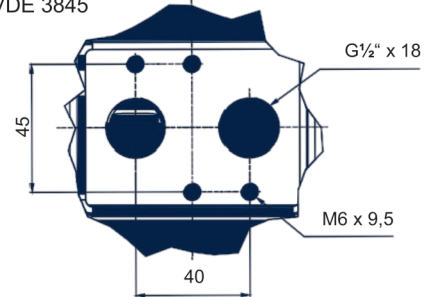
SC 200 - SC 320



Namur Interface  
VDI/VDE 3845



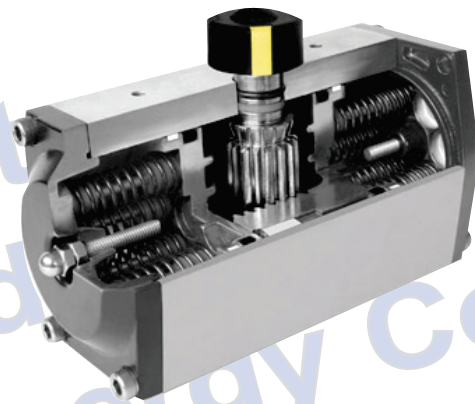
Namur interface  
VDI/VDE 3845



## PNEUMATIC ACTUATOR ABRO

### TECHNICAL DATA

Design:	Double-acting pneumatic linear actuator
Diameter of cylinder barrel:	Ø 100 mm Ø 125 mm Ø 160 mm Ø 200 mm Ø 250 mm Ø 320 mm
Stroke:	90 mm up to 1030 mm
Supply pressure:	max. 10 bar
Temperature range:	Standard: -30 to +100 °C High and low temperature design on request
Power range:	4524 N - 46322 N (at 6 bar)
Namur Interface:	NAMUR, VDI / VDE 3845
Air supply:	clean and dry compressed air acc. to ISO 8573-1: 2010 min. class 3 Other supply media on request
Surface:	Body: anodized Cover: powder-coated
Approval:	Following the requirements of DIN EN 15714-3



This series of linear pneumatic actuators is designed to automate knife gate valves. Available in 6 sizes and different stroke lengths.

### FEATURES:

- Integrated groove for limit switches acc. to ISO 15552 for touchless position indication with magnetic piston (Standard up to SC 200)
- Integrated Namur interface for direct mounting of solenoid valves and air ducts reduce mounting and piping efforts to a minimum
- Sturdy piston rod includes wiper ring in bottom end cap
- Precision guided and multiple supported piston and piston rod ensure a linear stroke
- Low maintenance by lifetime lubrication
- Body: Made of anodized aluminium for best corrosion protection, minimum wear and optimal sliding properties
- Cover and extruded aluminium cylinder in combination with stainless steel tie rods, form a compact and stable design for versatile applications



## PNEUMATIC ACTUATOR ABRO

Type SC	Stroke length [mm]	Dimensions [mm]								Weight [kg]	Filling volume in NL / Stroke at 1 atm
		A	B	C	D	E	M	LK1	LK2		
100	90	219,0	72,0	148	32	48	M16 x 1,5	F07	-	3,4	1,87
100	115	244,0	72,0	148	32	48	M16 x 1,5	F07	-	3,6	2,27
100	140	269,0	72,0	148	32	48	M16 x 1,5	F07	-	3,8	2,65
100	165	294,0	72,0	148	32	48	M16 x 1,5	F07	-	4,0	3,04
125	90	232,0	88,0	176	54	78	M20 x 1,5	F10	-	5,5	2,66
125	115	255,0	88,0	176	54	78	M20 x 1,5	F10	-	5,9	3,40
125	140	280,0	88,0	176	54	78	M20 x 1,5	F10	-	6,3	4,02
125	165	305,0	88,0	176	54	78	M20 x 1,5	F10	-	6,6	4,62
160	90	263,0	107,5	216	54	78	M20 x 1,5	F10	-	8,9	4,50
160	115	286,0	107,5	216	54	78	M20 x 1,5	F10	-	9,4	5,75
160	140	311,0	107,5	216	54	78	M20 x 1,5	F10	-	9,6	6,80
160	165	336,0	107,5	216	54	78	M20 x 1,5	F10	-	10,0	7,79
160	215	386,0	107,5	216	54	78	M20 x 1,5	F10	-	11,2	9,77
160	270	441,0	107,5	216	54	78	M20 x 1,5	F10	-	11,9	11,95
160	320	491,0	107,5	216	54	78	M20 x 1,5	F10	-	12,8	13,92
200	140	341,5	130,0	256	72	102	M30 x 1,5	F10	F14	16,1	10,43
200	165	366,5	130,0	256	72	102	M30 x 1,5	F10	F14	16,8	12,30
200	215	412,5	130,0	256	72	102	M30 x 1,5	F10	F14	18,0	16,01
200	270	467,5	130,0	256	72	102	M30 x 1,5	F10	F14	19,4	19,43
200	320	517,5	130,0	256	72	102	M30 x 1,5	F10	F14	20,7	22,51
200	350	547,5	130,0	256	72	102	M30 x 1,5	F10	F14	21,5	25,16
200	400	597,5	130,0	256	72	102	M30 x 1,5	F10	F14	22,8	27,43
200	423	624,5	130,0	256	72	102	M36 x 2	F10	F14	23,4	29,00
200	450	647,5	130,0	256	72	102	M36 x 2	F10	F14	24,3	30,51
200	550	747,5	130,0	256	72	102	M36 x 2	F10	F14	26,9	36,66
250	215	461,0	163,0	322	72	102	M30 x 1,5	F10	F14	28,9	21,89
250	270	516,0	163,0	322	72	102	M30 x 1,5	F10	F14	30,7	27,49
250	320	566,0	163,0	322	72	102	M30 x 1,5	F10	F14	32,4	32,58
250	350	596,0	163,0	322	72	102	M30 x 1,5	F10	F14	33,4	37,83
250	400	646,0	163,0	322	72	102	M30 x 1,5	F10	F14	35,0	42,67
250	450	696,0	163,0	322	72	102	M36 x 2	F10	F14	36,9	47,52
250	500	746,0	163,0	322	72	102	M36 x 2	F10	F14	38,6	52,37
250	525	771,0	163,0	322	72	102	M36 x 2	F10	F14	39,4	55,00
250	630	876,0	163,0	322	72	102	M36 x 2	F10	F14	42,9	62,68
250	800	1046,0	163,0	322	72	102	M36 x 2	F10	F14	48,5	81,44
320	320	577,0	201,5	406	72	102	M30 x 1,5	F10	F14	50,2	58,37
320	500	757,0	201,5	406	72	102	M36 x 2	F10	F14	58,7	87,09
320	575	832,0	201,5	406	72	102	M36 x 2	F10	F14	62,1	99,06
320	700	957,0	201,5	406	72	102	M36 x 2	F10	F14	67,9	119,01
320	715	972,0	201,5	406	72	102	M36 x 2	F10	F14	68,6	121,41
320	800	1057,0	201,5	406	72	102	M36 x 2	F10	F14	72,5	134,97
320	1030	1287,0	201,5	406	72	102	M36 x 2	F10	F14	83,2	171,68

PNEUMATIC ACTUATOR ABRO

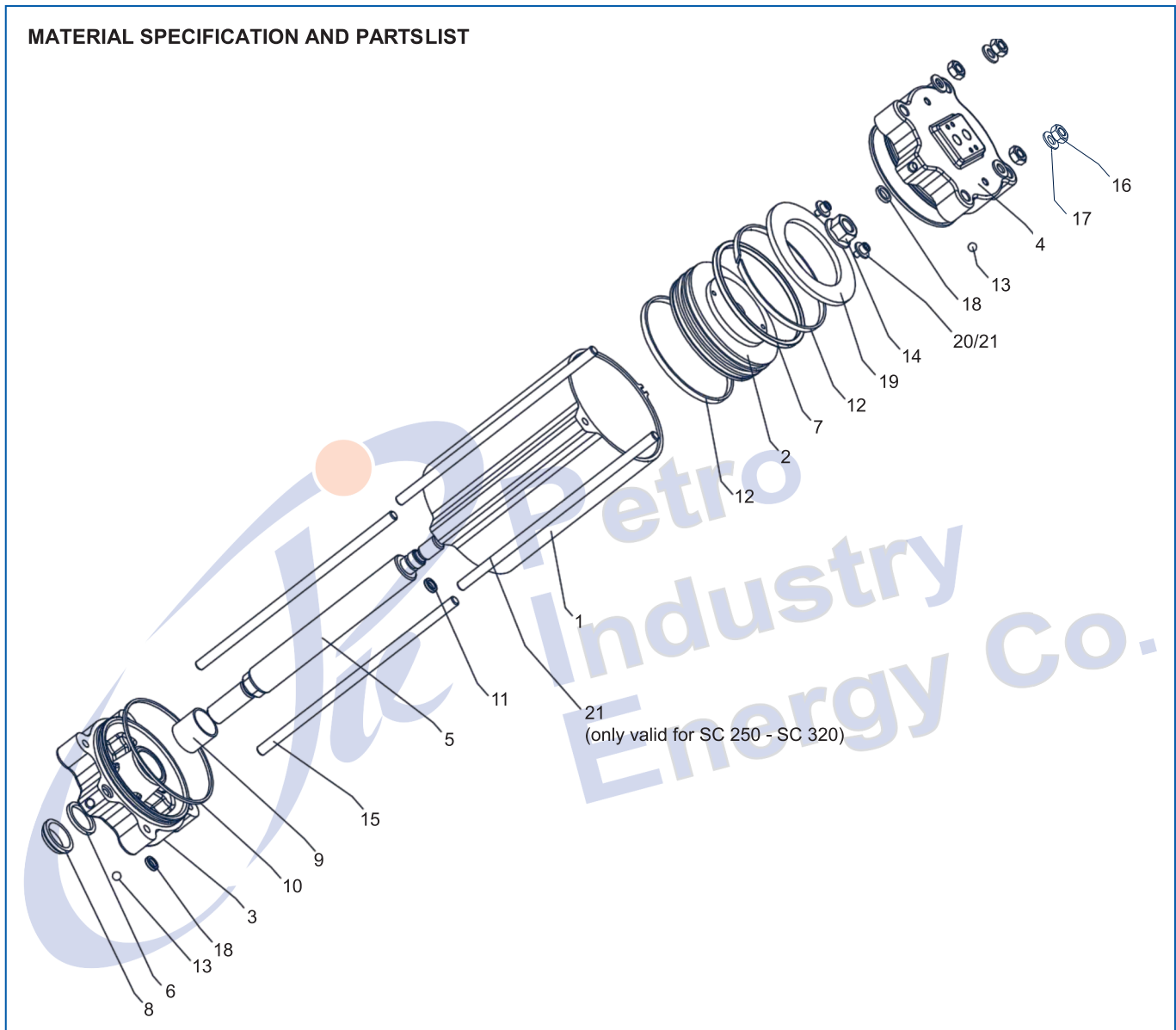
Type SC	Force / Stroke in Newton (N)									
	4 bar		4,5 bar		5 bar		5,5 bar		6 bar	
	Close	Open	Close	Open	Close	Open	Close	Open	Close	Open
100	3140	3016	3532	3393	3925	3770	4319	4147	4712	4524
125	4908	4628	5522	5207	6135	5785	6749	6364	7363	6939
160	8044	7760	9050	8730	10055	9700	11061	10670	12063	11639
200	12568	12064	14139	13572	15710	15080	17281	16588	18849	18095
250	19635	19132	22089	21523	24543	23915	26998	26306	29452	28698
320	32170	31667	36191	35626	40212	39584	44234	43542	48255	47501

Subject to change without notice



# PNEUMATIC ACTUATOR ABRO

## MATERIAL SPECIFICATION AND PARTSLIST



(only valid for SC 250 - SC 320)

Pt.	Description	Material	Pt.	Description	Material
1	Cylinder tube	EN AW 6063-T66	12	Piston guide band	POM
2	Piston	EN AC 46000	13	Steel ball	1.4301
3	End cap	EN AC 46000	14	Ripp Lock nut	Steel
4	NAMUR end cap	EN AC 46000	15	Tie rod	1.4301
5	Piston rod	C45	16	Hexagon nut	1.4301
6*	X-ring for shaft	70 NBR	17	Washer	1.4301
7*	X-ring for piston	70 NBR	18*	O-ring end caps	70 NBR
8*	Wiper ring	90N	19**	Magnetic rubber	Flexo 150
9	Shaft bearing	Iglidur G	20	Cylinder head screw	A2 - 70
10*	O-ring for end cap	70 NBR	21	Washer	1.4301
11*	O-ring for shaft	70 NBR	22	Air pipe	1.4301

Component of the sealing set

Subject to change without notice

## PNEUMATIC ACTUATOR ABRO

### DOUBLE CHECK VALVE



#### TECHNICAL DATA

Nominal diameter:	DN 50 - DN 600
Face-to-face:	EN 558-1 ISO 5752
Flange accommodation:	EN 1092 PN10/16, ASME Class 150
Flange Surface Design:	EN 1092 Form A/B ASME RF, FF
Marking:	EN 19
Operating pressure:	16 bar ≤ DN 250 10 bar ≥ DN 300
Tightness check:	EN 12266 (Leakage Rate A) ISO 5208, Category 3
Temperature range:	0°C to +130°C (depending on pressure, medium and temperature)

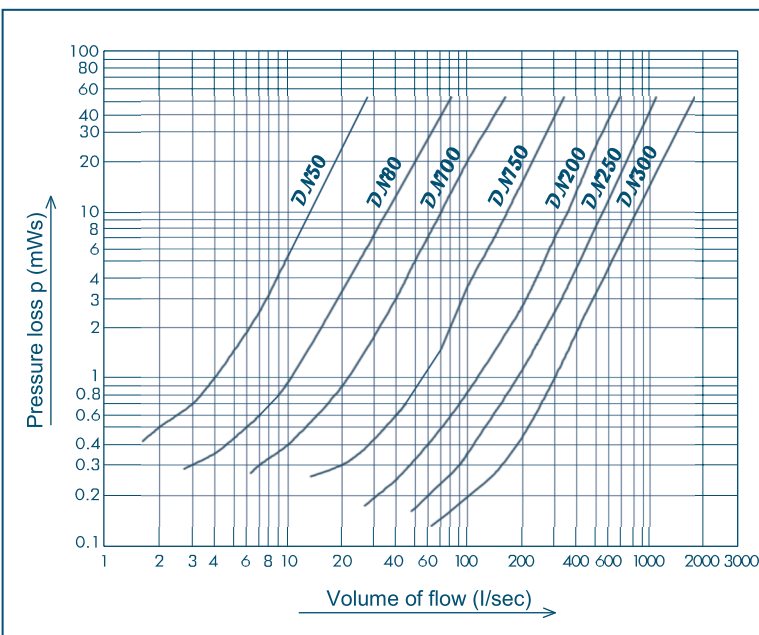
Standard construction:

TYP	DC 1	DC 2	DC 3	DC 4	DC 5
Body	EN-JS 1030	EN-JS 1030	1.4408	Alu-Bronze C954	EN-JS 1030
Disc	Alu-Bronze C954	1.4408	1.4408	Alu-Bronze C954	EN-JS 1030
Shafts	1.4301	1.4301	1.4404	Alu-Bronze C954	1.4301
Springs	1.4571	1.4571	1.4401	2.4816	1.4571
Bearing operating	NBR	EPDM	EPDM	NBR	EPDM
Lager	PTFE	PTFE	PTFE	PTFE	PTFE

#### FEATURES

- Maintenance-free wafer double check valve
- Can be disassembled, material-specific recycling possible

#### PRESSURE LOSS DIAGRAM DN 50 - DN 300



The values given in the diagram are valid for water at 20°C. They result of measurements at valves which are mounted in a horizontal conduction. For the ascertainment of pressure losses for other media, the water flow amount has to be calculated with the following formular:

$$W_{ap} = \sqrt{\frac{\gamma_6}{1000}} \times Q_B$$

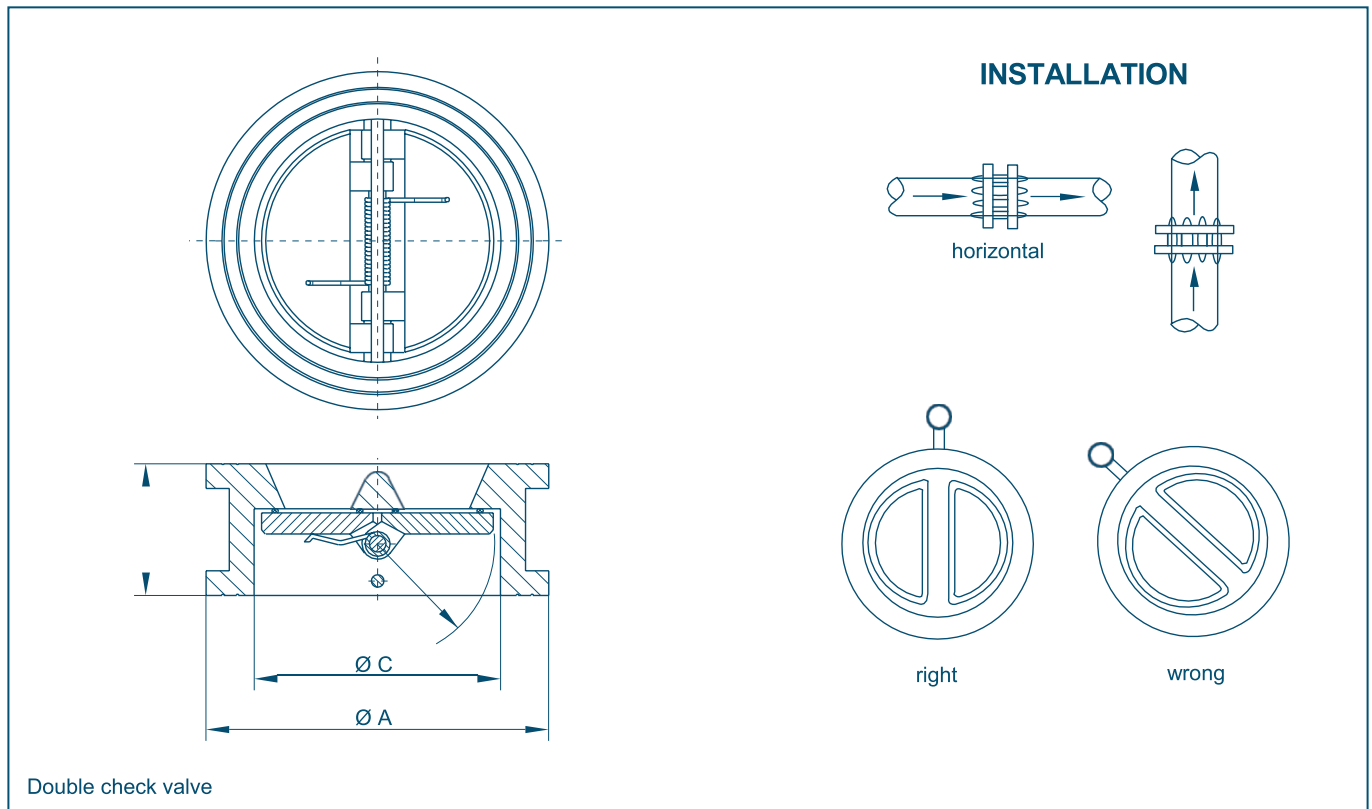
$W_{ap}$  = equivalent water flow in m<sup>3</sup>/h

$\gamma_6$  = flow amount of the media in its operating conditions kg/m<sup>3</sup>

$Q_B$  = volume of flow in operating condition (m<sup>3</sup>/h)

PNEUMATIC ACTUATOR ABRO

DOUBLE CHECK VALVE



Double check valve

DN [mm]	Size [in]	Dimensions [mm]				min. opening pressure [mbar]	K <sub>v</sub> [m <sup>3</sup> /h]	Weight [kg]
		A	B	C	R			
50	2	107	43	65	29	20	63	1,5
65	2½	127	46	80	36	20	109	2,4
80	3	142	64	94	43	20	172	3,6
100	4	162	64	117	53	20	289	5,7
125	5	192	70	145	66	20	476	7,3
150	6	218	76	170	79	20	750	9,0
200	8	273	89	224	104	20	1550	17,0
250	10	328	114	265	127	20	2880	26,0
300	12	378	114	310	148	20	4100	42,0
350	14	438	127	360	172	30	5274	55,0
400	16	489	140	410	197	30	8250	75,0
450	18	539	152	450	218	30	10550	101,0
500	20	594	152	505	241	30	14500	111,0
600	24	695	178	624	295	30	24000	172,0

Installing the check valve on top of a pump please ensure that neither the valve is mounted directly on the pump flange or the following bend or a smoothing section of less than 5 x DN is observed.

For tight sealing of the a back pressure of not less than 1 bar is required.

Subject to change without notice





دفتر مرکزی: تهران خیابان شهید بهشتی ، قائم مقام فراهانی ،  
جنب بیمارستان تهران کلینیک کوچه آزادگان ، پلاک ۹ ، واحد ۱۴



کارخانه: شهرک صنعتی اشتهارد ، بلوار حسابی شرقی ، خیابان سبلان ۲  
پلاک ۳۴۱۴



۸۸ ۷۰ ۴۹ ۶۰ - ۸۸ ۷۰ ۴۹ ۶۶



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