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# PNEUMATIC VALVES SERIES SBS

## FAMILY 04 CONTROL VALVES – GROUPS 120#129

Valves series SBS are modulating globe valves, with 2 or 3 ways.

They mount a multi-spring pneumatic diaphragm actuator. Their plug is available with linear or equipercentual characteristic, with soft, metallic or stellated seal.

They are available with flanged connections in accordance with standards EN 1092-2 PN16, EN 1092-1 PN40.



### TECHNICAL DATA

<b>Model</b>	Globe Valve – Unidirectional - 2 / 3 ways ( Third way closed in standard version)			
<b>Material</b>	EN 1561 GJL-250	EN 1563 GJS-500-7	ASTM A216 WCB	CF8M
<b>DN</b>	15 # 80	15 # 150	15 # 80	
<b>Max Allowed P</b>	16 BAR		40 BAR	
<b>End</b>	Flanged PN 16 - EN 1092-2		Flanged PN 40 - EN 1092-1	
<b>Seal</b>	PEEK – Metallic – Stellited			
<b>Seal Class (EN12266-1)</b>	Grade A with PEEK seal Grado B with metallic and stellited seal (stellited plug is advisable with $\Delta p > 10$ bar) In according to UNI EN 12266-1			
<b>Plug Characteristic</b>	Linear - Equipercutual			
<b>Stroke 15 mm</b>	2 ways DN 15#25 – 3 ways mixing valve			
<b>Stroke 20 mm</b>	2 ways DN 32#80 – 3 ways deviator valve – on request 3 ways mixing valve			
<b>Stroke 30 mm</b>	DN 100#150			
<b>Max T</b>	+200°C with all seal			
<b>Min T</b>	-10°C (liquid phase)			
<b>Air Connection</b>	1/8" GAS (actuator Ø 200) 1/4" GAS (actuator Ø 275, Ø 360, Ø 430).			
<b>Feeding Fluid</b>	Instrument Air			
<b>Feeding Pressure</b>	3÷15 psi, 6÷18 psi, 6÷30 psi, 9÷32 psi, 3÷9 psi, 9÷15 psi.			
<b>Versions / Optionals</b>	Normally Closed – Normally Open – With bellows for high/low temperatures (see specific sheet) – Manual Override – Pneumatic Positioner – Electropneumatic Positioner – I/P Converter - FR Group			

### MATERIALS

<b>Body</b>	EN 1561 GJL-250	EN 1563 GJS-500-7	ASTM A216 WCB	CF8M
<b>Bonnet</b>	EN 1561 GJL-250 ASTM A216 WCB + Fe 430 B DN 65#80 EN 1563 GJS-500-7 DN 100#150		ASTM A216 WCB + Fe 430 B	CF8M + S30400
<b>Plug</b>	<b>T.PK.</b>	CF8 + S30400 + PEEK		CF8M + S31600 + PEEK
	<b>T.M.</b>	CF8 + S30400		CF8M + S31600
<b>Packing</b>	PTFE + PTFE caricato GRAFITE			
<b>Body Seals</b>	FASIT 400			
<b>Actuator</b>	Fe P04		Fe P04	S30400
<b>Nuts and Bolts</b>	Zinc-Plated Steel			S30400

# Max Differential Pressure $\Delta p$ for SBS Valves - DN 15÷150 2 Ways

TAB: SBS $\Delta p$ Rev. 00 del 23/07/2015			$\Delta p$ Valve						Valve definition N°	
Control signal in PSI <sup>(1)</sup>			3÷15	6÷18	6÷30	9÷32	3÷9	9÷15		
Control signal in BAR			0,2÷1	0,42÷1,26	0,4÷2,1	0,6÷2,24	0,2÷0,6	0,6÷1,0		
Max control pressure BAR			1	1,26	2,21	2,4	0,8	1,2		
ND	$\varnothing_{\text{seat}}$ [mm]	$\varnothing_{\text{SERV.}}$ [mm]	Valve definition letters							
			A	B	C	D	R	S		
15	3	200	40	40	40	40	40	40	1	
		275	40	40	40	40	40	40	3	
		430	40	40	40	40	40	40	4	
	6	200	13	26	26	39	13	39	5	
		275	32	40	40	40	32	40	6	
		430	32	40	40	40	32	40	6	
	20	15	200	7	14	14	21	7	21	101
			275	18	36	36	40	18	40	102
			430	36	40	40	40	36	40	103
20		200	7	14	14	21	7	21	13	
		275	18	36	36	40	18	40	14	
		430	36	40	40	40	36	40	15	
25	8	200	40	40	40	40	40	40	7	
		275	40	40	40	40	40	40	8	
		430	40	40	40	40	40	40	8	
	15	200	13	26	26	39	13	39	9	
		275	32	40	40	40	32	40	10	
		430	32	40	40	40	32	40	10	
	20	20	200	7	14	14	21	7	21	13
			275	18	36	36	40	18	40	14
			430	36	40	40	40	36	40	15
26		200	5	10	10	15	5	15	25	
		275	12	24	24	34	12	34	26	
		430	24	40	40	40	24	40	27	
32	15	200	13	26	26	39	13	39	17	
		275	32	40	40	40	32	40	18	
		430	32	40	40	40	32	40	18	
	20	200	7	14	14	21	7	21	21	
		275	18	36	36	40	18	40	22	
		430	36	40	40	40	36	40	23	
	26	26	200	5	10	10	15	5	15	25
			275	12	24	24	34	12	34	26
			430	24	40	40	40	24	40	27
31		200	4	8	8	12	4	12	37	
		275	10	20	20	30	10	30	38	
		430	20	40	40	40	20	40	39	
40	20	200	7	14	14	21	7	21	29	
		275	18	36	36	40	18	40	30	
		430	36	40	40	40	36	40	31	
	26	200	5	10	10	15	5	15	33	
		275	12	24	24	34	12	34	34	
		430	24	40	40	40	24	40	35	
	31	200	4	8	8	12	4	12	37	
		275	10	20	20	30	10	30	38	
		430	20	40	40	40	20	40	39	
50	26	200	5	10	10	15	5	15	41	
		275	12	24	24	34	12	34	42	
		430	24	40	40	40	24	40	43	
	31	200	4	8	8	12	4	12	45	
		275	10	20	20	30	10	30	46	
		430	20	40	40	40	20	40	47	
	38	200	2,8	5,5	5,5	8	2,8	8	49	
		275	7	14	14	20	7	20	50	
		430	14	28	28	40	14	40	51	
63	31	200	4	8	8	12	4	12	53	
		275	10	20	20	30	10	30	54	
		430	20	40	40	40	20	40	55	
	38	200	2,8	5,5	5,5	8	2,8	8	57	
		275	7	14	14	20	7	20	58	
		430	14	28	28	40	14	40	59	
	48	200	1,6	3,2	3,2	4,5	1,6	4,5	61	
		275	4	8	8	10,5	4	10,5	62	
		430	8	16	16	21	8	21	63	
64	48	200	1,6	3,2	3,2	4,5	1,6	4,5	61	
		430	9,3	18	18	24	9,3	24	64	

TAB: SBSΔp Rev. 00 del 23/07/2015			Δp Valve						Valve definition N°
Control signal in PSI <sup>(1)</sup>			3÷15	6÷18	6÷30	9÷32	3÷9	9÷15	
Control signal in BAR			0,2÷1	0,42÷1,26	0,4÷2,1	0,6÷2,24	0,2÷0,6	0,6÷1,0	
Max control pressure BAR			1	1,26	2,21	2,4	0,8	1,2	
ND	Øseat [mm]	Ø <sub>e</sub> SERV. [mm]	Valve definition letters						
			A	B	C	D	R	S	
65	38	200	2,8	5,5	5,5	8	2,8	8	65
		275	7	14	14	20	7	20	66
		360	14	28	28	40	14	40	67
		430	15	32	32	40	15	40	68
	48	200	1,6	3,2	3,2	4,5	1,6	4,5	70
		275	4	8	8	10,5	4	10,5	71
		360	8	16	16	21	8	21	72
		430	9,3	18	18	24	9,3	24	73
	63	200	1	2	2	2,5	1	2,5	75
		275	2,5	5	5	6,5	2,5	6,5	76
		360	5	10	10	13	5	13	77
		430	5,5	10,5	10,5	16	5,5	16	78
80	48	200	1,6	3,2	3,2	4,5	1,6	4,5	80
		275	4	8	8	10,5	4	10,5	81
		360	8	16	16	21	8	21	82
		430	9,3	18	18	24	9,3	24	83
	63	200	1	2	2	2,5	1	2,5	85
		275	2,5	5	5	6,5	2,5	6,5	86
		360	5	10	10	13	5	13	87
		430	5,5	10,5	10,5	16	5,5	16	88
	78	275	1,5	3	3	4	1,5	4	91
		360	3	6	6	8,5	3	8,5	92
		430	3,5	7	7	10,5	3,5	10,5	93
		100	92	430 S <sup>(2)</sup>	2,5	5	5	7,5	
		430 D <sup>(3)</sup>	5	10	10	15		6	
125	115	430 S <sup>(2)</sup>	1,5	3	3	4,5		11	
		430 D <sup>(3)</sup>	3	6	6	9,5		12	
150	135	430 S <sup>(2)</sup>	1	2	2	3,5		17	
		430 D <sup>(3)</sup>	2	4	4	7		18	

Note: Δp Max symbol has been obtained with no air in head (only for N.C. valves).

<sup>(1)</sup> In NO valves, to obtain the same Δp as NC valves, maximum control signal must consist of the addition of two signals; for example, in a NO valve with 3÷15 PSI signal, the maximum control signal must be taken to 18 PSI (3+15) to obtain Δp of similar NC valve.  
In 3-way valves, Δp refers to the way closing when air lacks; to obtain the same Δp on the other way follow the same procedure as applied to obtain Δp in NO valve.

**Δp max for Cast iron versions =16 bar**

<sup>(2)</sup> "S" means single actuator

<sup>(3)</sup> "D" means double actuator

## kv SBS/10 2-ways Valve

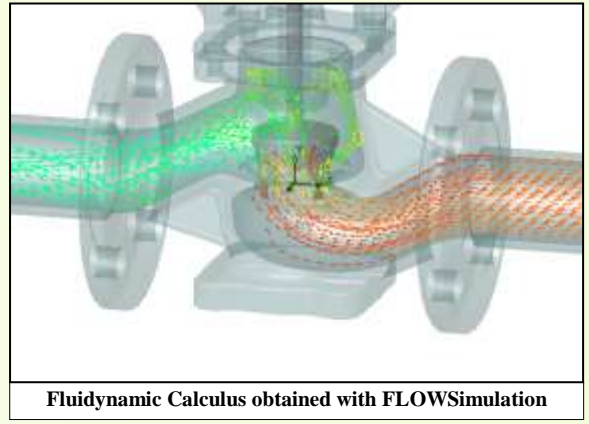
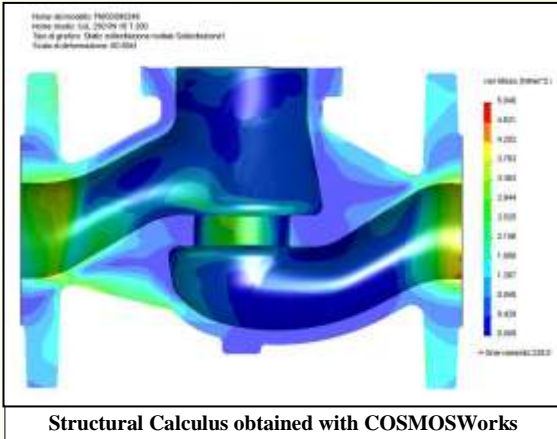
ND	Φ Seat [mm]	Stroke [mm]	Kvs		CV	
			Linear	Equiperc.	Linear	Equiperc.
15	3	15	UT	UT	UT	UT
	6	15	UT	UT	UT	UT
	15	15	4,3	4,5	5	5,2
	20	15	5	5	5,8	5,8
20	8	15	UT	UT	UT	UT
	15	15	6	4,8	7	5,6
	20	15	8	7,5	9,3	8,7
25	15	15	5,4	5,3	6,3	6,2
	20	15	9,3	9,1	10,8	10,6
	26	15	11,8	11,3	13,7	13,1
32	20	15	9,6	9,5	11,2	11
		20	10,2	10,5	11,8	12,2
	26	15	14,5	13,5	16,9	15,7
		20	14,9	15,4	17,3	17,9
	31	15	20	15,2	23,3	17,7
		20	18,9	18,9	22	22

ND	Φ Seat [mm]	Stroke [mm]	Kvs		CV	
			Linear	Equiperc.	Linear	Equiperc.
40	26	15	16,5	15,6	19,2	18,4
		20	18,1	18,5	21,1	21,4
	31	15	21,9	19	25,5	22,1
		20	24,5	24,7	28,5	28,7
	38	15	26	22,3	30,2	25,9
		20	29,3	28,3	34,1	32,9
50	31	15	22,1	19,1	25,7	22,2
		20	25,1	25,1	29,1	29,1
	38	15	27,6	23	32,1	26,7
		20	33,8	32	39,3	37,2
	48	15	38,4	34,6	44,7	40,2
		20	42,4	44,7	49,3	52
65	38	15	27,9	24	32,4	27,9
		20	34,1	33	39,7	38,4
	48	15	45,5	42	53,5	49,4
		20	56,9	55	66,9	64,7
	63	15	61	36,3	71,0	42,3
		20	69	63,1	80,3	73,5
80	48	15	43,2	41,6	50,3	48,4
		20	55,5	53,5	64,6	62,3
	63	15	62,2	37	72,4	43,1
		20	76,6	62,2	89,2	72,4
	78	15	61,9	43,16	72,1	50,3
		20	85,8	77,9	99,9	90,7
100	92	30	UT	115	UT	134
125	115	30	UT	190	UT	222
150	135	30	UT	250	UT	292

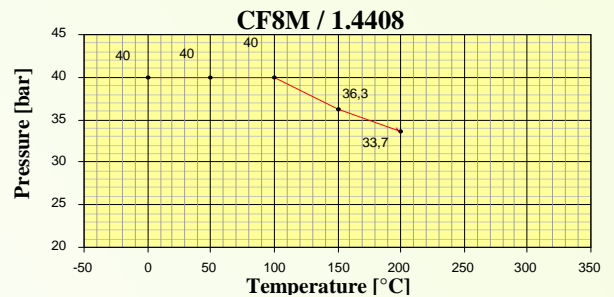
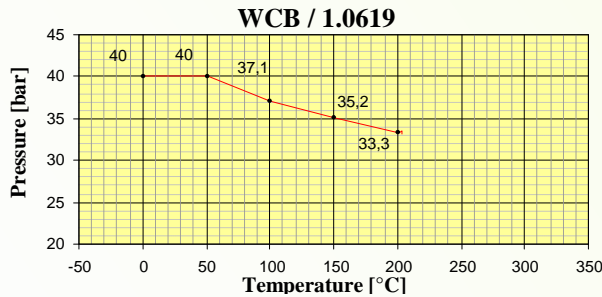
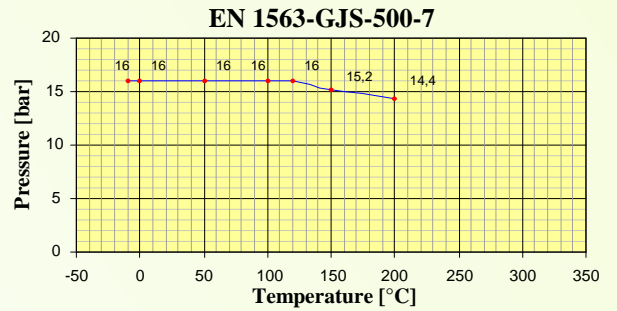
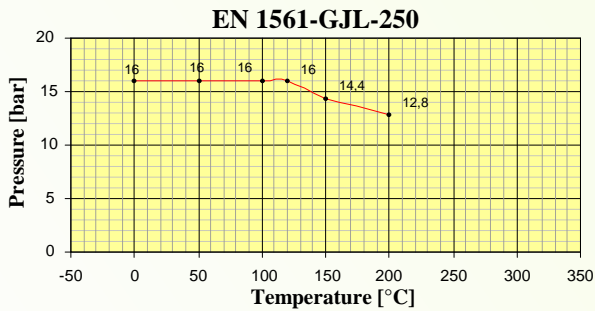
UT – please contact our technical department

Kv has been calculated with fluidynamics software FLOWSimulation in accordance with standard EN 1267:2001 and refers to a 2-way valve.

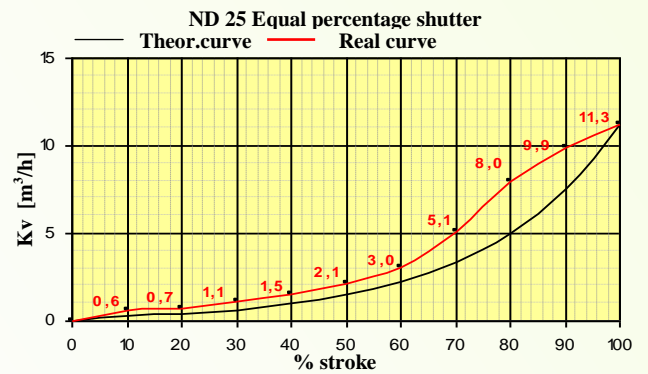
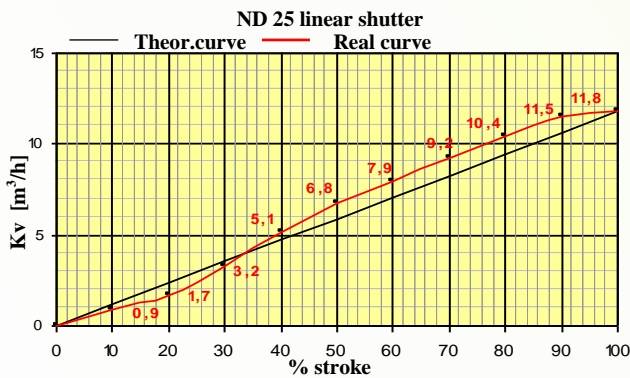
# Project Calcula Samples



## Pressure/Temperature relationship for Cast-Iron – WCB – CF8M Bodies



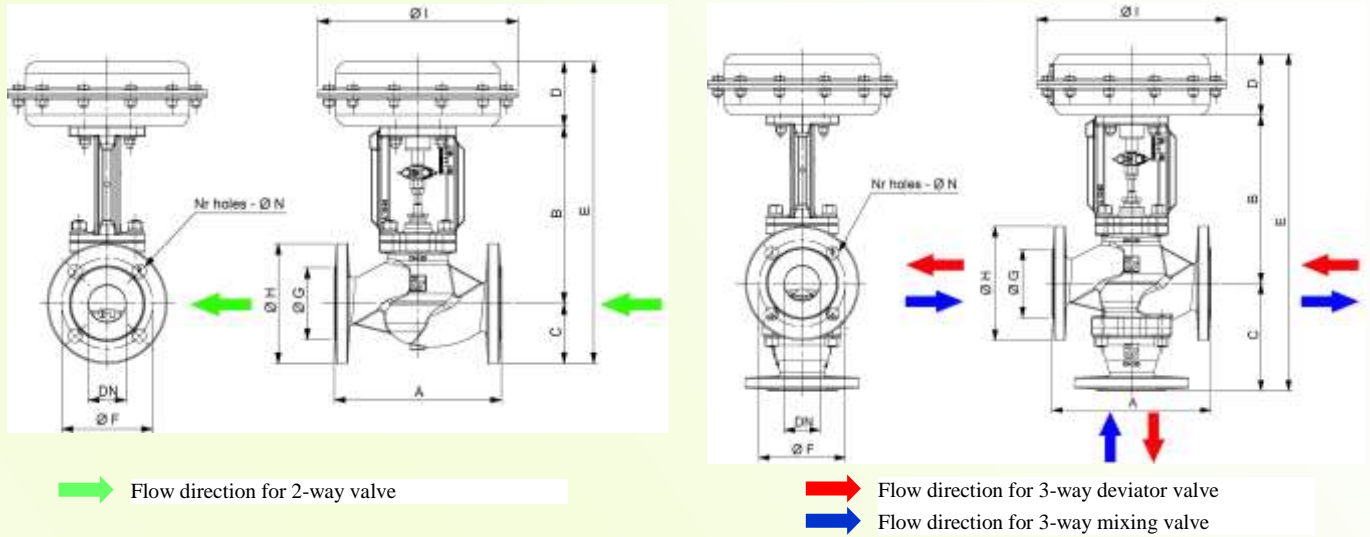
## Example of linear and equal percentage shutters features of SBS valves stroke 15.



For all graphs refer to the curves and flow of the shutters Linear and equal percentage, see the Guide to selection, use and maintenance (website and / or CD)



## Dimensions

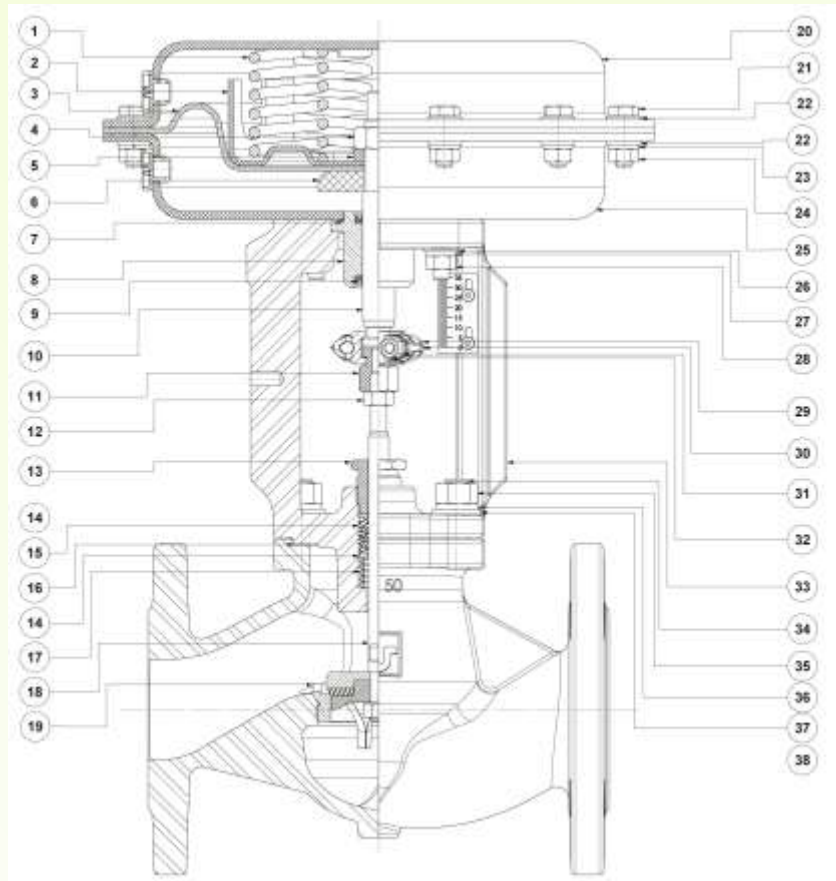


ND	A	B	C 2 way	C 3 way	D			E (2 ways)			E (3 ways)			Ø F	Ø G	Ø H	Ø I	Ø N		N° Holes		
					Actuator			Actuator			Actuator							PN 16	PN 40	PN 16	PN 40	
					200	275 360	430	200	275 360	430	200	275 360	430									
15	130	227	48	111	77	89	123	352	364	398	415	427	461	65	45	95	A seconda del Ap di tenuta (200-275-360-430)	14	4			
20	150	227	53	111	77	89	123	357	369	403	415	427	461	75	58	105		14	4			
25	160	227	58	124	77	89	123	362	374	408	428	440	474	85	65	115		14	4			
32	180	248	70	144	77	89	123	395	407	441	469	481	515	100	76	140		19	18	4		
40	200	245	75	144	77	89	123	397	409	443	466	478	518	110	84	150		19	18	4		
50	230	245	83	160	77	89	123	405	417	451	482	494	528	125	99	165		19	18	4		
65	290	299	93	236	77	89	123	469	481	515	612	624	658	145	118	185		19	18	4	8	
80	310	298	100	238	77	89	123	469	481	515	614	626	660	160	132	200		19	18		8	
100	350	384	193	265	/	/	123	/	/	700	/	/	772	180	158	220		18	/	8	/	/
125	400	407	216	318	/	/	123	/	/	746	/	/	848	210	188	250		18	/	8	/	/
150	480	432	245	382	/	/	123	/	/	800	/	/	937	240	212	285		22	/	8	/	/

Dimensions are express in mm.

## Parts SBS 2 Ways

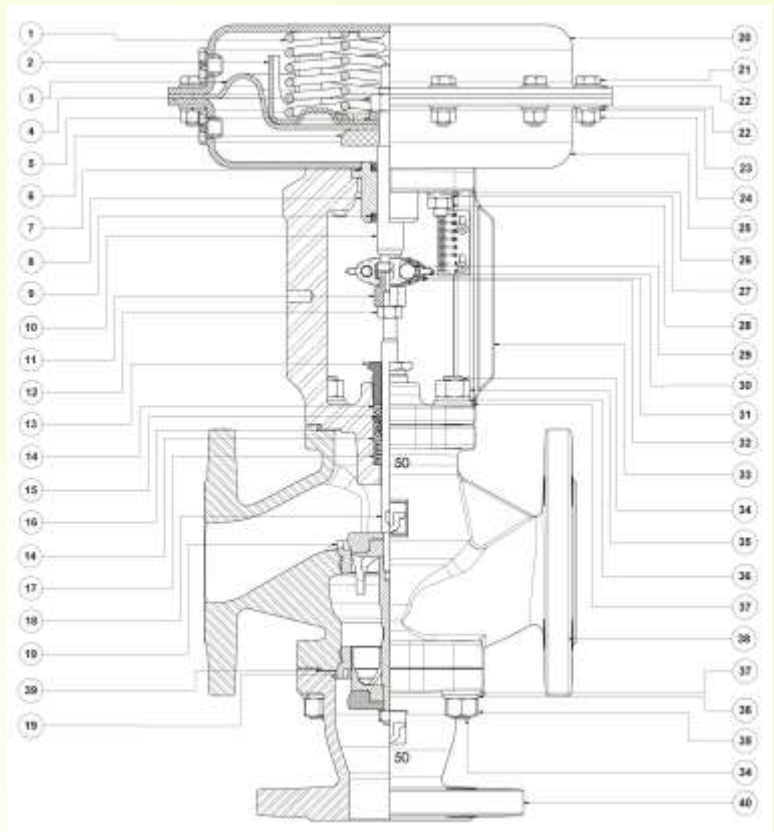
N°	DESCRIPTION
1	Actuator Spring
2	Spring-bearer Disc
3	Membrane
4	Hexagonal Nut
5	Spacer Washer
6	Counter-Disc diaphragm
7	OR
8	Guide Bushing
9	BA Gasket
10	Actuator Stem
11	Adjusting Nut
12	Hexagonal Nut
13	Packing Screw
14	Spacer Washer
15	Packing
16	Body Gasket
17	Packing Spring
18	Shutter
19	Seat
20	Upper Head
21	Hexagonal-Head Screw
22	Plan Washer
23	Elastic Washer
24	Hexagonal Nut
25	Lower Head
26	Plan Washer
27	Elastic Washer
28	Hexagonal Nut
29	Hexagonal-Head Screw
30	Disc with indicator
31	Elastic Washer
32	Hexagonal Nut
33	Bonnet/Intermediate Body
34	Prisoner
35	Hexagonal Nut
36	Elastic Washer
37	Plan Washer
38	Body



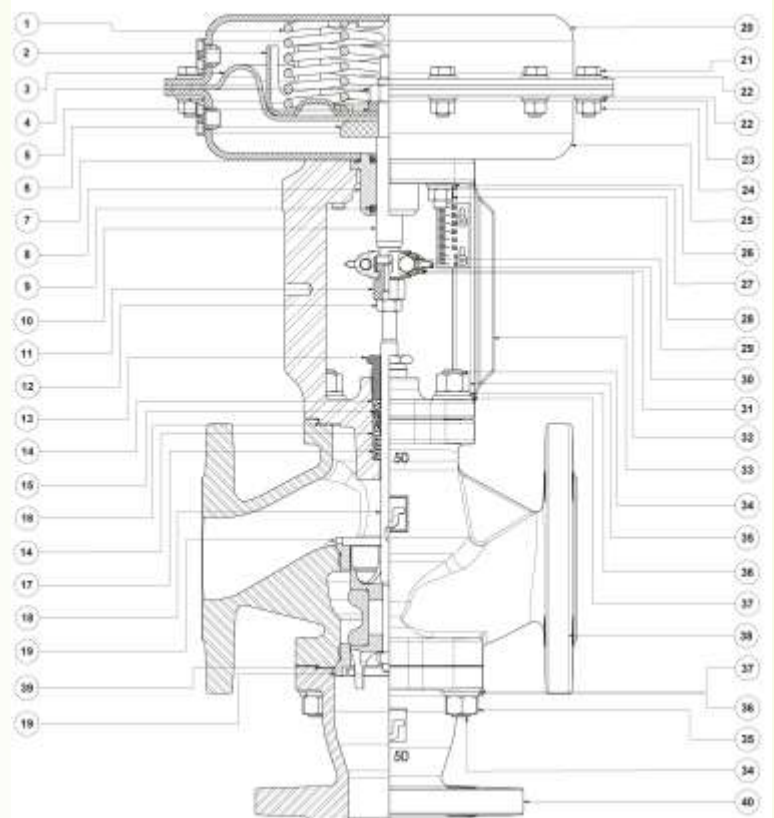
## Parts - SBS 3 Ways - Deviator/Mixing

N°	DESCRIPTION
1	Actuator Spring
2	Spring-bearer Disc
3	Membrane
4	Hexagonal Nut
5	Spacer Washer
6	Counter-Disc diaphragm
7	OR
8	Guide Bushing
9	BA Gasket
10	Actuator Stem
11	Adjusting Nut
12	Hexagonal Nut
13	Packing Screw
14	Spacer Washer
15	Packing
16	Body Gasket
17	Packing Spring
18	Shutter
19	Seat
20	Upper Head
21	Hexagonal-Head Screw
22	Plan Washer
23	Elastic Washer
24	Hexagonal Nut
25	Lower Head
26	Plan Washer
27	Elastic Washer
28	Hexagonal Nut
29	Hexagonal-Head Screw
30	Disc with indicator
31	Elastic Washer
32	Hexagonal Nut
33	Bonnet/Intermediate Body
34	Prisoner
35	Hexagonal Nut
36	Elastic Washer
37	Plan Washer
38	Body
39	Bottom Gasket
40	Bottom

### Deviator



### Mixing



ACCORDING TO THE LAW, IT IS FORBIDDEN TO REPRODUCE OR COMMUNICATE TO THIRD PARTIES THE CONTENTS OF THIS SHEET