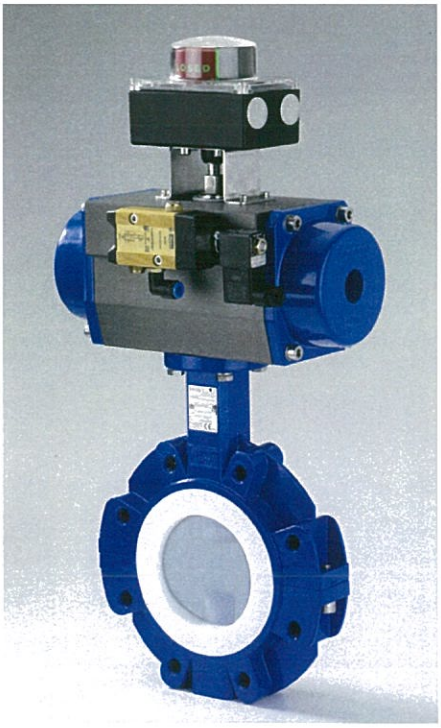
Butterfly Valves SBP Series

are ideally suited for Shut-off, Flow Control and Throttling of corrosive and abrasive process media in either liquid, powdery or gaseous state.

Modular Design

Butterfly Valves SBP Series are available as DIN- or ANSI-Valves, with bare shaft as per standard. Valves can be delivered as complete units, i.e. with mounted-on locking handles, manual gearboxes or with quarter turn pneumatic actuators double- or single-acting.

The sturdy design bodies are made of cast steel 1.0619 (WCB), coating RAL 5005 signal-blue or stainless steel casting 1.4408 (CF-8M), with resistant liners such as PTFE, PTFE-AS (anti-static), PTFE-T (mod.) or UHMWPE.



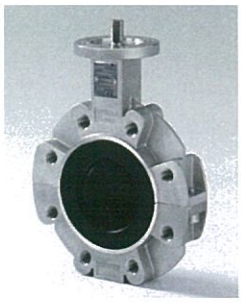
Main Features

- Heavy-duty, compact construction, maintenance-free
- Bubble-tight shut-off throughout the full pressure and temperature range
- Wide selection of high-quality liner and disc materials for economical valve performance
- Unique shaft sealing arrangement assures maintenance-free operation at automated processes and high operating pressures, optimized and reinforced liner shape
- No need of additional flange gaskets due to wide and chambered flange sealing surface
- One-piece disc/shaft for hysteresis-free flow control, with polished sealing surface leading to low torque values
- Flange drilling acc. to DIN PN10/16 resp. ANSI 150lbs for installation into existing piping systems

CE **Conformity according to European Pressure Equipment Directive 97/23/EC (PED)**

Options

Lug 1.0619 (WCB)
PTFE/PFA, locking handle



Lug 1.4408 (CF-8M)
PTFE-AS/PFA-AS, bare shaft

Wafer SS316L (1.4435)
PTFE/PFA, pneum. actuator

Wafer 1.0619 (WCB)
PTFE/PFA, pneum. actuator and E/P positioner

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SBP: Technical Data

51 Butterfly Valves, plastomer-lined

PM 51 M.01 e
November 2010

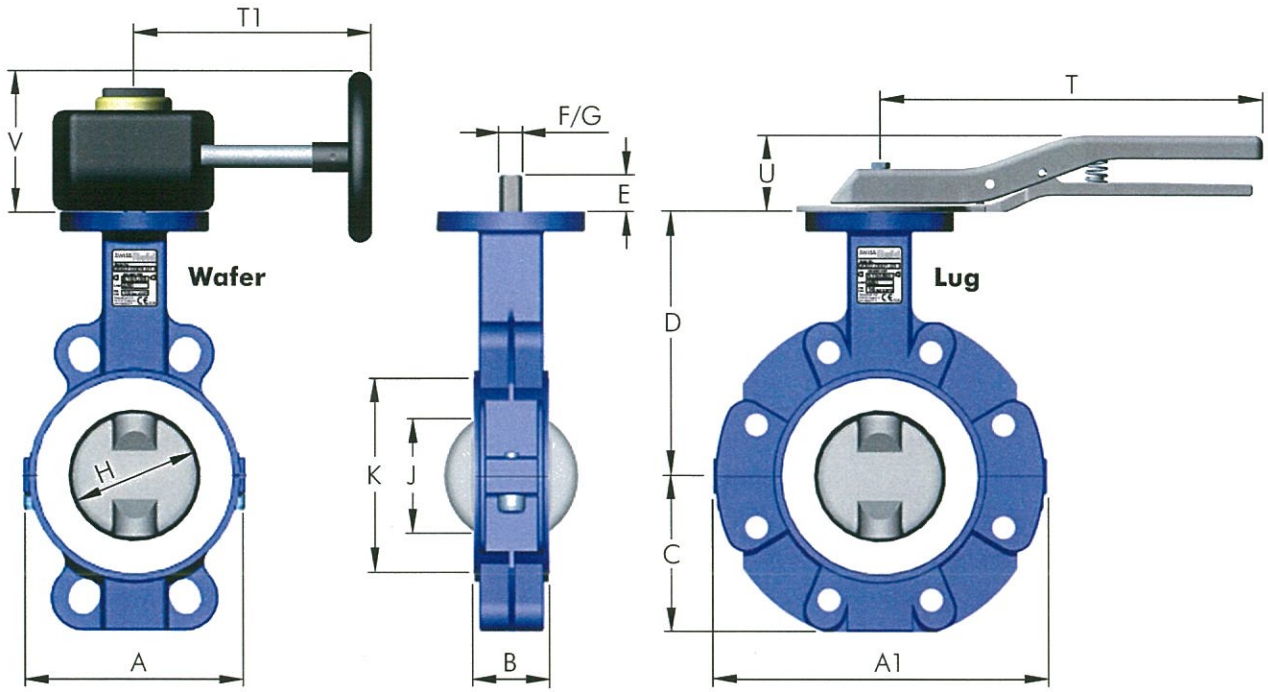
Operating Conditions

- Temperature range from –40°C up to +220°C (depending on material of liner resp. encapsulation)
- Pressure range from 1 mbar up to 16 bar

Testing / Marking

- Pressure- and tightness testing acc. to EN 12266-1, leakage rate A, and spark testing at 35 kV to assure lining integrity. Marking of valves on body and name plate acc. to EN 19.
- Material- resp. test certificate acc. to EN 10204-3.1

Outline Drawing / Actuator Options



Dimensions in mm

Size DN	A	A1	B	C	D	E	F	G	H	J	K	ISO	T	T1	U	V
25/1"	-	115	33	46	87	23	14	11	35	10	64	F05	230	120	46	83
32/1¼"	-	115	33	46	87	23	14	11	35	10	64	F05	230	120	46	83
40/1½"	-	145	33	64	109	23	14	11	50	38	79	F07	230	120	46	83
50/2"	118	160	43	69	124	23	14	11	60	42	99	F07	230	120	46	83
65/2½"	-	180	46	79	144	23	14	11	60	39	104	F07	230	120	46	83
80/3"	134	202	46	93	159	23	14	11	80	66	119	F07	230	120	46	83
100/4"	162	232	52	107	184	23	18	14	100	86	144	F07	270	120	51	83
125/5"	-	269	56	119	199	23	18	14	125	112	169	F07	270	120	51	83
150/6"	248	289	56	130	209	28	24	17	150	141	199	F07	325	210	51	122
200/8"	273	349	60	158	239	28	24	17	200	191	249	F10	-	210	-	122
250/10"	328	400	68	195	264	40	30	22	250	241	309	F10	-	240	-	188
300/12"	378	470	78	229	264	40	30	22	300	290	359	F10	-	240	-	188

Face to face B acc. to DIN EN 558-1 range 20

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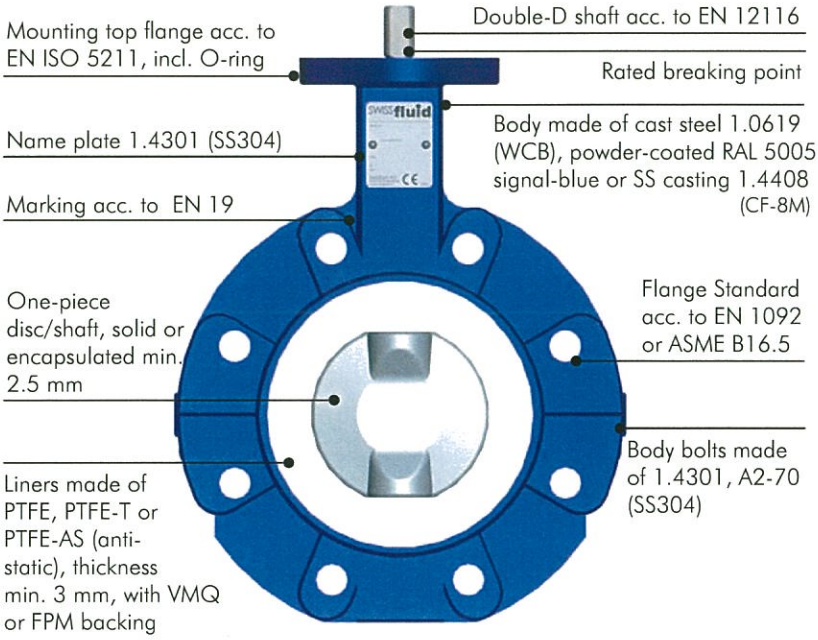
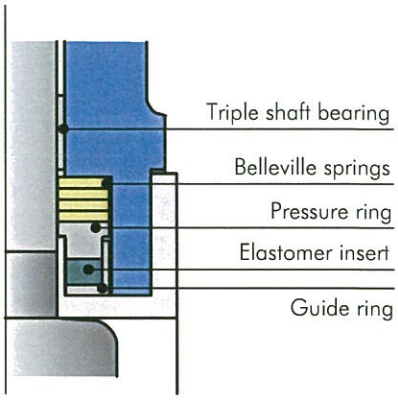
SBP: Construction, Mounting Options

51 Butterfly Valves, plastomer-lined

PM 51 M.02 e
March 2006

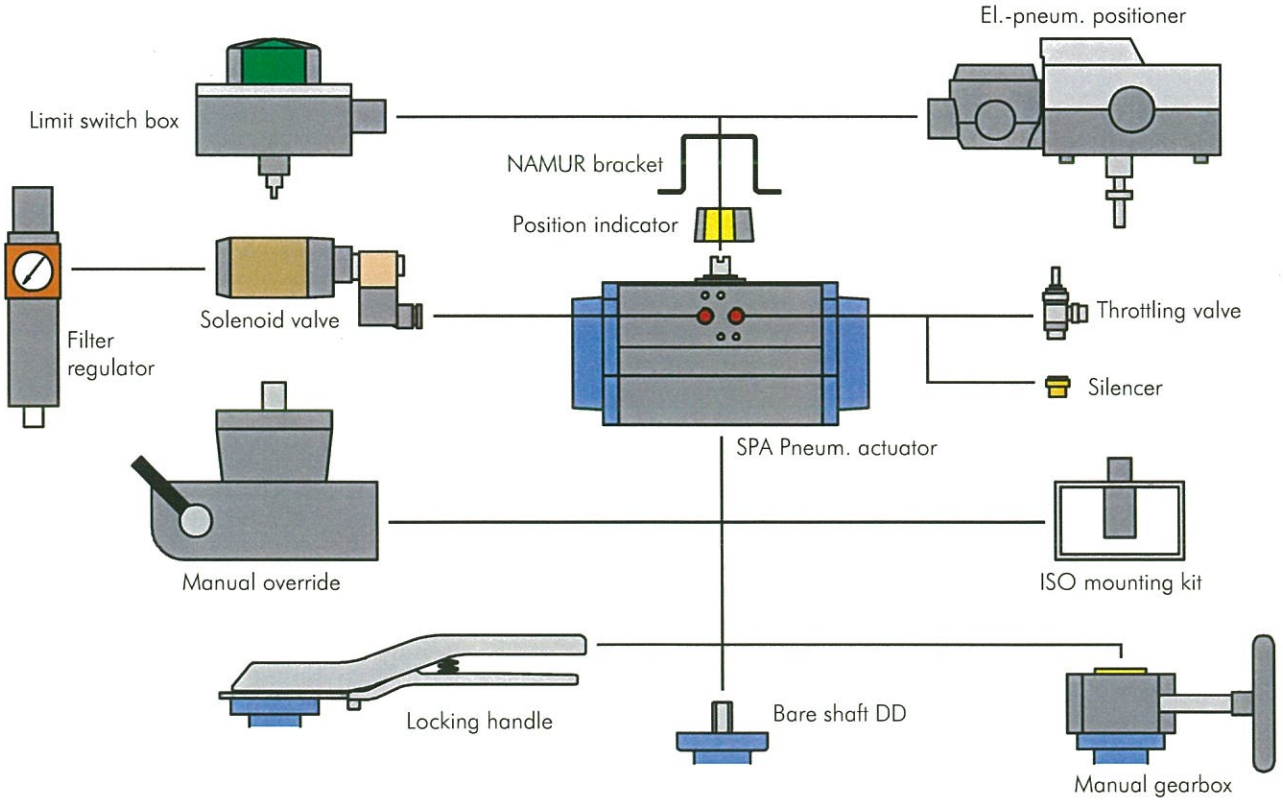
Construction of Valve





Dynamic Shaft Seal

Mounting Options



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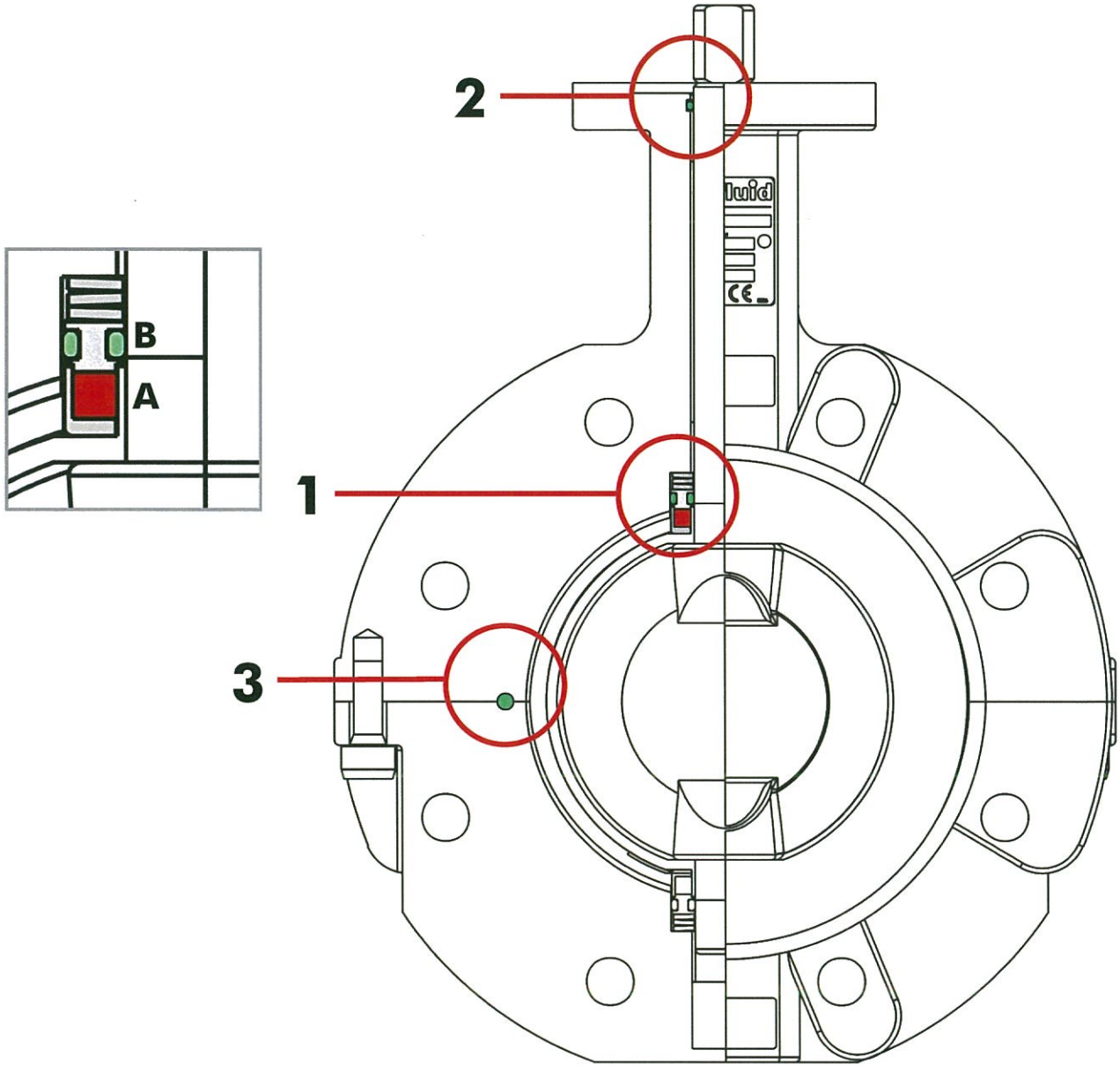
Tel. +41 62 889 20 10 Fax +41 62 889 20 11 info@swissfluid.ch

Construction



Features

1 Primary Seal onto shaft, elastomer insert and double O-ring, prestressed by belleville springs
2 Secondary Seal onto shaft, O-ring on atmospheric outlet
3 Third Seal crossways onto body halves, elastomer round gasket

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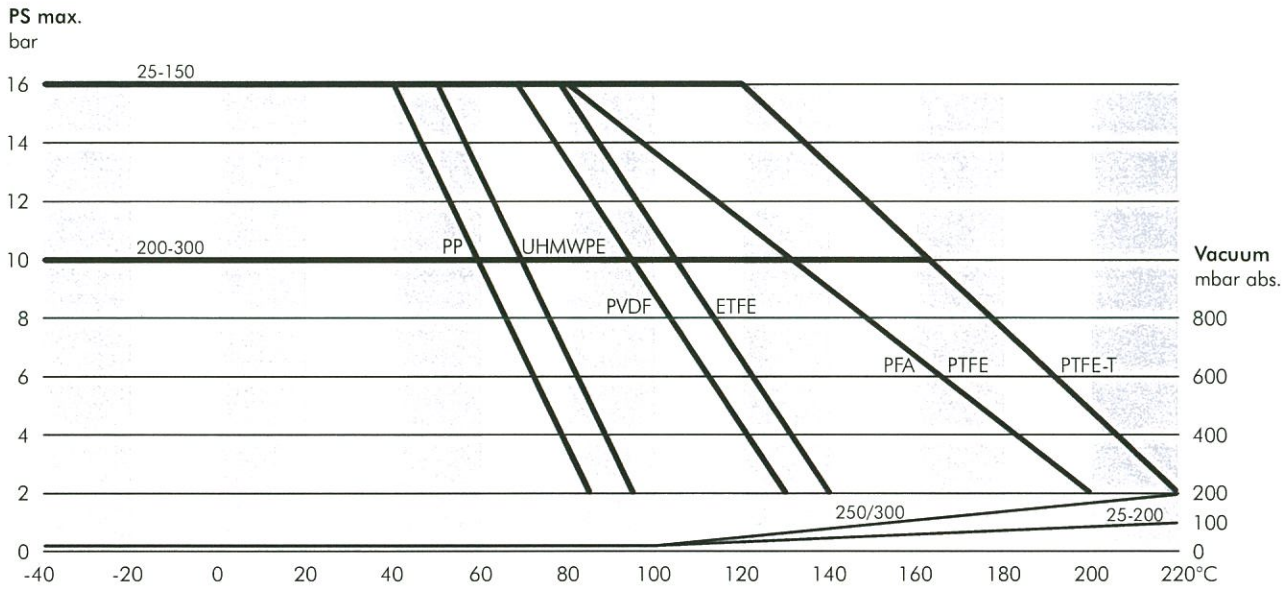
Pressure-/Temperature Diagram



Torque Values in Nm (in-lbs = Nm x 8.85)

Torque values for PFA-encapsulated disc and specified body liner

Size **DN**	**25/32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**
A80 PTFE	20	25	30	30	40	50	60	110	180	250	350
A81 PTFE-T	22	28	33	33	44	55	66	122	198	275	385
A82 PTFE-AS	20	25	30	30	40	50	60	110	180	250	350
A89 PP	32	40	45	45	60	75	90	165	270	375	525
A90 UHMWPE	28	35	40	40	52	65	78	140	230	325	455
max. allowable	145	145	145	145	145	320	320	700	700	1'200	1'200

- For liner resp. disc encapsulation never use for both the same material, otherwise considerable increase of torque values must be expected!
- Stated values to be break-away torques without any consideration of safety factors for actuators.

Weights in kg (lbs = kg x 2.2)

Figures stated for execution PTFE/PFA/bare shaft

Size **DN**	**25/32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**
Lug-style body	2.3	3.2	4.7	6.0	6.5	8.5	10.6	13.9	17.9	27.2	35.9
Wafer-style body	-	-	-	4.2	4.3	6.3	7.6	10.9	16.2	24.1	31.2
Locking handle	0.9	0.9	0.90	0.9	0.9	1.2	1.2	1.5	-	-	-
Gearbox GG25	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.5	3.5	6.8	6.8

Weights for pneumatic actuators acc. to separate data sheet

SBP: Cv-Values, Options

51 Butterfly Valves, plastomer-lined

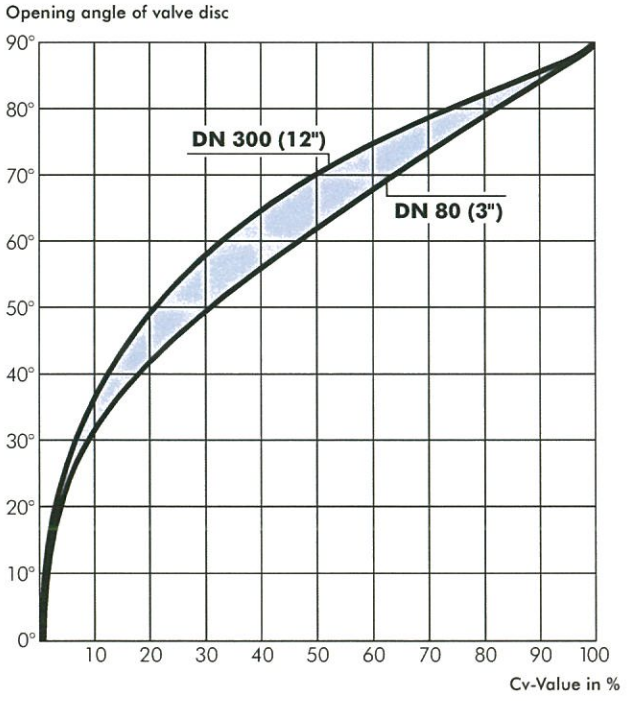
PM 51 M.04 e
October 2006

Flow Rate Values Cv usg/min.

Estimated values at corresponding opening angle of valve disc

Size DN	25/32	40	50	65	80	100	125	150	200	250	300
20°	3	6	8	8	17	23	44	70	110	203	307
30°	5	13	19	19	38	56	95	151	267	406	606
40°	9	28	41	41	83	110	191	273	539	824	1'154
50°	16	50	70	70	145	188	296	458	922	1'346	1'995
60°	26	74	107	107	220	296	528	748	1'369	1'868	3'091
70°	37	107	153	153	313	447	748	1'108	2'105	2'807	4'599
80°	46	139	197	197	389	563	945	1415	2796	4234	6914
90°	58	158	224	224	455	679	1'177	1'734	3'538	5'232	8'364

Flow Characteristic

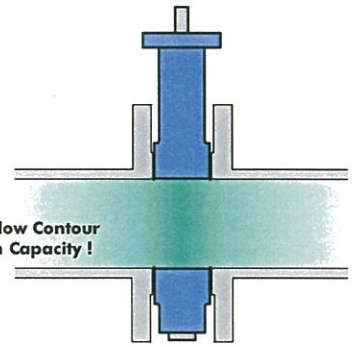


Liquids:

$$K_v = Q\sqrt{\frac{SG}{\Delta p}}$$

Gases:

$$K_v = \frac{Q_N}{514}\sqrt{\frac{SG_N \cdot T}{\Delta p \cdot p_2}}$$



$°K = °C + 273$ $Kv = Cv / 1.16$

Cv (Kv)	Valve Coefficient	usg/min (m^3/h)
Q	Flow Rate	usg/min (m^3/h)
Q_N	Flow Rate	usg/min (Nm^3/h)
SG	Specific Gravity	lbs/usg (kg/dm^3)
SG_N	Specific Gravity	lbs/usg (kg/Nm^3)
P_2	Downstream Pressure	psi (bar)
ΔP	Pressure Drop	psi (bar)
T	Temperature	°K (°C)

Typical Service Applications

- Chemical CPI
- Petro-Chemical
- Bio-Technical
- Pharmaceutical Industry
- Semi-Conductors
- Pulp and Paper
- Food Processing
- Paint and Pigments
- Fertilizers
- Textile Industry
- Mining and Steel
- Desalination

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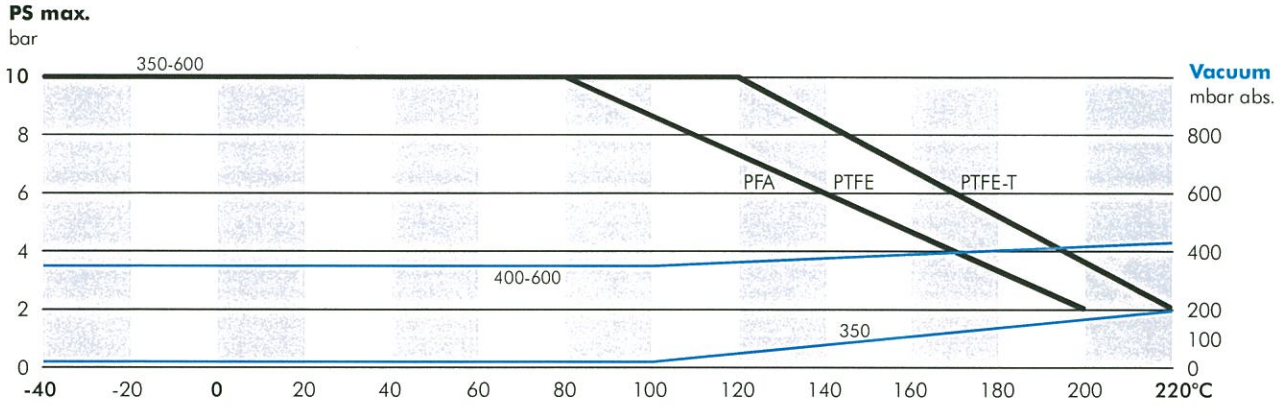
Tel. +41 62 889 20 10 Fax +41 62 889 20 11 info@swissfluid.ch

SBP: Technical Data DN350-600

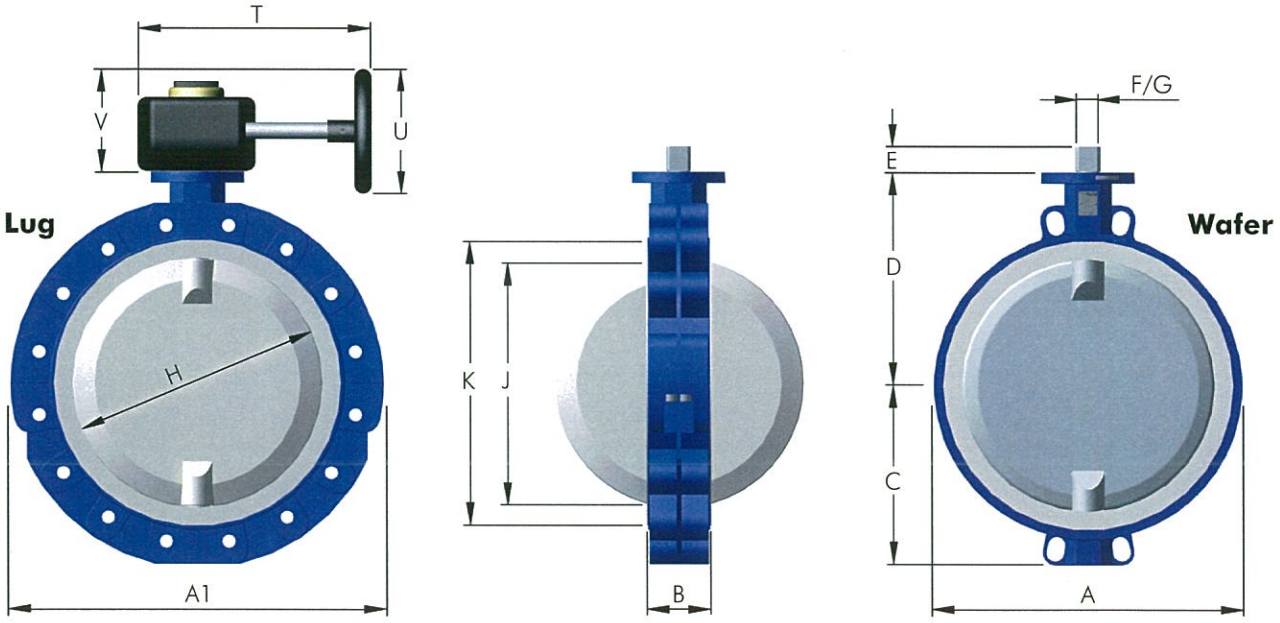
51 Butterfly Valves, plastomer-lined

PM 51 M.05 e
November 2010

Pressure-/Temperature Diagram



Dimensions in mm



Size DN	A	A1	B	C	D	E	F	G	H	J	K	ISO	T	U	V
350/14"	416	530	92	254	309	40	40	27	340	328	409	F12	315	300	188
400/16"	462	596	102	289	339	40	40	27	400	387	459	F12	315	300	188
450/18"	630*	630	114	308	359	50	50	14	450	436	515	F14	400	400	238
500/20"	566	698	127	339	390	50	50	14	500	484	569	F14	400	400	238
600/24"	668	812	154	399	449	50	50	14	600	578	669	F14	400	400	238

Face to face B acc. to DIN EN 558-1 Range 20 G) DN450-600: Keyway B) DN350/14": optional 78 mm , Range 25, ASME B16.10 wide,
* Wafer 450/18" made of Lug bodies with drilled-through holes

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SBP: Technical Data DN350-600

Torque Values in Nm (in-lbs = Nm x 8.85)

Torque values for PFA-encapsulated disc and specified body liner

Size **DN**	**350**	**400**	**450**	**500**	**600**
A80 PTFE	450	600	740	900	1'200
A81 PTFE-T	495	660	815	990	1'320
A82 PTFE-AS	450	600	740	900	1'200
max. allowable	1'800	1'800	2'000	2'000	2'000

- For liner resp. disc encapsulation never use for both the same material, otherwise considerable increase of torque values must be expected!
- Stated values to be break-away torques without any consideration of safety factors for actuators.

Weights in kg (lbs = kg x 2.2)

Figures stated for execution PTFE/PFA/bare shaft

Size **DN**	**350**	**400**	**450**	**500**	**600**
Lug-style body	87.0	101.0	137.0	158.0	242.0
Wafer-style body	57.0	69.0	137.0*	96.0	141.0
Gearbox GG25	6.8	6.8	10.0	10.0	10.0

Weights for pneumatic actuators acc. to separate data sheet

* Wafer 450/18" made of Lug bodies with drilled-through holes

Flow Rate Values Cv usg/min

Estimated values at corresponding opening angle of valve disc

Size **DN**	**350**	**400**	**450**	**500**	**600**
20°	406	592	771	1'032	1'473
30°	766	1'143	1'456	1'879	2'494
40°	1'369	1'717	2'587	3'457	4'849
50°	2'088	2'842	4'466	6'206	8'607
60°	3'341	4'907	7'250	9'454	13'166
70°	5'278	7'598	10'672	13'688	19'082
80°	8'329	10'730	14'210	18'050	24'592
90°	10'162	13'166	17'284	20'880	28'420

Same values to be applied on Butterfly Valves SBE Series elastomer-lined

Kv = Cv / 1.16 °K = °C + 273

Liquids:

$$K_v = Q\sqrt{\frac{SG}{\Delta p}}$$

Gases:

$$K_v = \frac{Q_N}{514}\sqrt{\frac{SG_N \cdot T}{\Delta p \cdot p_2}}$$

Kv (Cv)	Valve Coefficient	m^3/h (usg/min)
Q	Flow Rate	m^3/h (usg/min)
$\mathbf{Q_N}$	Flow Rate	Nm^3/h (usg/min)
SG	Specific Gravity	kg/dm^3 (lbs/usg)
$\mathbf{SG_N}$	Specific Gravity	kg/Nm^3 (lbs/usg)
$\mathbf{P_2}$	Downstream Pressure	bar (psi)
ΔP	Pressure Drop	bar (psi)
T	Temperature	°C (°K)

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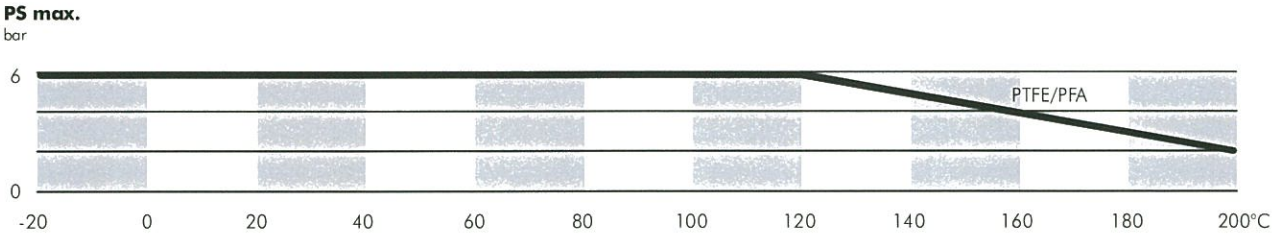
SBP: Technical Data DN700-900

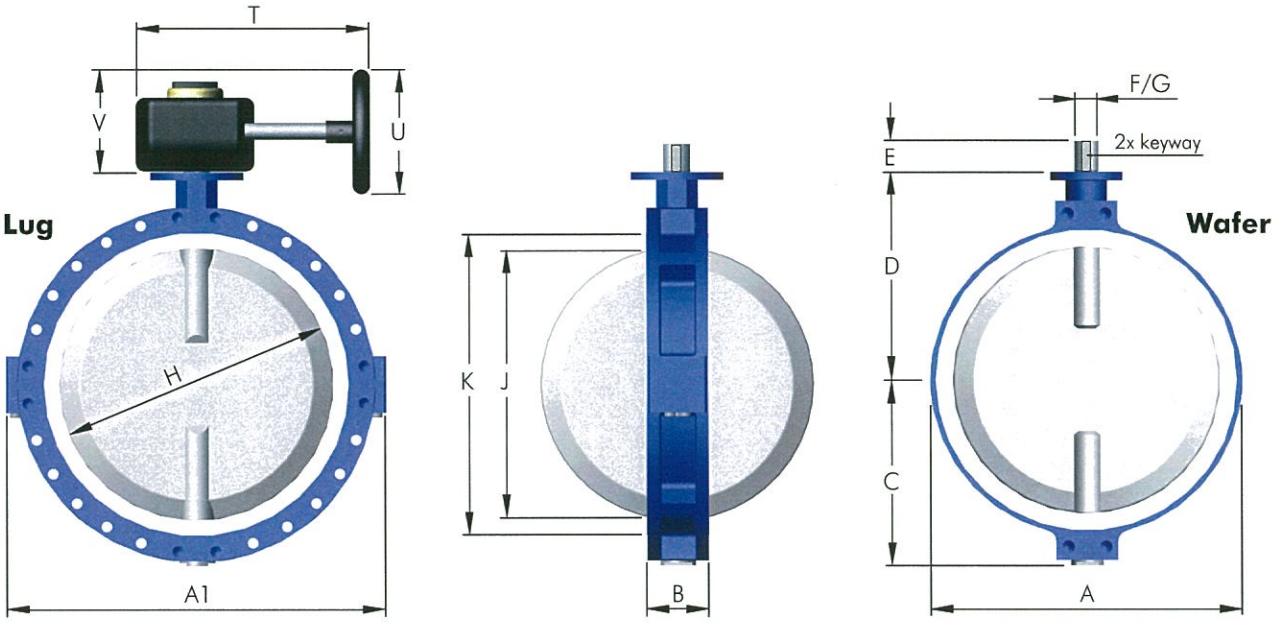
51 Butterfly Valves, plastomer-lined

PM 51 M.05.1 e
November 2010

Pressure-/Temperature Diagram



Dimensions in mm



Size DN	A	A1	B	C	D	E	F	G	H	J	K	ISO	T	U	V
700/28"	805	1020	165	476	558	50	50	14	680	660	779	F14	490	500	330
30"	1110*	1110	165	540	608	90	70	20	740	721	839	F16	490	500	330
800/32"	1110*	1110	165	540	608	90	70	20	780	761	839	F16	490	500	330
900/36"	1220*	1220	203	586	685	90	90	25	880	856	980	F25	490	500	330

F/F acc. to DIN EN 558-1 Range 20 resp. ASME B16.10
* Wafer 30", DN800/32" and DN900/36" made of Lug bodies with drilled-through holes

Torque Values in Nm (in-lbs = Nm x 8.85)

Torque values for PFA-encapsulated disc and specified body liner

Size **DN**	**700/28"**	**30"**	**800/32"**	**900/36"**
A80 PTFE	1'760	1'980	2'090	2'640
max. allowable	2'400	4'000	4'000	5'000

- Stated values to be break-away torques without any consideration of safety factors for actuators.

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info@swissfluid.ch

Weights in kg (lbs = kg x 2.2)

Figures stated for execution PTFE/PFA/bare shaft

Size **DN**	**700/28"**	**30"**	**800/32"**	**900/36"**
Lug-style body	410	480	600	800
Wafer-style	300	480*	600*	800*
Gearbox GG25	75	75	75	75

* Wafer 30", DN800/32" and DN900/36" made of Lug-style bodies with drilled-through flange holes

Weights for pneumatic actuators acc. to separate data sheet

Flow Rate Values Cv usg/min

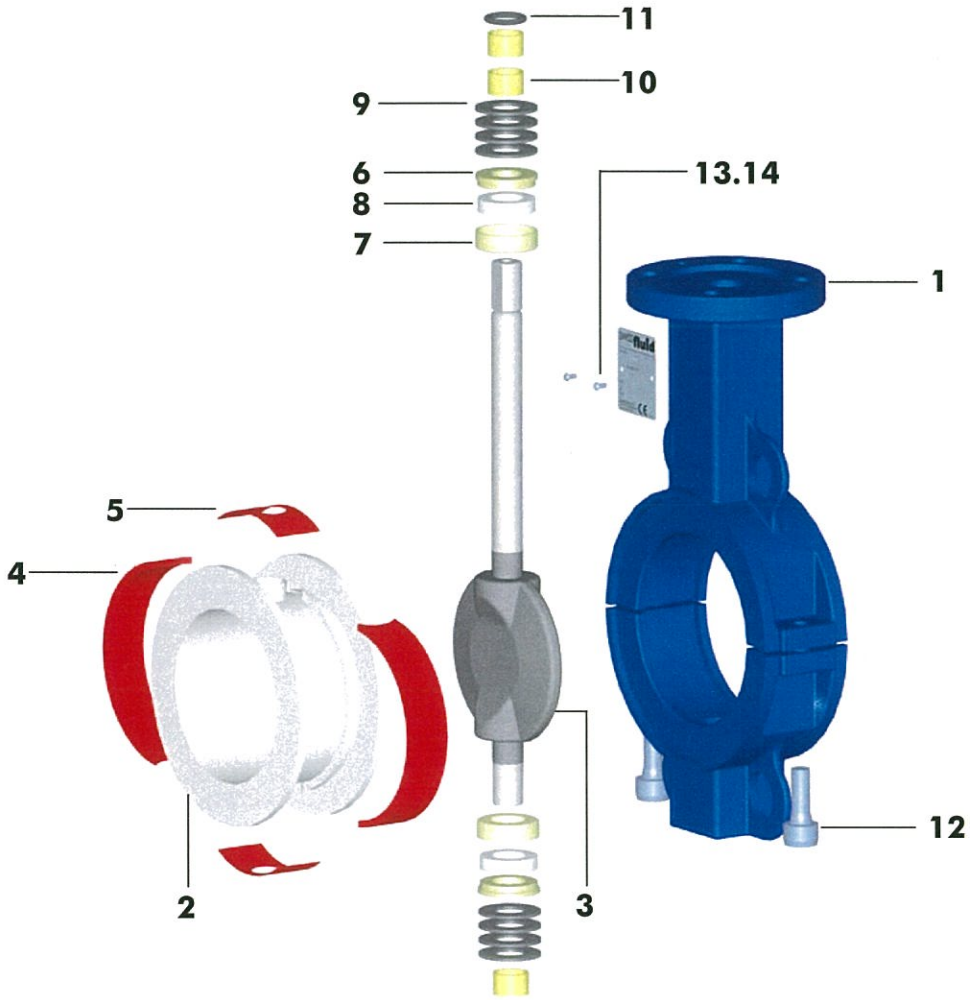
700/28"	**30"**	**800/32"**	**900/36"**
41'920	46'850	49'390	66'440

Kv = Cv / 1.16

SBP: Parts List Wafer compl.

51 Butterfly Valves, plastomer-lined

Standard Version (Picture showing DN 80 PN16, PTFE liner, PFA-encapsulated disc, bare shaft)



Item	Qty.	Description	Material	No.
1	1	Body two-piece, RAL 5005	WCB	1.0619
2	1	Liner	PTFE	
3	1	Disc encapsulated	Duplex/PFA	1.4462
4	2	Elastomer	VMQ	
5	2	Elastomer Pad	VMQ	
6	2	Pressure Ring	C.Steel	1.0737
7	2	Guide Ring	C.Steel	1.0737
8	2	Elastomer Insert	VMQ	
9	8	Belleville Spring	Spring Steel	1.8159
10	3	Bearing DU	C.Steel/PTFE	
11	1	O-Ring top	FPM	
12	2	Socked Head Cap Screw	A2-70	1.4310
13	1	Name Plate 42 x 14 CE	A2	1.4301
14	2	Hammer Screw 2.49 x 4.76	A2	1.4310

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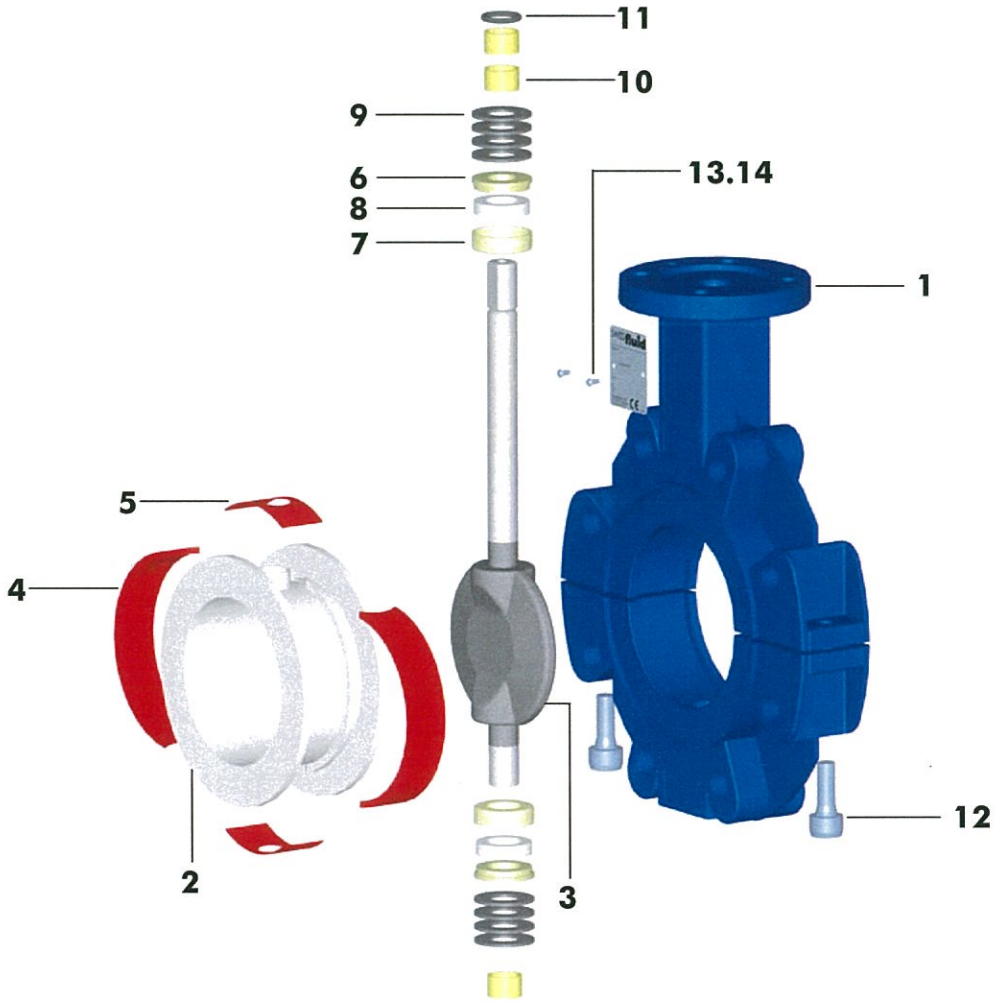
Tel. +41 62 889 20 10 Fax +41 62 889 20 11 info@swissfluid.ch

SBP: Parts List Lug compl.

51 Butterfly Valves, plastomer-lined

Standard Version (Picture showing DN 80 PN16, PTFE liner, PFA-encapsulated disc, bare shaft)



Item	Qty.	Description	Material	No.
1	1	Body Lug two-piece, RAL 5005	WCB	1.0619
2	1	Liner	PTFE	
3	1	Disc encapsulated	Duplex/PFA	1.4462
4	2	Elastomer	VMQ	
5	2	Elastomer Pad	VMQ	
6	2	Pressure Ring	C.Steel	1.0737
7	2	Guide Ring	C.Steel	1.0737
8	2	Elastomer Insert	VMQ	
9	8	Belleville Spring	Spring Steel	1.8159
10	3	Bearing DU	C.Steel/PTFE	
11	1	O-Ring top	FPM	
12	2	Socket Head Cap Screw	A2-70	1.4310
13	1	Name Plate 42 x 14 CE	A2	1.4301
14	2	Hammer Screw 2.49 x 4.76	A2	1.4310

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SBP: Specification

51 Butterfly Valves, plastomer-lined

SWISSfluid

PM 51 M.10 e
April 2003

Project-/Customer Data

Inquiry/Date: _____ **Ref. Swissfluid** _____

Company:	Contact Person:	Phone:
Address:	Function:	Fax:
ZIP/Place:	Department:	E-mail:
Project:	Phone direct:	Mobile:

Operating Conditions

Media / Chemical Composition:

☐ Liquid	☐ powdery	☐ crystallizing	☐ sticky	☐ Spez. Grav. ____
☐ gaseous	☐ Solids ___ %	☐ viscous	☐ Flow Velocity _____ m/s	
☐ abrasive	☐ Paricle ____ mm	☐ Visc. _____ cp	☐ Flow Rate _____ m^3/h	

Pressure	Temperature	Mode	Installation / Environment	
max. ____ bar	max. _____ °C	☐ On/Off	☐ horizontal	☐ Room dry
min. ____ bar	min. _____ °C	☐ Flow Control	☐ vertical	☐ Room humid
		___ cycles/ ____	☐ _____	☐ outdoor

Remarks:

Specification of a complete Butterfly Valve SBP Series

Size/ Nom. Press. | Flange Connection

SBP - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Body

G10	Cast steel WCB (1.0619)
G15	Stainl. st. casting CF-8M (1.4408)

Liner

A80	PTFE
A81	PTFE-T
A82	PTFE-AS
A90	UHMWPE

Disc / Shaft

U85	PFA/1.4462
U86	PFA-AS/1.4462
U88	PVDF/1.4462
K16	Duplex (1.4462)
S32	1.4435
S40	Titanium Gr.2
S43	Hastelloy C-276

Elastomer

E60	EPDM	**E67**	FPM (Viton®)	**E68**	VMQ (Silicone)

Shaft end / Actuator

DD	Bare shaft, Double D	**RH**	Locking handle
VK	Bare shaft, square parallel	**HG**	Manual gearbox
VV	Bare shaft, square, 45° rot.		

Automated Valves
Actuator Specification acc. to PM 61 M.04 e

Options

Po	Disc mirror-polished
Fb	FEB Safety stuffing box
0000	Special Paint (RAL-Code)
Th	Drilled-thru holes (Wafer)
W1	Shaft extension 100 mm

Actuator Options

PI	Safety lock/Padlock

Swissfluid AG
Tel. +41 62 889 20 10 Fax +41 62 889 20 11 info@swissfluid.ch