

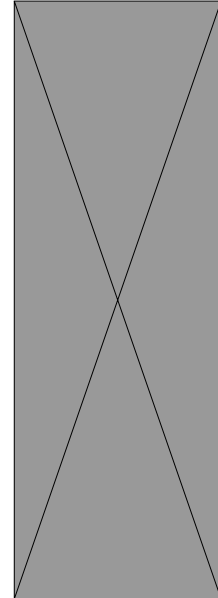
# Ball Sector Valve 4040

1" up to 12"

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## Pneumatic control valve for the control of neutral and aggressive fluids with integrated positioner

- 1" up to 12"
- High Cv-values up to 4454
- Excellent control characteristics
- Suitable for abrasive media
- Easily exchangeable seat ring
- Low maintenance
- Actuators can be easily fitted
- Efficient and easy to install
- optional with face to face dimension acc. ANSI ISA 75.08.02



## Technical Information Valve

Design		1" - 10" flangeless wafer type
		12" flange connection
Nominal sizes		1" up to 12"
Body material	cast parts	CF8M (1.4408)
	turned parts	316 L (1.4404)
Material of the bearing shaft		1.4122
Bearing material		high temperature plain bearing
Connection to the actuator		mounting kit DIN/ISO 5211
Nominal pressure	1" - 2"	ANSI300, ANSI150, 580 psi (for flanges 145 psi - 580 psi)
	2 1/2" - 4"	ANSI150, 365 psi (for flanges 145 psi - 365 psi)
	5" - 12"	ANSI150, 235 psi (for flanges 145 psi - 235 psi)
Fluid Temperature		-40°F up to +428°F depending on the sealings
Ambient temperature		-40°F up to +176°F depending on the sealings
		special version on request
Characteristic		almost equal percentage
Rangeability		300:1

## Working pressure max.

Nominal size	maximum differential pressure (delta p)									
	seat ring PTFE			seat ring PEEK				seat ring Stellite		
	up to 176°F	248°F	338°F	up to 176°F	248°F	338°F	428°F	up to 176°F	338°F	428°F
	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi
1" - 2"	365	230	85	580	580	365	230	580	580	365
3" - 4"	230	175	75	365	365	230	145	365	365	230
6" - 12"	230	175	60	230	230	175	115	230	230	175

(for less than 5 bar pilot pressure, please inform us)

## Temperature limits

Seating	Sealing seating							
	Viton		EPDM		NBR		FFKM	
	Tmin [°F]	Tmax [°F]	Tmin [°F]	Tmax [°F]	Tmin [°F]	Tmax [°F]	Tmin [°F]	Tmax [°F]
PTFE	5	338	-40	284	-22	212	5	338
PEEK	5	392	-40	284	-22	212	5	428
Stellite	5	392	-40	284	-22	212	5	428

## Kvs-Values

Size	Cvs-value reduced to				
	100%	63%	40%	25%	6,3%
1"	24.6	14.9	9.83	6.14	1.7
1 1/2"	74.9	47.2	29.3		
2"	110	70.6			
2 1/2"	179.2				
3"	298				
4"	456				
5"	874				
6"	948				
8"	1597				
10"	2597				
0	4493				

## Leakage

Seat ring	Ball sector	Leakage	
		Amount of the max. Cvs-value	class acc. IEC 60534-4 (ANSI/FCI 70-2)
PTFE/PEEK	stainless steel polished or hard chrome plated or lapped	5x10 <sup>-7</sup>	IV-S1
PTFE/PEEK	stainless steel, hard chrome plated and lapped		VI
Stellite	stainless steel, hard chrome plated and lapped	5x10 <sup>-6</sup>	IV-S1

## Operating time with positioner 8049

Size	manipulating time opening 5% to 95%			manipulating time closing 5% to 95%		
	Standard	with volume booster Type 4090	with external solenoid valves (1500NL)	Standard	with volume booster Type 4090	with external solenoid valves (1500NL)
4"	4 s	1.9 s	1 s	5.4 s	3 s	1.2 s
6"	7 s	2.5 s	1.5 s	8.5 s	4 s	1.6 s
8"	11 s	4 s	1.8 s	13 s	8 s	1.9 s
10"	14 s	5 s	2.5 s	17.5 s	10 s	2.6 s
12"	23 s	9 s	4.5 s	43 s	18 s	6 s

## Torques and mounting kits

for retrofitting actuators

Size	rotation angle nominal	max. press. Nomial		req. torque [lbf ft]		mounting kit DIN/ISO	
		PN	ANSI	on/off-operation	control operation	series 1	series 2
1"	90°	PN40	ANSI 300	11	18	F04/SW11	F05/SW14
1 1/2 "	90°	PN40	ANSI 300	22	37	F05/SW14	F07/SW17
2"	90°	PN40	ANSI 300	22	37	F05/SW14	F07/SW17
3"	90°	PN25	ANSI 150	44	74	F07/SW17	F10/SW22
4"	90°	PN25	ANSI 150	66	111	F07/SW17	F10/SW22
6"	90°	PN16	ANSI 150	111	184	F10/SW22	F12/SW27
8"	90°	PN16	ANSI 150	155	258	F12/SW27	F14/SW36
10"	90°	PN16	ANSI 150	266	443	F12/SW27	F14/SW36
12"	90°	PN16	ANSI 150	664	1106	F14/SW36	F16/SW46

# Ball Sector Valve 4040

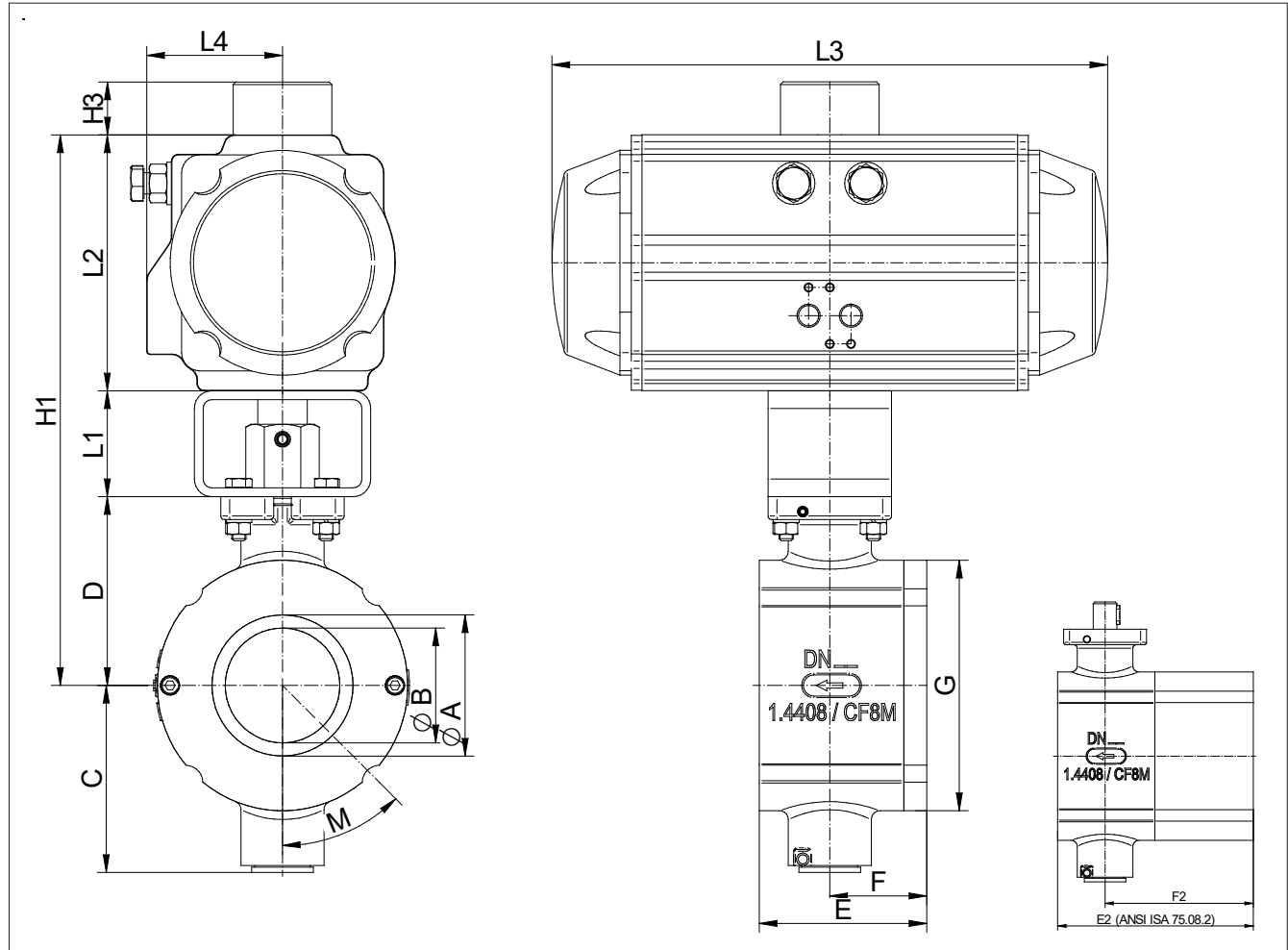


## Ordering Number System

Ordering Number:

4040/		M	Z	...
Nominal Size				
e.g. 1" = 025	xxx			
Article				
valve	V			
repair-kit	R			
seat kit	D			
Connection				
KS1-flangeless design according DIN EN 1092-1	1			
KS1-flangeless design according ASME B 16.5, ANSI 150	E			
KS1-flangeless design according ASME B 16.5, ANSI 300	F			
KS2-flangeless design according DIN EN 1092-1	3			
KS2-flangeless design according ASME B 16.5, ANSI 150	H			
KS2-flangeless design according ASME B 16.5, ANSI 300	I			
Body material				
stainless steel 1.4408 (CF8M) / 1.4404	1			
Material combination				
seat ring: PTFE; ball sector: 1.4408, polished	1			
seat ring: PTFE; ball sector: 1.4408, hard chrome plated	A			
seat ring: Stellite; ball sector: 1.4408, hard chrome plated and lapped	B			
seat ring: PTFE; ball sector: 1.4408, hard chrome plated and lapped	E			
seat ring: TECAPEEK; ball sector: 1.4408, hard chrome plated	P			
Seal combination				
all seals (part 13-16) from VITON, medium temperature: +5°F up to +392°F	1			
all seals (part 13-16) from FFKM (Perlast/Kalrez), medium temperature: +5°F up to +428°F	A			
all seals (part 13-16) from EPDM, medium temperature: -22°F up to +284°F	D			
all seals (part 13-16) from NBR(P700), medium temperature: -40°F up to +212°F	N			
Packing made of PTFE; O-Ring (Teil 115) made of VITON, fluid temperature: +5°F up to +392°F	3			
Packing made of PTFE; O-Ring (Teil 115) made of EPDM, fluid temperature: -22°F up to +284°F	4			
Packing made of PTFE; O-Ring (Teil 115) made of FFKM, fluid temperature: -40°F up to +212°F	5			
Packing made of PTFE; O-Ring (Teil 115) made of NBR, fluid temperature: +5°F up to +428°F	6			
Actuator				
without mounting kit, without actuator, connection to bearing pin: feather key	0			
without mounting kit, without actuator, connection to bearing pin: square shaft	V			
without mounting kit, without actuator, connection to bearing pin: dihedron	Z			
without actuator, with standard mounting kit according DIN/ISO 5211 (Series 1)	1			
without actuator, with standard mounting kit according DIN/ISO 5211 (Series 2)	2			
pneumatic quarter-turn actuator (Air Torque) with mounting kit according DIN/ISO 5211	T			
hand lever	H			
Safety position:				
without	0			
single acting, spring to close	1			
double acting, without safety position	2			
single acting, spring to open	3			
Mounting				
standard	-			
NPT-thread	N			
Positioner				
without	-			
without positioner, with mounting kit according VDI/VDE 3845 for positioners	0			
digital positioner Schubert & Salzer Type 8049, 4-wire	L			
digital positioner Schubert & Salzer Type 8049, 2-wire	R			
digital positioner Schubert & Salzer Type 8049-ExPro, II 2G Ex ia IIC T4 Gb, IP 65	E			
Additional specifications for the positioner				
without	-			
positioner single acting	1			
positioner double acting	2			
positioner single acting with gauge	3			
positioner double acting with gauge	4			
Positioner settings				
standard	-			
double acting 20 - 4 mA (20mA closed, 4mA open)	1			
single acting 20 - 4 mA (inverse function, safety position at 20mA)	2			
Kvs-value				
100%	-			
63%	A			
40%	K			

## Dimensions with pneumatic actuator (designed for a pilot pressure of 73 - 87 psi)



Size	A	B	C	D	E	F	G	L1	single acting				double acting					
									L2	L3	L4	H1	weight	L2	L3	L4	H1	weight
1"	0.98	0.79 (0.59)	2.87	2.91	1.95	1.02	2.87	2.36	4.02	8.29	2.05	9.29	12.2	3.35	6.24	1.85	8.62	8.9
1 1/2"	1.61	1.26 (0.98)	3.11	3.15	2.3	1.22	3.7	2.36	4.53	9.74	2.24	10.04	16.8	4.02	8.29	2.05	9.53	13.3
2"	2.09	1.57	3.23	3.27	2.8	1.5	4.41	2.36	4.53	9.74	2.24	10.16	19	4.02	8.29	2.05	9.65	15.5
3"	3.15	2.56	4.17	4.21	3.75	2.17	5.59	2.36	5.71	12.4	3.03	12.28	39.1	4.53	9.74	2.24	11.1	26.1
4"	3.94	3.15	4.61	4.65	4.4	2.44	6.85	2.36	6.18	13.58	3.23	13.19	52.7	5	10.57	2.64	12.01	37.3
6"	5.91	4.72	6.1	6.14	6.7	3.74	8.66	3.15	6.97	16.08	3.6	16.26	90.9	6.18	13.58	3.23	15.47	74.1
8"	7.87	6.1	7.24	7.28	8.25	4.72	11.02	3.15	8.68	19.17	4.13	19.11	162.1	6.97	16.08	3.6	17.4	125.5
10"	9.84	7.68	8.98	9.02	10.65	5.71	12.95	3.15	9.65	21.38	4.41	21.81	243.4	7.72	17.22	3.9	19.88	189.4

DN	E2	F2	ANSI ISA 75.08.2
1"	4	3.07	
1 1/2"	4.5	3.43	
2"	4.9	3.58	
3"	6.5	4.92	
4"	7.65	5.67	
6"	9	6.06	
8"	9.55	5.98	
10"	11.75	6.81	

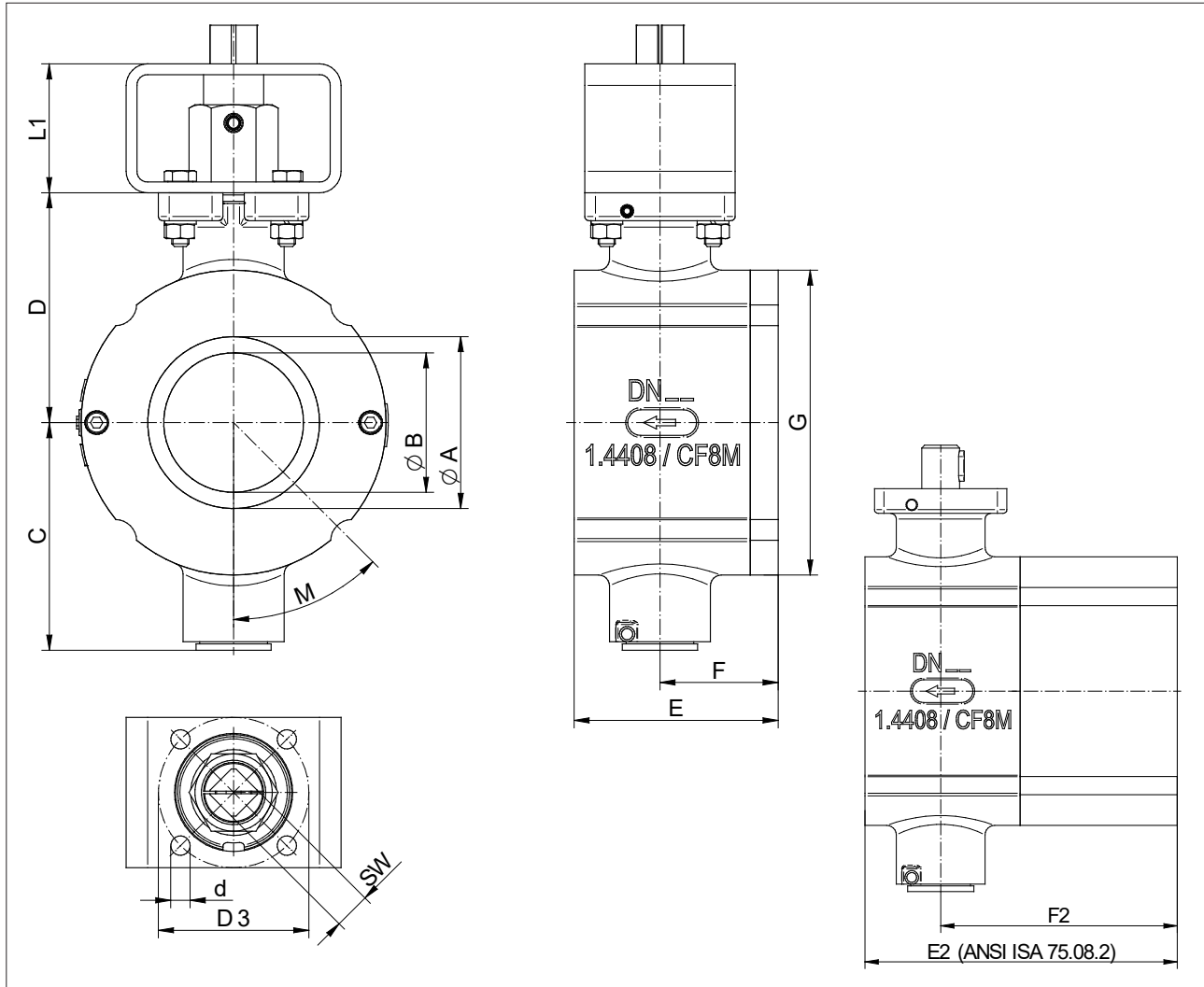
Dimensions for 12" and for motorized versions on request.

Dimension in inch

# Ball Sector Valve 4040



## Dimensions without actuator (with mountig kit ISO 5211)



Size	A	B	C	D	E	F	G	L1	d	D3	SW	DIN/ISO 5211	weight (lbs)
1"	0.98	0.79 (0.59)	2.87	2.91	1.97	1.02	2.87	2.36	0.26	1.97	0.55	F 05	5.3
1 1/2"	1.61	1.26 (0.98)	3.11	3.15	2.28	1.22	3.7	2.36	0.26	1.97	0.55	F 05	7.3
2"	2.09	1.57	3.23	3.27	2.8	1.5	4.41	2.36	0.26	1.97	0.55	F 05	9.5
3"	3.15	2.56	4.17	4.21	3.74	2.17	5.59	2.36	0.35	2.76	0.67	F 07	17.7
4"	3.94	3.15	4.61	4.65	4.41	2.44	6.85	2.36	0.35	2.76	0.67	F 07	25.4
6"	5.91	4.72	6.1	6.14	6.69	3.74	8.66	3.15	0.43	4.02	0.87	F 10	51.6
8"	7.87	6.1	7.24	7.28	8.27	4.72	11.02	3.15	0.53	4.92	1.06	F 12	93.7
10"	9.84	7.68	8.98	9.02	10.63	5.71	12.95	3.15	0.53	4.92	1.06	F 12	145.8

DN	E2	F2	ANSI ISA 75.08.2
25	4	3.05	
40	4.5	3.45	
50	4.9	3.6	
80	6.5	4.9	
100	7.65	5.65	
150	9	6.05	
200	9.55	6	
250	11.75	6.8	

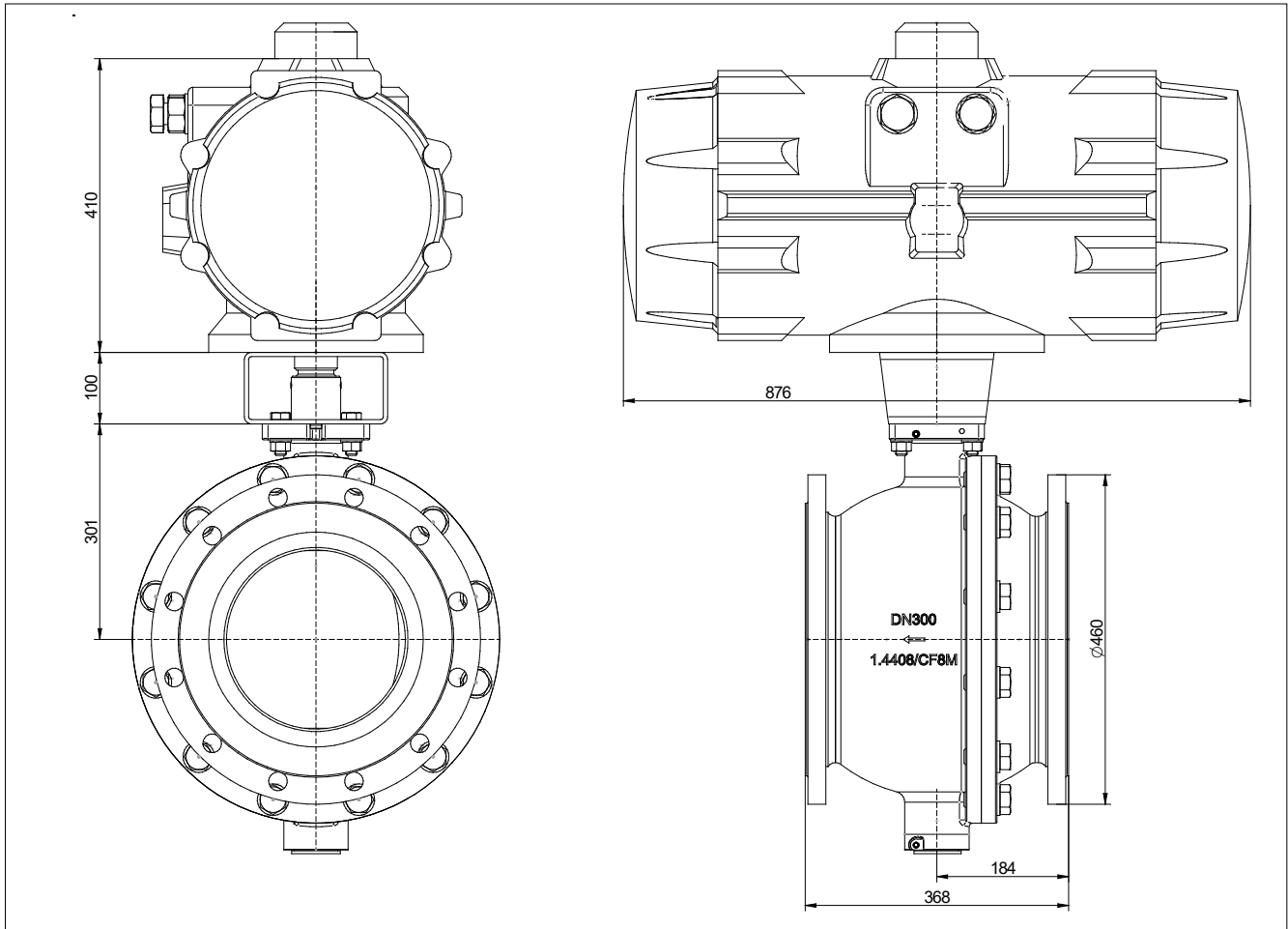
Dimensions for 12" on request.

Dimension in inch

# Ball Sector Valve 4040

## Dimensions KS1 12" with AirTorque actuator

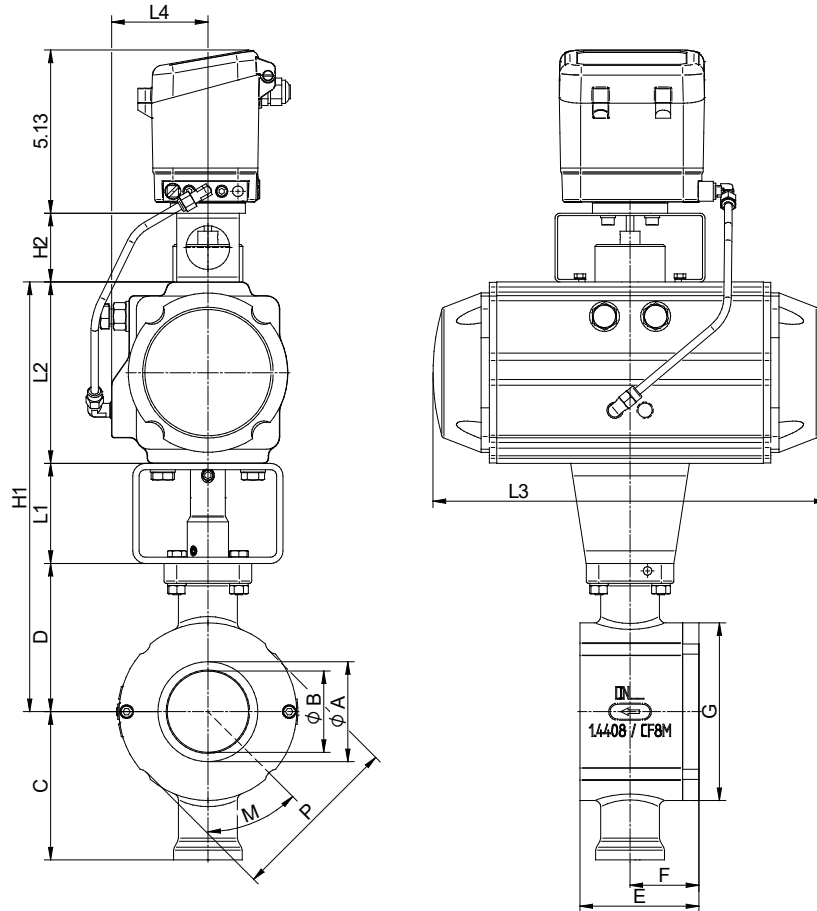
sealing of the ball sector with O-rings  
(designed for a pilot pressure of 73 - 87 psi)



Dimension in inch

## Dimensions KS2 with actuator and positioner 8049

Sealing of the bearing shaft with PTFE-packing



Size	actuator single acting						actuator double acting					weight [lbs]
	L1	L2	L3	L4	H1	L1	L2	L3	L4	H1		
1"	2.36	4.02	8.29	2.05	9.72	14	2.36	3.35	6.24	1.85	9.06	
1 1/2"	2.36	4.53	9.74	2.24	10.51	18	2.36	4.02	8.29	2.05	10	
2"	2.36	4.53	9.74	2.24	10.63	20	2.36	4.02	8.29	2.05	10.12	
2 1/2"	3.15	5.71	12.4	3.03	13.41	37	2.36	4.53	9.74	2.12	11.44	
3"	3.15	5.71	12.4	3.03	13.52	38	2.36	4.53	9.74	2.12	11.56	
4"	3.15	6.18	13.58	3.23	14.43	53	2.36	5	10.57	2.64	12.46	
5"	3.15	6.97	16.08	3.6	17.11	83	3.15	6.18	13.58	3.23	16.32	
6"	3.15	6.97	16.08	3.6	17.48	90	3.15	6.18	13.58	3.23	16.69	
8"	3.15	8.68	19.17	4.13	20.33	159	3.15	6.97	16.08	3.75	18.62	
10"	3.15	9.65	21.38	4.41	22.32	240	3.15	7.72	17.22	3.9	20.39	

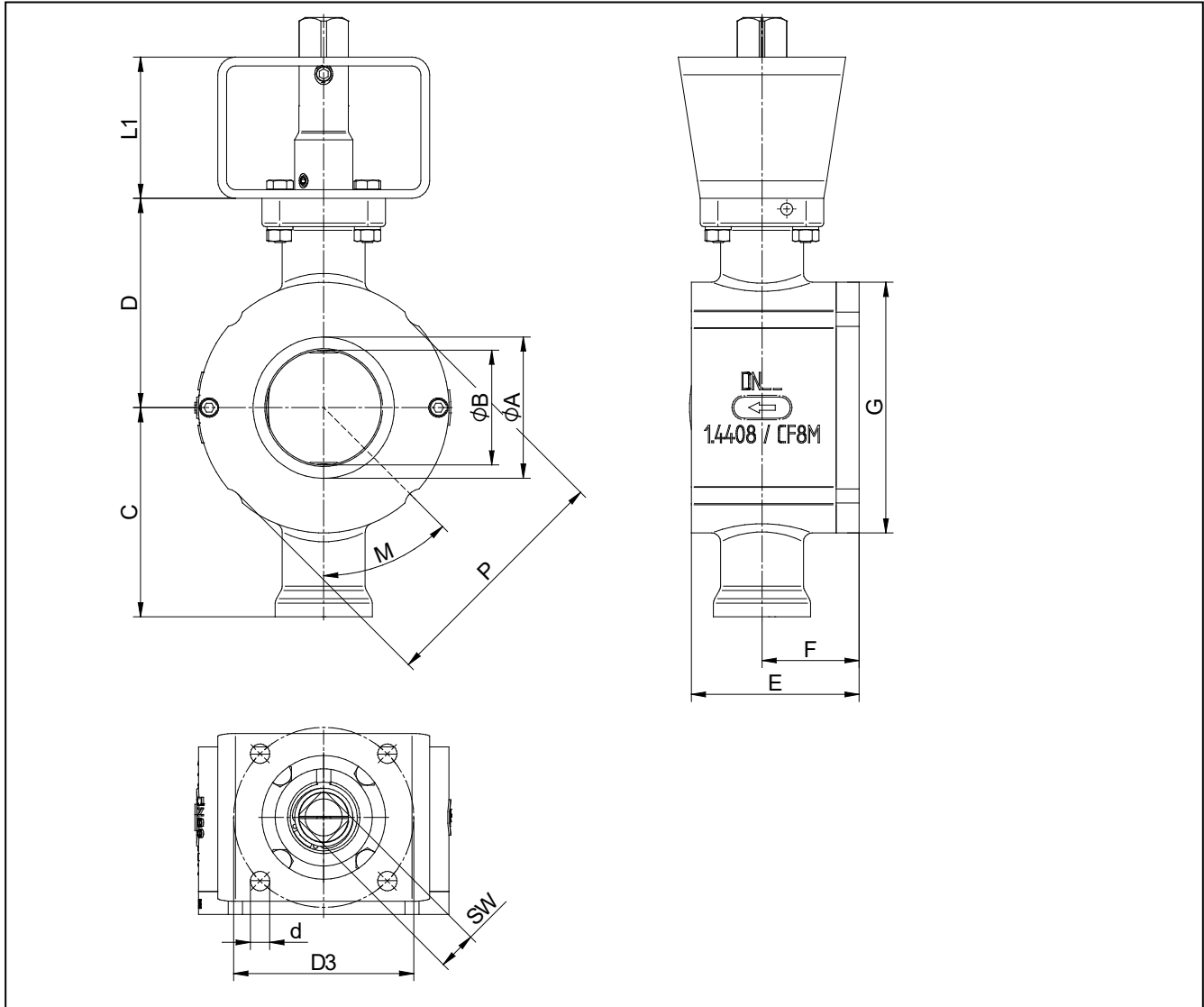
Size	A	B	C	D	E	F	G	H2
1"	0.98	0.79	3.35	3.35	1.97	1.02	2.95	1.77
1 1/2"	1.61	1.26	3.62	3.62	2.28	1.22	3.78	1.77
2"	2.09	1.57	3.74	3.74	2.8	1.5	4.41	1.77
2 1/2"	2.56	1.97	4.55	4.55	3.35	1.93	5.08	2.17
3"	3.15	2.56	4.67	4.67	3.74	2.17	5.59	2.17
4"	3.94	3.15	5.1	5.1	4.41	2.44	6.85	2.17
5"	3.94	4.92	6.99	6.99	5.83	3.35	7.87	2.17
6"	5.91	4.72	7.36	7.36	6.69	3.74	8.66	2.17
8"	7.87	6.1	8.5	8.5	8.27	4.72	11.02	2.95
10"	9.84	7.68	9.53	9.53	10.63	5.71	13.31	2.95

Dimensions in inch



## Dimensions KS2 without actuator (with mounting kit ISO 5211)

Sealing of the bearing shaft with PTFE-packing

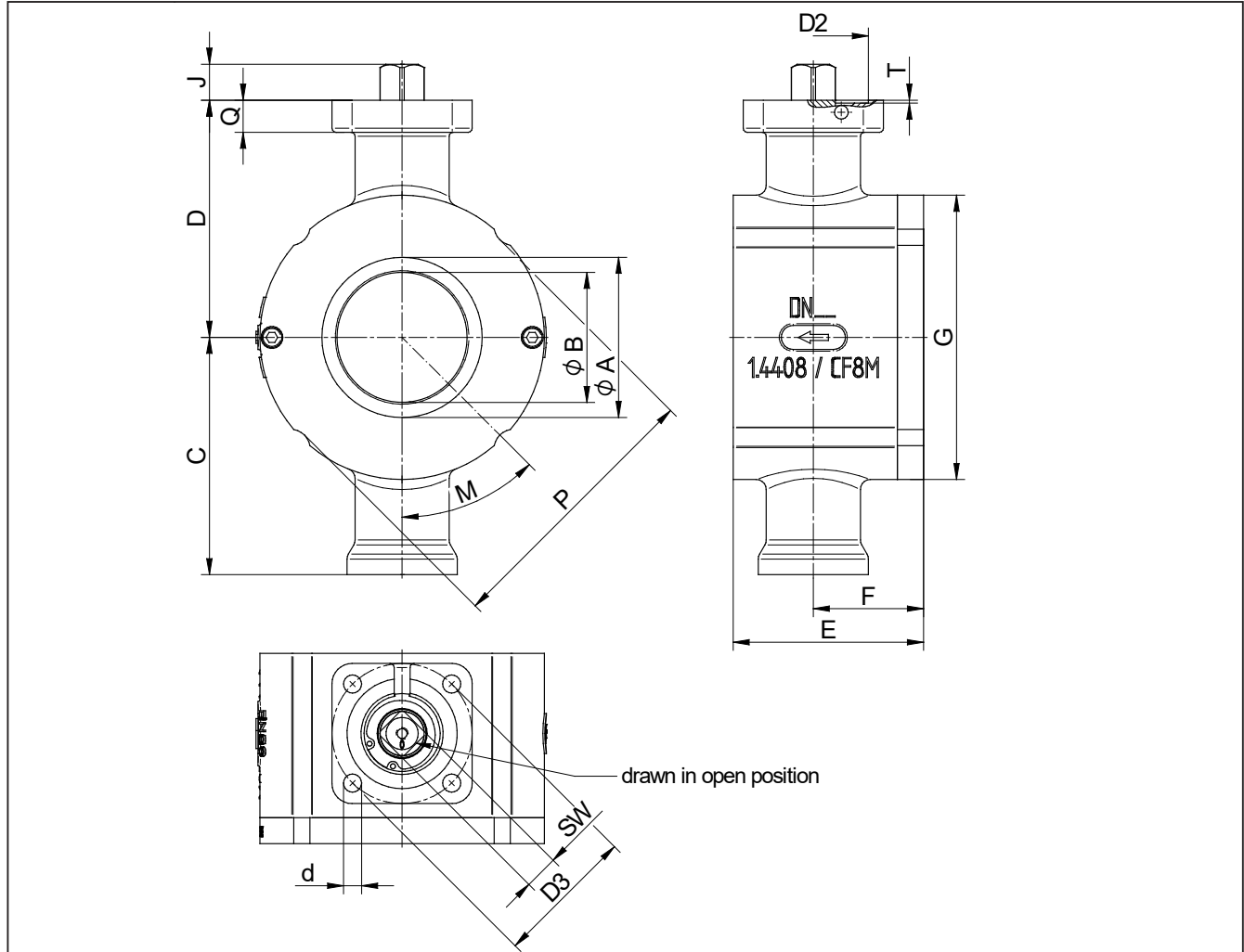


DN	series 1												series 2				weight [lbs]	
	A	B	C	D	E	F	G	L1	SW	d	D3	DIN ISO 5211	L1	SW	d	D3		DIN ISO 5211
1"	0.98	0.79	3.35	3.35	1.97	1.02	2.95	2.36	0.43	0.22	1.65	F 04	2.36	0.55	0.26	1.97	F 05	4.9
1 1/2"	1.61	1.26	3.62	3.62	2.28	1.22	3.78	2.36	0.55	0.26	1.97	F 05	2.36	0.67	0.35	2.76	F 07	6.6
2"	2.09	1.57	3.74	3.74	2.8	1.5	4.41	2.36	0.55	0.26	1.97	F 05	2.36	0.67	0.35	2.76	F 07	8.4
2 1/2"	2.56	1.97	4.55	4.55	3.35	1.93	5.08	2.36	0.67	0.35	2.76	F 07	3.15	0.87	0.43	4.02	F 10	14.1
3"	3.15	2.56	4.67	4.67	3.74	2.17	5.59	2.36	0.67	0.35	2.76	F 07	3.15	0.87	0.43	4.02	F 10	15.9
4"	3.94	3.15	5.1	5.1	4.41	2.44	6.85	2.36	0.67	0.35	2.76	F 07	3.15	0.87	0.43	4.02	F 10	24.3
5"	3.94	4.92	6.99	6.99	5.83	3.35	7.87	3.15	0.87	0.43	4.02	F 10	3.15	1.06	0.53	4.92	F 12	44.1
6"	5.91	4.72	7.36	7.36	6.69	3.74	8.66	3.15	0.87	0.43	4.02	F 10	3.15	1.06	0.53	4.92	F 12	50.7
8"	7.87	6.1	8.5	8.5	8.27	4.72	11.02	3.15	1.06	0.53	4.92	F 12	3.15	1.42	0.67	5.51	F 14	88.2
10"	9.84	7.68	9.53	9.53	10.63	5.71	13.31	3.15	1.06	0.53	4.92	F 12	3.15	1.42	0.67	5.51	F 14	145.5

Dimensions in inch

## Dimensions KS2 without actuator version with square shaft

Sealing of the bearing shaft with PTFE-packing

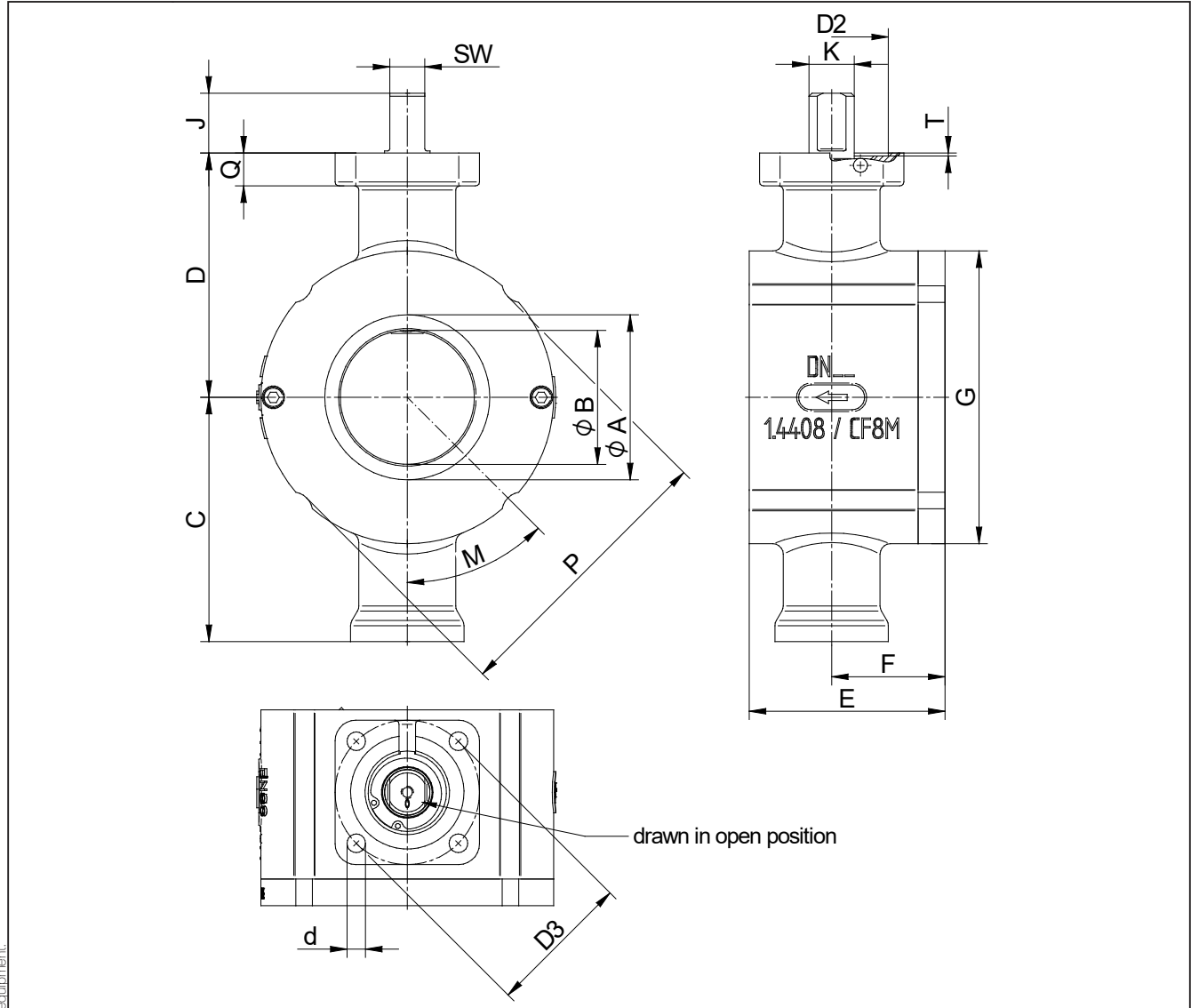


Size	A	B	C	D	E	F	J	SW	Q	d	D2	T	D3	DIN ISO 5211	Weight [lbs]
1"	0.98	0.79	3.35	3.35	1.97	1.02	0.59	0.55	0.43	0.26	1.38	0.04	1.97	F 05	4.9
1 1/2"	1.61	1.26	3.62	3.62	2.28	1.22	0.59	0.55	0.43	0.26	1.38	0.04	1.97	F 05	6.6
2"	2.09	1.57	3.74	3.74	2.8	1.5	0.59	0.55	0.43	0.26	1.38	0.04	1.97	F 05	8.4
2 1/2"	2.56	1.97	4.55	4.55	3.35	1.93	0.71	0.67	0.63	0.35	2.17	0.06	2.76	F 07	14
3"	3.15	2.56	4.67	4.67	3.74	2.17	0.71	0.67	0.63	0.35	2.17	0.06	2.76	F 07	16
4"	3.94	3.15	5.1	5.1	4.41	2.44	0.71	0.67	0.63	0.35	2.17	0.06	2.76	F 07	24
5"	3.94	4.92	6.99	6.99	5.83	3.35	0.89	0.87	0.67	0.43	2.76	0.06	4.02	F 10	44
6"	5.91	4.72	7.36	7.36	6.69	3.74	0.89	0.87	0.67	0.43	2.76	0.06	4.02	F 10	51
8"	7.87	6.1	8.5	8.5	8.27	4.72	1.08	1.06	0.67	0.53	3.35	0.06	4.92	F 12	88
10"	9.84	7.68	9.53	9.53	10.63	5.71	1.08	1.06	0.67	0.53	3.35	0.06	4.92	F 12	146

Dimensions in inch

## Dimensions KS2 without actuator version with dihedron

Sealing of the bearing shaft with PTFE-packing



Size	A	B	C	D	E	F	J	SW	K	Q	d	D2	T	D3	DIN ISO 5211	weight [lbs]
1"	0.98	0.79	3.35	3.35	1.97	1.02	0.94	0.55	0.71	0.43	0.26	1.38	0.04	1.97	F 05	4.9
1 1/2"	1.61	1.26	3.62	3.62	2.28	1.22	0.94	0.55	0.71	0.43	0.26	1.38	0.04	1.97	F 05	6.6
2"	2.09	1.57	3.74	3.74	2.8	1.5	0.94	0.55	0.71	0.43	0.26	1.38	0.04	1.97	F 05	8.4
2 1/2"	2.56	1.97	4.55	4.55	3.35	1.93	1.14	0.67	0.87	0.63	0.35	2.17	0.06	2.76	F 07	14
3"	3.15	2.56	4.67	4.67	3.74	2.17	1.14	0.67	0.87	0.63	0.35	2.17	0.06	2.76	F 07	16
4"	3.94	3.15	5.1	5.1	4.41	2.44	1.14	0.67	0.87	0.63	0.35	2.17	0.06	2.76	F 07	24
5"	3.94	4.92	6.99	6.99	5.83	3.35	1.48	0.87	1.1	0.67	0.43	2.76	0.06	4.02	F 10	44
6"	5.91	4.72	7.36	7.36	6.69	3.74	1.48	0.87	1.1	0.67	0.43	2.76	0.06	4.02	F 10	51
8"	7.87	6.1	8.5	8.5	8.27	4.72	1.83	1.06	1.42	0.67	0.53	3.35	0.06	4.92	F 12	88
10"	9.84	7.68	9.53	9.53	10.63	5.71	1.83	1.06	1.42	0.67	0.53	3.35	0.06	4.92	F 12	146

Dimensions in inch

Text and pictures are not binding. We reserve the right to alter the equipment.