

DN25 – DN1000 resp. 1" – 42"

SBP Butterfly Valves 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

Valves are available as wafer- or lug-style versions, 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 connections according to DIN PN10/16 resp. ANSI 150lbs, for installation into existing piping systems

 **Conformity according to European Pressure Equipment Directive 2014/68/EU (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

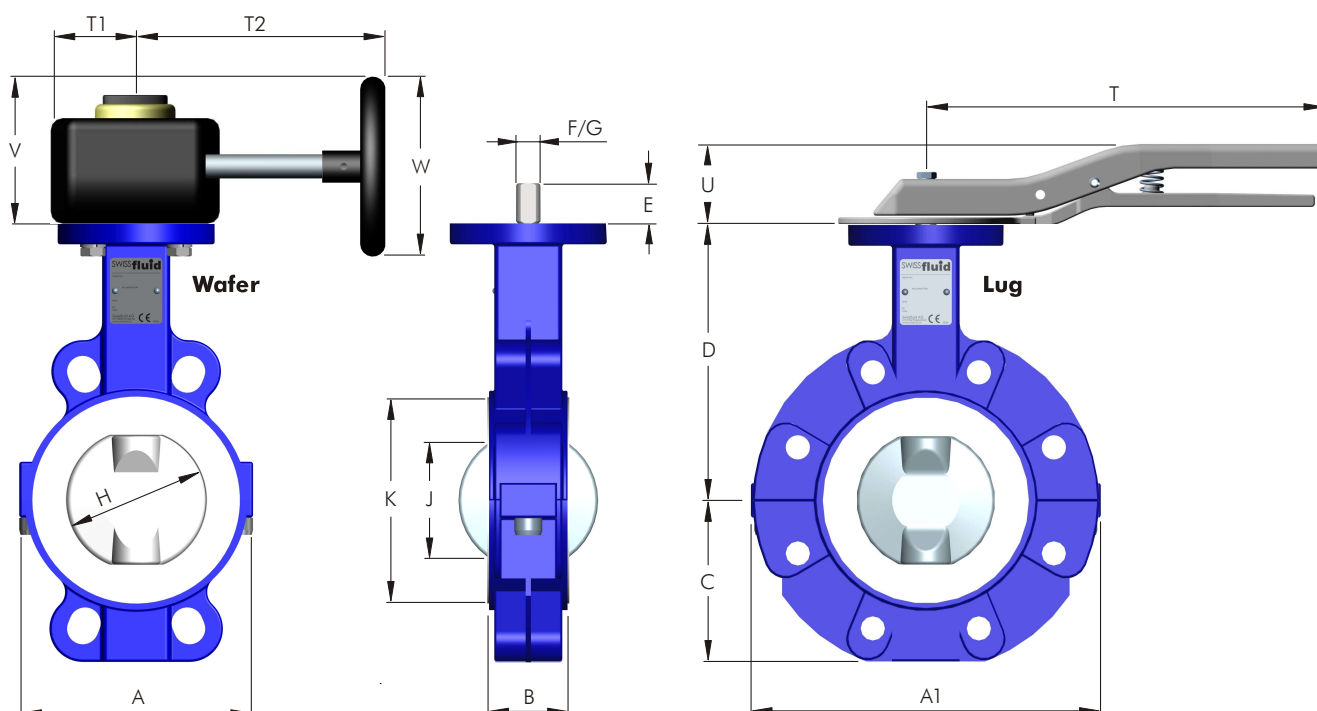
Operating Conditions

- Temperature range from -40°C (-40°F) up to $+230^{\circ}\text{C}$ ($+446^{\circ}\text{F}$), depending on lining material
- Pressure range from 1 mbar (0.01 psi) up to 16 bar (232 psi), depending on size/pressure/temperature

Testing / Marking

- Pressure- and tightness testing acc. to EN 12266-1, leakage rate A, resp. API 598.
- Marking of valves on body and name plate acc. to EN 19.
- Material- resp. test certificates acc. to EN 10204-3.1/2.2/2.1

Outline Drawing / Actuator Options



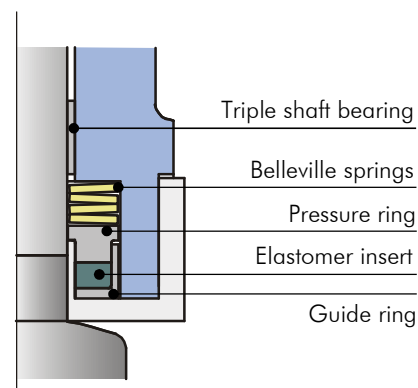
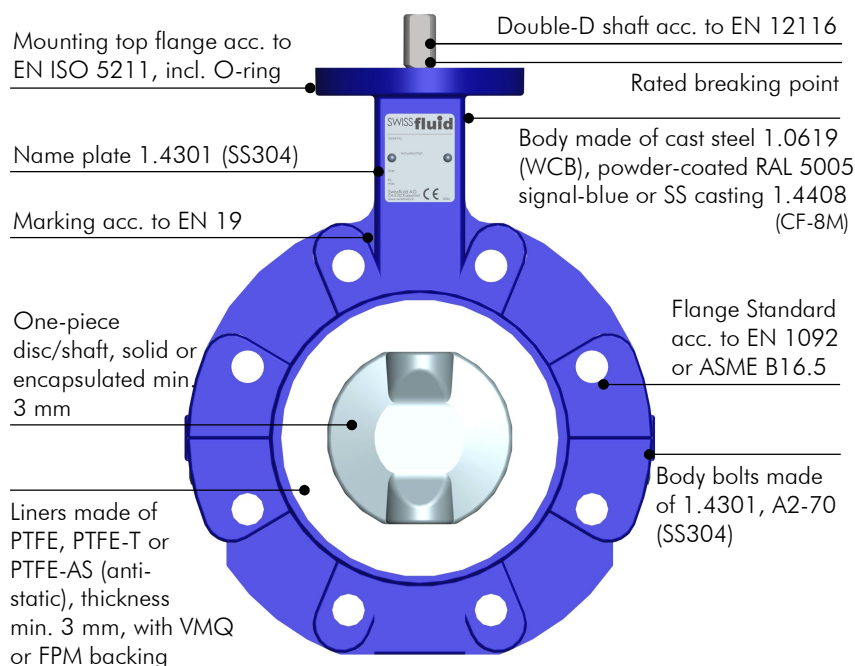
Dimensions in mm

DN Size nom.	A	A1	B	C	D	E	F	G	H	J	K	ISO Top	T	T1	T2	U	V	W
25/1" ¹⁾	-	115	33	46	87	23	14	11	35	10	64	F05	230	58	110	46	90	125
32/1¼" ¹⁾	-	115	33	46	87	23	14	11	35	10	64	F05	230	58	110	46	90	125
40/1½" ¹⁾	-	145	33	64	109	23	14	11	50	38	79	F07	230	58	110	46	90	125
50/2"	118	160	43	69	124	23	14	11	60	42	99	F07	230	58	110	46	90	125
65/2½"	120	180	46	79	144	23	14	11	60	39	104	F07	230	58	110	46	90	125
80/3"	134	202	46	93	159	23	14	11	80	66	119	F07	230	58	110	46	90	125
100/4"	162	232	52	107	184	23	18	14	100	86	144	F07	270	58	110	51	90	125
125/5"	185	269	56	119	199	23	18	14	125	112	169	F07	270	58	110	51	90	125
150/6"	248	289	56	130	209	28	24	17	150	141	199	F07	325	58	200	51	127	200
200/8"	273	349	60	158	239	28	24	17	200	191	249	F10	-	58	200	-	127	200
250/10"	328	400	68	198	264	40	30	22	250	241	309	F10	-	73	280	-	127	200
300/12"	378	470	78	229	264	40	30	22	300	290	359	F10	-	73	280	-	127	200

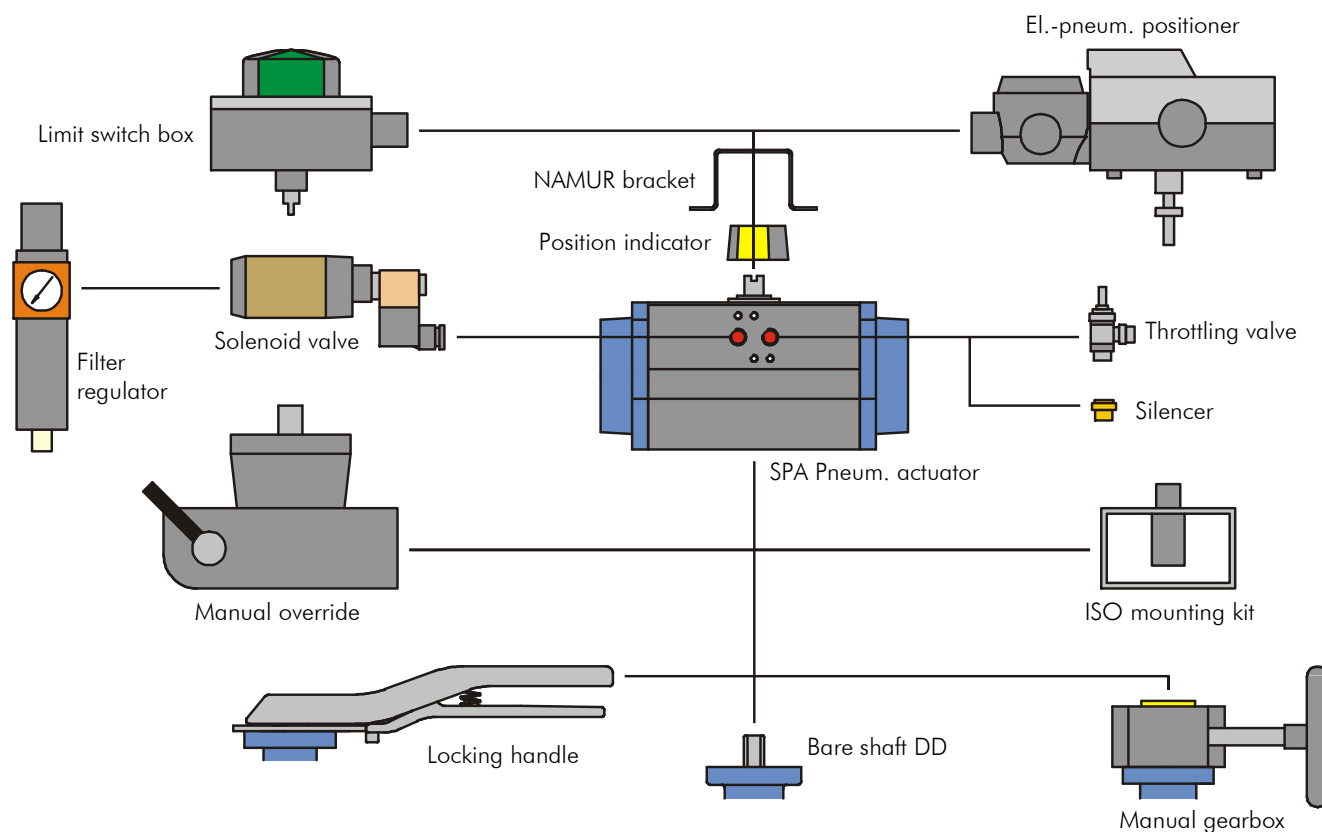
Face to face B acc. to DIN EN 558-1 range 20

¹⁾ Wafer made of Lug bodies with drilled-through holes

Construction of Valve

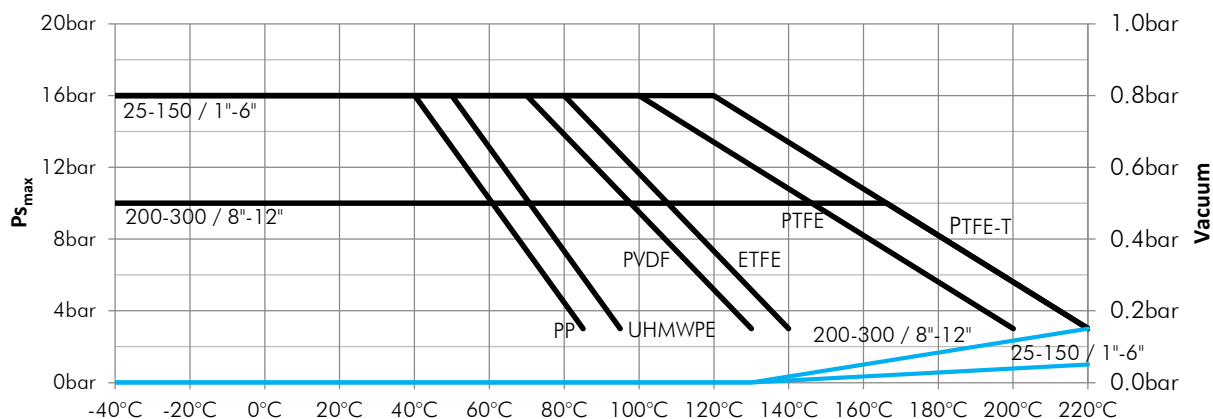

Dynamic Shaft Seal

Mounting Options



DN25 – DN300 resp. 1" – 12"

Pressure-/Temperature Diagram



Low temperature or austenitic steels are required for use below -10°C (14°F) operating temperature.

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

Torque values for PFA-encapsulated or solid discs and specified body liner

DN Size nom.	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	-	-	3.3	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

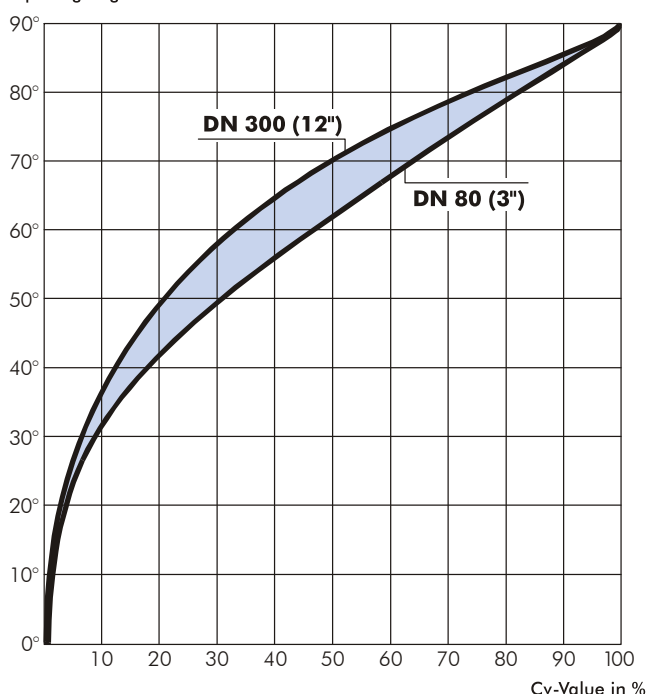
Flow Rate Values Cv usg/min.

Estimated values at corresponding opening angle of valve disc

DN Size	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

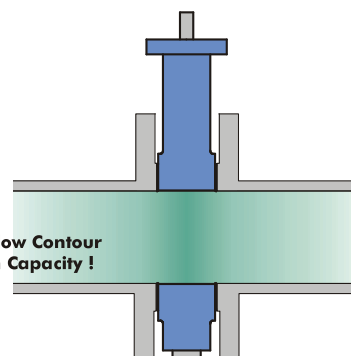
Opening angle of valve disc


Liquids:

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

Gases:

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

 Streamline Flow Contour
for Maximum Capacity !


$$^{\circ}\text{K} = ^{\circ}\text{C} + 273$$

$$K_v = C_v / 1.16$$

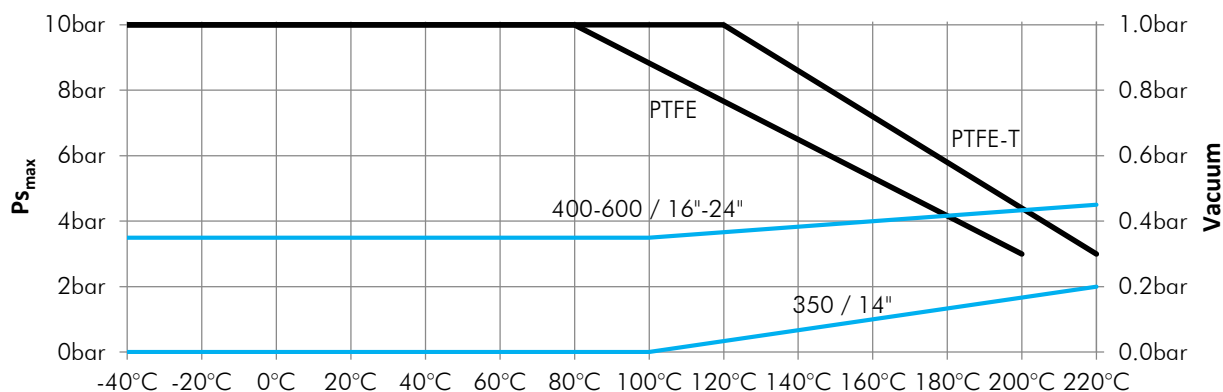
Cv (Kv)	Valve Coefficient	usg/min (m³/h)
Q	Flow Rate	usg/min (m³/h)
Q_N	Flow Rate	usg/min (Nm³/h)
SG	Specific Gravity	lbs/usg (kg/dm³)
SG_N	Specific Gravity	lbs/usg (kg/Nm³)
P₂	Downstream Pressure	psi (bar)
ΔP	Pressure Drop	psi (bar)
T	Temperature	°K (°C)

Typical Service Applications

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

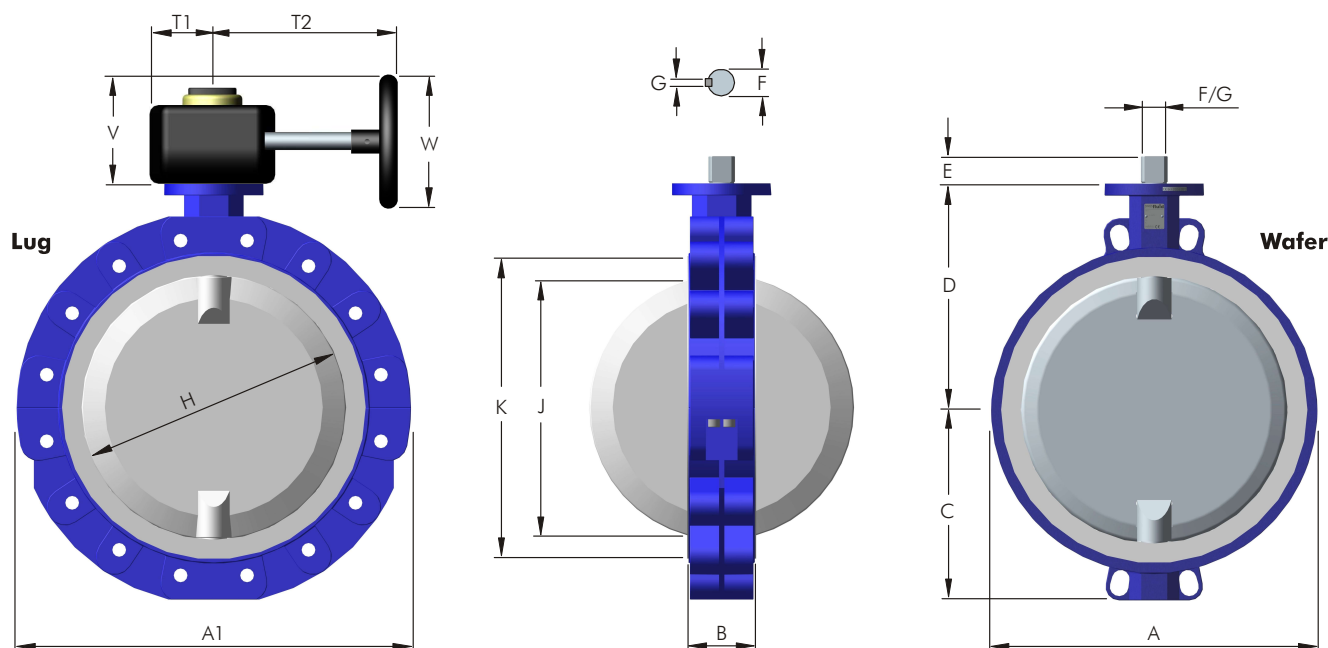
DN350 – DN600 resp. 14" – 24"

Pressure-/Temperature Diagram



Low temperature or austenitic steels are required for use below -10°C (14°F) operating temperature.

Dimensions in mm



DN Size	A	A1	B	C	D	E	F	G ¹⁾	H	J	K	ISO	T1	T2	V	W
350/14"	416	530	92	254	309	40	40	27	340	328	409	F12	73	330	190	300
400/16"	462	596	102	289	339	40	40	27	400	387	459	F12	90	350	245	400
450/18"	537	630	114	308	359	50	50	14	450	436	515	F14	90	400	245	400
500/20"	592	698	127	345	390	50	50	14	500	484	569	F14	90	400	245	400
600/24"	694	812	154	399	449	50	50	14	600	578	669	F14	90	400	245	400

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

B: DN350/14": optional 78 mm , Range 25, ASME B16.10 wide

¹⁾ G: DN350/400 with DD drive, DN450-600 with 1x Keyway

Torque Values

 in Nm (in-lbs = Nm x 8.85)

Torque values for PFA-encapsulated disc and specified body liner

DN Size	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

DN Size	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

DN Size	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

$$K_v = C_v / 1.16 \quad ^\circ K = ^\circ C + 273$$

Kv (Cv)	Valve Coefficient	m³/h (usg/min)
Q	Flow Rate	m³/h (usg/min)
Q_N	Flow Rate	Nm³/h (usg/min)
SG	Specific Gravity	kg/dm³ (lbs/usg)
SG_N	Specific Gravity	kg/Nm³ (lbs/usg)
P₂	Downstream Pressure	bar (psi)
ΔP	Pressure Drop	bar (psi)
T	Temperature	°C (°K)

Liquids:

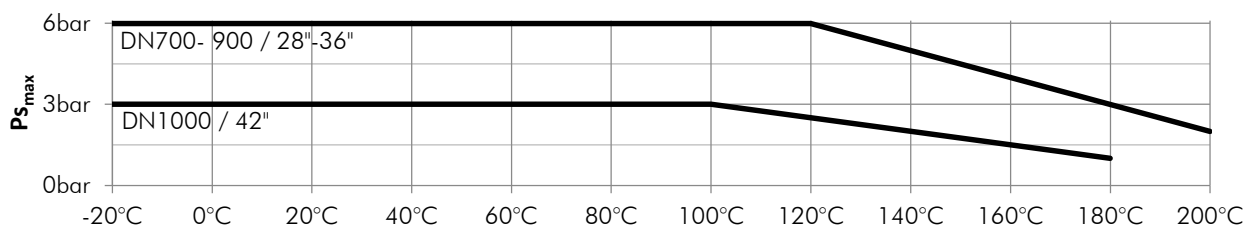
$$K_v = Q \sqrt{\frac{SG}{\Delta p}}$$

Gases:

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

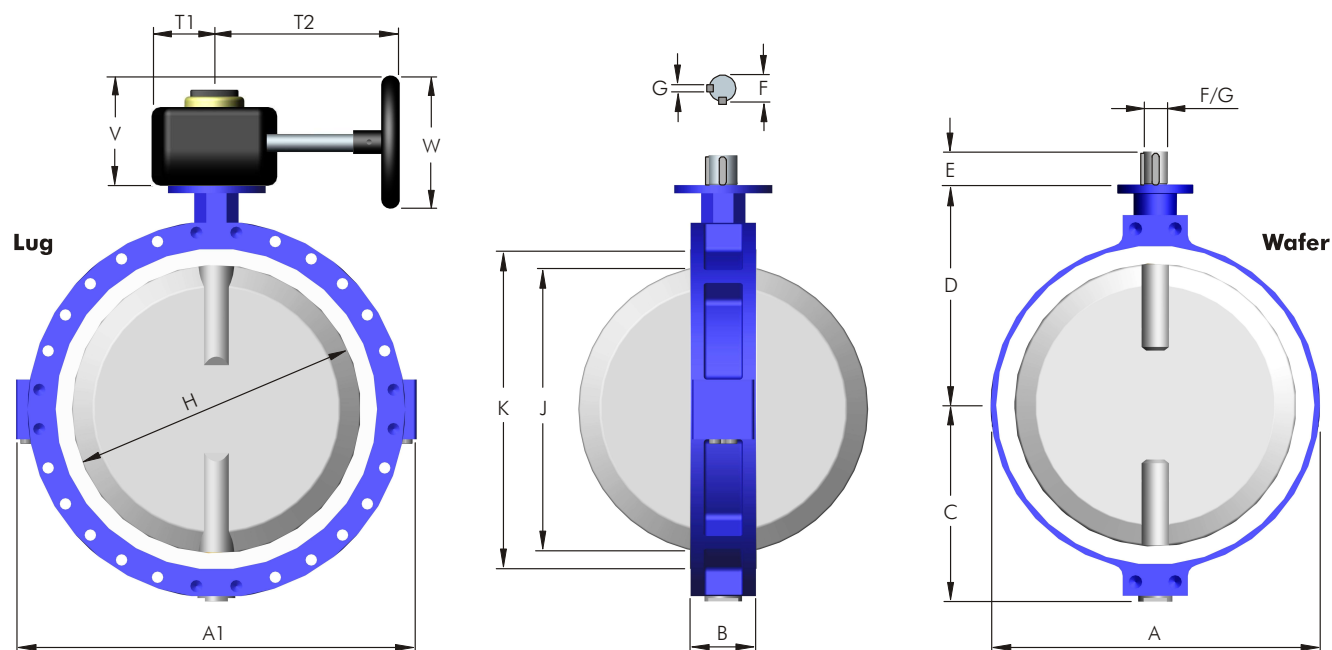
DN700 – DN1000 resp. 28" – 42"

Pressure-/Temperature Diagram



Low temperature or austenitic steels are required for use below -10°C (14°F) operating temperature.

Dimensions in mm



DN Size	A	A1	B	C	D	E	F	G ¹⁾	H	J	K	ISO	T1	T2	V	W
700/28"	805	1020	165	476	558	50	50	14	680	660	779	F14	143	450	327	500
30"	1110	1110	165	540	608	90	70	20	740	721	839	F16	143	450	327	500
800/32"	1110	1110	165	540	608	90	70	20	780	761	839	F16	143	450	327	500
900/36"	1220	1220	203	586	685	90	90	25	880	856	980	F25	170	450	330	500
1000/42"	1420	1420	216	754	768	90	100	28	1000	976	1100	F25	170	450	330	500

F/F acc. to DIN EN 558-1 Range 20 resp. ASME B16.10

Wafer bodies from 30" up to DN1000/42" made of Lug-style bodies with drilled-through flange holes, other versions upon request

¹⁾ 2x keyway 90° offset

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

Torque values for PFA-encapsulated disc and specified body liner

DN Size	700/28"	30"	800/32"	900/36"	1000/42"
A80 PTFE	1'760	1'980	2'090	2'640	3'300
max. allowable	2'400	4'000	4'000	5'000	5'000

• 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

DN Size	700/28"	30"	800/32"	900/36"	1000/42"
Lug -style body	410	480	600	800	990
Wafer -style	300	480*	600*	800*	990*
Gearbox GG25	75	75	75	75	75

* Wafer 30", DN800/32", DN900/36" and DN1000/42" made of Lug-style bodies with drilled-through flange holes

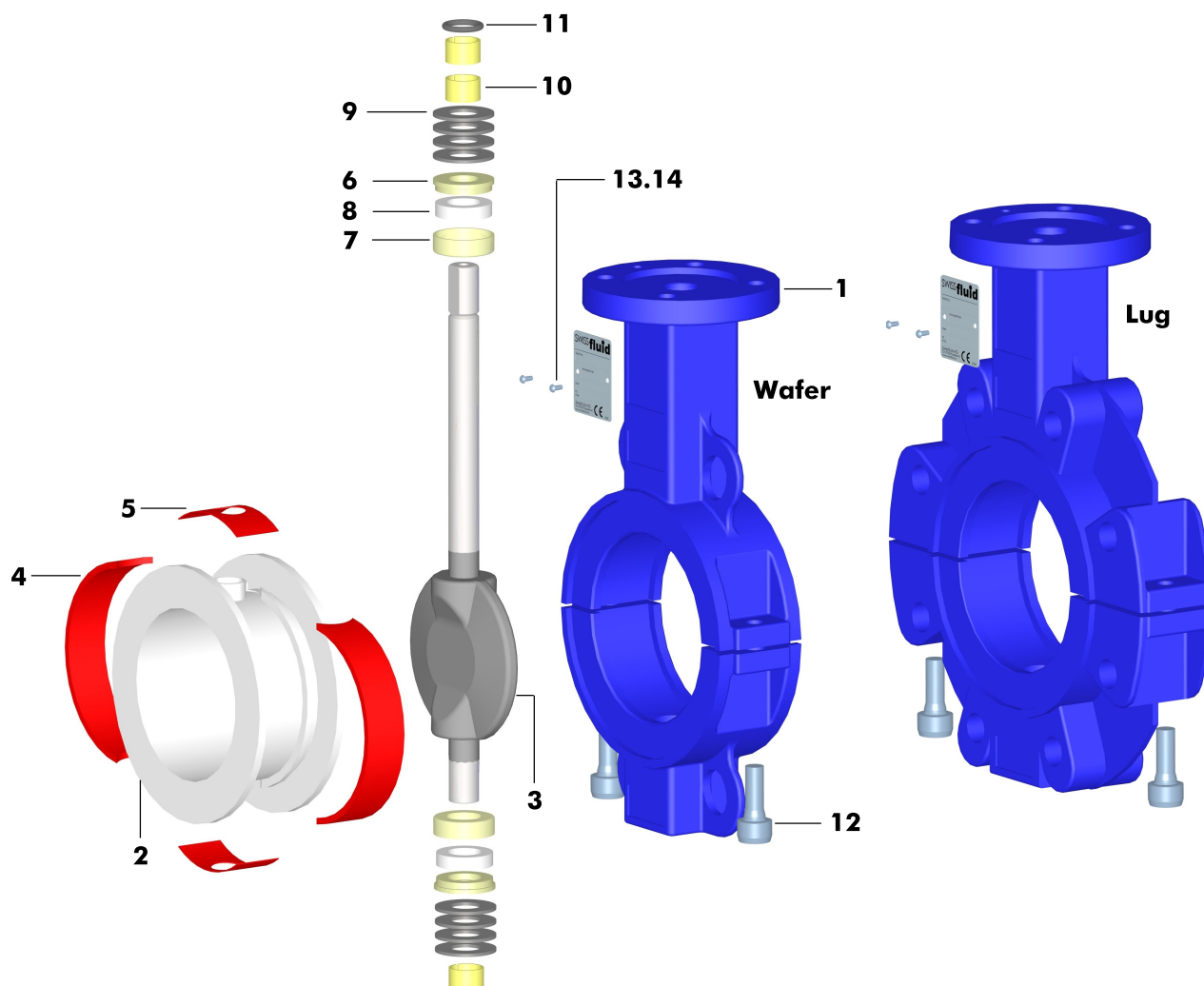
Weights for pneumatic actuators acc. to separate data sheet

Flow Rate Values Cv usg/min ($K_v = C_v / 1.16$)

700/28"	30"	800/32"	900/36"	1000/42"
41'920	46'850	49'390	66'440	73'760

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

Parts List Valve compl.



Item	Qty.	Description	Material	No.
1	1	Body two-piece, RAL 5005 (Wafer-style or Lug)	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

Specification

Project-/Customer Data		Inquiry/Date:		Ref. SF	
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	☐ Spec. Grav. ____
☐ gaseous	☐ Solids ____ %	☐ viscous	☐ Flow Velocity ____ m/s	
☐ abrasive	☐ Particle ____ mm	☐ Visc. ____ cp	☐ Flow Rate ____ m ³ /hr	

Pressure

max. ____ bar

min. ____ bar

Temperature

max. ____ °C

min. ____ °C

Mode

☐ On/Off

☐ Flow Control

____ cycles/ ____

Installation / Environment

☐ horizontal

☐ vertical

☐ ____

☐ Room dry

☐ Room humid

☐ outdoor

Remarks:

SBP Product Code

Specification of a complete Butterfly Valve SBP Series

Product code	Nom. size	Flange conn.	Body	Liner	Elastomer	Disc encaps./solid	Shaft end	Options
SBPW	DN150	PN16	G10	A80	E68	U85	DD	
SBPW Wafer*	DN25 - 1000	PN16	G10 WCB	A80 PTFE	E60 EPDM	U85 PFA	DD DD drive	Po polished disc
SBPL Lug	1" - 42"	PN10	G15 CF-8M	A81 PTFE-T	E67 FPM	U86 PFA-AS	SP SQ parallel	TA TA-Luft
*Rem.: Wafer bodies combined for DIN/ANSI		ANSI150#	G34 SS316L	A82 PTFE-AS	E68 VMQ	U88 PVDF	SR SQ 45° rot.	Th thru holes
		ANSI300#		A88 PVDF		U89 PP		B7 B7 bolts
		JIS 10K		A90 UHMWPE		U91 ETFE		Ti Ti bolts
						S16 SS Duplex		RAL.. special paint
						S34 SS316L		
						S40 Tit. Gr.2		
						S41 Tit. Gr.7		
						S43 Hast. C		

Note: Actuator options and accessories to be specified on orders separately.