

# Ball Sector Valve 4040

## DN 25 up to DN 300

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

- DN 25 up to DN300
- High Kvs-values up to 3840
- Excellent control characteristics
- Suitable for abrasive media
- Easily exchangeable seat ring
- Low maintenance
- Actuators can be easily fitted
- Efficient and easy to install
- Optional volume booster Type 4090 (from DN150) in order to reduce the response time
- Optional with face to face dimension acc. ANSI ISA 75.08.02



### Technical Information Valve

Design	DN 25 - DN 250 flangeless wafer type DN 300 flange connection		
Nominal sizes	DN 25 up to DN 300		
Body material	cast parts	1.4408 (CF8M)	
	turned parts	1.4404 (316L)	
Material of the bearing shaft	1.4122		
Bearing material	high temperature plain bearing		
Connection to the actuator	mounting kit DIN/ISO 5211		
Nominal pressure	DN 25 - DN 50	PN 40 (for flanges PN 10 - PN 40), ANSI150, ANSI 300	
	DN 65 - DN100	PN 25 (for flanges PN 10 - PN 25), optional PN 40, ANSI150, ANSI 300	
	DN 125 - DN 250	PN16 (for flanges PN 10 - PN 16), optional PN 25, ANSI150	
	DN 300	PN16, ANSI 150	
Fluid Temperature	-40°C up to +220°C		depending on the sealings
Ambient temperature	-20°C up to +80°C		depending on the sealings
	special version on request		
Vacuum	up to 50 mbar abs.		
Characteristic	almost equal percentage		
Rangeability	300:1		
Specific leakage rate shaft and body sealing	series KS2, DN25-DN250: ISO FE-BH-CC3-SSA0-t(-40°C/+220°C)-PN40-ISO 15848-1 series KS1; DN300: ISO FE-BH-CC-SSA0-t(RT)-PN16-ISO 15848-1		
Leakage rate	Seat ring: PTFE / PEEK Ball sector: Polished stainless steel	Seat ring: PTFE / PEEK Ball sector: Hard chrome-plated stainless steel	Seat ring: Stellite Ball sector: Stainless steel hard chrome-plated and lapped
% of Kvs IEC 60534-4	< 0,00001 IV-S1	< 0,00005 IV-S1	< 0,0005 IV-S1

## Working pressure max.

DN	maximum differential pressure (delta p)									
	seat ring PTFE			seat ring PEEK				seat ring Stellite		
	up to 80°C bar	120°C bar	170°C bar	up to 80°C bar	120°C bar	170°C bar	220°C bar	up to 80°C bar	170°C bar	220°C bar
25-50	25	16	6	40	40	25	16	40	40	25
65-100	16	12	5	25	25	16	10	25	25	16
125-300	16	12	4	16	16	12	8	16	16	12

Actuators for mounting according DIN/ISO5211, pilot pressure 5 - 6 bar  
(for less than 5 bar pilot pressure, please inform us)

## Temperature limits

Seating	Sealing seating									
	Viton		EPDM		NBR		FFKM		PFA-Silicone	
	Tmin [°C]	Tmax [°C]	Tmin [°C]	Tmax [°C]	Tmin [°C]	Tmax [°C]	Tmin [°C]	Tmax [°C]	Tmin [°C]	Tmax [°C]
PTFE	-15	170	-40	140	-30	100	-15	170	-45	170
PEEK	-15	200	-40	140	-30	100	-15	220	-45	220
Stellite	-15	200	-40	140	-30	100	-15	220	-45	220

## Operating time with positioner 8049

DN	operating time opening 5% to 95%			operating time closing 5% to 95%		
	Standard 100 NI/min	with volume booster Type 4090	with external solenoid valves (1500NL)	Standard 100 NI/min	with volume booster Type 4090	with external solenoid valves (1500NL)
100	4,0 s	1,9 s	1,0 s	5,4 s	3,0 s	1,2 s
150	7,0 s	2,5 s	1,5 s	8,5 s	4,0 s	1,6 s
200	11,0 s	4,0 s	1,8 s	13,0 s	8,0 s	1,9 s
250	14,0 s	5,0 s	2,5 s	17,5 s	10,0 s	2,6 s
300	23,0 s	9,0 s	4,5 s	43,0 s	18,0 s	6,0 s

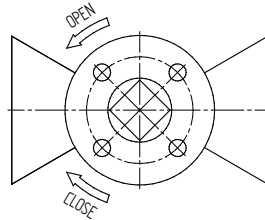
## Kvs-Values

DN	Kvs-Value reduced to					
	100%	63%	40%	25%	16%	6,3%
25	25	12,7	7,9	5,3	3,6	1,45
40	70	40	25			
50	109	65	41			
65	190					
80	300					
100	390					
125	756					
150	810					
200	1365					
250	2220					
300	3840					

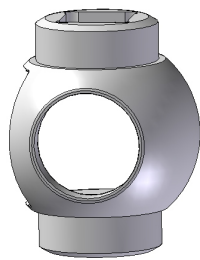
## Torques and mounting kits

for retrofitting actuators

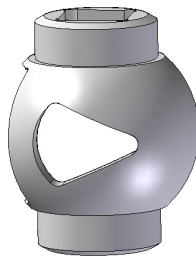
DN	rotation angle nominal	max. nominal pressure PN	max. nominal pressure ANSI	req. torque [Nm]		mounting kit ISO 5211 diagonal square shaft	
				on/off-operation	control operation	series 1	series 2
25	90°	PN40	ANSI 300	15	25	F04/SW11	F05/SW14
40	90°	PN40	ANSI 300	30	50	F05/SW14	F07/SW17
50	90°	PN40	ANSI 300	30	50	F05/SW14	F07/SW17
65	90°	PN25	ANSI 300	60	100	F07/SW17	F10/SW22
80	90°	PN25	ANSI 300	60	100	F07/SW17	F10/SW22
100	90°	PN25	ANSI 300	90	150	F07/SW17	F10/SW22
125	90°	PN16	ANSI 150	150	250	F10/SW22	F12/SW27
150	90°	PN16	ANSI 150	150	250	F10/SW22	F12/SW27
200	90°	PN16	ANSI 150	210	350	F12/SW27	F14/SW36
250	90°	PN16	ANSI 150	360	600	F12/SW27	F14/SW36
300	90°	PN16	ANSI 150	900	1500	F14/SW36	F16/SW46



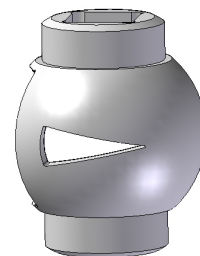
## Ball Sector Valve with reduced Kvs-values



100%



reduced to  
63%



reduced to  
25%

## Ball Sector Valve Type 4040 with hand wheel gear box



# Ball Sector Valve 4040



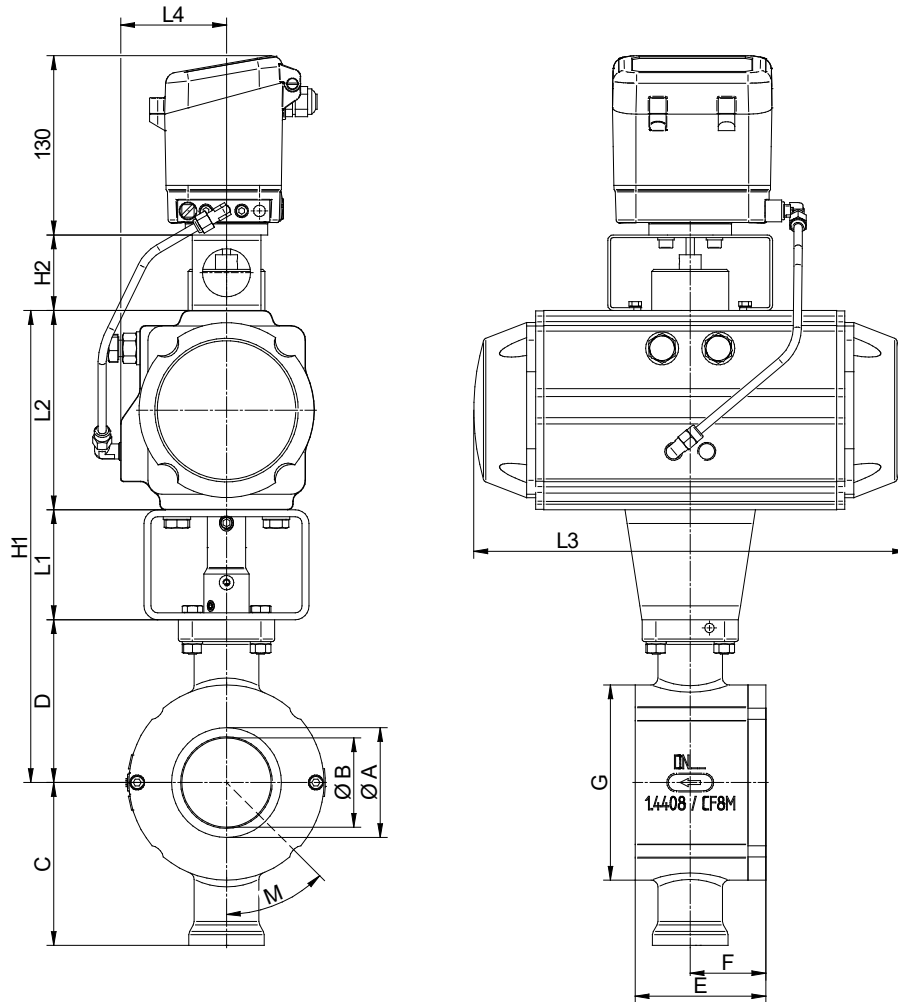
## Ordering Number System

Ordering Number:

4040/											M						Z	...
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Nominal Size																				
e.g. DN 25 = 025		xxx																		
Article																				
valve																				V
repair-kit																				R
seat kit																				D
Connection																				
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
KS1-flangeless design according DIN EN 1092-1																				1
KS1-flangeless design according ASME B 16.5, ANSI 150																				E
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: TECAPEEK; ball sector: 1.4408, hard chrome plated																				P
Seal combination																				
all seals (part 13-16) from VITON, medium temperature: -15°C up to +200																				1
all seals (part 13-16) from FFKM (Perlast/Kalrez), medium temperature: -15°C up to +220°C																				A
all seals (part 13-16) from EPDM, medium temperature: -30°C up to +140°C																				D
all seals (part 13-16) from NBR(P700), medium temperature: -40°C up to +100°C																				N
Packing made of PTFE; O-Ring (part 15) made of VITON, fluid temperature: -15°C up to +200°C																				3
Packing made of PTFE; O-Ring (part 15) made of EPDM, fluid temperature: -40°C up to +140°C																				4
Packing made of PTFE; O-Ring (part 15) made of FFKM, fluid temperature: -10°C up to +220°C																				5
Packing made of PTFE; O-Ring (part 15) made of NBR, fluid temperature: -30°C up to +100°C																				6
Packing made of PTFE; O-Ring (part 15) made of PFA-silicone, fluid temperature: -45°C to +220°C																				8
Actuator																				
without mounting kit, without actuator, connection to bearing pin: feather key																				0
without mounting kit, without actuator, connection to bearing pin: dihedron																				V
without mounting kit, without actuator, connection to bearing pin: square shaft																				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
with hand wheel gear box and with mounting kit acc. DIN/ISO 5211																				K
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
digital positioner type 8049 ExPro-FM with base plate in stainless steel																				K
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 KS2 with actuator and positioner 8049

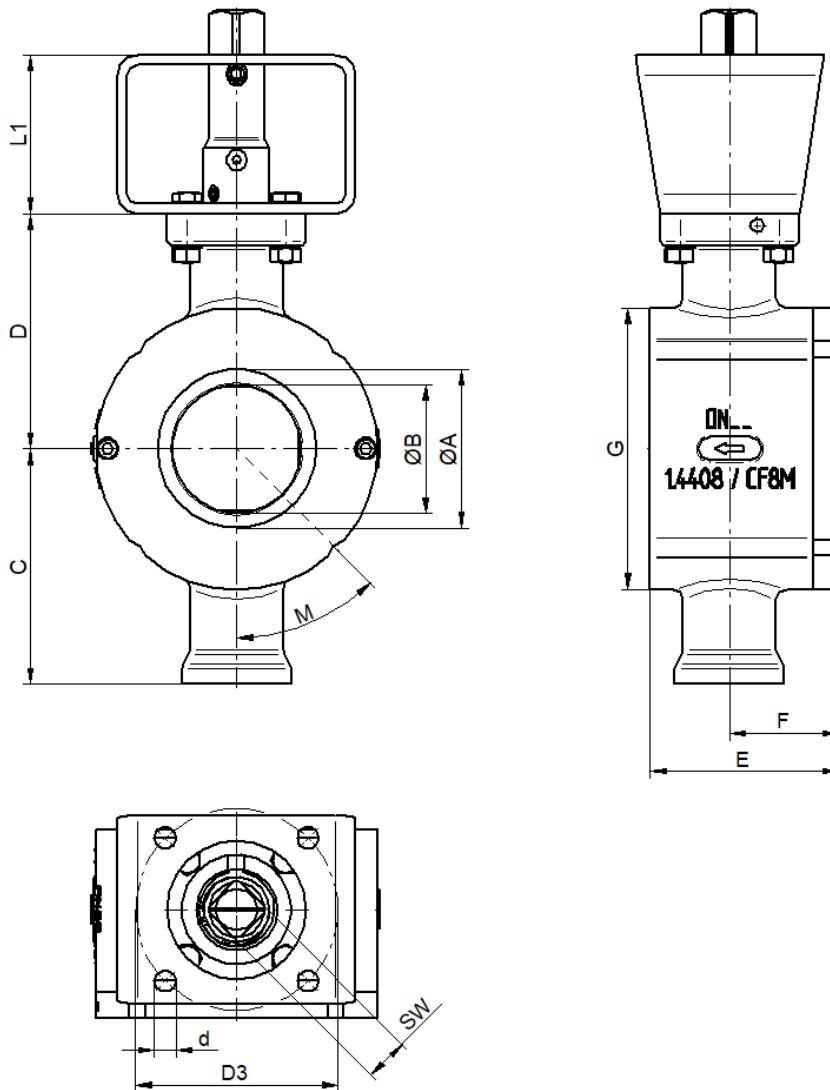


DN	actuator single acting						actuator double acting					
	L1	L2	L3	L4	H1	weight [kg]	L1	L2	L3	L4	H1	weight [kg]
25	60	102	210,5	52	247	6,2	60	85	158,5	47	230	4,3
40	60	115	247,5	56,8	267	8,3	60	102	210,5	52	254	6,7
50	60	115	247,5	56,8	270	9,1	60	102	210,5	52	257	7
65	80	145	315	77	340,5	16,6	60	115	247,5	53,8	290,5	11,3
80	80	145	315	77	343,5	17,4	60	115	247,5	53,8	293,5	12,1
100	80	157	345	82	366,5	24	60	127	268,5	67	316,5	17,2
125	80	177	408,5	91,5	434,5	37,6	80	157	345	82	414,5	26,2
150	80	177	408,5	91,5	444	40,6	80	157	345	82	424	34
200	80	220,5	487	105	516,5	72,3	80	177	408,5	961,5	473	55,2
250	80	245	543	112	567	109	80	196	437,5	99	518	84,8

DN	A	B	C	D	E	F	G	H2	Number of releases by pressure stage		
									PN	ANSI150	ANSI300
25	25	20	85	85	50	26	75	45	4	4	4
40	41	32	92	92	58	31	96	45	4	4	4
50	53	40	95	95	71	38	112	45	4	4	0
65	65	50	115,5	115,5	85	49	129	55	0	4	0
80	80	65	118,5	118,5	95	55	142	55	0	4	0
100	100	80	129,5	129,5	112	62	174	55	8	0	0
125	100	125	177,5	177,5	148	85	200	55	8	8	-
150	150	120	187	187	170	95	220	55	0	0	-
200	200	155	216	216	210	120	275	75	0	0	-
250	250	195	242	242	270	145	338	75	12	0	-

Dimensions in mm

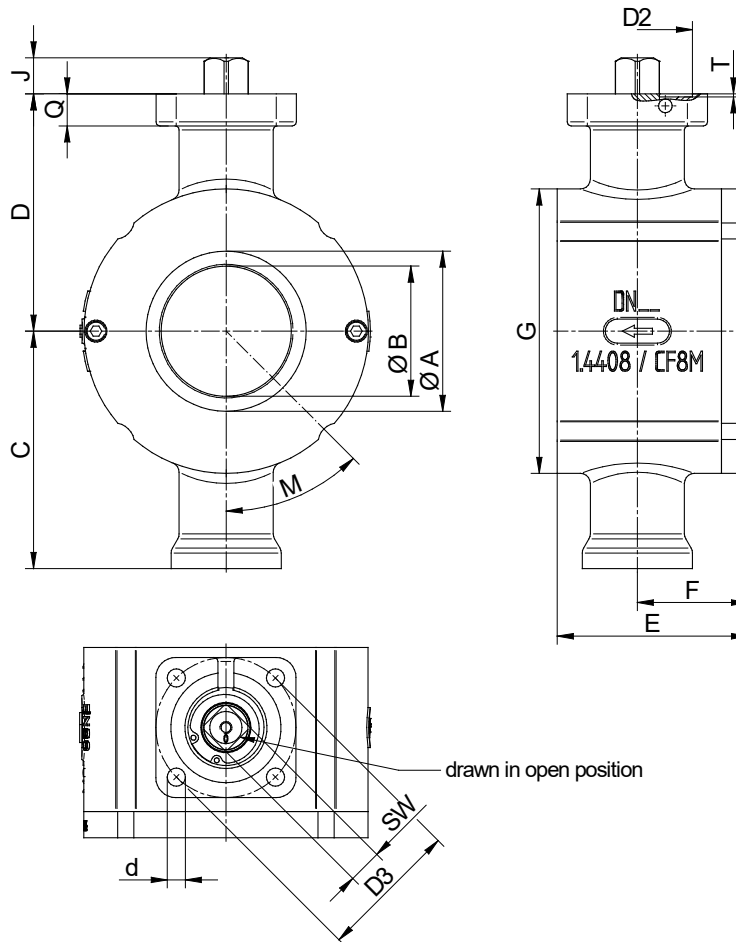
## Dimensions KS2 without actuator (with mounting kit ISO 5211)



DN	A	B	C	D	E	F	G	series 1					series 2					weight [kg]
								L1	SW	d	D3	DIN ISO 5211	L1	SW	d	D3	DIN ISO 5211	
25	25	20	85	85	50	26	75	60	11	5,5	42	F 04	60	14	6,6	50	F 05	2,2
40	41	32	92	92	58	31	96	60	14	6,6	50	F 05	60	17	9	70	F 07	3
50	53	40	95	95	71	38	112	60	14	6,6	50	F 05	60	17	9	70	F 07	3,8
65	65	50	115,5	115,5	85	49	129	60	17	9	70	F 07	80	22	11	102	F 10	6,4
80	80	65	118,5	118,5	95	55	142	60	17	9	70	F 07	80	22	11	102	F 10	7,2
100	100	80	129,5	129,5	112	62	174	60	17	9	70	F 07	80	22	11	102	F 10	11
125	100	125	177,5	177,5	148	85	200	80	22	11	102	F 10	80	27	13,5	125	F 12	20
150	150	120	187	187	170	95	220	80	22	11	102	F 10	80	27	13,5	125	F 12	23
200	200	155	216	216	210	120	275	80	27	13,5	125	F 12	80	36	17	140	F 14	40
250	250	195	242	242	270	145	338	80	27	13,5	125	F 12	80	36	17	140	F 14	66

Dimensions in mm

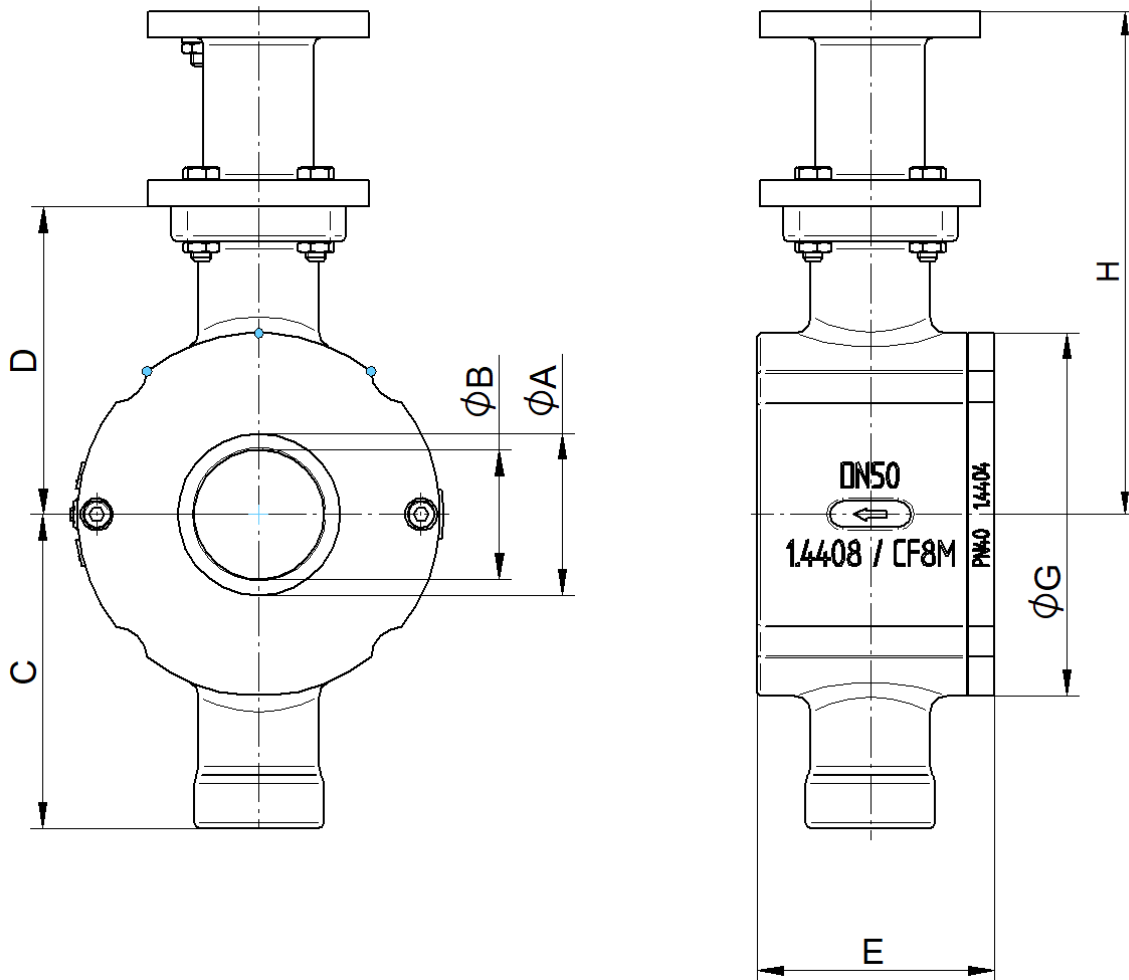
## Dimensions KS2 without actuator version with square shaft



DN	A	B	C	D	E	F	J	SW	Q	d	D2	T	D3	DIN ISO 5211	Weight [kg]
25	25	20	85	85	50	26	15	14	11	6,6	35	1	50	F 05	2,2
40	41	32	92	92	58	31	15	14	11	6,6	35	1	50	F 05	3
50	53	40	95	95	71	38	15	14	11	6,6	35	1	50	F 05	3,8
65	65	50	115,5	115,5	85	49	18	17	16	9	55	1,5	70	F 07	6,4
80	80	65	118,5	118,5	95	55	18	17	16	9	55	1,5	70	F 07	7,2
100	100	80	129,5	129,5	112	62	18	17	16	9	55	1,5	70	F 07	11
125	100	125	177,5	177,5	148	85	22,5	22	17	11	70	1,5	102	F 10	20
150	150	120	187	187	170	95	22,5	22	17	11	70	1,5	102	F 10	23
200	200	155	216	216	210	120	27,5	27	17	13,5	85	1,5	125	F 12	40
250	250	195	242	242	270	145	27,5	27	17	13,5	85	1,5	125	F 12	66

Dimensions in mm

## Dimensions KS2 with stem extension

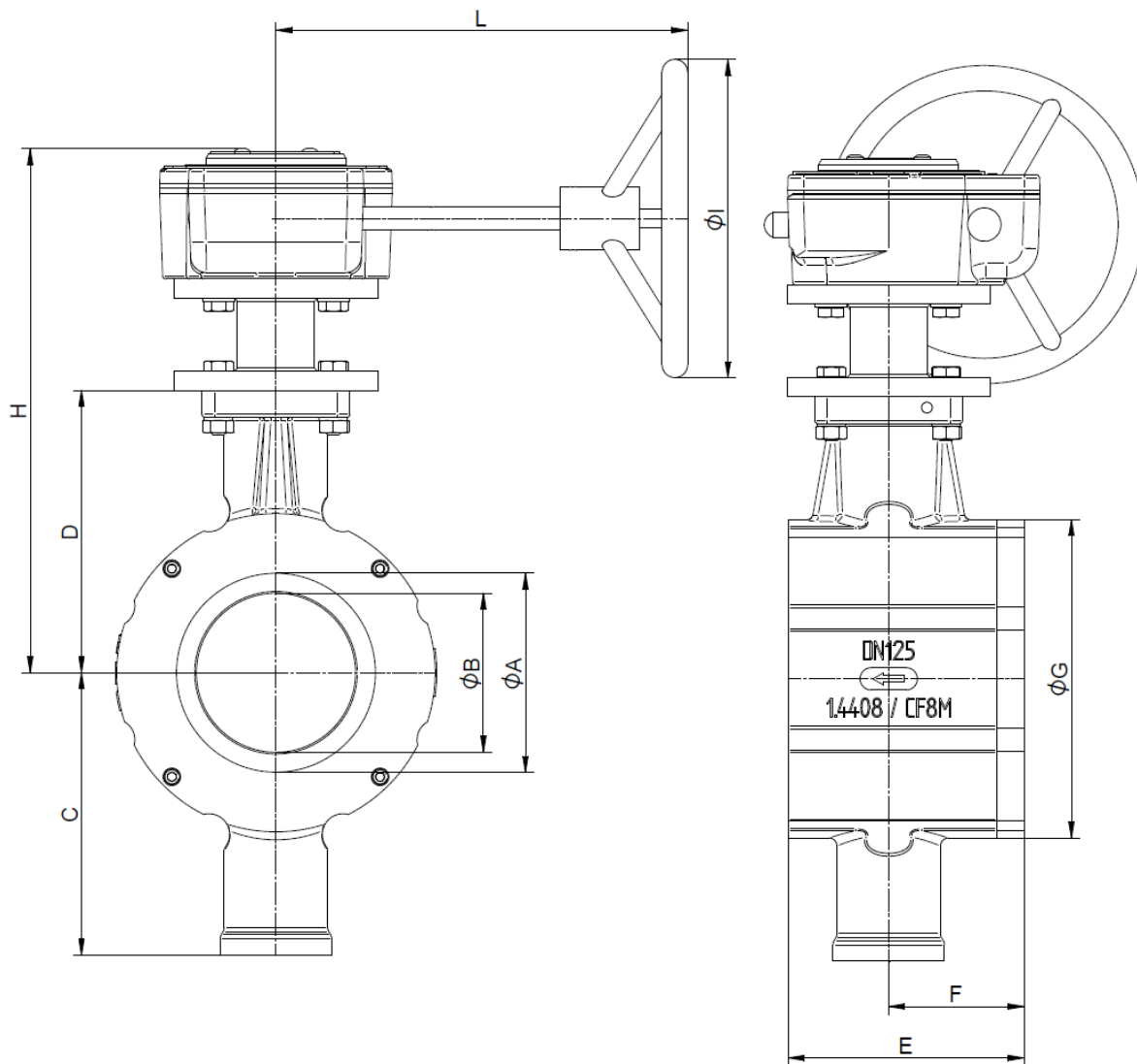


DN	A	B	C	D	E	F	G	H	Weight (kg)
25	25	20	85	85	50	26	73	145	2,86
40	41	32	92	92	58	31	94	152	3,66
50	53	40	95	95	71	38	112	155	4,46
65	65	50	116	116	85	49	112	196	7,96
80	80	65	119	119	95	55	142	199	8,76
100	100	80	130	130	112	62	174	210	12,56

Dimensions in mm



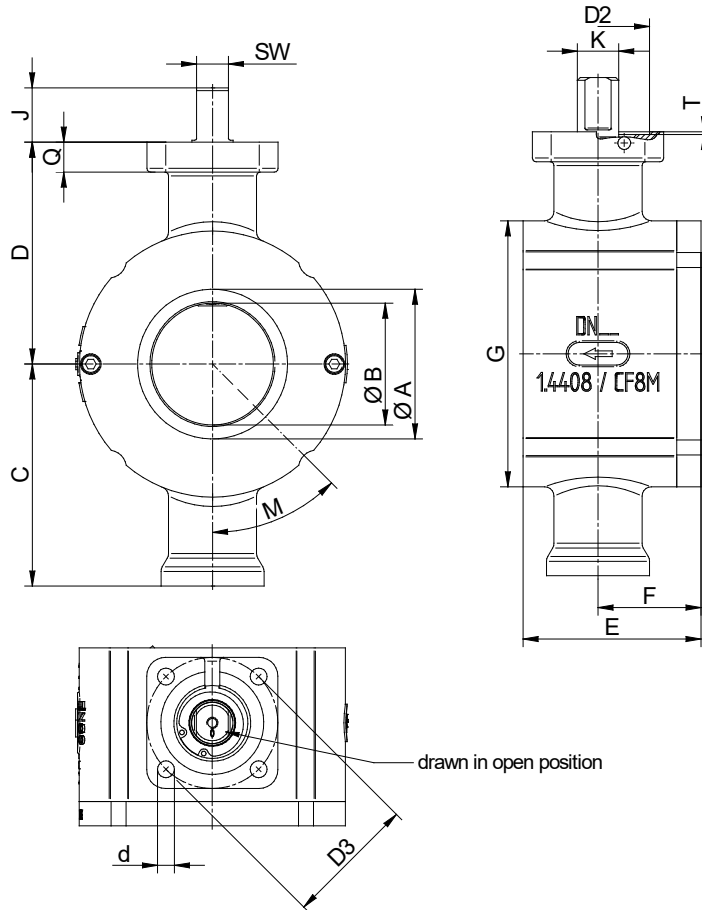
## Dimensions KS2 with stem extension and hand wheel gearbox



DN	A	B	C	D	E	F	G	H	I	L	Weight (kg)
125	125	100	178	178	148	85	200	330	200	259	28
150	150	120	187	187	170	95	220	339	200	259	31
200	200	155	216	216	210	120	275	358	200	259	49,2
250	250	195	242	242	270	145	344	384	200	259	75,2

Dimensions in mm

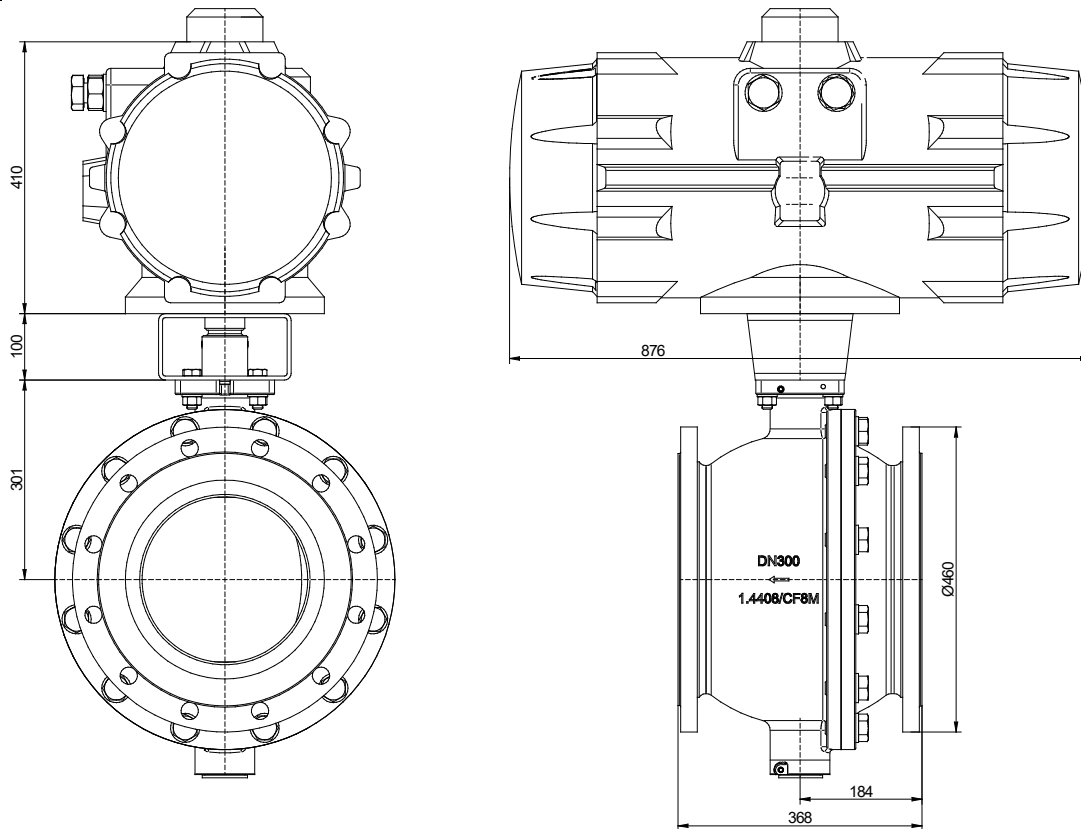
## Dimensions KS2 without actuator version with double flat



DN	A	B	C	D	E	F	J	SW	K	Q	d	D2	T	D3	DIN ISO 5211	weight [kg]
25	25	20	85	85	50	26	24	14	18	11	6,6	35	1	50	F 05	2,2
40	41	32	92	92	58	31	24	14	18	11	6,6	35	1	50	F 05	3
50	53	40	95	95	71	38	24	14	18	11	6,6	35	1	50	F 05	3,8
65	65	50	115,5	115,5	85	49	29	17	22	16	9	55	1,5	70	F 07	6,4
80	80	65	118,5	118,5	95	55	29	17	22	16	9	55	1,5	70	F 07	7,2
100	100	80	129,5	129,5	112	62	29	17	22	16	9	55	1,5	70	F 07	11
125	100	125	177,5	177,5	148	85	37,5	22	28	17	11	70	1,5	102	F 10	20
150	150	120	187	187	170	95	37,5	22	28	17	11	70	1,5	102	F 10	23
200	200	155	216	216	210	120	46,5	27	36	17	13,5	85	1,5	125	F 12	40
250	250	195	242	242	270	145	46,5	27	36	17	13,5	85	1,5	125	F 12	66

Dimensions in mm

## Dimensions KS1 DN300 with AirTorque actuator (designed for a pilot pressure of 5 - 6 bar)



Dimension in mm