ChemValve® -Butterfly Valves

with modified mPTFE/PFA- or customary PTFE/PFA-Lining

- **Wafer-Type**
  (Nodular Iron, Carbon Steel and Stainless Steel)
  DN 50 - DN 300 (PN 10) bzw. 2″- 12″ (ANSI 150)

- **Lug-Type**
  (Nodular Iron, Carbon Steel, Stainless Steel)
  DN 25 - DN 1050 (PN 10) bzw. 1″- 42″ (ANSI 150)

- **Duroplast Body**
  VE-CF (Vinylester-Composit)
  DN 50 - DN 300 (PN 10) bzw. 2″- 12″ (ANSI 150)

Accessories (manually and externally operated)

- **Hand lever**
- **Gear Box**
- **Selectable Pneumatic- and Electric Actuators**
  Standardized Assembly acc. to DIN EN ISO 5211

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Characteristics

ChemValve® is widely acclaimed as innovative manufacturer of customisable PTFE-lined Butterfly Valves. The Swiss origin producer deploys supreme engineering technology which in turn allows secure application of multiple corrosive media.

Unparalleled Sealing and Safety

- Secure handling of corrosive media based upon unique sealing system
- Selectively designed to withstand acids, alkalines, solvents and additional corrosive media
- Self-Adjustment of sealing force by multiple Belville-Springs
- Sophisticated sealing system for extended long-term performance

Modular and Distinctive

- Highly configurable modular design
- Alignment on multitude of applications
- Recognition and traceability by descriptive serial number
- Total agreement with European Pressure Vessel Code (2014/68/EC) and further International regulations

Low Abrasion Design

- Secure handling on account of unique sealing system
- Spherical construction of dynamically loaded areas minimizes mechanical wear and allows extended periods of operation
- Rounded and polished sealing edges reduce friction and torque permitting more economic actuation
- One piece stem/disk constitutes zero clearance and reduces warping effects
- Intricate moulded back-ups provide maximum sealing along with extended lifecycle

Supplementary Features

- Besides conventional PTFE materials bearing electrostatic conductivity by merely 2 % proportion of conductive pigment
- Modified PTFE constitutes substantial reduction of permeation/diffusion rate particularly at elevated temperatures
- The modification with UHMPE (Ultra-high-molecular Polyethylene) is the material of choice in case of wear and tear applications
- Standardized assemblies of actuators (DIN EN ISO 5211) facilitate the addition of manual and automatic operation

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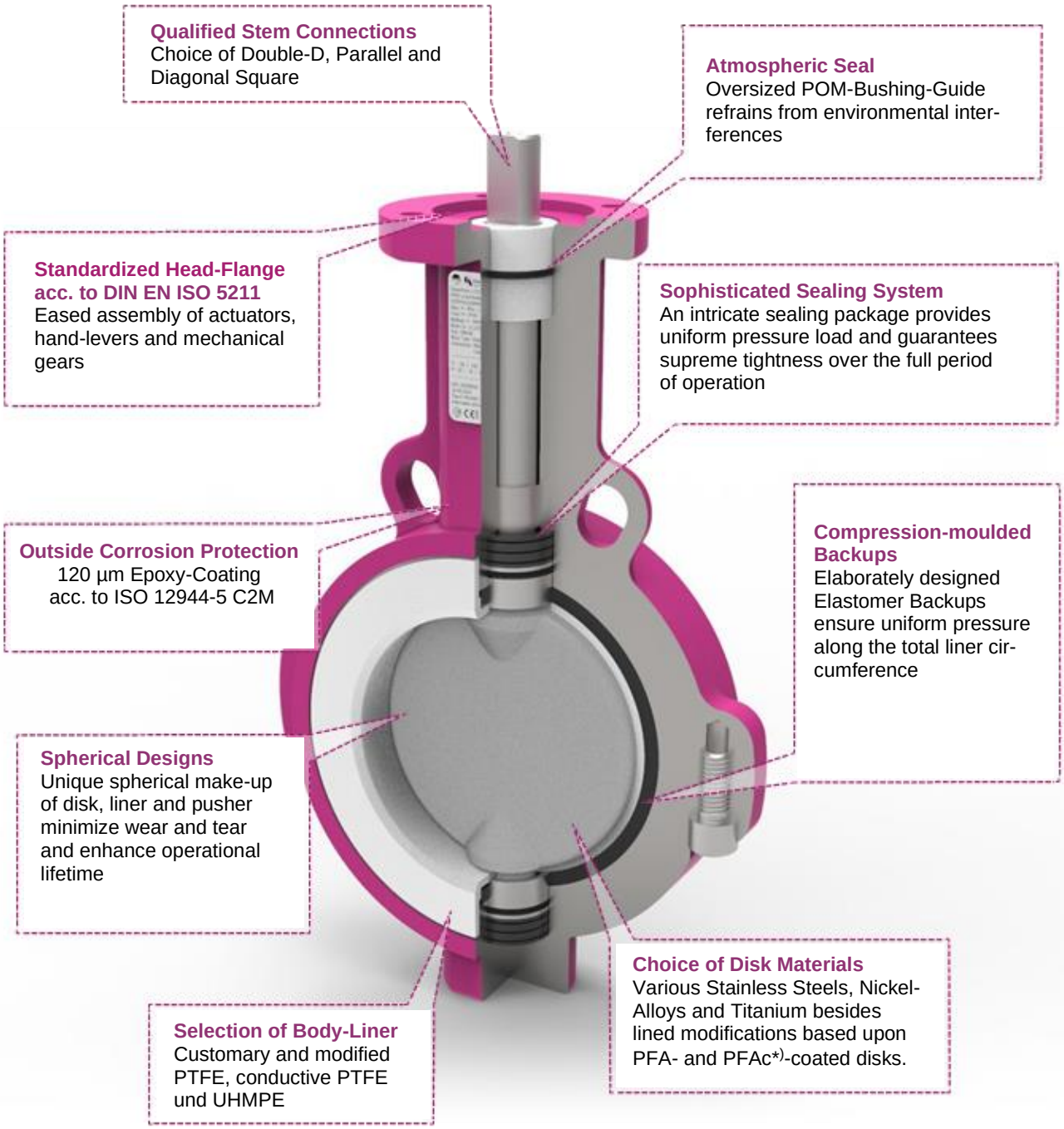
Basic Features



*) electrostatically conductive

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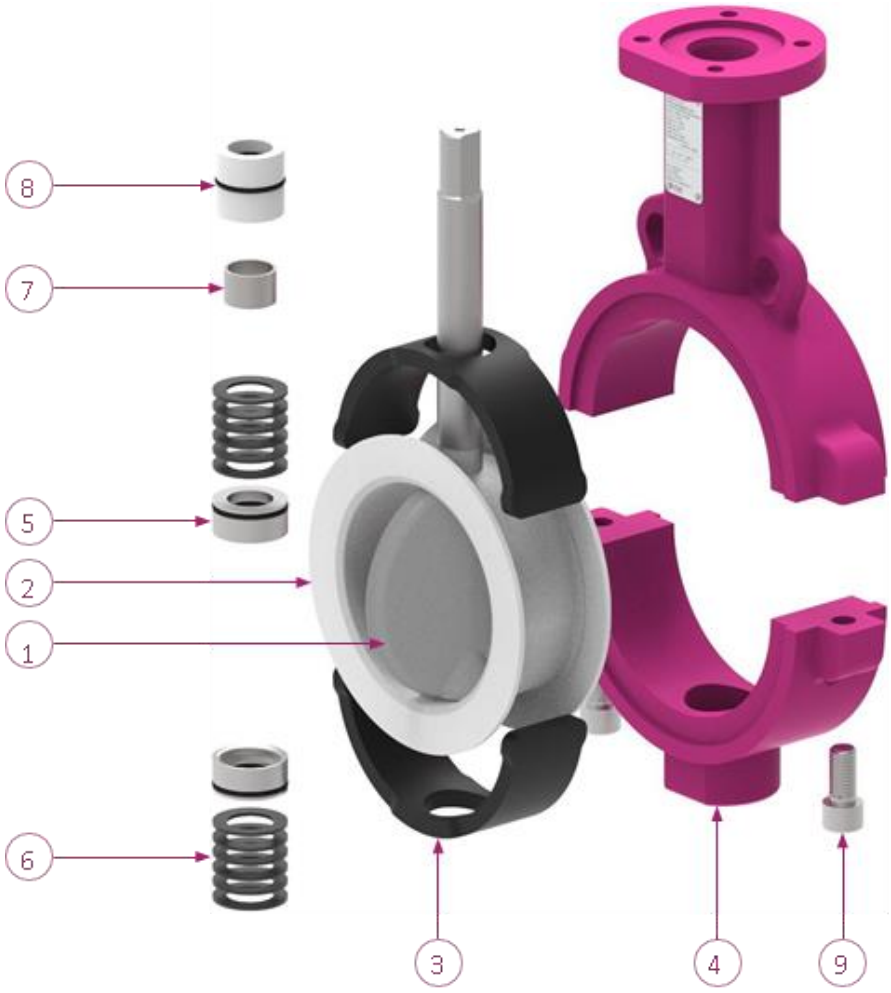
Components



Position	Element	Materials
1	Disk	PFA (coated) PFAc *) (coated) Stainless Steel (1.4404) Duplex Steel (1.4462 or 1.4469) Titanium Grad 2 (3.7035) Hastelloy C-22 (2.4602) Hastelloy C-272 (2.4819)
2	Body-Liner	PTFE Modified PTFE C-PTFE *) UHMPE
3	Backup	Silicone EPDM FKM (Viton)

Position	Element	Materials
4	Body	Nodular Iron (5.3103) Stainless Steel (1.4404) Carbon Steel (S355J2) Vinyl Ester Composite (VE-CF)
5	Pusher	Stainless Steel (1.4301) + FKM-O-Ring
6	Belleville Spring	Spring Steel (galvanised)
7	Bushing	Stainless Steel (PTFE-coated)
8	Bushing-Guide	POM + FKM-O-Ring
9	Bolts	Steel 8.8 or V4A (Stainless Steel)

*) electrostatically conductive

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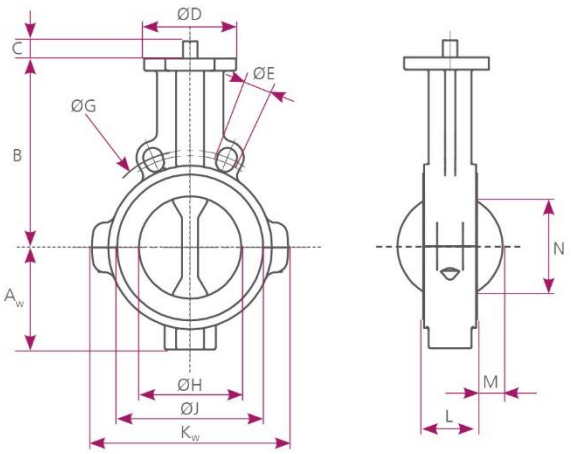
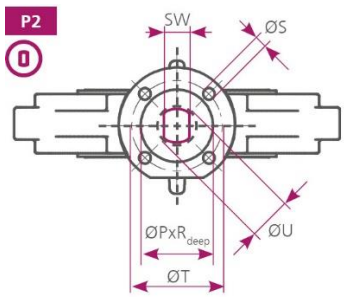
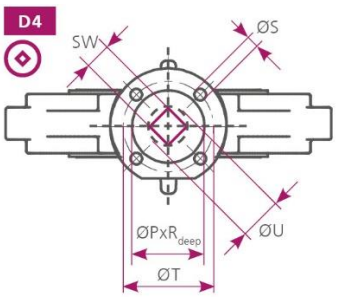
CST Wafer - Dimensions

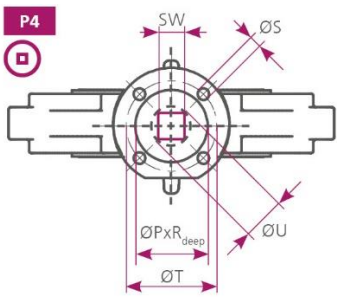
2" - 12" ANSI 150



DN [inch]	2"	2½"	3"	4"	5"	6"	8"	10"	12"
A_W	60	70	84	100	110	130	158	194	225
B	130	146	165	185	202	217	245	270	308
C_{P2}	19	19	19	25	25	30	-	-	-
$C_{D4/P4}$	17	17	17	17	17	22	26	30	30
ØD	90	90	90	90	90	90	125	125	125
ØE	19	19	19	19	22	22	22	26	26
ØG	120.7	139.7	154.2	190.5	215.9	241.3	298.4	362	431.8
ØH	50	62	75	100	125	141	195	244	295
ØJ	85	106	122	143	166	193	251	301	349
K_W	124	148	165	192	223	253	312	374	424
L	43	46	46	52	56	56	60	68	78
M	6	11	17	27	38	47	71	92	112
N	31	47	63	90	118	137	190	240	290
kg	3	4	5	6.3	7.7	10	10.5	24.5	37







DN [inch]	2"	2½"	3"	4"	5"	6"	8"	10"	12"
$SW_{P2/D4}$	11	11	11	14	14	17	-	-	-
SW_{P4}	11	11	11	14	14	17	19	22	22
ØU	14	14	14	18	18	22	24	28	28
ISO	F07	F07	F07	F07	F07	F07	F10	F10	F10
ØT	70	70	70	70	70	70	102	102	102
ØS	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 11	4 x 11	4 x 11
ØP x R_{DEEP}	56 x3.5	56 x 3.5	56 x 3.5	56 x 3.5	56 x 3.5	56 x 3.5	71 x 3.5	71 x 3.5	71 x 3.5

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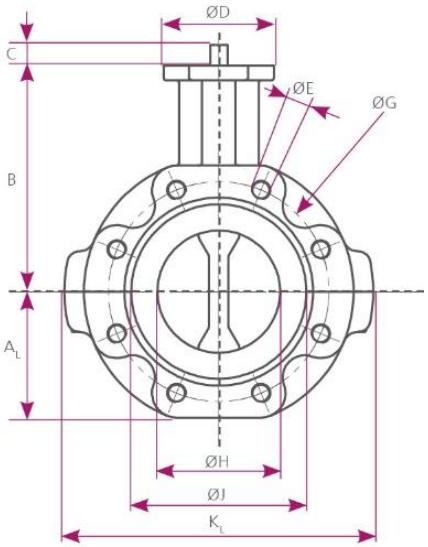
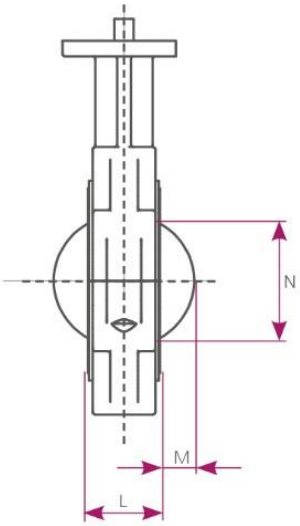
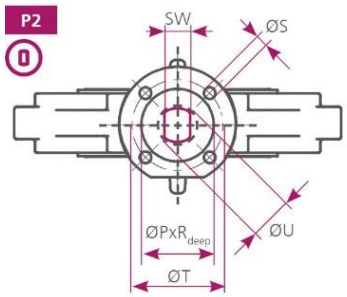
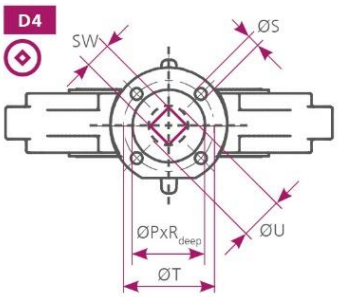
CST Lug - Dimensions 1" - 14" ANSI 150

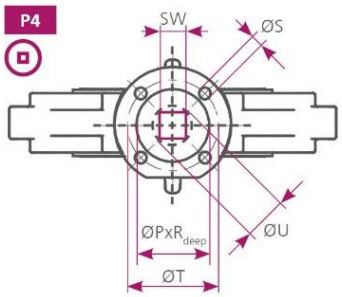




DN [inch]	1"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"
A_L	53	53	60	81	88	103	117	128	160	194	228	255
B	94	94	130	146	165	185	202	217	245	270	308	330
C_{P2}	19	19	19	19	19	25	25	30	-	-	-	-
$C_{D4/P4}$	17	17	17	17	17	17	17	22	26	30	30	28
ØD	65	65	90	90	90	90	90	90	125	125	125	150
ØE	4 x 1/2"	4 x 1/2"	4 x 5/8"	4x 5/8"	4 x 5/8"	4 x 5/8"	8 x 3/4"	8 x 3/4"	8 x 3/4"	12 x 7/8"	12 x 7/8"	12 x 1"
ØG	79.4	98.4	120.7	139.7	152.4	190.5	215.9	241.3	298.4	362	431.8	476.3
ØH	37	46.4	50	62	75	100.1	124.8	141.5	195.2	244.3	295.3	335.6
K_L	138	138	156	203	218	252	286	310	376	450	520	586
ØJ	60	76	85	106	122	143	166	193	251	301	349	414
L	-*	33	43	46	46	52	56	56	60	68	78	92*
M	3	7	6	11	17	27	38	47	71	92	112	125
N	22	34	31	47	63	90	118	137	190	240	290	328
kg	2.6	2.5	5	7	8.1	10.8	14.5	15.8	24.6	33.3	57	87



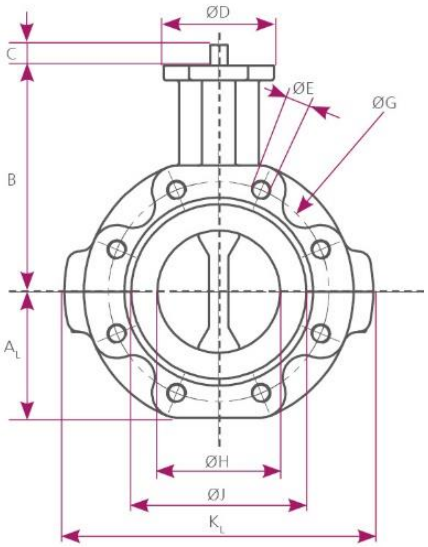


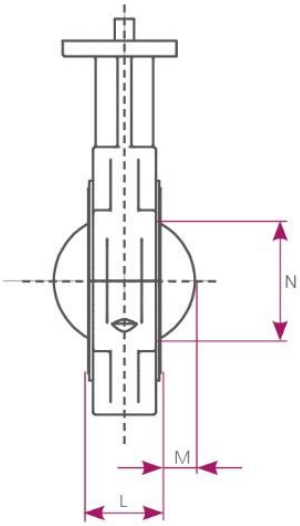


DN [inch]	1"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"
SW_{P2}	9	9	11	11	11	14	14	17	-	-	-	-
$SW_{D4/P4}$	9	9	11	11	11	14	14	17	19	22	22	27
ØU	13	13	14	14	14	18	18	22	24	28	28	35
ISO	F05	F05	F07	F07	F07	F07	F07	F07	F10	F10	F10	F12
ØT	50	50	70	70	70	70	70	70	102	102	102	125
ØS	4 x 7	4 x 7	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 11	4 x 11	4 x 11	4 x 13
ØP x R_{Deep}	36 x 3.5	36 x 3.5	56 x 3.5	56 x 3.5	56 x 3.5	56 x 3.5	56 x 3.5	56 x 3.5	71 x 3.5	56 x 3.5	56 x 3.5	87 x 3.5

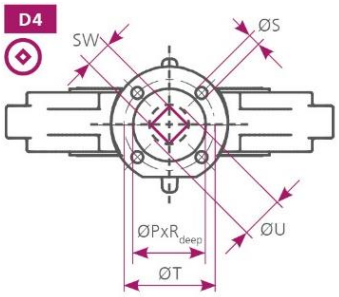
*) Not according to DIN ISO 5752 or DIN EN 558-1, Series 20

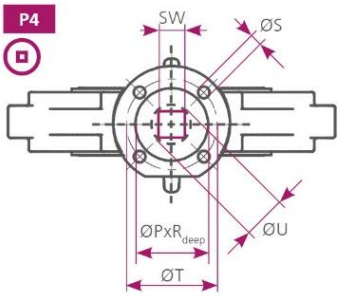
CST Lug II - Dimensions 16" - 48"





DN [inch]	16"	18"	20"	24"	28"	30"	32"	36"	40"	42"	48"
A_L	290	314	342	401	577	603	637	684	732	757	905
B	365	400	435	510	582	608	637	684	732	757	905
$C_{D4/P4}$	28	37	37	47	47	56	56	56	56	56	56
ØD	150	175	175	210	300	300	300	300	300	300	300
ØE	16 x 1"	16 x 1 1/8"	20 x 1 1/4"	20 x 1 1/4"	28 x 1 1/4"		28 x 1 1/2"	32 x 1 1/2"	36 x 1 1/2"	36 x 1 1/2"	44 x 1 1/2"
ØG	539.8	577.9	635	749.3	863.6	914.4	977.9	1085.8	1200,2	1257.3	1422.4
ØH	389.9	437.9	491.4	579.9	676.1	726	776.8	877.8	965.8	1016	1169.3
K_L	650	700	745	870	1000	1050	1130	1245	1410	1410	1620
ØJ	460	515	570	672	787	851	894	1016	1301	1170	1345
L	102	114	127	154	154*	154*	154*	154*	154*	154*	154*
M	146	164	184	215	264	289	314	364	408	433	504
N	378	424	477	561	655	717	768	868	957	1010	1160
kg	107	152	185	306	442	490	630	781	946	985	1212





DN [inch]	16"	18"	20"	24"	28"	30"	32"	36"	40"	42"	48"
$SW_{D4/P4}$	27	36	36	46	46	55	55	55	55	55	55
ØU	35	35	47	47	58	60	72	72	72	72	72
ISO	F12	F14	F14	F16	F16	F16	F25	F25	F25	F25	F25
ØT	125	140	140	165	165	165	254	254	254	254	254
ØS	4 x 13	4 x 17	4 x 17	4 x 21	4 x 21	4 x 21	8 x 17	8 x 17	8 x 17	8 x 17	8 x 17
ØP x R_{Deep}	87 x 3.5	102 x 4.5	102 x 4.5	132 x 5.5	132 x 5.5	132 x 5.5	132 x 5.5	202 x 5.5	202 x 5.5	202 x 5.5	202 x 5.5

*) Not according to DIN ISO 5752 or DIN EN 558-1, Series 20

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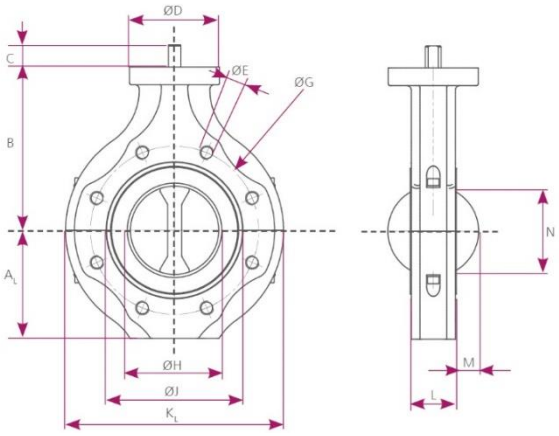
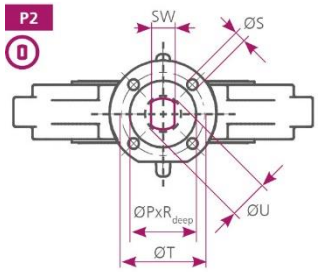
ChemValve® Butterfly Valves

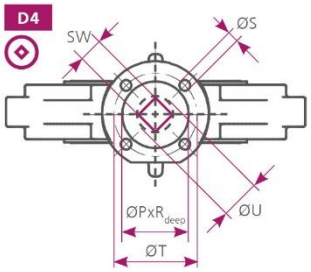
CST-K Dimensions

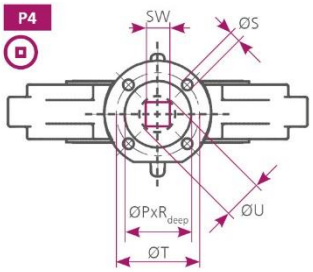
2" - 12" ANSI 150



DN [inch]	2"	2½"	3"	4"	6"	8"	10"	12"
A_L	80	85	108	123.5	151	182	225	262
B	130	146	165	185	217	245	270	308
C_{P2}	19	19	19	25	30	-	-	-
$C_{D4/P4}$	17	17	17	17	22	26	30	30
ØD	102	102	102	102	102	152	152	152
ØE	4 x 19	4 x 19	4 x 19	4 x 19	8 x 22	8 x 22	12 x 26	12 x 26
ØG	120.7	139.7	152.4	190.5	241.3	298.4	362	431.8
ØH	60	60	80	100	150	199,5	249	300
K_L	181	200	216	247	302	364	450	524
ØJ	85	106	122	143	193	251	301	349
L	43	46	46	52	56	60	68	78
M	11	10	20	27	50	72	94	114
N	49	46	71	91	145	196	246	296
kg	1.8	2.1	2.5	3.6	6.8	10.8	19.4	31







DN [inch]	2"	2½"	3"	4"	6"	8"	10"	12"
SW_{P2}	11	11	11	14	17	-	-	-
$SW_{P4/D4}$	11	11	11	14	17	19	22	22
ØU	14	14	14	18	22	24	28	28
ISO	F07	F07	F07	F07	F07	F10	F10	F10
ØT	70	70	70	70	70	102	102	102
ØS	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 11	4 x 11	4 x 11
ØP x R_{Deep}	56 x 3.5	56 x 3.5	56 x 3.5	56 x 3.5	56 x 3.5	71 x 3.5	71 x 3.5	71 x 3.5

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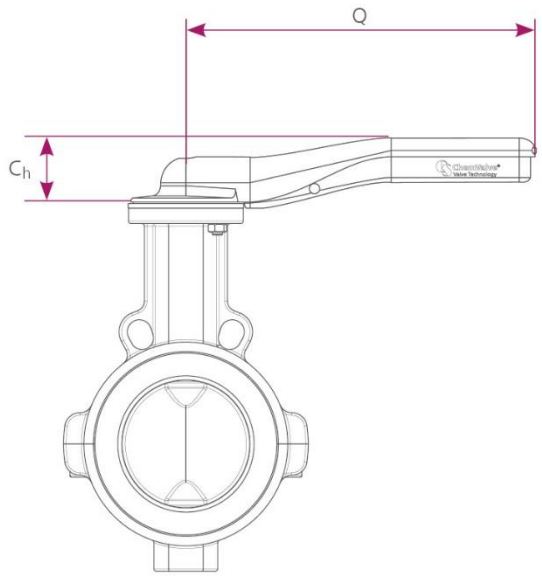
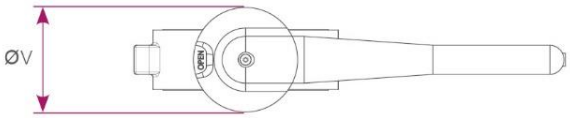
Handlever

1½" – 12"



Handlever	
Component	**Material**
Grip	**Stainless Steel**
Ratchet Disk	**Stainless Steel**



DN[inch]	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
C_h	46	46	46	46	55	55	55	55	55	55
Q	230	230	230	230	270	270	325	349	349	349
V	63	63	63	63	63	63	63	88	88	88
kg	0.9	0.9	0.9	0.9	1.2	1.2	1.5	2	2	2

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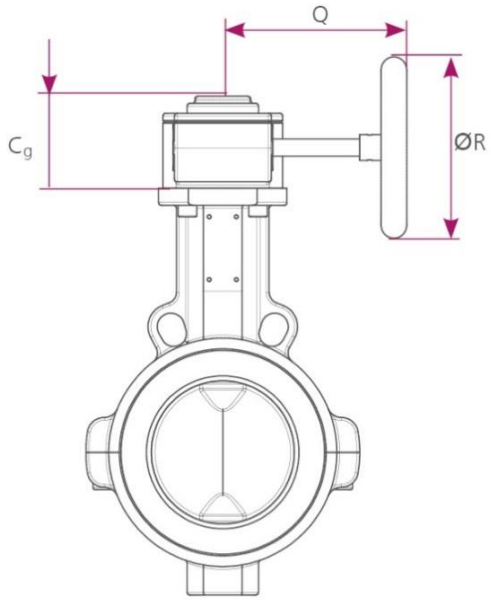
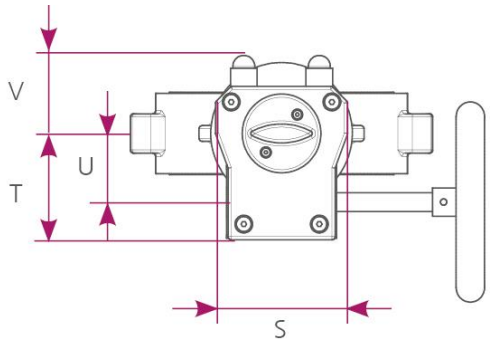
Manual Gear Box





Configuration	
Valve Dimension	1" - 28"
Protection Category	IP67
Stem Connection	P4

Component	Materials
Gear Case and Lid	Cast Iron
Quadrant	Nodular iro
Worm	Carbon Steel
Input Shaft	Carbon Steel
Gaskets	Nitril-Rubber
Fasteners	Galvanized Steel 8.8
Position Indicator	Stainless Steel
Handwheel 1"- 12"	Cast Iron
Handwheel 14" - 28"	Carbon Steel

DN [inch]	1"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"
C_g	40	40	40	40	40	40	40	44	50	54	54	60	60	71	71	86	86
Q	91	91	9	91	91	91	91	139	139	156	156	212	212	255	255	255	355
ØR	100	100	100	100	100	100	100	200	200	200	200	300	300	400	400	400	600
S	66	66	66	66	66	66	66	80	92	107	107	115	115	135	135	156	156
T	52	52	52	52	52	52	52	62	63	82	82	84	84	103	103	115	115
U	34	34	34	34	34	34	34	41	41	55	55	55	55	69	69	81	81
V	30	30	30	30	30	30	30	38	38	49	49	48	48	60	60	77	77
kg	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2	2.4	3.9	3.9	4.7	4.7	6.9	6.9	10	10

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Breakaway Torque - Torque Limits [Nm]*)

Breakaway Torque [Nm] **)	
DN [inch]	Δp= 1bar
1“	22
1½“	22
2“	26
2½“	36
3“	46
4“	60
5“	80
6“	110
8“	167
10"	278
12“	333
14“	450
16“	500
18“	600
20“	650
24“	890
28“	1500
32“	2300
36“	2700
40“	3400
42“	3600
48“	4800

Torque Limits of Stem Connections [Nm]						
	P2			D4/P4		
DN [inch]	Stainless Steel 1.4469/1.4462	Titanium Grade 2 3.7035	Hastelloy 2.4602/2.4819	Stainless Steel 1.4469/1.4462	Titanium Grade 2 3.7035	Hastelloy 2.4602/2.4819
1“	112	74	73	48	32	31
1½“	112	74	73	48	32	31
2“	159	105	103	89	59	57
2½“	159	105	103	89	59	57
3“	159	105	103	89	59	57
4“	335	222	216	183	121	118
5“	335	222	216	183	121	118
6“	608	402	393	327	216	211
8“	-	-	-	456	302	295
10“	-	-	-	664	469	457
12“	-	-	-	664	469	457
14“	-	-	-	1227	866	845
16“	-	-	-	1227	866	845
18“	-	-	-	2909	2053	2004
20“	-	-	-	2909	2053	2004
24“	-	-	-	6069	4283	4181
28“	-	-	-	6069	4283	4181
32“	-	-	-	10374	7321	7147
36“	-	-	-	10374	7321	7147
40“	-	-	-	10374	7321	7147
42“	-	-	-	10374	7321	7147
48“	-	-	-	10374	7321	7147

*) Torque Values [Nm] may be converted into [lbs x ft] when multiplied with 0.7374

**) Breakaway Torque Values are displayed with 10 % security.
If dry media are applied, values need to be multiplied with 1.2 (Δp ≤ 0.5 × PS)
Unlubricated assembly affords multiplication with 1.4 (Δp = PS).

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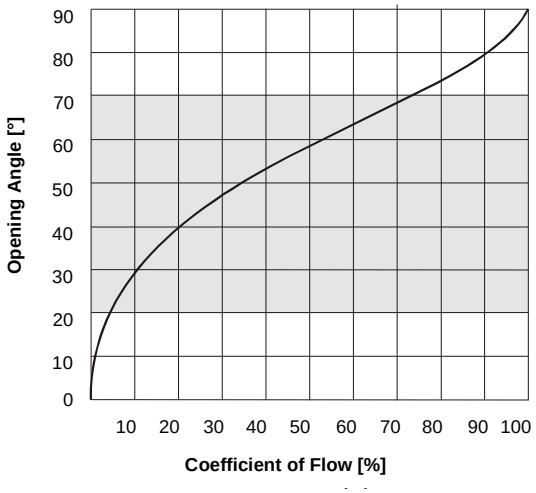
Flow Rate

Typical Control Mode Butterfly Valve



Calculation Principle for Liquids

$$K_v = Q \times \sqrt{\frac{\delta}{\Delta p}}$$

K_v = Coefficient of Flow [m³/h]

Q = Flow Volume [m³/h]

δ = Specific Gravity [kg/dm³]

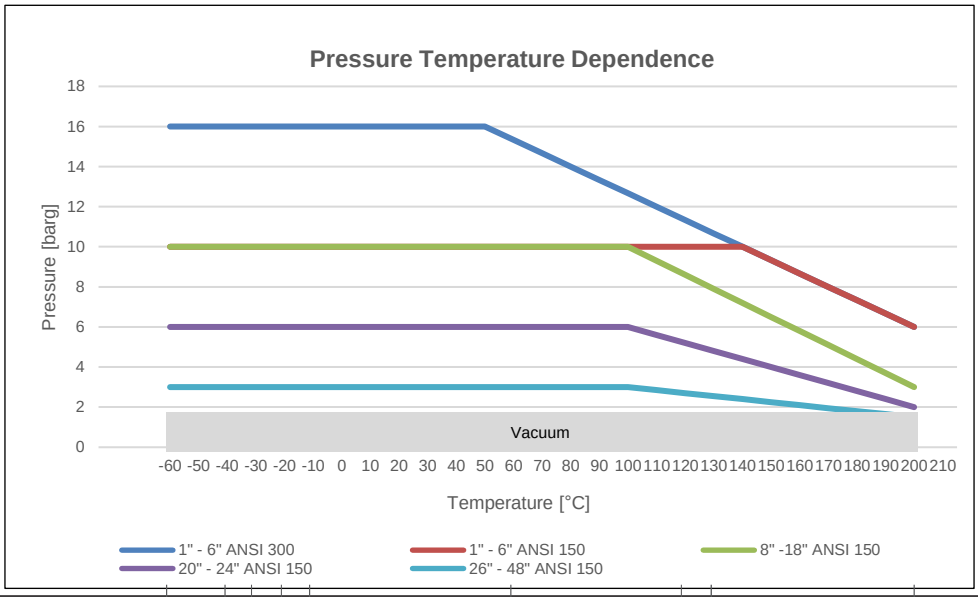
Δp = Pressure Drop [bar]

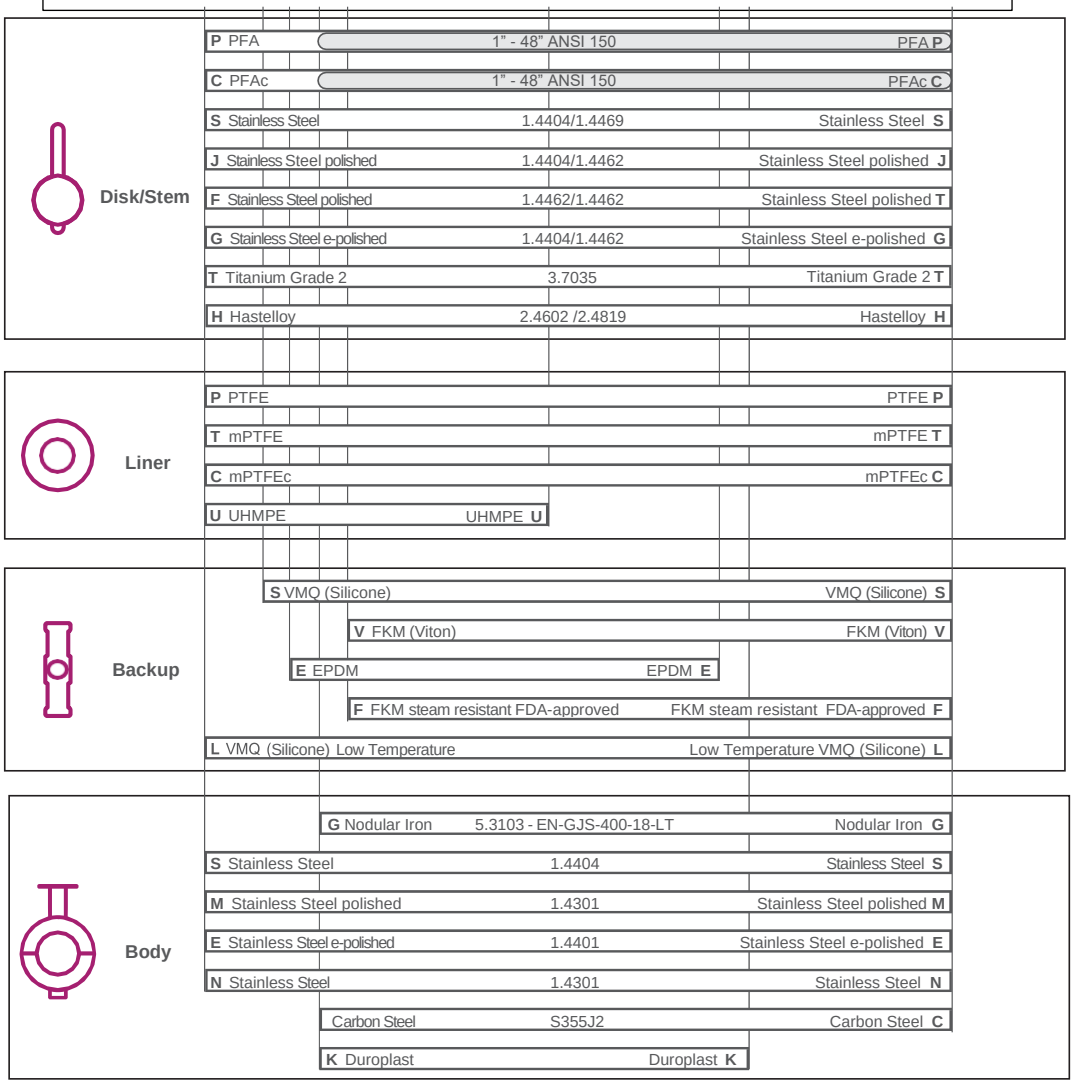
Flow Rate Kv [m³/h]											
Opening Angle	DN [inch]										
	1"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
20°	0.001	1.4	2.1	4.4	8.1	17	28	39	85	119	181
30°	1.0	5.1	6.7	14	22	48	74	97	202	274	404
40°	3.0	11	14	27	41	91	145	194	415	527	771
50°	6.0	22	28	49	75	160	244	316	658	949	1329
60°	10	38	46	80	123	259	392	503	1036	1484	2179
70°	16	56	69	118	179	375	563	717	1463	2038	3083
80°	21	75	92	158	240	502	754	958	1956	2727	4124
90°	28	102	124	211	318	660	985	1244	2523	3514	5315

Flow Rate Kv [m³/h]												
Opening Angle	DN [inch]											
	14"	16"	18"	20"	24"	28"	30"	32"	36"	40"	42"	48"
20°	277	393	528	647	843	1050	1181	1353	1861	2131	2398	3131
30°	602	856	1148	1434	1861	2347	2675	3064	4394	4827	5431	7092
40°	1139	1650	2173	2418	3473	4324	4864	5570	7621	8777	9874	12894
50°	2034	2893	3414	3980	5706	7104	7991	9207	11817	13792	15516	20262
60°	3335	4628	5742	6490	9427	11737	13203	15120	19791	23195	26095	34077
70°	4718	6711	8535	10268	14140	17606	19804	22282	30783	34480	38790	50655
80°	6312	8979	12043	14983	19349	24246	27274	31433	44252	50152	56422	73680
90°	8134	11571	15519	19308	24807	30887	34744	39789	55653	62690	70528	92100

*) Conversion of Flow Rates into USG/min: $C_v = 1.165 \times K_v$

Application Limits





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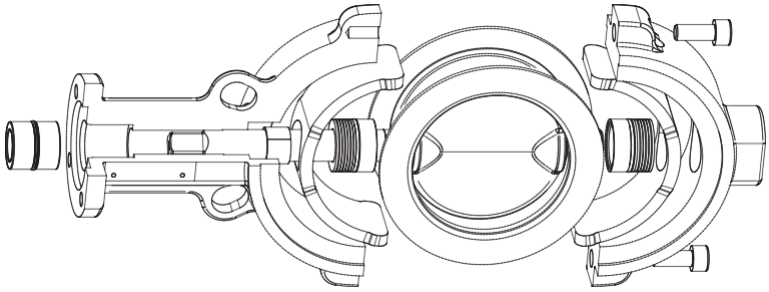
Product Codes



Code Example:

CSTGPPSG100P4WE1

Actuation		Stem/Disk		Body-Lining		Backup		Body		DN	Actuator Attachment		Body Type		Flange	
Code	Type of Actuation	Code	Material	Code	Material	Code	Material	Code	Material	DN	Code	Connection	Code	Design Type	Code	Pressure Class
BS	without (bare shaft)	P	PFA	P	PTFE	S	VMQ (Silicone)	G	5.3103 (Nodular Iron)		P4	Parallel Square	W	Wafer	E5	PN 6
HP	Handlever	C	PFAc	T	mPTFE	V	FKM (Viton)	S	Stainless Steel (1.4404)		P2	Double D	E	Lug	E1	PN 10
GP	Premium Gear-Box		Stainless Steel (1.4404/1.4462)	C	mPTFEc	E	EPDM	M	Stainless Steel (1.4404) polished < 0,8 µm		D4	Diagonal Square			E2	PN 16
GS	Standard Gear-Box	J	Stainless Steel (1.4404/1.4462) polished < 0,8 µm	U	UHMPE	F	FKM Steam resistant FDA-approved	E	Stainless Steel (1.4404) e-polished < 0,4 µm						EA	PN 10 - 16
PS	Pneumatic Actuator Single acting	F	Stainless Steel (1.4462/1.4462) polished < 0,8 µm			L	VMQ (Silicone) Low Temperature	N	Stainless Steel (1.4301)						A1	ANSI Class 150
PD	Pneumatic Actuator Double acting	G	Stainless Steel (1.4404/1.4462) e-polished < 0,4 µm					C	Carbon-Stahl (Steel Casting)						J1	JIS 10K
		T	Titanium Grade 2 (3.7035)					K	Thermosetting Plastic (VE – CF) *)							
		H	Hastelloy C 22 (2.4602)													
		R	Duplex (1.4539)													
		O	Hastelloy C 22 (2.4602) polished < 0,8 µm													

*) Vinyl Ester Composite

ChemValve®
Valve Technology

ChemFlyer | CST

Declaration of Conformity for Food Safety according to EN ISO/IEC 17050-1:2010

Manufacturer's Name and Address ChemValve-Schmid AG I Duennernstrasse 540 I CH-4716 Welschenrohr
quality@chemvalve-schmid.com I www.chemvalve-schmid.com

Product PTFE lined butterfly valve **ChemFlyer | CST**

Type	Auxiliary Materials	Disc	Liner	Backup	Body	Auxiliary Materials & Small Parts
						
	Direct contact with foodstuff			No direct contact with foodstuff		

	Code	Material	Code	Material	Code	Material	Code	Material	Code	Material	Code	Material
CST	–	various [5]	P	PFA [1,2]	P	PTFE [1,2]	S	VMQ [3]	G	5.3103 ⚠	–	various ⚠
			C	PFAc ⚠	T	mPTFE [1,2]	V	FKM ⚠	K	VECF ⚠	_food	various [1,2,5,6,7]
			S	Stainless Steel [6,7]	C	mPTFEc [1,2,4]	F	FKMsf [3]	S	1.4301 [6,7]		
			F	Stainless Steel [6,7]	U	UHMPE [1,2]	E	EPDM ⚠	S	1.4404 [6,7]		
			J	Stainless Steel [6,7]	K	PTFEc ⚠			C	S355J2+N ⚠		
			G	Stainless Steel [6,7]					H	Hastelloy [7]		
			T	Titanium [7]								
			H	Hastelloy [7]								

Regulations

⚠ Material is **not** suitable to come into contact with food!

[1] (EC) No 1935/2004 & (EU) No 10/2011
[2] FDA 21CFR177.1550 Perfluorocarbon resins
[3] FDA 21CFR177.2600 Rubber articles intended for repeated use
[4] FDA 21CFR178.3297 Colorants for polymers
[5] NSF Registration No. 140150, No. 122875 & No. 122320
[6] - France: Arrêté du 13 Janvier 1976: relatif aux matériaux et objets en acier in-oxydable au contact des denrées alimentiaux
- Italy: Decreto Ministrale 21 March 1973, Supplement to issue 104 of the Gazetta Ufficiale della Republica Italiana, 20 April 1973
- DIN 10528:2009-06
[7] - The safety review, recommendations and specific release limits (SRLs) according to *Council of Europe (2013): Metals and alloys used in food contact materials and articles. A practical guide for manufacturers and regulators. (P-SC-EMB) 1-215.* have to be considered.

We declare under our sole responsibility that the product to which this declaration relates is in conformity with the regulations referenced above.

Welschenrohr, 01.04.2020

Christoph Schmid
Managing Director

ChemFlyer | CST

Manufacturer's Declaration

Manufacturer ChemValve-Schmid AG I Duennernstrasse 540 I CH-4716 Welschenrohr
quality@chemvalve-schmid.com I chemvalve-schmid.com

Product **ChemFlyer | CST** PTFE lined butterfly valve, inc. manually and automatically actuated

Subject Explosion Prevention

Hereby the manufacturer, ChemValve-Schmid AG, declares that the ChemFlyer | CST butterfly valve, to which this declaration relates, does not fall within the scope of *"Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres (recast)"*. This assessment is based on §38 - 'Simple' products - from the ATEX 2014/34/EU Guidelines, 1st Edition April 2016. Hence, the conformity assessment pursuant to said directive is omitted.

Disc			Liner			Backup			Body		
P	PFA	EX_{min}	P	PTFE	EX_{min}	S	Silicone (VMQ)	N/A	G	5.3103	**EX_{max}**
C	PFAc	**EX_{max}**	T	mPTFE	EX_{min}	V	FKM	N/A	S	Stainless Steel	**EX_{max}**
S	Duplex	**EX_{max}**	C	mPTFEc	**EX_{max}**	E	EPDM	N/A	C	Carbon Steel	**EX_{max}**
F	Duplex p	**EX_{max}**	U	UHMPE	EX_{min}	D	FKMs	N/A	K	VECF	**EX_{max}**
J	Stainlees Steel p	**EX_{max}**	K	PTFEc	**EX_{max}**						
G	Stainless Steel e-p	**EX_{max}**									
T	Titanium	**EX_{max}**									
H	Hastelloy C	**EX_{max}**									

The risk analysis and assessment of ignition sources by the manufacturer, together with the test report IBExU IB-13-8-014 on 22/02/2013, proves that butterfly valves of the type **EX_{max}** - whereby the disc, liner and body are composed entirely of conductive materials – cannot be charged, so they do not have their own potential source of ignition.

In contrast, butterfly valves of the type EX_{min} only ensure that any electrostatic charges caused by the friction of aerosols or liquid droplets on internal insulating materials are specifically controlled by means of a grounding cable and safely discharged.

This results in the following table, which displays the permissible zones and operating media, according to Directive 1999/92/EC, for each product type:

Design Type	Zone 0	Zone 20	Zone 1	Zone 21	Zone 2	Zone 22	Operating Media
EX_{max}	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Unlimited**
EX_{min}	Yes	Yes	Yes	Yes	Yes	Yes	Limited*

* Aerosols and liquid droplets can cause electrostatic charges in internal components

Further Information:

- The ChemFlyer | CST butterfly valve may not bear the specific ATEX-mark nor the EX-mark in accordance with Directive 2014/34/EU!
- The instructions in the operating manual must be followed!
- The assembly of the ChemFlyer | CST butterfly valve with a pneumatic or electric actuator does not create any additional potential sources of ignition!
- Upon delivery of the ChemFlyer | CST butterfly valve together with pneumatic and electric actuators, the manufacturer will provide the correspondent ATEX declarations of conformity.
- The requirements according to TRGS 727 chapter 8 regarding grounding and potential equalisation must be observed!
- The responsibility for the safe use and operation of the device in potentially explosive atmospheres lies with the operator, who must produce an explosion protection document in accordance with Directive 1999/92/EC. This declaration of conformity serves as a safety statement and the manufacturer recommends that this be listed in the annex to the explosion protection document.
- If accessories are provided by the customer (e.g. actuators, limit switches, etc.), the operator is responsible for ensuring that these accessories are appropriately compliant!

Welschenrohr, 05.05.2022

Pascal Willi
Leiter Qualitätsmanagement

Certificate

The SQS herewith attests that the organisation named below has a management system that meets the requirements of the normative base mentioned.

ChemValve® Valve Technology

ChemValve-Schmid AG
Valve Technology
Duennernstrasse 540
4716 Welschenrohr
Switzerland

Scope

Development, Manufacturing and Distribution of Valves

Normative base

ISO 9001:2015 Quality Management System

Reg. no. 20933

Validity 12.06.2020 – 11.06.2023
Issue 12.06.2020

A. Grisard, President SQS

F. Müller, CEO SQS

Swiss Association for Quality and Management Systems (SQS)
Bernstrasse 103, 3052 Zollikofen, Switzerland

Swiss Made

Partner of IQNet

sqs.ch

4000_2/June 2019/Version 2.0

Certificate

In accordance with the requirements of the Pressure Equipment Directive 2014/68/EU and the Ordinance on the Safety of Pressure Equipment SR 930.114, as a notified body SQS certifies that the following organisation

ChemValve-Schmid AG
Valve Technology
Duennernstrasse 540
4716 Welschenrohr
Switzerland

at its production site

Duennernstrasse 540, 4716 Welschenrohr, Switzerland

fulfills the requirements for the manufacture of pressure equipment within the modular area of application.
The acceptance of pressure equipment is under the surveillance with periodic audits and unexpected visits by the notified body according to the requirements of appendix III,

Module H

of the Pressure Equipment Directive 2014/68/EU for the following products

Pressure devices up to Category III
Valves up to Category III

Approval will be given to continue using the following code number of SQS as the notified body in accordance with the directive and regulations in relation to these products.

CE 1250

Reg. no. 43209
Page 1 of 1

Validity 01.09.2022 – 31.08.2025
Issue 01.09.2022

A. Grisard, President SQS

F. Müller, CEO SQS

sqs.ch

Swiss Association for Quality and Management Systems (SQS)
Bernstrasse 103, 3052 Zollikofen, Switzerland

Swiss Made

Member of IQNET

6030_2/Januar2022/Version3.0

BESCHEINIGUNG ◆ ATTESTATION ◆ 证明书 ◆ СВИДЕТЕЛЬСТВО ◆ CONSTANCIA ◆ ATTESTAZIONE

TÜV SÜD
Industrie Service

Bescheinigung der Leckagerate

Nr. IS-AN5-MUC-2112-5010045327-001

ChemValve-Schmid AG
Armaturentechnik
Duennernstraße 540
4716 Welschenrohr
Schweiz

Hiermit wird bescheinigt, dass die Absperrklappen der genannten Firma in Anlehnung an die VDI 2440:2000 mit erhöhter Anforderung überprüft und anerkannt wurden. Einzelheiten sind dem entsprechenden Untersuchungsbericht mit der Auftrags-Nr. 447034 zu entnehmen.

Produktbeschreibung:

- Absperrklappen SwissValve CST

Das Produkt erfüllt die Anforderungen:

- Leckagenachweis gemäß VDI 2440, Ausgabe November 2000
- Betriebsbedingungen:
  - Anzahl der Schaltzyklen: 4000
  - Auslagerungstemperatur: 200 °C
- Visuelle Überprüfung der erforderlichen Flächenpressung gemäß Betriebsanleitung
- Spezifizierter Dichtungsaufbau

Das Produkt erfüllt die Anforderungen bezüglich des Leckagenachweises gemäß Ziffer 5.2.6.4 der „Technischen Anleitung Luft" (TA-Luft 2002).

Die Bescheinigung beinhaltet den Leckagenachweis einer Spindelabdichtung gemäß VDI 2440 hinsichtlich Dichtheit bzw. der Einhaltung der spezifischen Leckagerate nach TA-Luft [$\lambda \leq 10^{-4}$ mbar x l/(s x m), Δp= 10 bar] und einer erweiterten Prüfung unter o. g. Betriebsbedingungen.

Diese Bescheinigung ist gültig bis 31. Dezember 2022.

München, den 21. Dezember 2021

TÜV SÜD Industrie Service GmbH
Institut für Kunststoffe

i. A. Mindl

TÜV SÜD Industrie Service GmbH

TÜV®

BESCHEINIGUNG ◆ ATTESTATION ◆ 证明书 ◆ СВИДЕТЕЛЬСТВО ◆ CONSTANCIA ◆ ATTESTAZIONE

Industrie Service

Confirmation of leakage rate

Nr. IS-AN5-MUC-2112-5010045327-001

ChemValve-Schmid AG
Armaturentechnik
Duennernstraße 540
4716 Welschenrohr
Schweiz

We hereby confirm that the butterfly valves of the above company were tested applying the more stringent requirements outlined in VDI 2440:2000 and approved. For details please see the relevant test report, order-no. 447034.

Product description:

- Butterfly Valves SwissValve CST

The product satisfies the following requirements:

- measurement of leakage as per VDI 2440, November 2000 edition
- Service conditions:
  - Number of cycles: 4000
  - Annealing at: 200 °C
- Visual verification of the required contact pressure set forth in the operating manual
- Specified sealing system structure

The product meets the requirements defined for leakage measurement in line with section 5.2.6.4 of the TA-Luft 2002 standard.

The attestatopm covers leakage measurement carried out on a stem seal as per VDI 2440 to verify tightness or observance of the specific leakage rate defined in the TA-Luft standard [$\lambda \leq 10^{-4}$ mbar x l/(s x m); Δp= 10 bar] and extended tests under the above operating conditions.

This attestation is valid until 31. December 2022.

Munich, 21 December 2021

TÜV SÜD Industrie Service GmbH
Institute for Plastics

i. A. Mindl

TÜV SÜD Industrie Service GmbH

TÜV®