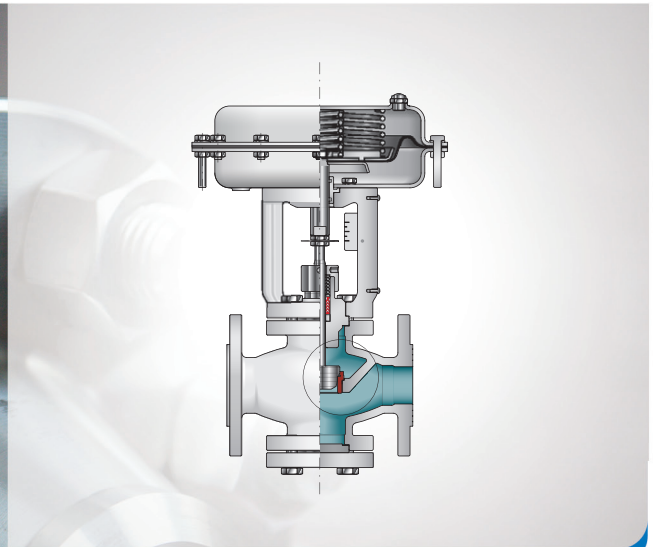


CONTROL VALVE

**SERIES 3000**

**SERIES 3003**



version 06/2020



**Working:**

2 way  
3 way diverting/mixing

**Size**

DN4-25 (1/4" - 1")

**Rating (1)**

PN16/40/63  
ANSI150/300

**Flow rate coefficient (Cv)**

From 0,01 to 12

**Body material (2)**

Stainless steel AISI316L

**Seat (2)**

Stainless steel AISI316L  
Stainless steel AISI316L + stellite  
Stainless steel AISI316L + insert plastic material  
Stainless steel AISI316Ti

**Plug (2)**

Stainless steel AISI316L + insert plastic material (soft seal)  
Stainless steel AISI316L (metallic seal)  
Stainless steel AISI316L + stellite (metallic seal)  
Characteristics: equipercantage, linear or quick opening.

**End connections (3)**

Thread FF 1/4" - 3/8" - 1/2" - 3/4" - 1"  
Welding connections BW and SW  
Flanges UNI PN16/40/63 RF (DN15-25)  
Flanges ANSI150/300 RF (DN15-25)

**Bonnet**

Standard  
Finned and extended  
Extended for cryogenic use  
Extended with bellows seals

**Action**

Pneumatic with diaphragm direct/reverse (max 3 bar) plate in van-  
ish steel or  
stainless steel  
Pneumatic with piston direct/reverse (max 10 bar) cylinder in  
stainless steel  
Electric  
Manual

**Accessories**

Handwheel for manual control, electropositioner  
pneumatic positioner, endstroke microswitches,  
proximity sensors, reducing filter, converter.

**Seal class** (according to UNI EN 1349)

Class VI (soft)  
Class IV - VI (metallic)

**Working temperature**

From -196 °C to + 350 °C

**Employment fields**

Microflow control and on/off valves with solid and compact shape.

**Notes**

- 1) Special rating PN100/250 and ANSI600 on request.
- 2) Special materials on request
- 3) Other end connections on request.



## VERSIONS

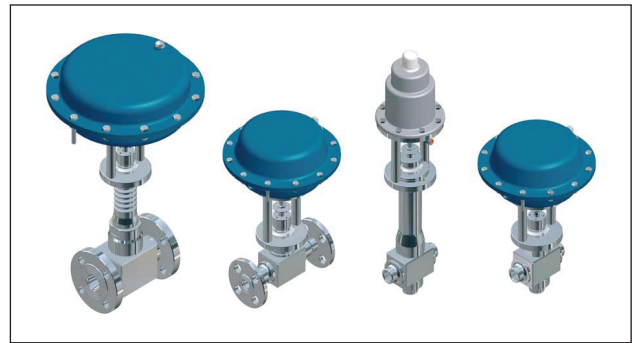
### Series 3000/1 (2 way) and 3003/1 (3 way)

Control valves with **diaphragm pneumatic actuator**. Control signal: 6-18 psi (0,4-1,2 bar), 6-30 psi (0,4-2,1 bar) or 12-35 psi (0,8-2,4 bar).

Type: simple effect (NC and NO) and double effect.

### Series 3000/2 (2 way) and 3003/2 (3 way)

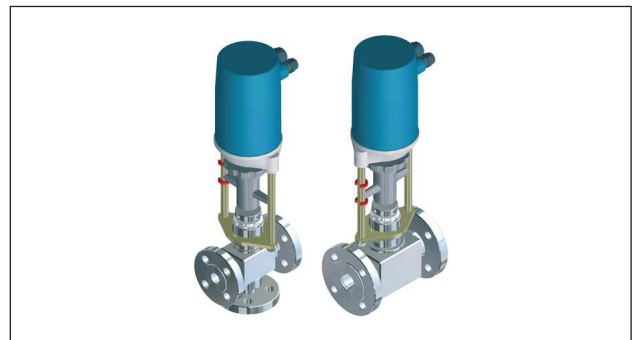
On/off valves with **piston pneumatic actuator**. Control signal 4-8 bar. Type: simple effect (NC and NO) and double effect.



### Series 3000/3 (2 way) and 3003/3 (3 way)

Control and on/off valves with **electric actuator** type MC55 (thrust 0,6 kN) or MC100 (thrust 1,0 kN). Control signal: 4-20 mA, 0-10 V or 3-point.

Power supply: 24 VDC, 24 VAC or 220/230 VAC.



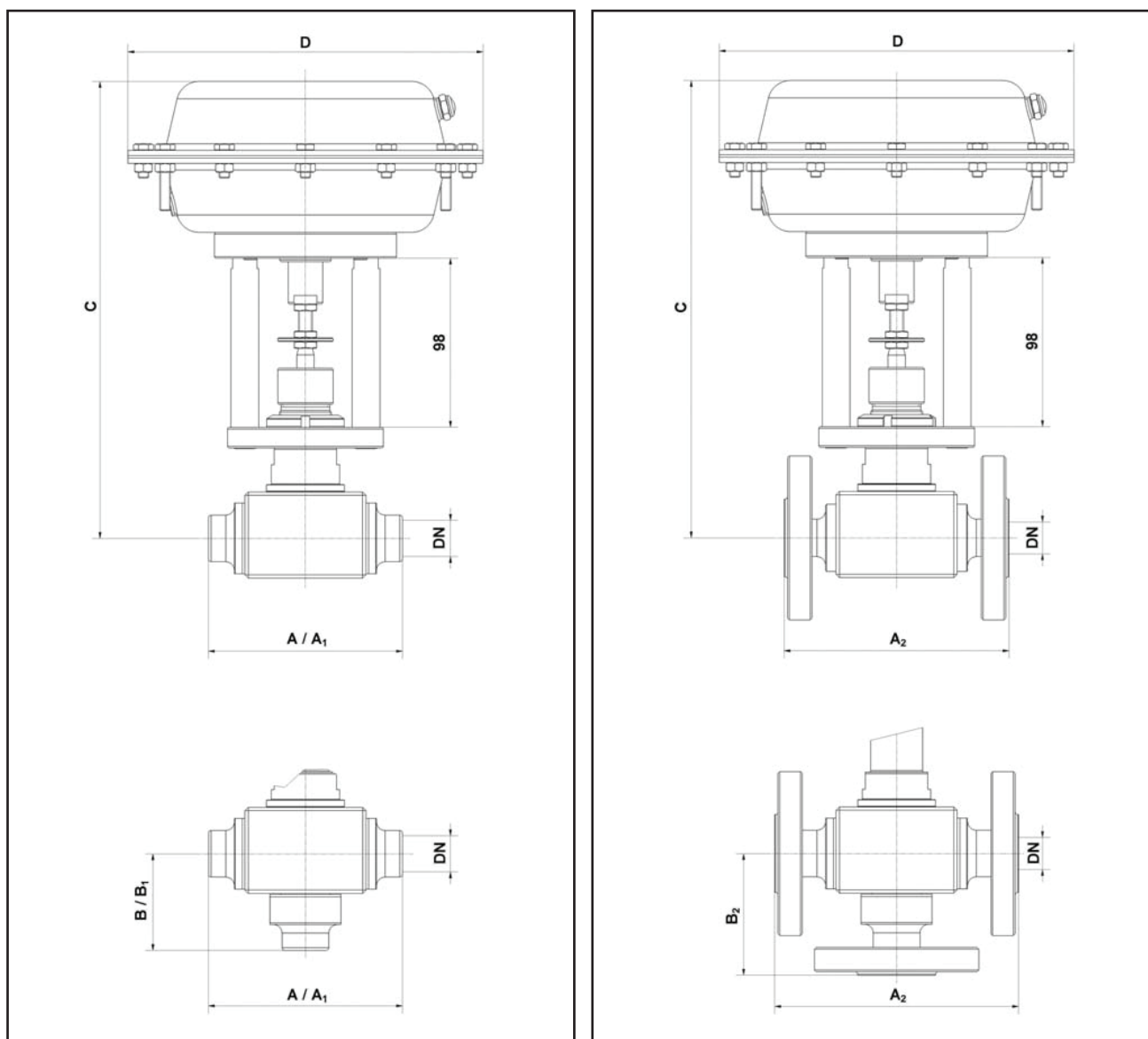
### Series 3000/4 (2 way) and 3003/4 (3 way)

Control valves hand operating



## Cv (Kv) values

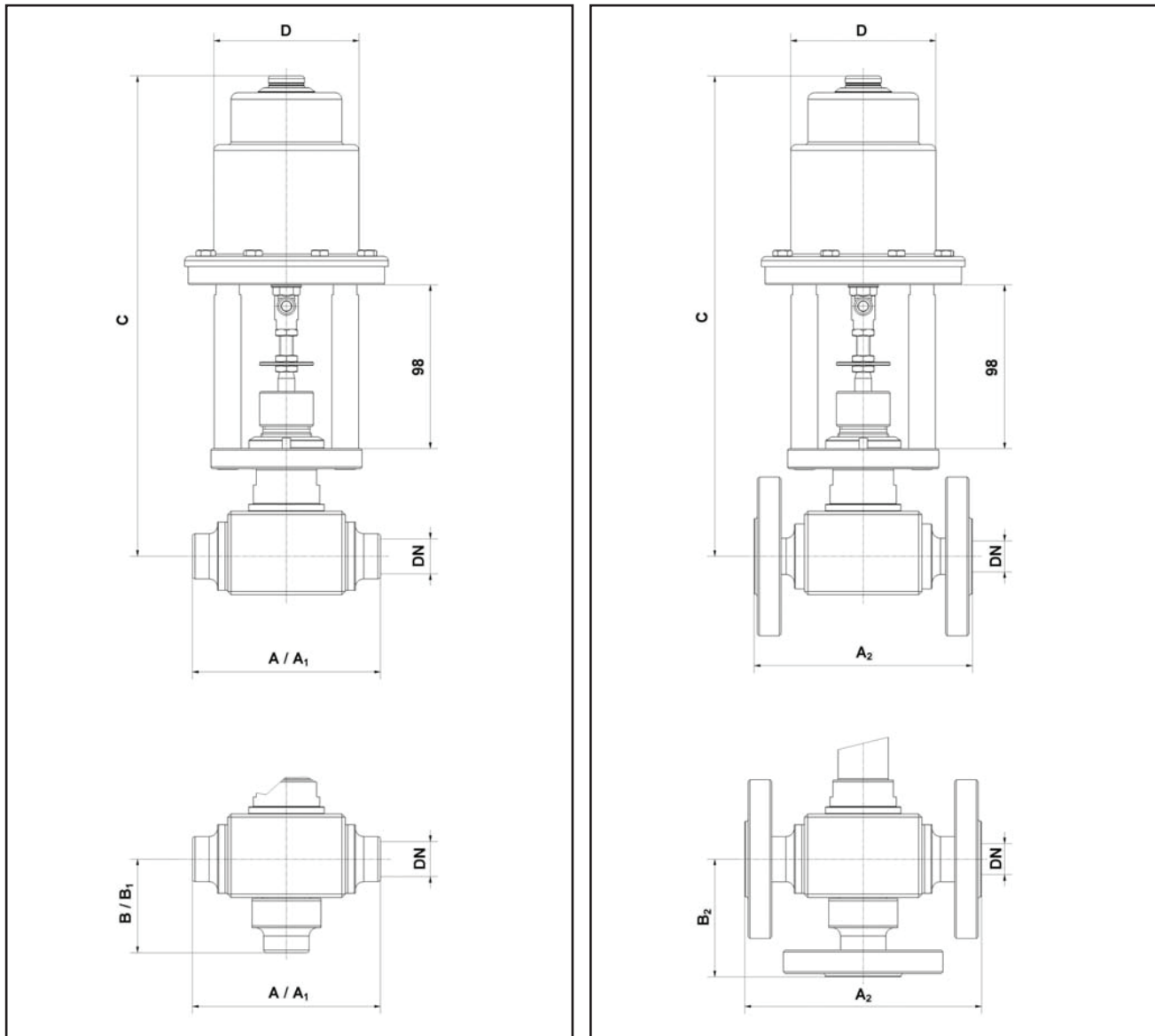
DN	25	20 /25	15/25															
Cv	12	7	4	2,5	2	1,5	1	0,8	0,5	0,3	0,2	0,1	0,08	0,06	0,05	0,03	0,02	0,01
Kv	10	6	3,5	2,1	1,7	1,3	0,85	0,68	0,43	0,26	0,17	0,09	0,068	0,051	0,043	0,026	0,017	0,009
Ø mm	24	20	15	10			6			4					2			

**VALVE 3000/1 (2 way), 3003/1 (3way) - PNEUMATIC ACTUATOR with DIAPHRAGM****VALVE DIMENSIONS TABLE**

DN	A	A1	A2				B	B1	B2			
	FF	BW/SW	PN16 PN40	PN63 PN100	ANSI 150	ANSI 300	FF	BW/SW	PN16 PN40	PN63 PN100	ANSI 150	ANSI 300
4/10	112	125	-	-	-	-	56	65	-	-	-	-
15	112	125	130	210	178	190	56	65	70	110	110	110
20	142	145	150	230	181	194	71	85	90	130	130	130
25	142	155	160	230	184	197	71	85	90	130	130	130

ACTUATOR TYPE	C - BONNET TYPE					D
	STANDARD	EXTENDED		FINNED AND EXTENDED	EXTENDED BELLOW	
		-100 °C	-200 °C			
S200	275	405	755	405	430	Ø205
S275	290	420	770	420	445	Ø275

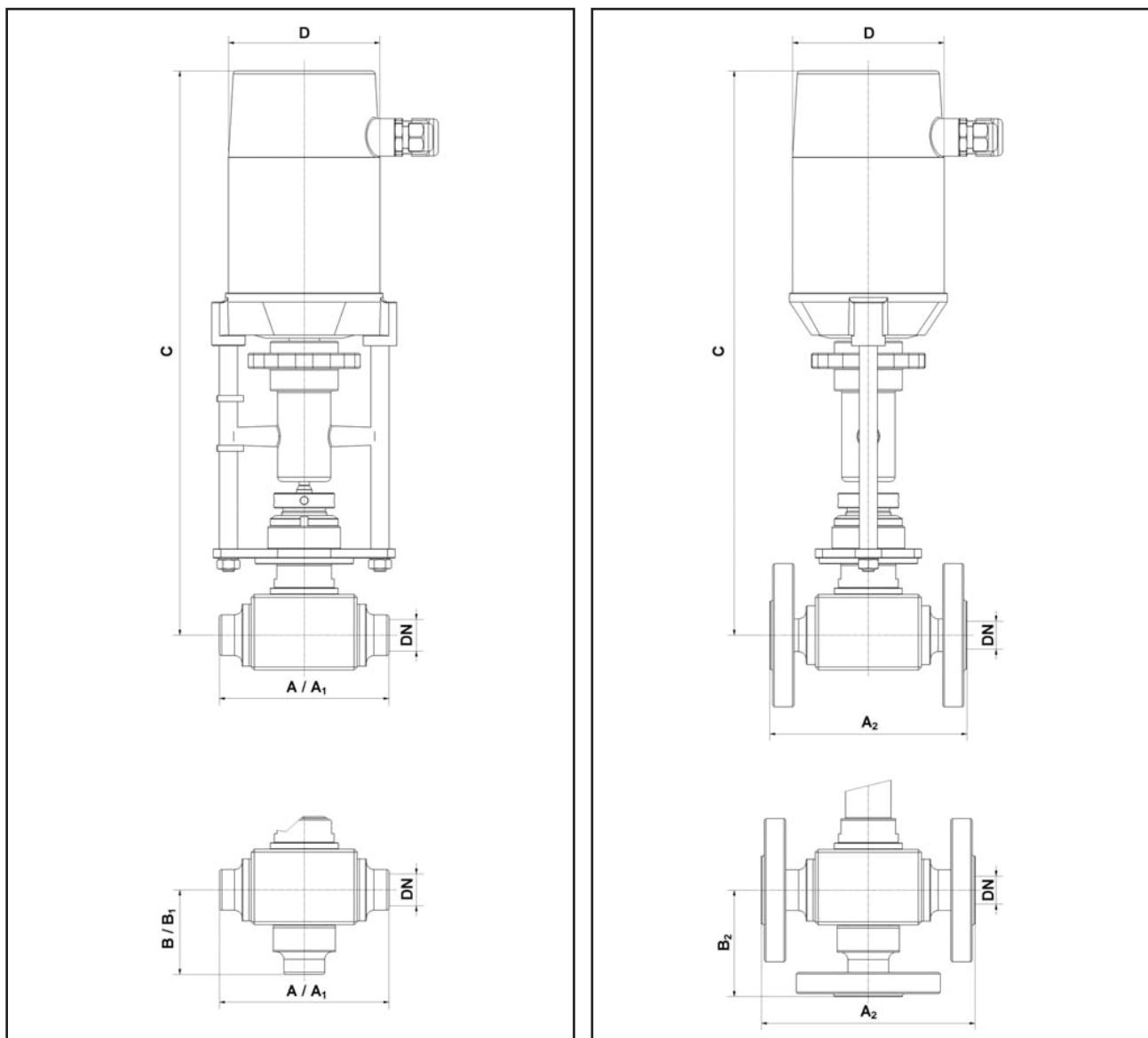
Yoke in stainless steel AISI304

**VALVE 3000/2 (2 way), 3003/2 (3way) - PNEUMATIC ACTUATOR with PISTON****VALVE DIMENSIONS TABLE**

DN	A	A1	A2				B	B1	B2			
	FF	BW/SW	PN16 PN40	PN63 PN100	ANSI 150	ANSI 300	FF	BW/SW	PN16 PN40	PN63 PN100	ANSI 150	ANSI 300
4/10	112	125	-	-	-	-	56	65	-	-	-	-
15	112	125	130	210	178	190	56	65	70	110	110	110
20	142	145	150	230	181	194	71	85	90	130	130	130
25	142	155	160	230	184	197	71	85	90	130	130	130

ACTUATOR TYPE	C - BONNET TYPE					D
	STANDARD	EXTENDED		FINNED AND EXTENDED	EXTENDED BELLOW	
		-100 °C	-200 °C			
S82	295	425	775	425	450	Ø86
S118	360	490	840	490	515	Ø122

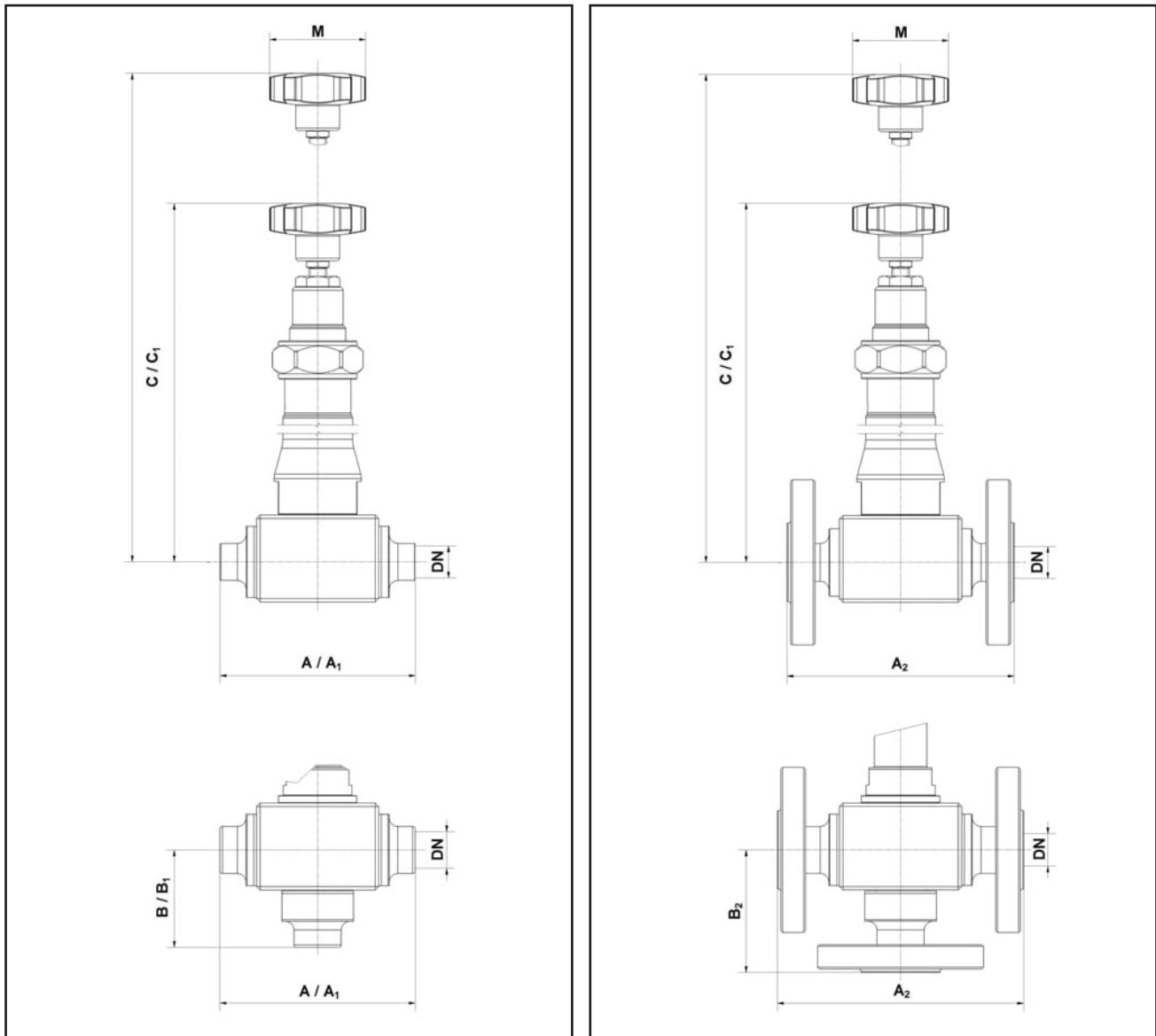
Yoke in stainless steel AISI304

**VALVE 3000/3 (2 way), 3003/3 (3way) - ELECTRIC ACTUATOR****VALVE DIMENSIONS TABLE**

DN	A	A1	A2				B	B1	B2			
	FF	BW/SW	PN16 PN40	PN63 PN100	ANSI 150	ANSI 300	FF	BW/SW	PN16 PN40	PN63 PN100	ANSI 150	ANSI 300
4/10	112	125	-	-	-	-	56	65	-	-	-	-
15	112	125	130	210	178	190	56	65	70	110	110	110
20	142	145	150	230	181	194	71	85	90	130	130	130
25	142	155	160	230	184	197	71	85	90	130	130	130

ACTUATOR TYPE	C - BONNET TYPE					D
	STANDARD	EXTENDED		FINNED AND EXTENDED	EXTENDED BELLOW	
		-100 °C	-200 °C			
S82	285	415	765	415	440	Ø110
S118	385	515	865	515	540	Ø100

Yoke in stainless steel AISI304

**VALVE 3000/4 (2 way), 3003/4 (3way) - HAND OPERATED****VALVE DIMENSIONS TABLE**

DN	A	A1	A2				B	B1	B2			
	FF	BW/SW	PN16 PN40	PN63 PN100	ANSI 150	ANSI 300	FF	BW/SW	PN16 PN40	PN63 PN100	ANSI 150	ANSI 300
4/10	112	125	-	-	-	-	56	65	-	-	-	-
15	112	125	130	210	178	190	56	65	70	110	110	110
20	142	145	150	230	181	194	71	85	90	130	130	130
25	142	155	160	230	184	197	71	85	90	130	130	130

DN	C/C1 - BONNET TYPE					M
	STANDARD	EXTENDED		FINNED AND EXTENDED	EXTENDED BELLOW	
		-100 °C	-200 °C			
4/15	175/195	305/325	655/675	305/325	330/350	Ø50
20/25	195/215	325/345	675/695	325/345	350/370	Ø70

Yoke in stainless steel AISI304





## FLOW RATE CHARACTERISTIC

### LINEAR.

With this type of plug you obtain linearity between stroke and flow rate which results proportional to the opening degree of the valve. It is utilized when there are no important variations in working differential pressure, or in processes with limited flow rate variations.

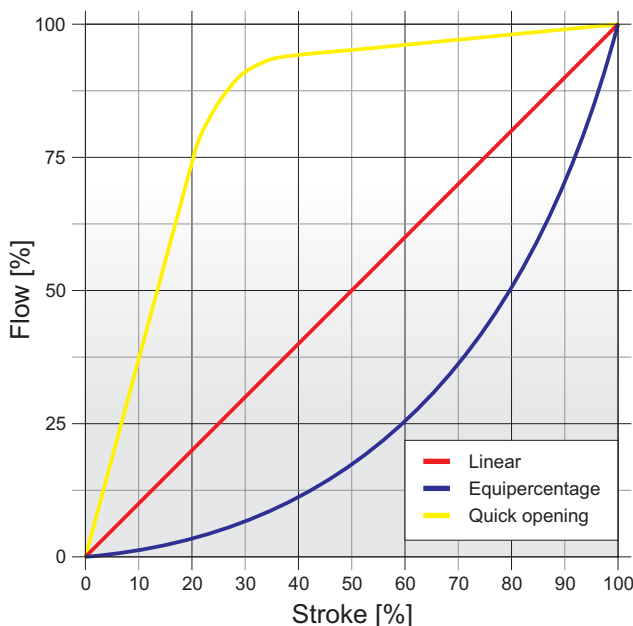
### EQUIPERCENTAGE.

With this plug there is a constant percentage of flow increase for an equal increase in the opening stroke.

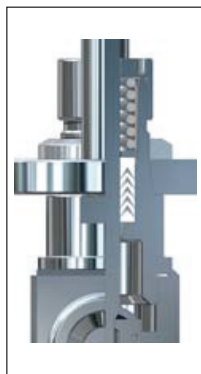
The result is that the valve delivers the most of the flow rate in its last opening fraction. It is utilized when there are notable variations in flow rate or in differential pressure.

### QUICK OPENING.

A quick open contour is designed for a rapid increase in flow. Normally used for on/off service and not throttling applications.



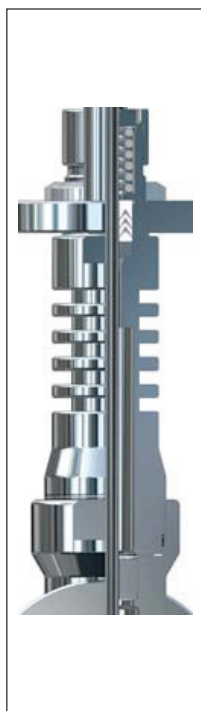
## BONNET SPECIFICATIONS



### STANDARD BONNET.

Employment:  $-30^{\circ}\text{C}$  /  $+200^{\circ}\text{C}$ .

The packing box is composed of "V" rings in PTFE (also available in double seal for vacuum), or of "V" rings in PTFE or PTFE/CG + graphite ring.



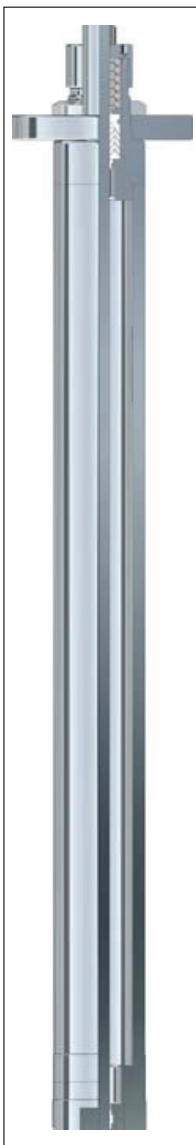
### EXTENDED AND FINNED BONNET.

Employment:  $-30^{\circ}\text{C}$  /  $+350^{\circ}\text{C}$ .

Purposely studied bonnet for use with fluids with temperatures up to about  $350^{\circ}\text{C}$  (diathermic oil and overheated water).

The bonnet is extended and has fins to space the packing box from the body valve and allow a better loss of heat.

Packing box composed of "V" rings in PTFE or PTFE/CG + graphite ring,



### EXTENDED BONNET FOR LOW TEMPERATURES.

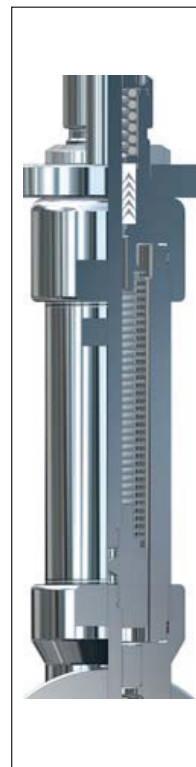
Employment:  $-196^{\circ}\text{C}$  /  $+200^{\circ}\text{C}$ .

Studied bonnet for applications with fluids with extremely low temperatures, up to  $-196^{\circ}\text{C}$  which liquefy gas as nitrogen, oxygen, argon, helium etc. The isolation extension for low temperatures avoids the heat exchange inside the valve and protects the security packing box and the actuator from the icing.

There are two versions of extensions:

- for -100 (minimum working temperature  $-100^{\circ}\text{C}$ ).
- for -200 (cryogenic fluids / minimum working temperature  $-196^{\circ}\text{C}$ )

The packing box is composed of "V" rings in PTFE.



### BONNET WITH BELLOWS.

Employment:  $-30^{\circ}\text{C}$  /  $+350^{\circ}\text{C}$ .

Purposely studied bonnet which can be used when you need a perfect seal of the valve, for example in presence of dangerous fluids.

This bonnet has a metallic seal bellows with double/triple wall in stainless steel AISI316.

The maximum application temperature is  $350^{\circ}\text{C}$ .

The packing box is composed of "V" rings in PTFE and "V" rings in PTFE or PTFE/CG + graphite ring.





## TECNICAL SPECIFICATION

MAX DIFFERENTIAL PRESSURES FOR PNEUMATIC ACTUATOR WITH DIAPHRAGM											
ACTUATOR TYPE / SPRING RANGE			Closed valve - air to open action (NC)				Closed valve - air to close action (NO)				
			S200 (130 cm2)	3-15 psi 0,2-1 bar	6-18 psi 0,4-1,2 bar	6-30 psi 0,4-2,1 bar	12-35 psi 0,8-2,4 bar	3-15 psi 0,2-1 bar			
			S275 (280 cm2)	3-15 psi 0,2-1 bar	6-18 psi 0,4-1,2 bar	6-30 psi 0,4-2,1 bar	12-35 psi 0,8-2,4 bar	3-15 psi 0,2-1 bar			
SUPPLY			20 psi 1,4 bar		40 psi 2,8 bar		1,2 bar	1,4 bar	2 bar	3 bar	
CV	KV	Actuator	Δp P2=0 (bar)								
12	10	S200 (130 cm2)	5,5	11	11	22	5,5	11	28	58	
		S275 (280 cm2)	12	24	24	48	12	24	63	63	
7	6	S200 (130 cm2)	8	16	16	32	8	16	42	63	
		S275 (280 cm2)	17,5	35	35	63	17,5	35	63	63	
4	3,5	S200 (130 cm2)	15	30	30	60	15	30	63	63	
		S275 (280 cm2)	30	60	60	63	30	60	63	63	
2,5÷1,5	2,1÷1,3	S200 (130 cm2)	30	60	60	63	30	60	63	63	
		S275 (280 cm2)	63	63	63	63	63	63	63	63	
1÷0,5	0,85÷0,43	S200 (130 cm2)	63	63	63	63	63	63	63	63	
0,3÷0,06	0,26÷0,051	S200 (130 cm2)	63	63	63	63	63	63	63	63	
0,05÷0,01	0,043÷0,009	S200 (130 cm2)	63	-	63	-	63	63	63	63	
MAX DIFFERENTIAL PRESSURES FOR PNEUMATIC ACTUATOR WITH PISTON											
SUPPLY			Closed valve - air to open action (NC)			Closed valve - air to close action (NO)					
			4 - 8 bar			4 bar	6 bar	8 bar			
			CV	KV	S275 (280 cm2)	3-15 psi 0,2-1 bar	6-18 psi 0,4-1,2 bar	12-35 psi 0,8-2,4 bar	3-15 psi 0,2-1 bar		
SUPPLY				20 psi 1,4 bar			1,2 bar	2 bar	3 bar		
CV	KV	Actuator	Δp P2=0 (bar)								
12	10	S82 (50 cm2)	12				12	18	24		
		S118 (105 cm2)	24				24	36	48		
7	6	S82 (50 cm2)	18				18	27	36		
		S118 (105 cm2)	36				36	56	63		
4	3,5	S82 (50 cm2)	30				30	45	60		
		S118 (105 cm2)	60				60	63	63		
2,5÷1,5	2,1÷1,3	S82 (50 cm2)	63				63	63	63		
		S82 (50 cm2)	63				63	63	63		
1÷0,5	0,85÷0,43	S200 (130 cm2)	63				63	63	63		
MAX DIFFERENTIAL PRESSURES FOR ELECTRIC ACTUATOR											
ACTUATOR TYPE			Closed valve								
			MC 55				MC 100				
			CV	KV	Δp P2=0 (bar)						
12	10	11				18					
7	6	16				26					
4	3,5	28				45					
2,5÷1,5	2,1÷1,3	60				63					
1÷0,5	0,85÷0,43	63				63					
0,3÷0,06	0,26÷0,051	63				63					
0,05÷0,01	0,043÷0,009	63				63					

1) For valves NC, values are referred to condition with actuator feeding pressure 0 psi (0 bar).

2) Values are referred to 2way valves, for 3way version reduce of 50%.

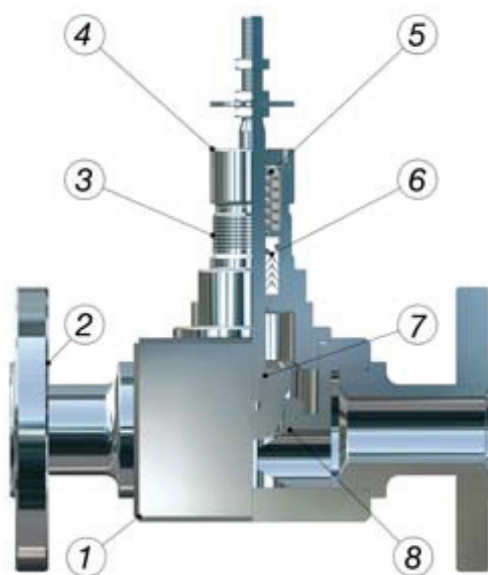
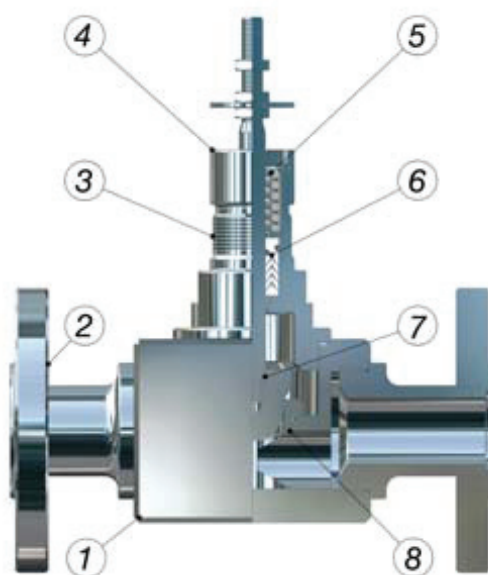
3) Values must be compared with rating of the body.

4) Values can be limited by the pressure-temperature diagram.

5) For CV 0,05÷0,01 actual spring ranges are: 3-11 psi and 6-20 psi. Pneumatic actuator with diaphragm.

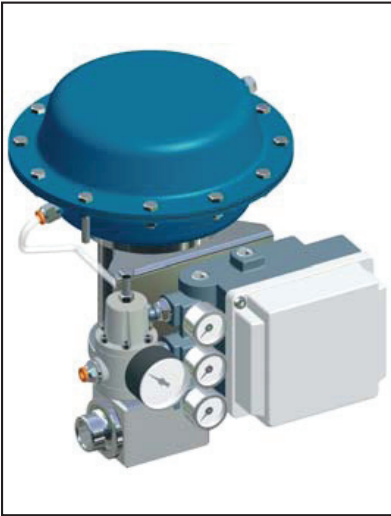


## VALVE PARTS NOMENCLATURE

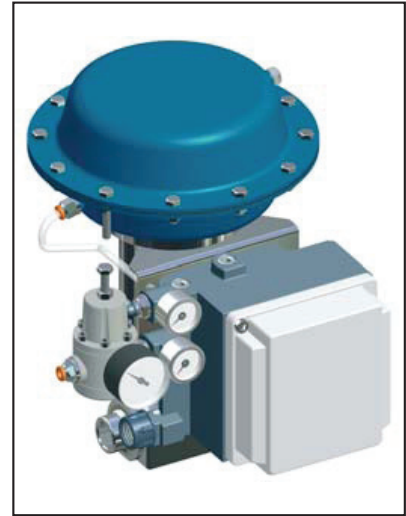


1	<b>BODY</b> material: 1.4404	7	<b>PLUG/STEM ASSEMBLY</b> material: 1.4404 1.4404 - PTFE 1.4404 - PTFE/CG 1.4404 - PEEK
2	<b>END CONNECTIONS</b> material: 1.4404		
3	<b>BONNET</b> material: 1.4404 /1.4307	8	<b>SEAT</b> material: 1.4404 1.4571 1.4404 - PTFE 1.4404 - PTFE/CG 1.4404 - PEEK
4	<b>PACKING BOX NUT</b> material: 1.4404		
5	<b>PACKING BOX SPRING</b> material: 1.4300		
6	<b>PACKING BOX</b> material: PTFE, PTFE/CG, GRAPHITE	9	<b>END CONNECTION 3 WAY</b> material: 1.4404

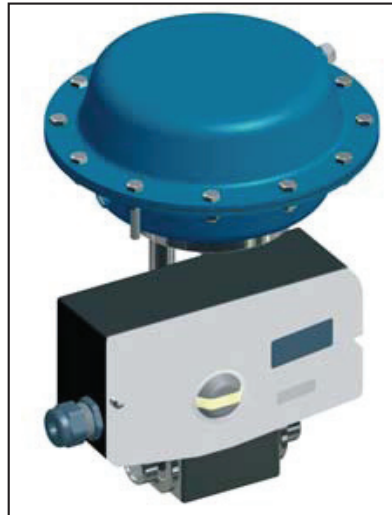
## ACCESSORIES



PNEUMATIC POSITIONER AND FILTER



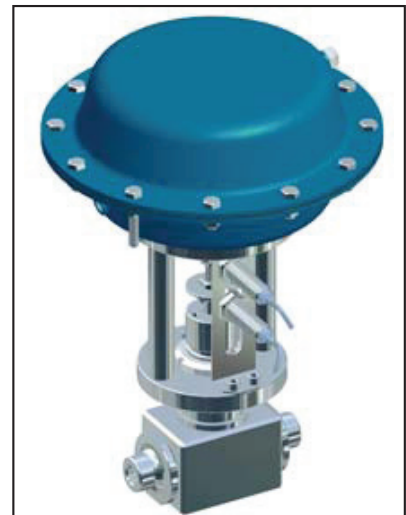
ELECTRONEUMATIC POSITIONER  
AND FILTER



ELECTOPNEUMATIC DIGITAL POSITIONER



ELECTOPNEUMATIC CONVERTER



PROXIMITY SENSORS

## WARNING

Before starting the plant the pipes must be cleaned carefully with the fluid pressure at maximum and the valve fully open. It is advisable to place a filter on the valve inlet to prevent foreign objects from entering between the seat and the valve plug. (We recommend to utilize filtered, dry air to feed the pneumatic servocontrol). The best fitting position of the valve is in vertical, and its best working is when the flow direction is opposite to the valve plug (see the arrow on the body valve). After some hours of full working at temperature, check the correct lock of the screws of the body valve. Verify that with valve fitted on the plant a sufficient space is left for removing the servocontrol for maintenance operations. Before removing the servocontrol check that there is no fluid in pressure and at temperature in the plant and set the valve in opening position. In case of a complete dismantling of the servocontrol use proper instruments and proceed with attention to discharge springs tension. **IMPORTANT: do not insert hands, tools or other objects inside the body valve.**













## **VALVEA s.r.o.**

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