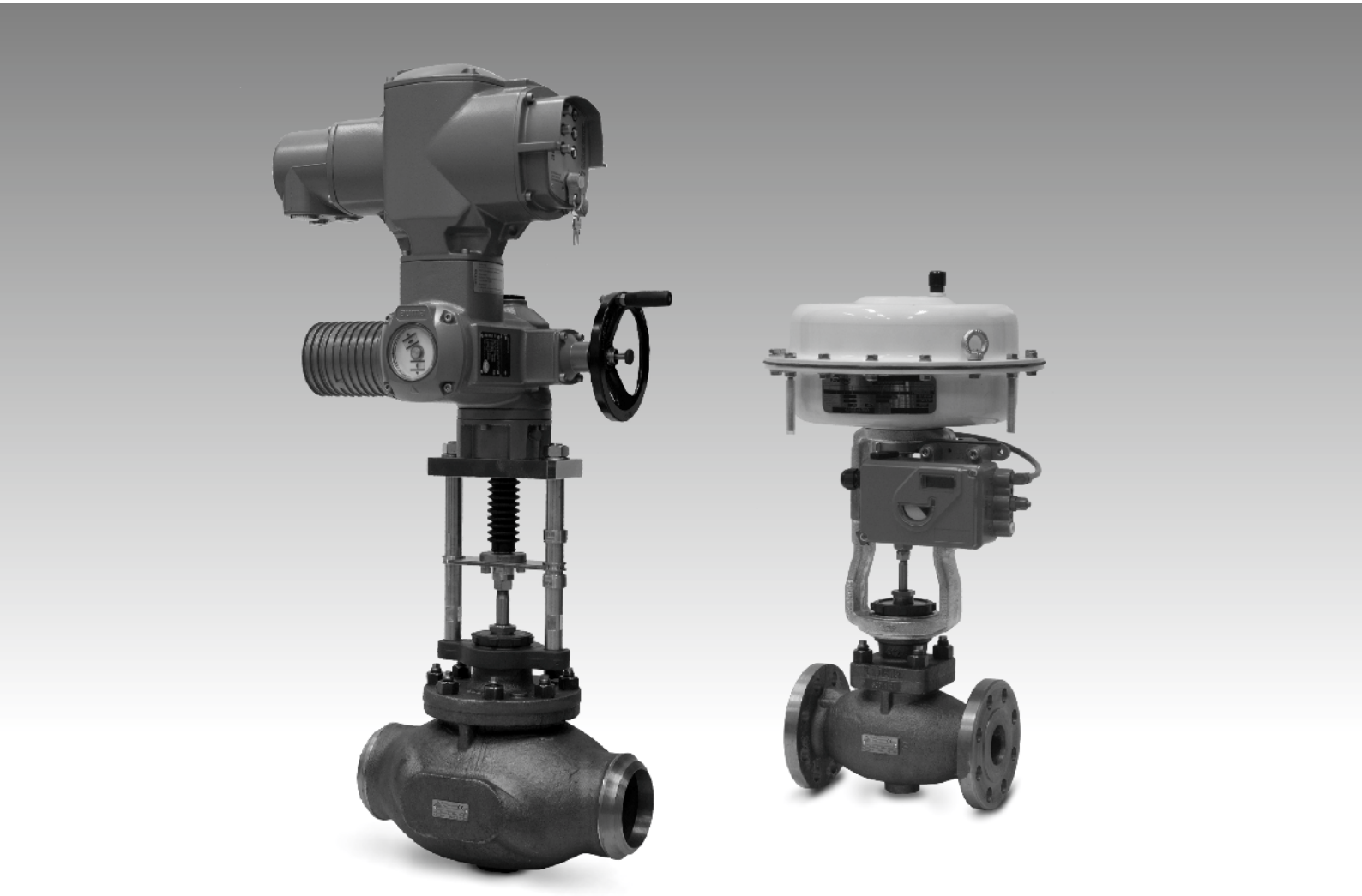
CERTIFIED
ISO 9001 · ISO 14001
ISO 45001

LDM®

02 - 09.3
12.22.GB

CONTROL AND SHUT-OFF VALVES

300 line
dle ANSI/ASME



POWER THROUGH IDEAS
www.ldmvalves.com

300 line

CV / SV 320 (Ex)
CV / SV 330 (Ex)

single-seated,
control (shut-off) valve

CV 322 (Ex)
CV 332 (Ex)

single-seated,
control valve with
pressure-balanced plug

Control valves (shut-off) **CV / SV 300 line** are single seated designed for regulation and shut-off of process liquid flow. **In Ex proof version** meet the requirements II 1/2G IIC TX Ga/Gb acc. to ČSN EN ISO 80079-36 (9/2016) and ČSN EN 1127-1 ed.2 (1/2012).

The selected materials correspond to the recommendations of **ASME B16.34-2013** or ČSN EN 12516-1 (1/2006).

Due to the wide range of actuators used, they are suitable for control at low and high pressure drops under the most diverse operating conditions. Flow characteristics, Kvs coefficients and leakage comply with international standards.

Control

hand wheel,
electro-mechanics actuators of producers
Regada, Schiebel, Auma, Rotork
pneumatic actuators **Flowserve, A. Hock**

Application

CV / SV 3xx - heating, ventilation, power generation and chemical processing industries
CV / SV 3xx Ex - technical and fuel gases and inflammable liquids

Process media

CV / SV 3xx - flow and pressure of liquids, gases and vapours without abrasive particles e.g. water, steam, air and other media compatible with material of the valve body and inner parts
CV / SV 3xx Ex - technical and fuel gases and inflammable liquids

To ensure a reliable regulation, the producer recomends to pipe a strainer in front of the valve into pipeline or ensure in any other way that process medium does not contain abrasive particles or impurities.

Installation

The valve must be piped the way so that the direction of medium flow will coincide with the arrows on the valve body. The valve can be installed in any position except position when the actuator is under the valve body.

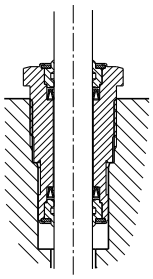
When medium **temperature** exceeds **150°C (300 °F)**, it is necessary to protect the actuator against glowing heat from the pipeline e.g. by the means of proper insulating of the pipeline and valve or by tilting the valve away from the heat radiation.

Detailed informations are given in the „Instruction for installation and service" sheets.

Packings

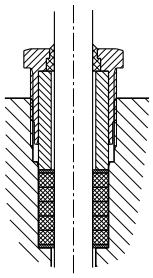
DRSpack® (PTFE)

DRSpack® (Direct Radial Sealing Pack) is a packing with high tightness at both low and high operating pressure values.
It is the most used type of packing suitable for temperatures ranging from 0 °C to 260 °C. The pH range is from 0 to 14. The packing enables using of actuators with low linear force. The design enables an easy change of the whole packing. The average service life of DRSpack® is more than 500 000 cycles.



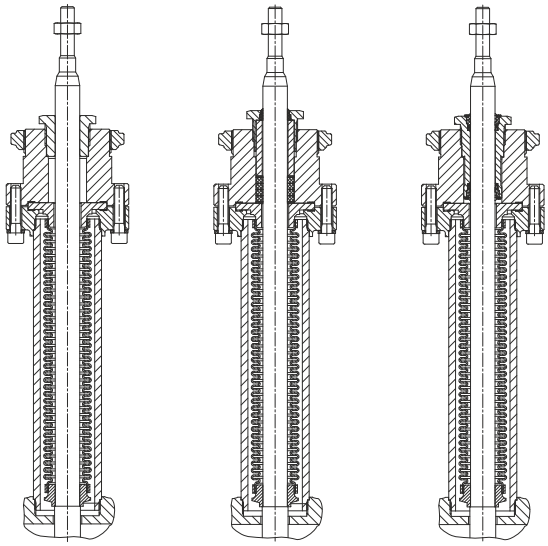
Graphite

This type of packing can be used for media with temperature up to 550°C and pH range: 0 to 14. Packing can be "sealed up" either by screwing the packing screw in or adding another sealing ring. In regard of intensive frictional forces, graphite packing is suitable for actuators with a sufficient linear force.



Bellows

Bellows packing is suitable for low and high temperatures ranging from -50°C to 550°C. Bellows ensures absolute tightness to environment. Packing is equipped with safety PTFE packing as standard to prevent medium from leaking in case of damage to bellows. Intensive linear forces are not required.



Bellows without safety packing

Bellows with safety graphite packing

Bellows with safety PTFE packing

Application of bellows packing

Bellows packing is suitable for applications with very aggressive, toxic or other dangerous media that require absolute tightness to environment.
In such case, it is necessary to check compatibility of used body material as well as the valve inner parts material with process medium. It is recommended to use bellows with safety packing preventing medium from leaking in case of damage to bellows when there is an extremely dangerous process medium used.
Bellows is also a great solution to use of process medium either with temperature below zero when ice accretions cause premature damage to packing or with high temeperatures when bellows ensures medium cooling.

Principles for plug type selection

V-ported plugs should not to be used in supercritical differential pressures with inlet pressure p ≧ 0,4 MPa and for regulation of saturated steam. In these cases we recommend to use a perforated plug. The perforated plug should be also used always when cavitation may occur due to a high differential pressure value or valve ports erosion caused by high speed of process medium flow. If the parabolic plug is used (because of small Kvs) for supercritical differential pressures, it is necessary to close both plug and seat with a hard metal overlay, i.e. stellited trim.

Rangeability

Rangeability is the ratio of the biggest value of flow coefficient to the smallest value. In fact it is the ratio (under the same conditions) of highest regulated flow rate value to its lowest value. The lowest or minimal regulated flow rate is always higher than 0.



CV / SV 3x0

Control and shut-off valves

NPS 1/2" - 16", Class 150, 300 and 600

Technical data

Series		CV / SV 320 (Ex)	CV / SV 330 (Ex)
Type of valve		**Two-way, single-seated, control (shut-off) valve**	
Nominal size range		NPS 1/2" - 16"	
Nominal pressure		Class 300 and 600 (Class 150, 300 and 600 (weld ended)	
Body material		Cast steel A216 WCB, A217 WC6	Stainless steel A351 CF8M
Seat material:	NPS 1/2" - 2"	1.4028	1.4571
DIN W.Nr./+ČSN	NPS 3" - 16"	1.4027	1.4581
Plug material:	NPS 1/2" - 2"	1.4021	1.4571
DIN W.Nr./+ČSN	NPS 3" - 16"	1.4027	1.4581
Stem material		1.4923	1.4980
Operating temperature range		-50 to 550 °C (-58 to 1020 °F) - (the negative temperature requirement must be specified in the order)	
Face to face dimensions		Acc. to ISA-75.08.01-2002 (R2007) for version with flanges	
		Acc. to ISA-75.08.03-2001 (R2007) for weld ends - version Socket Weld	
		Acc. to ISA - 75.08.05-2002 (R2007) for weld ends - version Butt Weld	
Connection flanges		Acc. to ČSN EN 1092-1+A1 (7/2013)	
Flange faces		Type B1 (raised-faced) or Type B2 (plain face) or Type F (female), or Type D (groove) acc. to ČSN EN 1092-1+A1 (7/2013)	
Weld ends		Weld ends acc. to ČSN EN 12627-2 (8/2000)	
Type of plug		V-ported, contoured, perforated	
Flow characteristic		Linear, equal-percentage, LDMspline®, parabolic, on - off	
Kvs value		0.01 to 1600 m^3/h	
Leakage rate		Class III. acc. to ANSI/FCI 70-2-2013 (<0,1% Cv) for c. valves with metal-metal seat sealing	
		Class IV. acc. to ANSI/FCI 70-2-2013 (<0.01% Cv) for c. valves with metal-PTFE seat sealing	
		Class IV. acc. to ANSI/FCI 70-2-2013 (<0.01% Cv) for shut-off vlave	
Leakage rate for Ex version		CV 3xx class IV. acc. to ANSI/FCI 70-2-2013 (< 0.01% Kvs); SV 3xx step C acc. to ISO 5208:2008	
Rangeability r		50 : 1	
Packing		DRSpack® (PTFE) t_{max} = 260 °C (500°F), Expanded graphite t_{max}= 550 °C (1020°F), Bellows (DN15-150) t_{max}= 550°C (1020°F)	

Cv (Kvs) values and differential pressures Δp_{max} [MPa], [psi] of valves NPS ½" - 16" with countoured and V-ported plugs flow direction below plug) with electro-mechanic actuators

Δp_{max} value is the valve max. differential pressure when max open - close function is always guaranteed. Differential pressure must not exceed 2,0 MPa (290 psi) for valves Class 150 and 5,0 MPa (750 psi) for valves Class 300. In regard of service life of seat and plug, it is recommended so that permanent differential pressure would not exceed 1.6 MPa / 232 psi. Otherwise it is suitable to use perforated plug (Δp up to 4,0 MPa / 580 psi) or sealing surfaces of seat and plug with a hard metal overlay (Δp up to 2,5 MPa / 363 psi).

For further information on actuating, see actuators' catalogue sheets	**Actuating (actuating)**	**ST 0 ST 0.1 CVL-1000**	**Auma Schiebel**	**ST 1 Ex ST 0.1 CVL-1500**
	Marking in valve specification No.	**EPK EPL EQL**	**EA... EZ...**	**EPJ EPL EQL**
	Linear force	4 kN	5 kN	6,3 kN

			Kvs [m³/h] / **Cv [US galon/min]**											Δp_{max} [MPa] [psi] packing					
NPS	**H[mm]**	**Ds[mm]**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**graphite**	**PTFE**	**graphite**	**PTFE**	**graphite**	**PTFE**
½"	16	3	---	---	---	---	---	---	---	0.16[3] **0.18[3]**	0.1...0.01[3] **0.116...0.012[3]**			10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		6	---	---	---	---	---	---	0.25[1] **0.29[1]**	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		8	---	---	---	1.0[1] **1.16**	0.63[1] **0.73**	0.4[1] **0.46**	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		12	---	2.5[1] **2.89**	1.6[1] **1.85**	---	---	---	---	---	---	---	---	6.42 **905**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		15	4.0[1] **4.62[1]**	---	---	---	---	---	---	---	---	---	---	8.91 **1293**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
1"		3	---	---	---	---	---	---	---	---	---	0.16...0.01[3] **0.18...0.012[3]**		10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		6	---	---	---	---	---	---	---	---	0.25[1] **0.29[1]**	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		8	---	---	---	---	---	1.0[1] **1.16[1]**	0.63[1] **0.73[1]**	0.4[1] **0.46[1]**	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		12	---	---	---	2.5[1] **2.89[1]**	1.6[1] **1.85[1]**	---	---	---	---	---	---	6.42 **905**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		15	---	---	4.0[1] **4.62[1]**	---	---	---	---	---	---	---	---	8.91 **1293**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		20	---	6.3[2] **7.28[2]**	---	---	---	---	---	---	---	---	---	4.33 **628**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		25	10.0 **11.6**	6.3[4] **7.28[4]**	4.0[4] **4.62[4]**	---	---	---	---	---	---	---	---	2.59 **376**	6.48 **940**	7.16 **1038**	10 **1450**	10 **1450**	10 **1450**
1½"		6	---	---	---	---	---	---	---	---	---	---	0.25[1] **0.29[1]**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		8	---	---	---	---	---	---	---	1.0[1] **1.16[1]**	0.63[1] **0.73[1]**	0.4[1] **0.46[1]**	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		12	---	---	---	---	---	2.5[1] **2.89[1]**	1.6[1] **1.85[1]**	---	---	---	---	6.42 **905**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		15	---	---	---	---	4.0[1] **4.62[1]**	---	---	---	---	---	---	8.91 **1293**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		20	---	---	---	6.3[2] **7.28[2]**	---	---	---	---	---	---	---	4.33 **628**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		40	25 **28,9**	16 **18.5**	10 **11.6**	6.3[4] **7.28[4]**	4.0[4] **4.62[4]**	---	---	---	---	---	---	0.90 **131**	2.42 **350**	2.68 **388**	4.19 **608**	4.45 **646**	5.97 **866**
2"	20	50	40 **46.2**	25 **28,9**	16 **18.5**	10 **11.6**	6.3[4] **7.28[4]**	---	---	---	---	---	---	0.50 **72**	1.40 **240**	1.56 **226**	2.47 **358**	2.63 **381**	3.53 **512**

the table continues on the next page

[1] parabolic plug [2] V-ported plug with linear characteristic, parabolic plug with equal-percentage and LDMspline®
[3] valve with micro-throttling trim. Execution with Kvs = 0,16; 0,1; 0,063; 0,04; 0,025; 0,016; 0,01 **(Cv = 0,18; 0,11; 0,073; 0,046; 0,029; 0,018; 0,011)**
[4] V-ported plug with linear characterictic only
LDMspline® and parabolic charakteristic from Kvs≥1,0 . Equal-percentage characteristic from Kvs≥0,4.

For further information on actuating, see actuators' catalogue sheets

			Actuating (actuating)	Auma Schiebel ST 1 IQM 10	Auma Schiebel ST 1 Modact MTR IQM 10	Auma Schiebel IQM 10	Hand wheel
			Marking in valve specification No.	EA... EZ... EPI EQ...	EA... EZ... EPI EPD EQ...	EA... EZ... EQ...	Rxx
			Linear force	7.5 kN	10 kN	15 kN	

NPS	H[mm]	Ds[mm]	Kvs [m³/h] / Cv [US galon/min] 1	2	3	4	5	6	7	8	9	Δp_{max} [MPa] [psi] packing graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
½"	16	3	---	---	---	---	---	---	---	0.16[3] **0.18**[3]	0.1...0.01[3] **0.12...0.012**[3]	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		6	---	---	---	---	---	---	0.25[1] **0.29**[1]	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		8	---	---	---	1.0[1] **1.16**	0.63[1] **0.73**	0.4[1] **0.46**	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		12	---	2.5[1] **2.89**	1.6[1] **1.85**	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		15	4.0[1] **4.62**[1]	---	---	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
1"		3	---	---	---	---	---	---	---	---	0.16...0.01[3] **0.18...0.012**[3]	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		6	---	---	---	---	---	---	---	---	0.25[1] **0.29**[1]	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		8	---	---	---	---	---	1.0[1] **1.16**[1]	0.63[1] **0.73**[1]	0.4[1] **0.46**[1]	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		12	---	---	---	2.5[1] **2.89**[1]	1.6[1] **1.85**[1]	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		15	---	---	4.0[1] **4.62**[1]	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		20	---	6.3[2] **7.28**[2]	---	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		25	10.0 **11.6**	6.3[4] **7.28**[4]	4.0[4] **4.62**[4]	---	---	---	---	---	---	7,16 **1038**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
1½"		6	---	---	---	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		8	---	---	---	---	---	---	---	1.0[1] **1.16**[1]	0.63[1] **0.73**[1] 0.4[1] **0.46**[1]	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		12	---	---	---	---	---	2.5[1] **2.89**[1]	1.6[1] **1.85**[1]	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		15	---	---	---	---	4.0[1] **4.62**[1]	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		20	---	---	---	6.3[2] **7.28**[2]	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
		40	25 **28.9**	16 **18.5**	10 **11.6**	6.3[4] **7.28**[4]	4.0[4] **4.62**[4]	---	---	---	---	2.68 **388**	4.19 **608**	4.45 **646**	5.97 **866**	---	---	4.45 **646**	5.97 **866**
2"	20	50	40 **46.2**	25 **28.9**	16 **18.5**	10 **11.6**	6.3[4] **7.28**[4]	---	---	---	---	1.56 **226**	2.47 **358**	2.63 **381**	3.53 **512**	4.75 **689**	5.66 **821**	2.63 **381**	3.53 **512**

the table continues on the next page

[1] parabolic plug [2] V-ported plug with linear characteristic, parabolic plug with equal-percentage and LDMspline®
[3] valve with micro-throttling trim. Execution with Kvs = 0,16; 0,1; 0,063; 0,04; 0,025; 0,016; 0,01 **(Cv = 0,18; 0,11; 0,073; 0,046; 0,029; 0,018; 0,011)**
[4] V-ported plug with linear characterictic only

Max. differential pressures specified in table apply to PTFE and graphite packing.
Δp_{max} for bellows must be consulted with the producer.
LDMspline® and parabolic charakteristic from Kvs≥1,0 . Equal-percentage characteristic from Kvs≥0,4.

For further information on actuating, see actuators' catalogue sheets			Actuating (actuating)					Auma Schiebel ST 1		Auma Schiebel ST 1 IQM 10		Modact MTR		Auma Schiebel IQM 10		Modact MTR ST 2 CVL-5000		Hand wheel	
			Marking in valve specification No.					EA... EZ... EPI		EA... EZ... EPI EQ...		EPD		EA... EZ... EQ...		EPD EPM EQL		Rxx	
			Linear force					7.5 kN		10 kN		10 kN		15 kN		16 kN			
			Kvs [m³/h]					Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]	
			Cv [US galon/min]					packing		packing		packing		packing		packing		packing	
NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
3"	40	80	100 **116**	63 **72.8**	40 **46.2**	25 **28.9**	16 **18.5**	0.28 **41**	0.73 **106**	0.73 **106**	1.18 **171**	0.73 **106**	1.18 **171**	1.63 **236**	2.08 **302**	1.81 **263**	2.26 **328**	1.81 **263**	2.26 **328**
4"		100	160 **185**	100 **116**	63 **72.8**	40 **46.2**	25 **28.9**	0.16 **23**	0.45 **65**	0.45 **65**	0.74 **108**	0.45 **65**	0.74 **108**	1.03 **150**	1.32 **192**	1.15 **167**	1.44 **209**	1.15 **167**	1.44 **209**
6"		150	360 **416**	250 **289**	160 **185**	100 **116**	63 **72.8**	0.05 **7**	0.18 **26**	0.18 **26**	0.31 **45**	0.18 **26**	0.31 **45**	0.44 **64**	0.58 **83**	0.50 **72**	0.63 **91**	0.50 **72**	0.63 **91**

the table continues on the next page

Max. differential pressures specified in table apply to PTFE and graphite packing.
Δp_{max} for bellows must be consulted with the producer.
LDMspline® and parabolic charakteristic from Kvs≥1,0 . Equal-percentage characteristic from Kvs≥0,4.

For further information on actuating, see actuators' catalogue sheets

*) max. NPS 12"

			Actuating (actuating)					Auma Schiebel IQM 10		Modact MTR ST 2 CVL-5000		Auma Schiebel ST 2 CVL-5000 IQM12		Modact MTR ST 2		Auma Schiebel IQM 20		Ruční kolo	
			Marking in valve specification No.					EA... EZ... EQ...		EPD EPM EQL		EA... EZ... EPM EQL EQ...		EPD EPM		EA... EZ... EQ...		Rxx	
			Linear force					15 kN		16 kN		20 kN		25 kN		32 kN			
			Kvs [m³/h]					Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]	
			Cv [US galon/min]					packing		packing		packing		packing		packing		packing	
NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
3"	40	80	100 **116**	63 **72.8**	40 **46.2**	25 **28.9**	16 **18.5**	1.63 **236**	2.08 **302**	1.81 **263**	2.26 **328**	2,53 **367**	2,98 **432**	3,43 **498**	3,88 **563**	---	---	1.81 **263**	2.26 **328**
4"		100	160 **185**	100 **116**	63 **72.8**	40 **46.2**	25 **28.9**	1.03 **150**	1.32 **192**	1.15 **167**	1.44 **209**	1,62 **234**	1,91 **277**	2,20 **319**	2,49 **361**	---	---	1.15 **167**	1.44 **209**
6"		150	360 **416**	250 **289**	160 **185**	100 **116**	63 **72.8**	0.44 **64**	0.58 **83**	0.50 **72**	0.63 **91**	0,71 **103**	0,84 **122**	097 **141**	1,11 **160**	---	---	0.50 **72**	0.63 **91**
8"	80	100	---	---	250 **289**	160 **185**	100 **116**	0.85 **124**	1.19 **173**	0.97 **141**	1.31 **190**	1.44 **210**	1.79 **259**	2.04 **295**	2.38 **345**	2.87 **416**	3.21 **465**	3.81 **553**	4.15 **602**
		150	---	400 **462**	---	---	---	0.36 **52**	0.51 **74**	0.41 **60**	0.56 **82**	0.62 **91**	0.78 **113**	0.89 **129**	1.05 **152**	1.27 **183**	1.42 **206**	1.69 **245**	1.85 **268**
		200	570 **659**	---	---	---	---	0.19 **27**	0.28 **40**	0.22 **32**	0.31 **44**	0,34 **49**	0,43 **62**	0,49 **71**	0,58 **84**	0,70 **102**	0,79 **115**	0.95 **137**	1.03 **150**
10"	80	150	---	---	400 **462**	250 **289**	160 **185**	0.21 **31**	0.39 **56**	0.27 **39**	0.44 **64**	0.48 **70**	0.66 **96**	0.75 **109**	0.93 **135**	1.13 **164**	1.31 **190**	1.56 **227**	1.74 **252**
		200	---	630 **728**	---	---	---	0.11 **15**	0.20 **30**	0.14 **20**	0.24 **34**	0,26 **37**	0,36 **52**	0,41 **60**	0,51 **74**	0,62 **91**	0,72 **105**	0.87 **126**	0.97 **141**
		230	800 **925**	---	---	---	---	0.07 **11**	0.15 **21**	0.10 **14**	0.17 **25**	0.19 **27**	0.26 **38**	0.30 **44**	0.38 **55**	0.47 **68**	0.54 **79**	0.65 **95**	0.73 **106**
12"	80	150	---	---	---	400 **462**	250 **289**	0.21 **31**	0.39 **56**	0.27 **39**	0.44 **64**	0.48 **70**	0.66 **96**	0.75 **109**	0.93 **135**	1.13 **164**	1.31 **190**	1.56 **227**	1.74 **252**
		200	---	---	630 **728**	---	---	0.11 **15**	0.20 **30**	0.14 **20**	0.24 **34**	0,26 **37**	0,36 **52**	0,41 **60**	0,51 **74**	0,62 **91**	0,72 **105**	0.87 **126**	0.97 **141**
		230	---	800 **925**	---	---	---	0.07 **11**	0.15 **21**	0.10 **14**	0.17 **25**	0.19 **27**	0.26 **38**	0.30 **44**	0.38 **55**	0.47 **68**	0.54 **79**	0.65 **95**	0.73 **106**
		250	1000 **1160**	---	---	---	---	0.06 **8**	0.12 **18**	0.08 **11**	0.14 **21**	0.16 **23**	0.22 **32**	0.25 **37**	0.32 **46**	0.39 **57**	0.46 **66**	0.55 **80**	0.61 **89**
16"	100	150	---	---	---	400 **462**	250 **289**	0.21 **31**	0.39 **56**	0.27 **39**	0.44 **64**	0.48 **70**	0.66 **96**	0.75 **109**	0.93 **135**	1.13 **164**	1.31 **190**	1.56 **227**	1.74 **252**
		200	---	---	630 **728**	---	---	0.11 **15**	0.20 **30**	0.14 **20**	0.24 **34**	0,26 **37**	0,36 **52**	0,41 **60**	0,51 **74**	0,62 **91**	0,72 **105**	0.87 **126**	0.97 **141**
		250	---	1000 **1160**	---	---	---	0.06 **8**	0.12 **18**	0.08 **11**	0.14 **21**	0.16 **23**	0.22 **32**	0.25 **37**	0.32 **46**	0.39 **57**	0.46 **66**	0.55 **80**	0.61 **89**
		330	1600 **1850**	---	---	---	---	0.02 **4**	0.06 **9**	0.04 **5**	0.07 **11**	0.08 **12**	0.12 **17**	0.14 **20**	0.17 **25**	0.22 **32**	0.25 **37**	0.31 **45**	0.35 **50**

Max. differential pressures specified in table apply to PTFE and graphite packing.
Δp_{max} for bellows must be consulted with the producer.
LDMspline® and parabolic charakteristic from Kvs≥1,0 . Equal-percentage characteristic from Kvs≥0,4.

Cv (Kvs) values and differential pressures Δp_{max} [MPa], [psi] of valves NPS ½" - 16" with countoured and V-ported plugs (flow direction below plug) with pneumatic actuators

Δp_{max} value is the valve max. differential pressure when max open - close function is always guaranteed.
Differential pressure must not exceed 2,0 MPa (290 psi) for valves Class 150 and 5,0 MPa (750 psi) for valves Class 300. In regard of service life of seat and plug, it is recommended so that permanent differential pressure would not exceed 1.6 MPa / 232 psi. Otherwise it is suitable to use perforated plug (Δp up to 4,0 MPa / 580 psi) or sealing surfaces of seat and plug with a hard metal overlay (Δp up to 2,5 MPa / 363 psi).

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		Flowserve PA 253		A. Hock 2109	
Actuator function		direct	indirect	direct	indirect
Specification No. of actuator		BDYxAA	BFYxZA	P2-0K-EL1	P2-0K-HL2
Spring range	[bar]	1.0 - 2.4	2.0 - 4.8	0.2 - 1.0	1.5 -3.8
	[psi]	**15 - 35**	**29 - 70**	**2.9 - 15**	**22 - 55**
Spring setting	[bar]	1.0 - 2.12	2.56 - 4.8	0.2 - 0.84	1.96 - 3.8
	[psi]	**15 - 31**	**37 - 70**	**2.9 - 12**	**28 - 55**
Feeding pressure	[bar]	4.8	5.8	3.0	4.6
	[psi]	**70**	**84**	**44**	**67**
Marking in valve specification No.		PFA		PHF	
Linear force		6.4 kN	6.4 kN	6.3 kN	5.7kN

NPS	H[mm]	Ds[mm]	Kvs [m³/h] / Cv [US galon/min] 1	2	3	4	5	6	7	8	9			Δp_{max} [MPa] [psi] packing graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
½"	16	3	---	---	---	---	---	---	---	0.16[3] **0.18**[3]	0.1...0.01[3] **0.116...0.012**[3]			10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		6	---	---	---	---	---	---	0.25[1] **0.29**[1]	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		8	---	---	---	1.0[1] **1.16**[1]	0.63[1] **0.73**[1]	0.4[1] **0.46**[1]	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		12	---	2.5[1] **2.09**[1]	1.6[1] **1.85**[1]	---	---	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		15	4.0[1] **4.62**[1]	---	---	---	---	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
1"		3	---	---	---	---	---	---	---	---	---	0.16...0.01[3] **0.18...0.012**[3]		10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		6	---	---	---	---	---	---	---	---	0.25[1] **0.29**[1]	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		8	---	---	---	---	---	1.0[1] **1.16**[1]	0.63[1] **0.73**[1]	0.4[1] **0.46**[1]	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		12	---	---	---	2.5[1] **2.89**[1]	1.6[1] **1.85**[1]	---	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		15	---	---	4.0[1] **4.62**[1]	---	---	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		20	---	6.3[2] **7.28**[2]	---	---	---	---	---	---	---	---	---	8.46 **1226**	10 **1450**	8.46 **1226**	10 **1450**	8,16 **1184**	10 **1450**	6,39 **927**	10 **1450**
		25	10.0 **11.6**	6.3[4] **7.28**[4]	4.0[4] **4.62**[4]	---	---	---	---	---	---	---	---	5.15 **747**	9.04 **1311**	5.15 **747**	9.04 **1311**	4,97 **720**	8,86 **1285**	3,87 **561**	7,76 **1126**
1½"		6	---	---	---	---	---	---	---	---	---	---	0.25[1] **0.29**[1]	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		8	---	---	---	---	---	---	---	1.0[1] **1.16**[1]	0.63[1] **0.73**[1]	0.4[1] **0.46**[1]	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		12	---	---	---	---	---	2.5[1] **2.89**[1]	1.6[1] **1.85**[1]	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		15	---	---	---	---	4.0[1] **4.62**[1]	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
		20	---	---	---	6.3[2] **7.28**[2]	---	---	---	---	---	---	---	---	8.46 **1226**	10 **1450**	8.46 **1226**	10 **1450**	8,16 **1184**	10 **1450**	6,39 **927**	10 **1450**
		40	25 **28.9**	16 **18.5**	10 **11.6**	6.3[4] **7.28**[4]	4.0[4] **4.62**[4]	---	---	---	---	---	---	1,90 **275**	3,41 **495**	1,90 **275**	3,41 **495**	1,83 **265**	3,34 **484**	1,40 **203**	2,91 **422**

the table continues on the next page

[1] parabolic plug [2] V-ported plug with linear characteristic, parabolic plug with equal-percentage and LDMspline® [3] valve with micro-throttling trim. Execution with Kvs = 0,16; 0,1; 0,063; 0,04; 0,025; 0,016; 0,01 **(Cv = 0,18; 0,11; 0,073; 0,046; 0,029; 0,018; 0,011)** [4] V-ported plug with linear characterictic only
Max. differential pressures specified in table apply to PTFE and graphite packing. Δp_{max} for bellows must be consulted with the producer.
LDMspline® and parabolic charakteristic from Kvs≥1,0 . Equal-percentage characteristic from Kvs≥0,4.

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		Flowserve PA 253		Flowserve PB 503		A. Hock 2109		A. Hock 2112-30	
Actuator function		direct	indirect	direct	indirect	direct	indirect	direct	indirect
Specification No. of actuator		BDYxAA	BFYxZA	BBLxAA	BFYxZA	P2-0K-BL1	P2-0K-HL2	P2-0K-BM1	P2-0K-WM2
Spring range	[bar]	1.0 - 2.4	2.0 - 4.8	0.5 - 0.9	2.0 - 4.8	0.8 -2.2	1.5 -3.8	0.8 - 2.2	1.4 - 2.8
	[psi]	**15 - 35**	**29 - 70**	**7 - 28**	**29 - 70**	**12 - 32**	**22 - 55**	**12 - 32**	**20 - 40**
Spring setting	[bar]	1.0 - 2.4	2.0 - 4.8	0.5 - 1.9	2.0 - 4.8	0.8 - 1.92	1.5 - 3.8	0.8 - 1.73	1.87 - 2.8
	[psi]	**15 - 35**	**29 - 70**	**7 - 28**	**29 - 70**	**12 - 28**	**22 - 55**	**12 - 25**	**27 - 40**
Feeding pressure	[bar]	6.0	5.8	5.3	5.3	4.4	4.6	3.5	3.2
	[psi]	**87**	**84**	**77**	**77**	**64**	**67**	**50**	**46**
Marking in valve spec. No.		PFA		PFB		PHF		PHA	
Linear force		8.5 kN	5 kN	10 kN	10 kN	6.4 kN	4.4kN	10 kN	10.5kN
Kvs [m³/h] / Cv [US galon/min]		Δp_{max} [MPa] [psi] packing							
		graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE
NPS H[mm] Ds[mm] 1		1.99 2.89	0.50 1.40	2.63 3.53	2.63 3.53	1.09 2.00	0.24 1.15	2.63 3.53	2.84 3.74
2" 20 50 40		**288 420**	**72 204**	**381 512**	**381 512**	**159 290**	**35 167**	**381 512**	**412 543**
2 25		**46.2**	**28.9**	**18.5**	**11.6**	**7.28**[4]			
3 16									
4 10									
5 6.3[4]									

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		Flowserve PB 503		Flowserve PB 701		A. Hock 2112-50		A. Hock 2112-50	
Actuator function		direct	indirect	direct	indirect	direct	indirect	direct	indirect
Specification No. of actuator		BBLxAB	BFYxZB	BBLxAB	BFYxZB	P2-0K-DI1	P2-0K-XI2	P2-0K-DI1	P2-0K-SI2
Spring range	[bar]	0.5 - 1.9	2.0 - 4.8	0.5 - 1.9	2.0 - 4.8	0.5 -1.7	0.7 - 2.5	0.5 - 1.7	0.8 - 2.8
	[psi]	**7 - 28**	**29 - 70**	**7 - 28**	**29 - 70**	**7 - 25**	**10 - 36**	**7 - 25**	**12 - 40**
Spring setting	[bar]	0.5 - 1.9	2.0 - 4.8	0.5 - 1.9	2.0 - 4.8	0.5 - 1.43	1.06 - 2.5	0.5 - 1.46	1.2 - 2.8
	[psi]	**7 - 28**	**29 - 70**	**7 - 28**	**29 - 70**	**7 - 21**	**15 - 36**	**7 - 21**	**17 - 40**
Feeding pressure	[bar]	4.1	5.4	4.1	5.3	3.2	3.0	5.0	3.3
	[psi]	**59**	**78**	**59**	**77**	**46**	**44**	**73**	**48**
Marking in valve spec. No.		PFA		PFB		PHA		PHA	
Linear force		10 kN	10 kN	14 kN	14 kN	10 kN	6 kN	20 kN	6.9 kN
Kvs [m³/h] / Cv [US galon/min]		Δp_{max} [MPa] [psi] packing							
		graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE
NPS H[mm] Ds[mm] 1		0.73 1.18	0.73 1.18	1.45 1.90	1.45 1.90	0.73 1.18	--- 0.46	2.53 2.98	--- 0.62
3" 80 100		**106 171**	**106 171**	**210 276**	**210 276**	**106 171**	**67**	**367 432**	**90**
2 63									
3 40									
4 25									
5 16									
4" 40 100 160		0.45 0.74	0.45 0.74	0.92 1.21	0.92 1.21	0.45 0.74	--- 0.27	1.62 1.91	--- 0.38
		65 108	**65 108**	**133 175**	**133 175**	**65 108**	**40**	**234 277**	**55**
2 100									
3 63									
4 40									
5 25									
6" 150 360		0.18 0.31	0.18 0.31	0.39 0.52	0.39 0.52	0.18 0.31	--- 0.10	0.71 0.84	--- 015
		26 45	**26 45**	**57 76**	**57 76**	**26 45**	**14**	**103 122**	**21**
2 250									
3 160									
4 100									
5 63									

the table continues on the next page

[4] V-ported plug with linear characterictic only

Max. differential pressures specified in table apply to PTFE and graphite packing.
Δp_{max} for bellows must be consulted with the producer.

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		Flowserve PO 1502					
Actuator function		direct	indirect	direct	indirect	direct	indirect
Specification No. of actuator		BGFxAD	BVCxZD	BGFxAD	BFSxZD	BGFxAD	BAJxZD
Spring range	[bar]	0.4 - 2.0	1.5 - 2.7	0.4 - 2.0	2.0 - 3.5	0.4 - 2.0	2.6 - 4.2
	[psi]	**6 - 29**	**22 - 39**	**6 - 29**	**29 - 51**	**6 - 29**	**38 - 61**
Spring setting	[bar]	0.4 - 2.0	1.5 - 2.7	0.4 - 2.0	2.0 - 3.5	0.4 - 2.0	2.6 - 4.2
	[psi]	**6 - 29**	**22 - 39**	**6 - 29**	**29 - 51**	**6 - 29**	**38 - 61**
Feeding pressure	[bar]	3.5	3.1	4.0	3.9	4.6	4.6
	[psi]	**51**	**45**	**58**	**57**	**67**	**67**
Marking in valve spec. No.		PFD					
Linear force		22,5 kN	22,5 kN	30 kN	30 kN	38 kN	38 kN
Kvs [m³/h] / Cv [US galon/min]		Δp_{max} [MPa] **[psi]**					
		packing					

NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
8"	80	100	---	---	250 **289**	160 **185**	100 **116**	1.74 **252**	2.08 **302**	1.74 **252**	2.08 **302**	2.63 **381**	2.97 **431**	2.63 **381**	2.97 **431**	3.58 **519**	3.92 **568**	3.58 **519**	3.92 **568**
		150	---	400 **462**	---	---	---	0.76 **110**	0.91 **132**	0.76 **110**	0.91 **132**	1.16 **168**	1.31 **190**	2.63 **168**	1.31 **190**	1.59 **230**	1.74 **252**	1.59 **230**	1.74 **252**
		200	570 **678**	---	---	---	---	0.42 **60**	0.50 **73**	0.42 **60**	0.50 **73**	0.64 **93**	0.73 **106**	0.64 **93**	0.73 **106**	0.89 **129**	0.97 **141**	0.89 **129**	0.97 **141**
10"	80	150	---	---	400 **462**	250 **289**	160 **185**	0.62 **90**	0.79 **115**	0.62 **90**	0.79 **115**	1.02 **149**	1.20 **174**	1.02 **149**	1.20 **174**	1.46 **211**	1.63 **237**	1.46 **211**	1.63 **237**
		200	---	630 **728**	---	---	---	0.33 **49**	0.43 **63**	0.33 **49**	0.43 **63**	0.56 **82**	0.66 **96**	0.56 **82**	0.66 **96**	0.81 **117**	0.91 **132**	0.81 **117**	0.91 **132**
		230	800 **925**	---	---	---	---	0.25 **36**	0.32 **47**	0.25 **36**	0.32 **47**	0.42 **61**	0.50 **72**	0.42 **61**	0.50 **72**	0.61 **88**	0.68 **99**	0.61 **88**	0.68 **99**
12"	80	150	---	---	---	400 **462**	250 **289**	0.62 **90**	0.79 **115**	0.62 **90**	0.79 **115**	1.02 **149**	1.20 **174**	1.02 **149**	1.20 **174**	1.46 **211**	1.63 **237**	1.46 **211**	1.63 **237**
		200	---	---	630 **728**	---	---	0.33 **49**	0.43 **63**	0.33 **49**	0.43 **63**	0.56 **82**	0.66 **96**	0.56 **82**	0.66 **96**	0.81 **117**	0.91 **132**	0.81 **117**	0.91 **132**
		230	---	800 **925**	---	---	---	0.25 **36**	0.32 **47**	0.25 **36**	0.32 **47**	0.42 **61**	0.50 **72**	0.42 **61**	0.50 **72**	0.61 **88**	0.68 **99**	0.61 **88**	0.68 **99**
		250	1000 **1160**	---	---	---	---	0.21 **30**	0.27 **39**	0.21 **30**	0.27 **39**	0.35 **51**	0.42 **60**	0.35 **51**	0.42 **60**	0.51 **74**	0.57 **83**	0.51 **74**	0.57 **83**

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		Flowserve PO 1502		Flowserve PO 3002	
Actuator function		direct	indirect	direct	indirect
Specification No. of actuator		BGFxAD	BVCxZD	BGFxAD	BFSxZD
Spring range	[bar]	0.9 - 1.9	2.0 - 4.3	0.9 - 1.9	1.2 - 2.6
	[psi]	**13 - 28**	**29 - 62**	**13 - 28**	**17 - 38**
Spring setting	[bar]	0.9 - 1.9	2.0 - 4.3	0.9 - 1.9	1.2 - 2.6
	[psi]	**13 - 28**	**29 - 62**	**13 - 28**	**17 - 38**
Feeding pressure	[bar]	4.0	5.2	4.5	3.2
	[psi]	**58**	**75**	**65**	**46**
Marking in valve spec. No.		PFD		PFE	
Linear force		30 kN	30 kN	38 kN	36 kN
Kvs [m³/h] / Cv [US galon/min]		Δp_{max} [MPa] **[psi]**			
		packing			

NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
16"	100	150	---	---	---	400 **462**	250 **289**	1.02 **149**	1.20 **174**	1.02 **149**	1.20 **174**	1.46 **211**	1.63 **237**	1.35 **196**	1.52 **221**
		200	---	---	630 **728**	---	---	0.56 **82**	0.66 **96**	0.56 **82**	0.66 **96**	0.81 **117**	0.91 **132**	0.75 **108**	0.85 **123**
		250	---	1000 **1160**	---	---	---	0.35 **51**	0.42 **60**	0.35 **51**	0.42 **60**	0.51 **74**	0.57 **83**	0.47 **68**	0.53 **78**
		330	1600 **1850**	---	---	---	---	0.19 **28**	0.23 **34**	0.19 **28**	0.23 **34**	0.29 **41**	0.32 **47**	0.26 **38**	0.30 **43**

the table continues on the next page

Max. differential pressures specified in table apply to PTFE and graphite packing.
Δp_{max} for bellows must be consulted with the producer.

For further information on actuating, see actuators' catalogue sheets

			Pneumatic actuators					A. Hock 2116-100		A. Hock 2116S-100		A. Hock 2116-100		A. Hock 2116S-100	
			Actuator function					direct		indirect		direct		indirect	
			Specification No. of actuator					P2-0K-BN1		P2-0K-YN2		P2-0K-BN1		P2-0K-ZN2	
			Spring range	[bar]				0.8 - 2.2		1.3- 3.0		0.8 - 2.2		1.5 - 3.5	
				[psi]				12 - 32		19 - 44		12 - 32		22 - 51	
			Spring setting	[bar]				0.8 - 1.92		1.64 - 3.0		0.8 - 1.92		1.9 - 3.5	
				[psi]				12 - 28		24 - 44		12 - 28		28 - 51	
			Feeding pressure	[bar]				3.6		4.0		5.1		4.5	
				[psi]				52		58		74		65	
			Marking in valve spec. No.					PHC							
			Linear force					20 kN		19.6 kN		38 kN		22.8 kN	
			Kvs [m³/h]					Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]	
			Cv [US galon/min]					packing		packing		packing		packing	
NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
8"	80	100	---	---	250	160	100	1.44	1.79	1.40	1.74	3.58	3.92	1.78	2.12
					289	**185**	**116**	**210**	**259**	**203**	**252**	**519**	**568**	**258**	**307**
		150	---	400	---	---	---	0.62	0.78	0.60	0.76	1.59	1.74	0.77	0.93
				462				**91**	**113**	**87**	**110**	**230**	**252**	**112**	**135**
		200	570	---	---	---	---	0.34	0.43	0.33	0.42	0.89	0.97	0.42	0.51
			678					**49**	**62**	**48**	**60**	**129**	**141**	**62**	**74**
10"	80	150	---	---	400	250	160	0.48	0.66	0.46	0.64	1.46	1.63	0.63	0.81
					462	**289**	**185**	**70**	**96**	**67**	**92**	**211**	**237**	**92**	**118**
		200	---	630	---	---	---	0.26	0.36	0.25	0.35	0.81	0.91	0.34	0.44
				728				**37**	**52**	**36**	**50**	**117**	**132**	**50**	**64**
		230	800	---	---	---	---	0.19	0.26	0.18	0.25	0.61	0.68	0.25	0.33
			925					**27**	**38**	**26**	**37**	**88**	**99**	**37**	**48**
12"	80	150	---	---	---	400	250	0.48	0.66	0.46	0.64	1.46	1.63	0.63	0.81
						462	**289**	**70**	**96**	**67**	**92**	**211**	**237**	**92**	**118**
		200	---	---	630	---	---	0.26	0.36	0.25	0.35	0.81	0.91	0.34	0.44
					728			**37**	**52**	**36**	**50**	**117**	**132**	**50**	**64**
		230	---	800	---	---	---	0.19	0.26	0.18	0.25	0.61	0.68	0.25	0.33
				925				**27**	**38**	**26**	**37**	**88**	**99**	**37**	**48**
		250	1000	---	---	---	---	0.16	0.22	0.15	0.21	0.51	0.57	0.21	0.28
			1160					**23**	**32**	**22**	**31**	**74**	**83**	**31**	**40**

For further information on actuating, see actuators' catalogue sheets

			Pneumatic actuators					A. Hock 2116-100		A. Hock 2116S-100		A. Hock 2116-100		A. Hock 2116S-100	
			Actuator function					direct		indirect		přídirect		indirect	
			Specification No. of actuator					P2-0K-BN1		P2-0K-YN2		P2-0K-BN1		P2-0K-ZN2	
			Spring range	[bar]				0.8 - 2.2		1.3- 3.0		0.8 - 2.2		1.5 - 3.5	
				[psi]				12 - 32		19 - 44		12 - 32		22 - 51	
			Spring setting	[bar]				0.8 - 2.2		1.3- 3.0		0.8 - 2.2		1.5 - 3.5	
				[psi]				12 - 32		19 - 44		12 - 32		22 - 51	
			Feeding pressure	[bar]				3.9		3.0		5.4		4.5	
				[psi]				71		58		93		65	
			Marking in valve spec. No.					PHC							
			Linear force					20 kN		15.6 kN		38 kN		18 kN	
			Kvs [m³/h]					Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]	
			Cv [US galon/min]					packing		packing		packing		packing	
NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
16"	100	150	---	---	---	400	250	0.48	0.66	0.25	0.42	1.46	1.63	0.38	0.55
						462	**289**	**70**	**96**	**36**	**61**	**211**	**237**	**54**	**80**
		200	---	---	630	---	---	0.26	0.36	0.12	0.22	0.81	0.91	0.20	0.30
					728			**37**	**52**	**18**	**32**	**117**	**132**	**29**	**43**
		250	---	1000	---	---	---	0.16	0.22	0.07	0.13	0.51	0.57	0.12	0.18
				1160				**23**	**32**	**10**	**19**	**74**	**83**	**17**	**26**
		330	1600	---	---	---	---	0.08	0.12	0.03	0.07	0.29	0.32	0.06	0.10
			1850					**12**	**17**	**5**	**10**	**41**	**47**	**8**	**14**

Max. differential pressures specified in table apply to PTFE and graphite packing. Δp_{max} for bellows must be consulted with the producer.

Cv (Kvs) values and differential pressures Δp_{max} [MPa], [psi] of valves NPS ½" - 16" with perforated plugs (flow direction above plug) for electro-mechanical actuators

Δp_{max} value is the valve max. differential pressure when max open - close function is always guaranteed. Differential pressure must not exceed 2,0 MPa (290 psi) for valves Class 150 and 5,0 MPa (750 psi) for valves Class 300. In regard of service life of seat and plug, it is recommended so that permanent differential pressure of the valves with perforated plug is limited to max. 4,0 MPa / 580 psi.

For further information on actuating, see actuators' catalogue sheets			Actuating (actuating)					ST 0 ST 0.1 CVL-1000		Auma Schiebel		ST 1 Ex ST 0.1 CVL-1500		Auma Schiebel ST 1 IQM 10		Auma Schiebel ST 1 IQM 10		Modact MTR IQM 10		Auma Schiebel IQM 10		Hand wheel	
			Marking in valve specification No.					EPK EPL EQL		EA... EZ...		EPJ EPL EQL		EA... EZ... EPI EQ...		EA... EZ... EPI EQ...		EPD EQ...		EA... EZ... EQ...		Rxx	
			Linear force					4 kN		5 kN		6.3 kN		7.5 kN		10 kN		10 kN		15 kN			
			Kvs [m³/h]					Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]	
			Cv [US galon/min]					packing		packing		packing		packing		packing		packing		packing		packing	
NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
1"	16	25	---	6.3 **7.28**	4.0 **4.62**	2.5[5] **2.89**[5]	1.6[5] **1.85**[5]	0.77 **111**	4.66 **675**	2.59 **376**	6.48 **940**	4.97 **720**	8.86 **1285**	7,16 **1038**	10,0 **1450**	10,0 **1450**	10,0 **1450**	10,0 **1450**	10,0 **1450**	---	---	10 **1450**	10 **1450**
1½"		40	---	16 **18.5**	10 **11.6**	6.3 **7.28**	4.0 **4.62**	0.19 **28**	1.70 **247**	0.90 **131**	2.42 **350**	1.83 **265**	3.34 **484**	2,68 **388**	4,19 **608**	4,45 **646**	5,97 **866**	4,45 **646**	5,97 **866**	---	---	4.45 **646**	5.97 **866**
2"	20	50	---	25 **28.9**	16 **18.5**	10 **11.6**	6.3 **7.28**	0.07 **10**	0.98 **142**	0.50 **72**	1.40 **204**	1.05 **152**	1.96 **284**	1.56 **226**	2.47 **358**	2.63 **381**	3.53 **512**	2.63 **381**	3.53 **512**	4.75 **689**	5.66 **821**	2.63 **381**	3.53 **512**
3"	40	80	---	63 **72.8**	40 **46.2**	25 **28.9**	16 **18.5**	---	---	---	---	---	---	0.28 **41**	0.73 **106**	0.73 **106**	1.18 **171**	0.73 **106**	1.18 **171**	1.63 **236**	2.08 **302**	1.81 **263**	2.26 **328**
4"		100	---	100 **116**	63 **72.8**	40 **46.2**	25 **28.9**	---	---	---	---	---	---	0.16 **23**	0.45 **65**	0.45 **65**	0.74 **108**	0.45 **65**	0.74 **108**	1.03 **150**	1.32 **192**	1.15 **167**	1.44 **209**
6"		150	---	250 **289**	160 **185**	100 **116**	63 **72.8**	---	---	---	---	---	---	0.05 **7**	0.18 **26**	0.18 **26**	0.31 **45**	0.18 **26**	0.31 **45**	0.44 **64**	0.58 **83**	0.50 **72**	0.63 **91**

the table continues on the next page

[5] linear characteristic only

For further information on actuating, see actuators' catalogue sheets

			Actuating (actuating)	Auma Schiebel IQM 10	Modact MTR ST 2 CVL-5000	Auma Schiebel ST 2 CVL-5000 IQM 12	Modact MTR ST 2	Auma Schiebel IQM 20	Hand wheel
			Marking in valve specification No.	EA... EZ... EQ...	EPD EPM EQL	EA... EZ... EPM EQL EQ...	EPD EPM	EA... EZ... EQ...	Rxx
			Linear force	15 kN	16 kN	20 kN	25 kN	32 kN	
			Kvs [m³ /h]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]
			Cv [US galon/min]	packing	packing	packing	packing	packing	packing
NPS	H [mm]	Ds[mm]	1	2	3	4	5	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE
3"	40	80	---	63 **72.8**	40 **46.2**	25 **28.9**	16 **18.5**	1.63 2.08 **236 302**	1.81 2.26 **263 328**	2,53 2,98 **367 432**	3,43 3,88 **498 563**	--- ---	1.81 2.26 **263 328**
4"		100	---	100 **116**	63 **72.8**	40 **46.2**	25 **28.9**	1.03 1.32 **150 192**	1.15 1.44 **167 209**	1,62 1,91 **234 277**	2,20 2,49 **319 361**	--- ---	1.15 1.44 **167 209**
6"		150	---	250 **289**	160 **185**	100 **116**	63 **72.8**	0.44 0.58 **64 83**	0.50 0.63 **72 91**	0,71 0,84 **103 122**	0,97 1,11 **141 160**	--- ---	0.50 0.63 **72 91**
8"	80	200	---	400 **462**	250 **289**	160 **185**	100 **116**	0.19 0.28 **27 40**	0.22 0.31 **32 44**	0.34 0.43 **49 62**	0.49 0.58 **71 84**	0.70 0.79 **102 115**	0.95 1.03 **137 150**
10"		230	---	630 **728**	400 **462**	250 **289**	160 **185**	0.07 0.15 **11 21**	0.10 0.17 **14 25**	0.19 0.26 **27 38**	0.30 0.38 **44 55**	0.47 0.54 **68 79**	0.65 0.73 **95 106**
12"		250	---	800 **925**	630 **728**	400 **462**	250 **289**	0.06 0.12 **8 18**	0.08 0.14 **11 21**	0.16 0.22 **23 32**	0.25 0.32 **37 46**	0.39 0.46 **57 66**	0.55 0.61 **80 89**
16"	100	330	---	1000 **1160**	630 **728**	400 **462**	250 **289**	0.02 0.06 **4 9**	0.04 0.07 **5 11**	0.08 0.12 **12 17**	0.14 0.17 **20 25**	0.22 0.25 **32 37**	0.31 0.35 **45 50**

Max. differential pressures specified in table apply to PTFE and graphite packing.
Δp_{max} for bellows must be consulted with the producer.

Kvs values and differential pressures Δp_{max} [MPa], [psi] of valves NPS ½" - 8" with perforated plugs (flow direction above plug) with pneumatic actuators

Δp_{max} value is the valve max. differential pressure when max open - close function is always guaranteed.
Differential pressure must not exceed 2,0 MPa (290 psi) for valves Class 150 and 5,0 MPa (750 psi) for valves Class 300. Due to the service life, the permanent working pressure drop for valves with a perforated plug is limited up to 4,0 MPa / 580 psi).

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		Foxboro PA 253				Foxboro PB 503		A. Hock 2109	
Actuator function		direct	indirect	direct	indirect	direct	indirect	direct	indirect
Specification No. of actuator		BVCxAA	BVCxZA	BVCxAA	BVCxZA	BVCxAA	BVCxZA	P2-0K-VL1	P2-0K-HL2
Spring range	[bar]	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.2 - 3.0	1.5 -3.8
	[psi]	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**	**17 - 44**	**22 - 55**
Spring setting	[bar]	1.5 - 2.46	1.75 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.2 - 2.64	1.96 - 3.8
	[psi]	**22 - 36**	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**	**17 - 38**	**28 - 55**
Feeding pressure	[bar]	4.5	4.5	4.5	4.5	4.5	4.5	3.9	5.8
	[psi]	**65**	**65**	**65**	**65**	**65**	**65**	**57**	**84**
Marking in valve spec. No.		PFA				PFB		PHF	
Linear force		4.3 kN	4.3 kN	3.7 kN	3.7 kN	7.5 kN	7.5 kN	3.5 kN	5.7 kN
Kvs [m³/h] / Cv [US galon/min]		Δp_{max} [MPa] [psi]							
		packing							

NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
1"	16	25	---	6.3	4.0	2.5[5]	1.6[5]	0.77	1.55	0.77	1.55	---	---	---	---	---	---	---	---	0.47	1.25	1.28	2.06
				7.28	**4.62**	**2.89**[5]	**1.85**[5]	**111**	**224**	**111**	**224**									**69**	**182**	**185**	**298**
1½"	16	40	---	16	10	6.3	4.0	0.30	0.60	0.30	0.60	---	---	---	---	---	---	---	---	0.18	0.49	0.50	0.80
				18.5	**11.6**	**7.28**	**4.62**	**43**	**87**	**43**	**87**									**27**	**71**	**72**	**116**
2"	20	50	---	25	16	10	6.3	0.18	0.36	0.18	0.36	0.13	0.31	0.13	0.31	0.45	0.63	0.45	0.63	---	---	---	---
				28.9	**18.5**	**11.6**	**7.28**	**26**	**52**	**26**	**52**	**19**	**45**	**19**	**45**	**65**	**92**	**65**	**92**				

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		A. Hock 2112-30					
Actuator function		direct	indirect	direct	indirect	direct	indirect
Specification No. of actuator		P2-0K-BM1	P2-0K-BM2	P2-0K-BM1	P2-0K-BM2	P2-0K-VM1	P2-0K-MM2
Spring range	[bar]	0.8 - 2.2	0.8 - 2.2	0.8 - 2.2	0.8 - 2.2	1.4 - 2.8	1.6 - 3.2
	[psi]	**12 - 32**	**12 - 32**	**12 - 32**	**12 - 32**	**20 - 41**	**23 - 46**
Spring setting	[bar]	0.8 - 1.55	1.45 - 2.2	0.8 - 1.73	1.27 - 2.2	1.4 - 2.33	2.13 - 32
	[psi]	**12 - 22**	**21 - 32**	**12 - 25**	**18 - 32**	**20 - 34**	**31 - 46**
Feeding pressure	[bar]	2.4	3.7	2.6	3.5	3.8	5.4
	[psi]	**35**	**54**	**38**	**51**	**55**	**78**
Marking in valve spec. No.		PHA					
Linear force		4.6 kN	8.3 kN	4.6 kN	7.3 kN	8.0 kN	12.2 kN
Kvs [m³/h] / Cv [US galon/min]		Δp_{max} [MPa] [psi]					
		packing					

NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
1"	16	25	---	6.3	4.0	2.5[5]	1.6[5]	0.88	1.66	2.23	3.01	---	---	---	---	---	---	---	---
				7.28	**4.62**	**2.89**[5]	**1.85**[5]	**127**	**240**	**323**	**436**								
1½"	16	40	---	16	10	6.3	4.0	0.34	0.64	0.87	1.17	---	---	---	---	---	---	---	---
				18.5	**11.6**	**7.28**	**4.62**	**49**	**93**	**126**	**170**								
2"	20	50	---	25	16	10	6.3	---	---	---	---	0.20	0.39	0.43	0.62	0.49	0.67	0.85	1.03
				28.9	**18.5**	**11.6**	**7.28**					**30**	**56**	**63**	**89**	**72**	**98**	**123**	**150**

the table continues on the next page

[5] linear characteristic only

Max. differential pressures specified in table apply to PTFE and graphite packing.
Δp_{max} for bellows must be consulted with the producer.

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators							**Foxboro PB 503**				**Foxboro PB 701**				**A. Hock 2112-50**			
Actuator function							direct		indirect		direct		indirect		direct		indirect	
Specification No. of actuator							**BVCxAB**		**BVCxZB**		**BVCxAB**		**BVCxZB**		**P2-0K-SI1**		**P2-0K-SI2**	
Spring range						[bar]	1.5 - 2.7		1.5 - 2.7		1.5 - 2.7		1.5 - 2.7		0.8 - 2.8		0.8 - 2.8	
						[psi]	**22 - 39**		**22 - 39**		**22 - 39**		**22 - 39**		**12 - 41**		**12 - 41**	
Spring setting						[bar]	1.5 - 2.46		1.75 - 2.7		1.5 - 2.7		1.5 - 2.7		0.8 - 2.4		1.2 - 2.8	
						[psi]	**22 - 36**		**25 - 39**		**22 - 39**		**22 - 39**		**12 - 35**		**17 - 41**	
Feeding pressure						[bar]	4.5		4.5		4.5		4.5		3.3		4.0	
						[psi]	**65**		**65**		**65**		**65**		**48**		**58**	
Marking in valve spec. No.							**PFB**				**PFC**				**PHA**			
Linear force							7.5 kN		7.5 kN		10.5 kN		10.5 kN		4.6 kN		6.9 kN	
			Kvs [m³/h]				**Δp_{max}** [MPa] **[psi]**		**Δp_{max}** [MPa] **[psi]**		**Δp_{max}** [MPa] **[psi]**		**Δp_{max}** [MPa] **[psi]**		**Δp_{max}** [MPa] **[psi]**		**Δp_{max}** [MPa] **[psi]**	
			Cv [US galon/min]				packing		packing		packing		packing		packing		packing	
NPS	**H[mm]**	**Ds[mm]**	**1**	**2**	**3**	**4**	**5**	graphite	**PTFE**	graphite	**PTFE**	graphite	**PTFE**	graphite	**PTFE**	graphite	**PTFE**	graphite	**PTFE**
3"	**40**	**80**	---	63	40	25	16	0.18	0.27	0.18	0.27	0.28	0.37	0.28	0.37	0.07	0.16	0.15	0.24
				72.8	**46.2**	**28.9**	**18.5**	**26**	**39**	**26**	**39**	**41**	**54**	**41**	**54**	**10**	**24**	**22**	**36**
4"		**100**	---	100	63	40	25	0.11	0.17	0.11	0.17	0.31	0.24	0.18	0.24	0.05	0.11	0.10	0.16
				116	**72.8**	**46.2**	**28.9**	**17**	**25**	**17**	**25**	**26**	**35**	**26**	**35**	**7**	**15**	**15**	**23**
6"		**150**	---	250	160	100	63	0.05	0.08	0.05	0.08	0.08	0.11	0.08	0.11	0.02	0.05	0.05	0.07
				289	**185**	**116**	**72.8**	**8**	**11**	**8**	**11**	**11**	**16**	**11**	**16**	**3**	**7**	**7**	**10**

A. Hock 2116-40																		
direct		indirect																
P2-0K-BN1		**P2-0K-BN2**																
0.8 - 2.2		0.8 - 2.2																
12 - 32		**12 - 32**																
0.8 - 1.36		1.64 - 2.2																
12 - 20		**24 - 32**																
2.2		3.9																
32		**57**																
PHC																		
9.6 kN		19.5 kN																
Δp_{max} [MPa] **[psi]**		**Δp_{max}** [MPa] **[psi]**																
packing		packing																
graphite	**PTFE**	graphite	**PTFE**															
0.25	0.34	0.61	0.70															
37	**50**	**88**	**101**															
0.16	0.22	0.39	0.45															
24	**32**	**57**	**66**															
0.07	0.10	0.18	0.21															
10	**15**	**26**	**16**															

Max. differential pressures specified in table apply to PTFE and graphite packing.
Δp_{max} for bellows must be consulted with the producer.

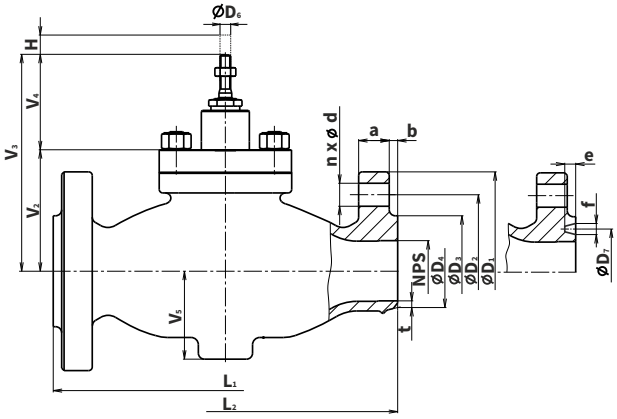
Valves Cv3x0 NPS 8" - 16" with perforated plugs and pneumatic actuators are not supplied.

Dimensions and weights of valves CV/SV 320 (Ex) and CV/SV 330 (Ex) with flanges and weld ends, NPS ½" - 16"

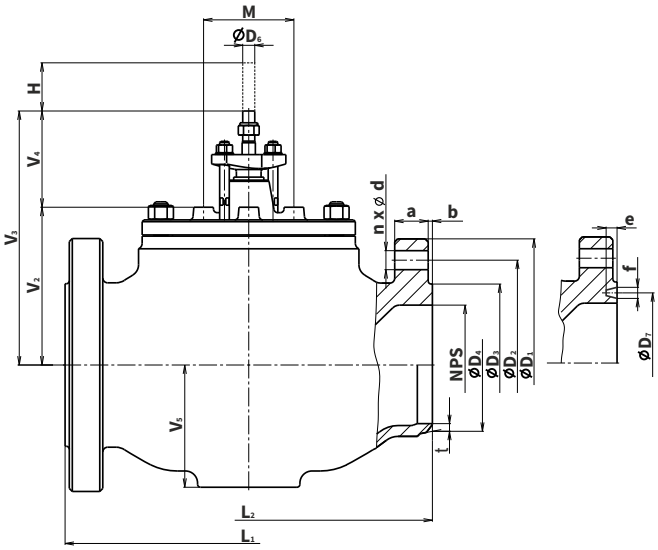
NPS	H	V_2	#V_2	V_3	#V_3	V_4	$ØD_5$	M	$ØD_6$	V_5	m_1	m_2	#m_v	Class 300 L_1			Class 600 L_1			Class 150-600 L_2
														RF	RTJ	LFF SFF LGF SGF	RF	RTJ	LFF SFF LGF SGF	BTW
	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm]	[mm] [inch]	kg	kg	kg	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]
½"	16 **0.63**	90 **3.543**	328 **12.913**	220 **8.661**	458 **18.031**					47 **1.85**	7	5	4	190 **7.5**	201 **7.91**	200 **7.87**	203 **8.0**	202 **7.95**	200 **7.87**	203 **8.0**
1"	16 **0.63**	100 **3.937**	336 **13.228**	230 **9.055**	466 **18.346**				M10x1	52 **2.047**	9	6	4	197 **7.75**	210 **8.25**	207 **8.15**	210 **8.25**	210 **8.25**	207 **8.15**	210 **8.25**
1½"	16 **0.63**	100 **3.937**	336 **13.228**	230 **9.055**	466 **18.346**					52 **2.047**	15	8	4	235 **9.25**	248 **9.76**	245 **9.64**	251 **9.88**	251 **9.88**	248 **9.76**	251 **9.88**
2"	20 **0.787**	132 **5.197**	330 **12.992**	262 **10.314**	460 **18.110**	130 **5.118**	65 **2.559**	---		73 **2.874**	20	13	4	267 **10.5**	283 **11.14**	277 **10.9**	286 **11.25**	289 **11.38**	283 **11.14**	286 **11.25**
3"	40 **1.575**	164 **6.456**	489 **19.252**	294 **11.575**	619 **24.370**					105 **4.133**	41	28	6	318 **12.5**	332 **33.22**	328 **12.91**	337 **13.25**	340 **13.38**	334 **13.15**	337 **13.25**
4"	40 **1.575**	164 **6.456**	489 **19.252**	294 **11.575**	619 **24.370**				M16x1,5	105 **4.133**	67	37	6	368 **14.5**	384 **15.12**	378 **14.88**	394 **15.5**	397 **15.63**	391 **15.39**	394 **15.5**
6"	40 **1.575**	200 **7.874**	492 **19.370**	330 **12.992**	622 **24.488**					134 **5.275**	160	105	7	473 **18.62**	489 **19.25**	483 **19.01**	508 **20.0**	511 **20.12**	505 **19.88**	508 **20.0**
8"	80(63[1]) **3.15 (2.48)[1]**	262 **10.314**	---	422 **16.614**	---					203 **7.992**	280	200	---	568 **22.38**	584 **22.99**	578 **22.75**	610 **24.0**	613 **24.13**	607 **60.72**	610 **24.0**
10"	80 **3.15**	346 **13.622**	---	506 **19.921**	---	160 **6.299**	---	150 **5.905**	M20x1,5	253 **9.961**	540	370	---	708 **27.88**	724 **28.5**	718 **28.27**	752 **29.62**	755 **29.72**	749 **29.49**	752 **29.62**
12"	80 **3.15**	395 **15.551**	---	555 **21.85**	---					296 **11.654**	680	520	---	775 **30.5**	791 **31.14**	785 **30.91**	819 **32.25**	822 **32.36**	816 **32.13**	819 **32.25**
16"	100 **3.937**	512 **20.157**	---	672 **26.457**	---					382 **15.039**	1380	1130	---	1057 **41.62**	1073 **42.24**	1067 **42.01**	1108 **43.62**	1111 **43.74**	1105 **43.5**	1108 **43.62**

m_1 - weight of flanged version m_2 - weight of weld ends version 1) NPS 8" balanced by graphite - travel = 63 mm (2,48 inch)
#) - for valve with bellows packing #m_v - weight to be added to weight of valve equipped with bellows packing

NPS	RF Class 300 $ØD_1$	$ØD_2$	$ØD_3$	d	n	a	b	RF Class 600 $ØD_1$	$ØD_2$	$ØD_3$	d	n	a	b	RTJ Class 300 a 600 $ØD_7$	e	f	Groove Number
	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]		[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]		[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	
½"	95 **3.75**	66.7 **2.62**	34.9 **1.38**	15.9 **5/8"**	4	12.7 **0.5**	2 **0.06**	95 **3.75**	66.7 **2.62**	34,9 **1.38**	15.9 **5/8"**	4	14.3 **0.56**	7 **0.25**	34.14 **1.344**	5.54 **0.219**	7.14 **0.281**	R11
1"	125 **4.88**	88.9 **3.5**	50.8 **2.0**	19.1 **¾"**		15.9 0.62		125 **4.88**	88.9 **3.5**	50,8 **2.0**	19.1 **¾"**		17.5 **0.69**		50.8 **2.0**	6.35 **0.25**	8.74 **0.344**	R16
1½"	155 **6.12**	114.3 **4.5**	73 **2.88**	22.3 **7/8"**		19.1 **0.75**		155 **6.12**	114.3 **4.5**	73 **2.88**	22.3 **7/8"**		22.3 **0.88**		68.27 **2.688**	6.35 **0.25**	8.74 **0.344**	R20
2"	165 **6.5**	127 **5.0**	92.1 **3.62**	19.1 **¾"**	8	20.7 0.81		165 **6.5**	127 **5.0**	92.1 **3.62**	19.1 **¾"**	8	25.4 **1.0**		82.55 **3.25**	7.92 **0.312**	11.91 **0.469**	R23
3"	210 **8.25**	168.3 **6.62**	127 **5.0**	22.3 **7/8"**		27 1.06		210 **8.25**	168.3 **6.62**	127 **5.0**	22.3 **7/8"**		31.8 **1.25**		117.48 **4.625**	7.92 **0.312**	11.91 **0.469**	R30
4"	255 **10**	200 **7.88**	157.2 **6.19**	22.3 **7/8"**		30.2 1.19		275 **10.75**	215.9 **8.5**	157.2 **6.19**	25.4 **1"**		38.1 **1.5**		149.23 **5.875**	7.92 **0.312**	11.91 **0.469**	R37
6"	320 **12.5**	269.9 **10.62**	215.9 **8.5**	22.3 **7/8"**	12	35 **1.38**		355 **14.0**	292.1 **11.5**	215.9 **8.5**	28.6 **1 1/8"**	12	47.7 **1.88**		211.12 **8.312**	7.92 **0.312**	11.91 **0.469**	R45
8"	380 **15**	330.2 **13.0**	269.9 **10.62**	25.4 **1"**		39.7 **1.56**		420 **16.5**	349.2 **13.75**	269.9 **10.62**	31.8 **1 1/4"**		55.6 **2.19**		269.9 **10.625**	7.92 **0.312**	11.91 **0.469**	R49
10"	445 **17.52**	387.4 **15.25**	323.8 **12.75**	28.6 **1 1/8"**	16	46.1 **1.82**		510 **20.08**	431.8 **17**	323.8 **12.75**	34.9 **1 3/8"**	16	63.5 **2.5**		323.85 **12.75**	7.92 **0.312**	11.91 **0.469**	R53
12"	520 **20.47**	450.8 **17.75**	381 **15**	31.8 **1 1/4"**	16	49.3 **1.94**		560 **22.05**	489 **19.25**	381 **15**	34.9 **1 3/8"**	20	66.7 **2.63**		381 **15**	7.92 **0.312**	11.91 **0.469**	R57
16"	650 **25.59**	571.5 **22.5**	469.9 **18.5**	34.9 **1 3/8"**	20	55.6 **2.19**		685 **26.97**	603.2 **23.75**	469.9 **18.5**	41.3 **1 5/8"**	20	76.2 **3**		469.9 **18.5**	7.92 **0.312**	11.91 **0.469**	R65



NPS ½" - 6"

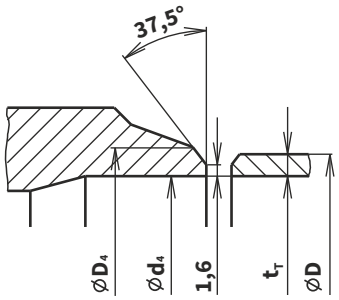


NPS 8"- 16"

Dimensions of weld ends for pipes **ASME B36.10M** [mm] **[inch]**

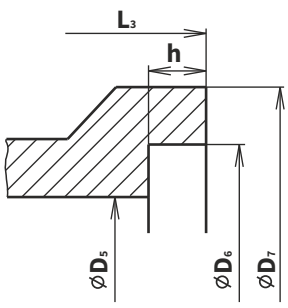
NPS	$ØD_4$	ØD	t_T Sch. No. 40	t_T Sch. No. 80	t_T Sch. No. 100	$ØD_{4\,max}$	$ØD_{4\,min}$
½"	22 **0.866**	21.3 **0.839**	2.8 **0.109**	3.9 **0.154**	---	30 **1.181**	13 **0.512**
1"	35 **1.378**	33.4 **1.315**	3.4 **0.133**	4.6 **0.179**	---	40 **1.575**	23 **0.906**
1½"	50 **1.969**	48.3 **1.66**	3.7 **0.14**	5.1 **0.191**	---	57 **2.244**	35 **1.378**
2"	62 **2.44**	60.3 **2.375**	3.9 **0.154**	5.5 **0.218**	---	67 **2.638**	43 **1.693**
3"	91 **3.583**	88.9 **3.5**	5.5 **0.216**	7.6 **0.3**	---	100 **3.937**	72 **2.835**
4"	117 **4.606**	114.3 **4.5**	6.0 **0,237**	8.6 **0.337**	---	128 **5.039**	92 **3.622**
6"	172 **6.772**	168.3 **6.625**	7.1 **0,28**	11.0 **0.432**	---	188 **7.402**	136 **5.354**
8"	223 **8.78**	219.1 **8.625**	8.2 **0.322**	12.7 **0.5**	15.1 **0.594**	228 **8.976**	178 **7.008**
10"	278 **10.945**	273.0 **10.748**	9.3 **0.366**	15.1 **0.594**	18.3 **0.72**	278 **10.945**	229 **9.016**
12"	329 **12.953**	323.9 **12.752**	10.3 **0.406**	17.5 **0.689**	21.4 **0.843**	329 **12.953**	281 **11.063**
16"	413 **16.26**	406.4 **16.0**	12.7 **0.5**	21.4 **0.843**	26.2 **1.031**	426 **16.772**	345 **13.583**

t-wall thickness of weld ends: $t = [D_4 - (D - 2 * t_T)] / 2$



Dimensions of weld ends for pipes **ASME B16.11** [mm] **[inch]**

NPS	SW Class 150 and 300 $ØD_5$	$ØD_6$	$ØD_7$	L_3	h	SW Class 600 $ØD_5$	$ØD_6$	$ØD_7$	L_3	h
½"	15 **0.59**	22 **0.87**	33 **1.3**	206 **8.11**	9.5 **0.37**	12 **0.47**	22 **0.87**	35 **1.38**	206 **8.11**	9.5 **0.37**
1"	26 **1.02**	34,1 **1.34**	47 **1.85**	210 **8.27**	12.5 **0.49**	21 **0.83**	34.1 **1.34**	51 **2.01**	210 **8.27**	12.5 **0.49**
1½"	41 **1.61**	49 **1.93**	62 **2.44**	251 **9.88**	12.5 **0.49**	34 **1.34**	49 **1.93**	67 **2.64**	251 **9.88**	12.5 **0.49**
2"	52 **2.05**	61,4 **2.42**	76 **2.99**	286 **11.26**	16 **0.63**	43 **1.69**	61.4 **2.42**	84 **3.31**	286 **11.26**	16 **0.63**





CV 3x2

Control and shut-off valves

NPS 1/2" - 16", Class 150, 300 and 600

Technical data

Series	CV 322 (Ex)	CV 332 (Ex)
Type of valve	**Two-way, single-seated, control (shut-off) valve with pressure balanced plug**	
Nominal size range	NPS 1" - 16"	
Nominal pressure	Class 300 and 600 (Class 150, 300 and 600 (weld ended)	
Body material	Cast steel A216 WCB, A217 WC6	Stainless steel A351 CF8M
Seat material: NPS 1/2" - 2"	1.4028	1.4571
DIN W.Nr./+ČSN NPS 3" - 16"	1.4027	1.4581
Plug material: NPS 1/2" - 2"	1.4021	1.4571
DIN W.Nr./+ČSN NPS 3" - 16"	1.4027	1.4581
Stem material	1.4923	1.4980
Operating temperature range	-50 to 550 °C (-58 to 1020 °F) - (the negative temperature requirement must be specified in the order)	
Face to face dimensions	Acc. to ISA-75.08.01-2002 (R2007) for version with flanges Acc. to ISA-75.08.03-2001 (R2007) for weld ends - version Socket Weld Acc. to ISA - 75.08.05-2002 (R2007) for weld ends - version Butt Weld	
Connection flanges	Acc. to ASME B16.5-2013	
Flange faces	RF (Raised Face), RTJ (Ring Joint Face), LFF (Large Female Face), SFF (Small Female Face), LGF (Large Groove Face), SGF (Small Groove Face)	
Weld ends	Butt Weld 1/2" - 16" acc. to ASME B16.25-2012; Socket Weld 1/2" - 2" acc. to ASME B16.11-2011	
Type of plug	V-ported, contoured, perforated	
Flow characteristic	Linear, equal-percentage, LDMspline®, parabolic	
Kvs value	1,6 to 1600 m^3 /h (1,85 to 1850 US galon/min)	
Leakage rate	Class III. acc. to ANSI/FCI 70-2-2013 (<0,1% Cv) for control valves with metal-metal seat sealing Class IV. acc. to ANSI/FCI 70-2-2013 (<0.01% Cv) for control valves with metal-PTFE sealing	
Leakage rate for Ex version	Class IV. acc. to ANSI/FCI 70-2-2013 (<0.01% Cv)	
Rangeability r	50 : 1	
Packing	DRSpack® (PTFE) t_{max} = 260 °C (500°F), Expanded graphite t_{max} = 550 °C (1020°F), Bellows (DN15-150) t_{max} = 550°C (1020°F)	

Cv (Kvs) values and differential pressures Δp_{max} [MPa], [psi] of pressure balanced valves NPS 1" - 16" with electro-mechanic actuators

Δp_{max} value is the valve max. differential pressure when max open - close function is always guaranteed.
Differential pressure must not exceed 2,0 MPa (290 psi) for valves Class 150 and 5,0 MPa (750 psi) for valves Class 300. In regard of service life of seat and plug, it is recommended so that permanent differential pressure would not exceed 1.6 MPa / 232 psi. Otherwise it is suitable to use perforated plug (Δp up to 4,0 MPa / 580 psi) or sealing surfaces of seat and plug with a hard metal overlay (Δp up to 2,5 MPa / 363 psi).

For further information on actuating, see actuators' catalogue sheets

*) max. NPS 12"

[5] linear characteristic only

Actuating (actuating)			CVL-500		ST 0		CVL-1000		Auma Schiebel		ST 1 Ex ST 0.1 CVL-1500		ST 1 IQM 10		ST 1 IQM 10		Hand wheel	
Marking in valve specification No.			EQL		EPK		EQL		EA... EZ...		EPJ EPL EQL		EPI EQ...		EPI EQ...		Rxx	
Linear force			2 kN		2.5 kN		4 kN		5 kN		6.3 kN		7.5 kN		10 kN			
Kvs [m³/h] / Cv [US galon/min]			Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]	
			packing		packing		packing		packing		packing		packing		packing		packing	
NPS	H [mm]	Ds[mm]	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
1"	16	25	10 **11.6**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
1½"		40	25 **28.9**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
2"	20	50	40 **46.2**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
3"	40	80	100 **116**	---	63 **72.8**	---	40 **46.2**	---	25 **28.9**	---	16 **18.5**	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
4"		100	160 **185**	---	100 **116**	---	63 **72.8**	---	40 **46.2**	---	25 **28.9**	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
6"		150	360 **416**	---	250 **289**	---	160 **185**	---	100 **116**	---	63 **72.8**	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**

For further information on actuating, see actuators' catalogue sheets

*) max. NPS 12"

Actuating (actuating)			Auma Schiebel IQM 10		ModactMTR ST 2 CVL-5000		Auma Schiebel IQM 12		ModactMTR ST 2		Hand wheel	
Marking in valve specification No.			EA... EZ... EQ...		EPD EPM EQL		EA... EZ... EQ...		EPD EPM		Rxx	
Linear force			15 kN		16 kN		20 kN		25 kN			
Kvs [m³/h] / Cv [US galon/min]			Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]		Δp_{max} [MPa] [psi]	
			packing		packing		packing		packing		packing	
NPS	H[mm]	Ds[mm]	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
3"	40	80	100 **116**	63 **72.8**	40 **46.2**	25 **28.9**	16 **18.5**	---	---	10 **1450**	10 **1450**	---	---	---	---	10 **1450**	10 **1450**
4"		100	160 **185**	100 **116**	63 **72.8**	40 **46.2**	25 **28.9**	---	---	10 **1450**	10 **1450**	---	---	---	---	10 **1450**	10 **1450**
6"		150	360 **416**	250 **289**	160 **185**	100 **116**	63 **72.8**	---	---	10 **1450**	10 **1450**	---	---	---	---	10 **1450**	10 **1450**
8"	80	200	570 **659**	400 **462**	250 **289**	160 **185**	100 **116**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	10 **1450**	10 **1450**
10"		230	800 **925**	630 **728**	400 **462**	250 **289**	160 **185**	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
12"		250	1000 **1160**	800 **925**	630 **728**	400 **462**	250 **289**	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**
16"	100	330	1600 **1850**	1000 **1160**	630 **728**	400 **462**	250 **289**	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**

Max. differential pressures specified in table apply to PTFE and graphite packing.
Perforated plug available only with Cv (Kvs) values in shadowed frames with the following restrictions:
- perforated plug with Kvs value acc. to column No. 2 available with linear or parabolic characteristic only

Cv (Kvs) values and differential pressures Δp_{max} [MPa], [psi] of pressure balanced valves NPS 1" - 16" with pneumatic actuators

Δp_{max} value is the valve max. differential pressure when max open - close function is always guaranteed.
Differential pressure must not exceed 2,0 MPa (290 psi) for valves Class 150 and 5,0 MPa (750 psi) for valves Class 300. In regard of service life of seat and plug, it is recommended so that permanent differential pressure would not exceed 1.6 MPa / 232 psi. Otherwise it is suitable to use perforated plug (Δp up to 4,0 MPa / 580 psi) or sealing surfaces of seat and plug with a hard metal overlay (Δp up to 2,5 MPa / 363 psi).

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		Flowserve PA 253				A. Hock 2109			
Actuator function		direct	indirect	direct	indirect	direct	indirect	direct	indirect
Specification No. of actuator		BVCxAA	BVCxZA	BVCxAA	BVCxZA	P2-0K-VL1	P2-0K-HL2	P2-0K-VL1	P2-0K-HL2
Spring range	[bar]	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.2 - 3.0	1.5 -3.8	1.2 - 3.0	1.5 -3.8
	[psi]	22 - 39	22 - 39	22 - 39	22 - 39	17 - 44	22 - 55	17 - 44	22 - 55
Spring setting	[bar]	1.5 - 2.46	1.75 - 2.7	1.5 - 2.7	1.5 - 2.7	1.2 - 2.64	1.96 - 3.8	1.2 - 3.0	1.5 - 3.8
	[psi]	22 - 36	25 - 39	22 - 39	22 - 39	17 - 38	28 - 55	17 - 44	22 - 55
Feeding pressure	[bar]	4.5	4.5	4.5	4.5	3.9	5.8	4.2	5.3
	[psi]	65	65	65	65	57	84	61	77
Marking in valve spec. No.		PFA				PHF			
Linear force		4.3 kN	4.3 kN	3.7 kN	3.7 kN	3.5 kN	5.7kN	3.5 kN	4.4kN

			Kvs [m³/h]					Δp_{max} [MPa] [psi]															
			Cv [US galon/min]					packing															
NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
1"	16	50	10	6.3[5]	4.0[5]	2.5[5]	1.6[5]	10	10	10	10	---	---	---	---	10	10	10	10	---	---	---	---
			11.6	7.28[5]	4.62[5]	2.89[5]	1.85[5]	1450	1450	1450	1450					1450	1450	1450	1450				
1½"	16	80	25	16	10	6.3[5]	4.0[5]	10	10	10	10	---	---	---	---	10	10	10	10	---	---	---	---
			28.9	18.5	11.6	7.28[5]	4.62[5]	1450	1450	1450	1450					1450	1450	1450	1450				
2"	20	50	40	25	16	10	6.3[5]	---	---	---	---	10	10	10	10	---	---	---	---	10	10	10	10
			46.2	28.9	18.5	11.6	7.28[5]					1450	1450	1450	1450					1450	1450	1450	1450

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		A. Hock 2112-30					
Actuator function		direct	indirect	direct	indirect	direct	indirect
Specification No. of actuator		P2-0K-BM1	P2-0K-BM2	P2-0K-BM1	P2-0K-BM2	P2-0K-VM1	P2-0K-MM2
Spring range	[bar]	0.8 - 2.2	0.8 - 2.2	0.8 - 2.2	0.8 - 2.2	1.4 - 2.8	1.6 - 3.2
	[psi]	12 - 32	12 - 32	12 - 32	12 - 32	20 - 41	23 - 46
Spring setting	[bar]	0.8 - 1.55	1.45 - 2.2	0.8 - 1.73	1.27 - 2.2	1.4 - 2.33	2.13 - 32
	[psi]	12 - 22	21 - 32	12 - 25	18 - 32	20 - 34	31 - 46
Feeding pressure	[bar]	2.4	3.7	2.6	3.5	3.8	5.4
	[psi]	35	54	38	51	55	78
Marking in valve spec. No.		PHA					
Linear force		4.6 kN	8.3 kN	4.6 kN	7.3 kN	8.0 kN	12.2 kN

			Kvs [m³/h]					Δp_{max} [MPa] [psi]															
			Cv [US galon/min]					packing															
NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
1"	16	25	---	6.3	4.0	2.5[5]	1.6[5]	10	10	10	10	---	---	---	---	---	---	---	---	---	---	---	---
				7.28	4.62	2.89[5]	1.85[5]	1450	1450	1450	1450												
1½"	16	40	---	16	10	6.3	4.0	10	10	10	10	---	---	---	---	---	---	---	---	---	---	---	---
				18.5	11.6	7.28	4.62	1450	1450	1450	1450												
2"	20	50	---	25	16	10	6.3	---	---	---	---	10	10	10	10	10	10	10	10	10	10	10	10
				28.9	18.5	11.6	7.28					1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450

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[5] linear characteristic only

Max. differential pressures specified in table apply to PTFE and graphite packing.
Perforated plug available only with Cv (Kvs) values in shadowed frames with the following restrictions:
- perforated plug with Kvs value acc. to column No. 2 available with linear or parabolic characteristic only

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		Flowserve PB 503				Flowserve PB 701	
Actuator function		direct	indirect	direct	indirect	direct	indirect
Specification No. of actuator		BVCxAA	BVCxZA	BVCxAB	BVCxZB	BVCxAB	BVCxZB
Spring range	[bar]	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7
	[psi]	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**
Spring setting	[bar]	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7
	[psi]	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**	**22 - 39**
Feeding pressure	[bar]	4.5	4.5	4.5	4.5	4.5	4.5
	[psi]	**65**	**65**	**65**	**65**	**65**	**65**
Marking in valve spec. No.		PFB				PFC	
Linear force		7.5 kN	7.5 kN	7.5 kN	7.5 kN	10.5 kN	10.5 kN
Kvs [m³/h]		Δp_{max} [MPa] [psi]					
Cv [US galon/min]		packing					

NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
2"	20	50	40	25	16	10	6.3[5]	10	10	10	10	---	---	---	---	---	---	---	---
			46.2	**28.9**	**18.5**	**11.6**	**7.28**[5]	**1450**	**1450**	**1450**	**1450**								
3"	40	80	100	63	40	25	16	---	---	---	---	10	10	10	10	10	10	10	10
			116	**72.8**	**46.2**	**28.9**	**18.5**					**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**
4"		100	160	100	63	40	25	---	---	---	---	10	10	10	10	10	10	10	10
			185	**116**	**72.8**	**46.2**	**28.9**					**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**
6"		150	360	250	160	100	63	---	---	---	---	10	10	10	10	10	10	10	10
			416	**289**	**185**	**116**	**72.8**					**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**

[5] linear characteristic only

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		A. Hock 2112-50		A. Hock 2116-40	
Actuator function		direct	indirect	direct	indirect
Specification No. of actuator		P2-0K-SI1	P2-0K-SI2	P2-0K-BN1	P2-0K-BN2
Spring range	[bar]	0.8 - 2.8	0.8 - 2.8	0.8 - 2.2	0.8 - 2.2
	[psi]	**12 - 41**	**12 - 41**	**12 - 32**	**12 - 32**
Spring setting	[bar]	0.8 - 2.4	1.2 - 2.8	0.8 - 1.36	1.64 - 2.2
	[psi]	**12 - 35**	**17 - 41**	**12 - 20**	**24 - 32**
Feeding pressure	[bar]	3.3	4.0	2.2	3.9
	[psi]	**48**	**58**	**32**	**57**
Marking in valve spec. No.		PHA		PHC	
Linear force		4.6 kN	6.9 kN	9.6 kN	19.5 kN
Kvs [m³/h]		Δp_{max} [MPa] [psi]			
Cv [US galon/min]		packing			

NPS	H[mm]	Ds[mm]	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
3"	40	80	100	63	40	25	16	10	10	10	10	10	10	10	10
			116	**72.8**	**46.2**	**28.9**	**18.5**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**
4"		100	160	100	63	40	25	10	10	10	10	10	10	10	10
			185	**116**	**72.8**	**46.2**	**28.9**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**
6"		150	360	250	160	100	63	10	10	10	10	10	10	10	10
			416	**289**	**185**	**116**	**72.8**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**	**1450**

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Max. differential pressures specified in table apply to PTFE and graphite packing.
Perforated plug available only with Cv (Kvs) values in shadowed frames with the following restrictions:
- perforated plug with Kvs value acc. to column No. 2 available with linear or parabolic characteristic only

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		Flowserve PO 1502		Flowserve PO 1502		Flowserve PO 1502	
Actuator function		direct	indirect	direct	indirect	direct	indirect
Specification No. of actuator		BVCxAD	BVCxZD	BVCxAD	BVCxZD	BJIOAE	DJIOZE
Spring range	[bar]	1.5 - 2.7	1.5 - 2.7	2.0 - 3.5	2.0 - 3.5	1.8 - 3.8	1.8 - 3.8
	[psi]	**22 - 39**	**22 - 39**	**29 - 51**	**29 - 51**	**26 - 55**	**26 - 55**
Spring setting	[bar]	1.5 - 2.7	1.5 - 2.7	2.0 - 3.5	2.0 - 3.5	1.8 - 3.8	1.8 - 3.8
	[psi]	**22 - 39**	**22 - 39**	**29 - 51**	**29 - 51**	**26 - 55**	**26 - 55**
Feeding pressure	[bar]	4.5	4.5	5.5	5.5	5.6	5.6
	[psi]	**65**	**65**	**80**	**80**	**81**	**81**
Marking in valve spec. No.		PFD		PFD		PFD	
Linear force		22.5 kN	22.5 kN	30 kN	30 kN	27 kN	27 kN
		Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]
Kvs [m³/h]		packing	packing	packing	packing	packing	packing
Cv [US galon/min]		graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE

NPS	H[mm]	Ds[mm]	1	2	3	4	5												
8"	80	200	570 **659**	400 **462**	250 **289**	160 **185**	100 **116**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	---	---
10"		230	800 **925**	630 **728**	400 **462**	250 **289**	160 **185**	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	---	---
12"		250	1000 **1160**	800 **925**	630 **728**	400 **462**	250 **289**	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	---	---
16"	100	330	1600 **1850**	1000 **1160**	630 **728**	400 **462**	250 **289**	---	---	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		A. Hock 2116S-100					
Actuator function		direct	indirect	direct	indirect	direct	indirect
Specification No. of actuator		P2-0K-YN1	P2-0K-YN2	P2-0K-ZN1	P2-0K-ZN2	P2-0K-ZN1	P2-0K-ZN2
Spring range	[bar]	1.3 - 3.0	1.3- 3.0	1.5 - 3.5	1.5 - 3.5	1.5 - 3.5	1.5 - 3.5
	[psi]	**19 - 44**	**19 - 44**	**22 - 51**	**22 - 51**	**22 - 51**	**22 - 51**
Spring setting	[bar]	1.3 - 2.66	1.64 - 3.0	1.5 - 3.1	1.9 - 3.5	1.5 - 3.5	1.5 - 3.5
	[psi]	**19 - 39**	**24 - 44**	**22 - 45**	**28 - 51**	**22 - 51**	**22 - 51**
Feeding pressure	[bar]	4.0	4.0	4.6	5.4	5.0	5.0
	[psi]	**58**	**58**	**67**	**78**	**73**	**73**
Marking in valve spec. No.		PHC		PHC		PHC	
Linear force		16 kN	19.6 kN	18 kN	22.8 kN	18 kN	18 kN
		Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]	Δp_{max} [MPa] [psi]
Kvs [m³/h]		packing	packing	packing	packing	packing	packing
Cv [US galon/min]		graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE

NPS	H[mm]	Ds[mm]	1	2	3	4	5												
8"	80	200	570 **659**	400 **462**	250 **289**	160 **185**	100 **116**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	---	---
10"		230	800 **925**	630 **728**	400 **462**	250 **289**	160 **185**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	---	---
12"		250	1000 **1160**	800 **925**	630 **728**	400 **462**	250 **289**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	10 **1450**	---	---	---	---
16"	100	330	1600 **1850**	1000 **1160**	630 **728**	400 **462**	250 **289**	---	---	---	---	---	---	---	---	10 **1450**	10 **1450**	10 **1450**	10 **1450**

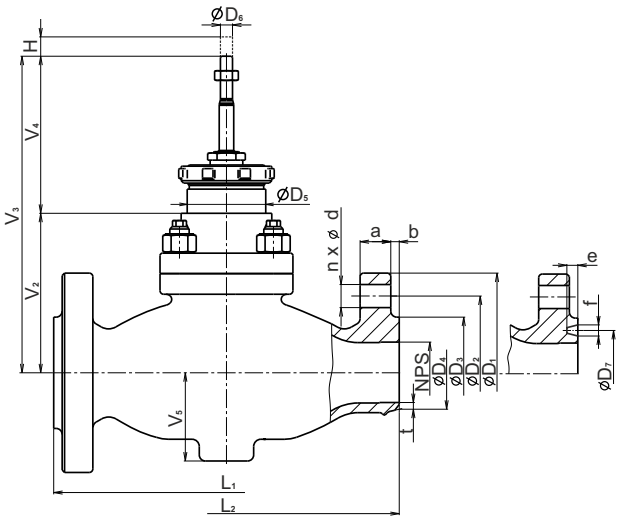
Max. differential pressures specified in table apply to PTFE and graphite packing.
Perforated plug available only with Cv (Kvs) values in shadowed frames with the following restrictions:
- perforated plug with Kvs value acc. to column No. 2 available with linear or parabolic characteristic only

Dimensions and weights of valves CV 322 (Ex) CV 332 (Ex) with flanged and welded connection, NPS 1" - 16"

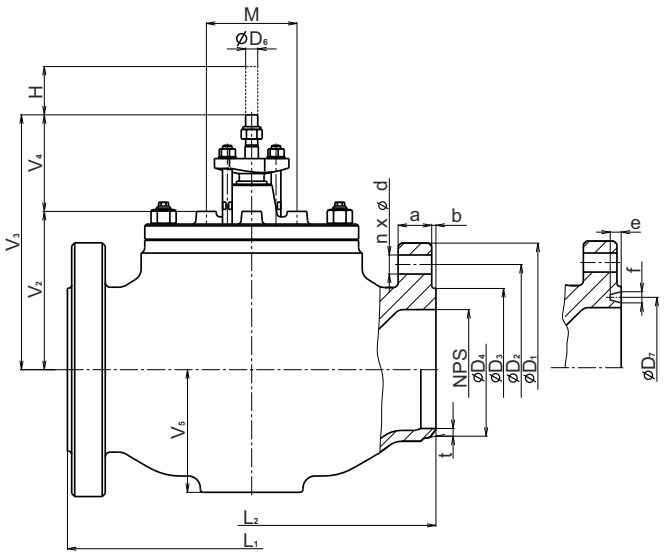
NPS	H	V_2	#V_2	V_3	#V_3	V_4	$ØD_5$	M	$ØD_6$	V_5	m_1	m_2	#m_v	Class 300 L_1			Class 600 L_1			Class 150-600 L_2
														RF	RTJ	LFF SFF LGF SGF	RF	RTJ	LFF SFF LGF SGF	BTW
	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm]	[mm] [inch]	kg	kg	kg	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]
1"	16 **0.63**	100 **3.937**	336 **13.228**	230 **9.055**	466 **18.346**	130 **5.118**	65 **2.559**	---	M10x1	52 **2.047**	9	6	4	197 **7.75**	210 **8.25**	207 **8.15**	210 **8.25**	210 **8.25**	207 **8.15**	210 **8.25**
1½"	16 **0.63**	100 **3.937**	336 **13.228**	230 **9.055**	466 **18.346**					52 **2.047**	15	8	4	235 **9.25**	248 **9.76**	245 **9.64**	251 **9.88**	251 **9.88**	248 **9.76**	251 **9.88**
2"	20 **0.787**	132 **5.197**	330 **12.992**	262 **10.314**	460 **18.110**					73 **2.874**	20	13	4	267 **10.5**	283 **11.14**	277 **10.9**	286 **11.25**	289 **11.38**	283 **11.14**	286 **11.25**
3"	40 **1.575**	164 **6.456**	489 **19.252**	294 **11.575**	619 **24.370**				M16x1,5	105 **4.133**	41	28	6	318 **12.5**	332 **33.22**	328 **12.91**	337 **13.25**	340 **13.38**	334 **13.15**	337 **13.25**
4"	40 **1.575**	164 **6.456**	489 **19.252**	294 **11.575**	619 **24.370**					105 **4.133**	67	37	6	368 **14.5**	384 **15.12**	378 **14.88**	394 **15.5**	397 **15.63**	391 **15.39**	394 **15.5**
6"	40 **1.575**	200 **7.874**	492 **19.370**	330 **12.992**	622 **24.488**					134 **5.275**	160	105	7	473 **18.62**	489 **19.25**	483 **19.01**	508 **20.0**	511 **20.12**	505 **19.88**	508 **20.0**
8"	80 **3.15**	262 **10.314**	---	422 **16.614**	---	160 **6.299**	---	150 **5.905**	M20x1,5	203 **7.992**	280	200	---	568 **22.38**	584 **22.99**	578 **22.75**	610 **24.0**	613 **24.13**	607 **60.72**	610 **24.0**
10"	80 **3.15**	346 **13.622**	---	506 **19.921**	---					253 **9.961**	540	370	---	708 **27.88**	724 **28.5**	718 **28.27**	752 **29.62**	755 **29.72**	749 **29.49**	752 **29.62**
12"	80 **3.15**	395 **15.551**	---	555 **21.85**	---					296 **11.654**	680	520	---	775 **30.5**	791 **31.14**	785 **30.91**	819 **32.25**	822 **32.36**	816 **32.13**	819 **32.25**
16"	100 **3.937**	512 **20.157**	---	672 **26.457**	---					382 **15.039**	1380	1130	---	1057 **41.62**	1073 **42.24**	1067 **42.01**	1108 **43.62**	1111 **43.74**	1105 **43.5**	1108 **43.62**

m_1 - weight of flanged version m_2- weight of weld ends version 1) NPS 8" balanced by graphite - travel = 63 mm (2,48 inch)
#) - for valve with bellows packing #m_v - weight to be added to weight of valve equipped with bellows packing

NPS	RF Class 300 $ØD_1$	$ØD_2$	$ØD_3$	d	n	a	b	RF Class 600 $ØD_1$	$ØD_2$	$ØD_3$	d	n	a	b	RTJ Class 300 a 600 $ØD_7$	e	f	Groove Number
	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]		[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]		[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]	
1"	125 4.88	88.9 3.5	50.8 2.0	19.1 ¾"	4	15.9 0.62	2 **0.06**	125 **4.88**	88.9 **3.5**	50,8 **2.0**	19.1 **¾"**	4	17.5 **0.69**	7 **0.25**	50.8 **2.0**	6.35 **0.25**	8.74 **0.344**	R16
1½"	155 **6.12**	114.3 **4.5**	73 **2.88**	22.3 **7/8"**		19.1 **0.75**		155 **6.12**	114.3 **4.5**	73 **2.88**	22.3 **7/8"**		22.3 **0.88**		68.27 **2.688**	6.35 **0.25**	8.74 **0.344**	R20
2"	165 **6.5**	127 **5.0**	92.1 **3.62**	19.1 **¾"**	8	20.7 0.81		165 **6.5**	127 **5.0**	92.1 **3.62**	19.1 **¾"**	8	25.4 **1.0**		82.55 **3.25**	7.92 **0.312**	11.91 **0.469**	R23
3"	210 **8.25**	168.3 **6.62**	127 **5.0**	22.3 **7/8"**		27 1.06		210 **8.25**	168.3 **6.62**	127 **5.0**	22.3 **7/8"**		31.8 **1.25**		117.48 **4.625**	7.92 **0.312**	11.91 **0.469**	R30
4"	255 **10**	200 **7.88**	157.2 **6.19**	22.3 **7/8"**		30.2 1.19		275 **10.75**	215.9 **8.5**	157.2 **6.19**	25.4 **1"**		38.1 **1.5**		149.23 **5.875**	7.92 **0.312**	11.91 **0.469**	R37
6"	320 **12.5**	269.9 **10.62**	215.9 **8.5**	22.3 **7/8"**	12	35 **1.38**		355 **14.0**	292.1 **11.5**	215.9 **8.5**	28.6 **1 1/8"**	12	47.7 **1.88**		211.12 **8.312**	7.92 **0.312**	11.91 **0.469**	R45
8"	380 **15**	330.2 **13.0**	269.9 **10.62**	25.4 **1"**		39.7 **1.56**		420 **16.5**	349.2 **13.75**	269.9 **10.62**	31.8 **1 1/4"**		55.6 **2.19**		269.9 **10.625**	7.92 **0.312**	11.91 **0.469**	R49
10"	445 **17.52**	387.4 **15.25**	323.8 **12.75**	28.6 **1 1/8"**	16	46.1 **1.82**		510 **20.08**	431.8 **17**	323.8 **12.75**	34.9 **1 3/8"**	16	63.5 **2.5**		323.85 **12.75**	7.92 **0.312**	11.91 **0.469**	R53
12"	520 **20.47**	450.8 **17.75**	381 **15**	31.8 **1 1/4"**	16	49.3 **1.94**		560 **22.05**	489 **19.25**	381 **15**	34.9 **1 3/8"**	20	66.7 **2.63**		381 **15**	7.92 **0.312**	11.91 **0.469**	R57
16"	650 **25.59**	571.5 **22.5**	469.9 **18.5**	34.9 **1 3/8"**	20	55.6 **2.19**		685 **26.97**	603.2 **23.75**	469.9 **18.5**	41.3 **1 5/8"**	20	76.2 **3**		469.9 **18.5**	7.92 **0.312**	11.91 **0.469**	R65



NPS 1" - 6"

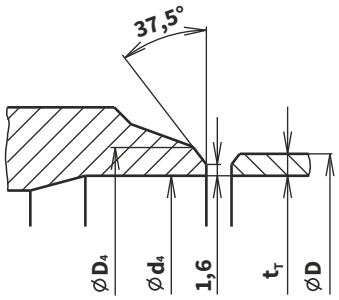


NPS 8" - 16"

Dimensions of weld ends for pipes **ASME B36.10M** [mm] **[inch]**

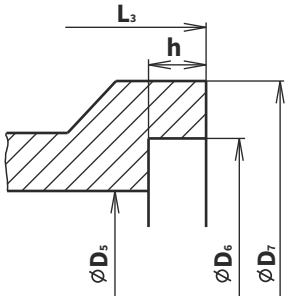
NPS	$ØD_4$	ØD	t_T Sch. No. 40	t_T Sch. No. 80	t_T Sch. No. 100	$ØD_{4\,max}$	$ØD_{4\,min}$
1"	35 **1.378**	33.4 **1.315**	3.4 **0.133**	4.6 **0.179**	---	40 **1.575**	23 **0.906**
1½"	50 **1.969**	48.3 **1.66**	3.7 **0.14**	5.1 **0.191**	---	57 **2.244**	35 **1.378**
2"	62 **2.44**	60.3 **2.375**	3.9 **0.154**	5.5 **0.218**	---	67 **2.638**	43 **1.693**
3"	91 **3.583**	88.9 **3.5**	5.5 **0.216**	7.6 **0.3**	---	100 **3.937**	72 **2.835**
4"	117 **4.606**	114.3 **4.5**	6.0 **0,237**	8.6 **0.337**	---	128 **5.039**	92 **3.622**
6"	172 **6.772**	168.3 **6.625**	7.1 **0,28**	11.0 **0.432**	---	188 **7.402**	136 **5.354**
8"	223 **8.78**	219.1 **8.625**	8.2 **0.322**	12.7 **0.5**	15.1 **0.594**	228 **8.976**	178 **7.008**
10"	278 **10.945**	273.0 **10.748**	9.3 **0.366**	15.1 **0.594**	18.3 **0.72**	278 **10.945**	229 **9.016**
12"	329 **12.953**	323.9 **12.752**	10.3 **0.406**	17.5 **0.689**	21.4 **0.843**	329 **12.953**	281 **11.063**
16"	413 **16.26**	406.4 **16.0**	12.7 **0.5**	21.4 **0.843**	26.2 **1.031**	426 **16.772**	345 **13.583**

t-wall thickness of weld ends: $t = [D_4 - (D - 2 * t_T)] / 2$



Dimensions of weld ends for pipes **ASME B16.11** [mm] **[inch]**

NPS	SW Class 150 a 300 $ØD_5$	$ØD_6$	$ØD_7$	L_3	h	SW Class 600 $ØD_5$	$ØD_6$	$ØD_7$	L_3	h
1"	26 **1.02**	34,1 **1.34**	47 **1.85**	210 **8.27**	12.5 **0.49**	21 **0.83**	34.1 **1.34**	51 **2.01**	210 **8.27**	12.5 **0.49**
1½"	41 **1.61**	49 **1.93**	62 **2.44**	251 **9.88**	12.5 **0.49**	34 **1.34**	49 **1.93**	67 **2.64**	251 **9.88**	12.5 **0.49**
2"	52 **2.05**	61,4 **2.42**	76 **2.99**	286 **11.26**	16 **0.63**	43 **1.69**	61.4 **2.42**	84 **3.31**	286 **11.26**	16 **0.63**



Valve complete specification No. for ordering CV/SV 3x0 (Ex), CV 3x2 (Ex)

		XX	X X X	X X X	X X X X	X X	XXX	/	XXX	-	XXX	XX
1. Valve	Control valve	**CV**										
	Shut-off valve	**SV**										
2. Series	Valves made of steel		**3 2**									
	Valves made of stainless steel		**3 3**									
	Straight-throgh		**0**									
	Straight-throgh with pressure balanced plug		**2**									
3. Actuating	Electric actuator			**E X X**								
	Pneumatic actuator			**P X X**								
	Hand wheel			**R X X**								
4. Connecting	Flange RF (Raised Face)				**1**							
	Flange RTJ (Ring Joint Face)				**2**							
	Flange LFF (Large Female Face)				**3**							
	Flange SFF (Small Female Face)				**4**							
	Flange LGF (Large Groove Face)				**5**							
	Flange SGF (Small Groove Face)				**6**							
	Weld ends BW (Butt Welding)				**7**							
	Weld ends SW (Socket Welding)				**8**							
5. Body material	Cast steel A216 WCB (-29 to 425°C); (-20 to 800°F) [5]					**1**						
[5] Negative temperature requirement must be specified in the order	CrMo steel A217 WC6 (-29 to 550°C); (-20 to 1020°F) [5]					**7**						
	Stainless steel A351 CF8M (-50 to 550°C); (-58 to 1020°F) [5]					**8**						
	Other material on request					**9**						
6. Seat sealing	Metal - metal						**1**					
[2] NPS 1" - 6"; t_{max} = 260°C (500°F)	Soft sealing (metal - PTFE) [2]						**2**					
	Hard metal overlay on sealilng surfaces						**3**					
[3] NPS 3" - 16"	Balanced by graphite, metal-metal [3]						**5**					
	Balanced by graphit, hard metal overlay [4]						**7**					
[4] NPS 1" a 1/2" - 16"	Hard metal overlay on sealilng surfaces of RV 3x2, a plug with metal sealing cuff						**8**					
7. Packing	DRSpack® (PTFE)						**3**					
[1] NPS 1/2" - 6" only	Expanded graphite						**5**					
	Bellows [1]						**7**					
	Bellows with safety packing PTFE [1]						**8**					
	Bellows with safety packing Graphite [1]						**9**					
8. Flow characteristic	Linear							**L**				
	Equal-percentage							**R**				
	LDMspline®							**S**				
	On-off							**U**				
	Parabolic							**P**				
	Linear - perforated plug							**D**				
	Equal-percentage - perforated plug							**Q**				
	Parabolic - perforated plug							**Z**				
9. Cvs	Column No. acc. to Kvs value table							**X**				
10. Nominal pressure	Class 150 (weld ends only)								**150**			
	Class 300								**300**			
	Class 600								**600**			
11. Max. operating temperaturea °C (°F)	Acc. to version 260 - 550°C (500 - 1020°F)									**XXX**		
12. Nominal size	DN (NPS)										**XXX**	
13. Execution	Standard											
	Non-explosive											**Ex**

DN	NPS
015	**½"**
020	**¾"**
025	**1"**
032	**1¼"**
040	**1½"**
050	**2"**

DN	NPS
065	**2½"**
080	**3"**
100	**4"**
125	**5"**
150	**6"**
200	**8"**
250	**10"**

Temp. °C	Temp. °F
260	**500**
300	**570**
315	**600**
400	**750**
425	**800**
500	**930**
550	**1020**

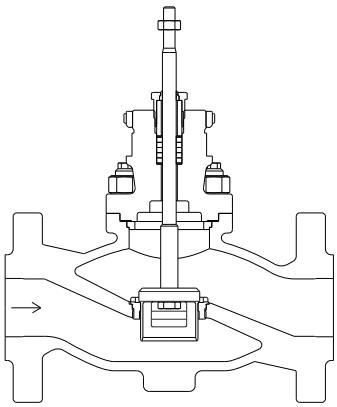
Ordering example of flanged execution:
CV320 ENC 2135 L1 300/400-080

Ordering example of weld ends execution:
CV320 ENC 7135 L1 300/400-080,
weld ends size Ø 88,9 x 5,5

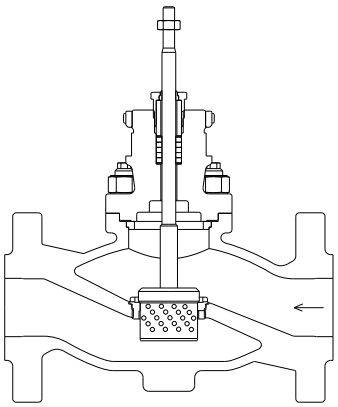
*) For marking of actuators in specification code, refer to table on page No. 74 of this catalogue

Valves CV / SV 3x0 (Ex)

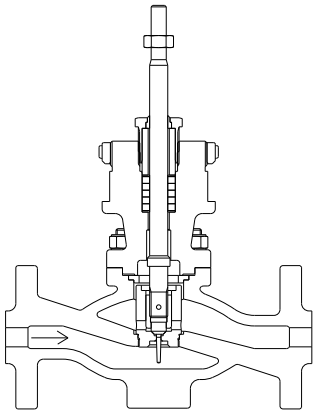
Section of valve with V-ported plug



Section of valve with perforated plug

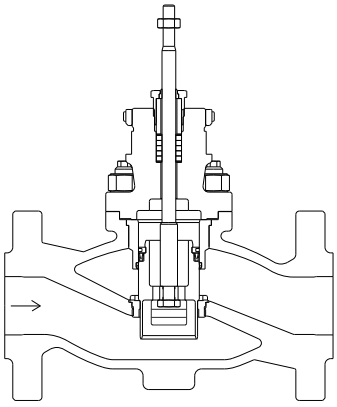


Section of valve with micro-throttling system

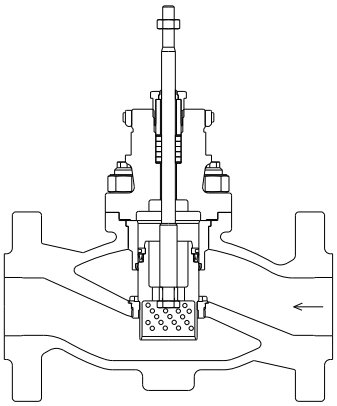


Valves CV 3x2 (Ex)

Section of pressure-balanced valve with V-ported plug



Section of pressure-balanced valve with perforated plug





Electric actuators

Auma

SA 07.2, SA Ex 07.2,
SAR 07.2, SAR Ex 07.2,
SA 07.6, SA Ex 07.6,
SAR 07.6, SAR Ex 07.6

marking in type number:
EAA, EAB, EAC, EAD
EAE, EAF, EAG, EAH

Technical data

Type	SA 07.2	SA Ex 07.2	SAR 07.2	SAR Ex 07.2	SA 07.6	SA Ex 07.6	SAR 07.6	SAR Ex 07.6
Marking in valve spec. No.	**EAA**	**EAB**	**EAC**	**EAD**	**EAE**	**EAF**	**EAG**	**EAH**
Voltage	1 ~ 230 V AC; 3 ~ 380 or 400 V AC							
Frequency	50 Hz							
Power consumption	see specification table							
Control	3 - position control or with signal 4 - 20 mA							
Nominal force	10 Nm~5 kN; 15 Nm~7,5 kN; 20 Nm~10 kN				30 Nm~15 kN; 40 Nm~20 kN			
Travel	acc. to used valve 16, 25, 40 mm				acc. to used valve 40, 80 mm			
Enclosure	IP 68							
Process medium max. temp.	acc. to used valve							
Ambient temperatrure range	-40 to 80°C	-20 to 60°C	-40 to 60°C	-20 to 60°C	-40 to 80°C	-20 to 60°C	-40 to 60°C	-20 to 60°C
Ambient humidity range	100 %							
Weight - single-phase	25 - 62 kg				25 - 62kg			
- three-phase	20 - 33 kg				21 - 33 kg			

→ **Note:** Specifications and technical data are for information only.
Detailed technical informations can be found in producer's data sheet or on the webside **www.auma.com**

Specification of Auma actuators

		SA	X	XX	07.X
Type		**SA**			
Duty	control		**R**		
	ON - OFF				
Version	standard				
	non-explozive			**Ex**	
Actuator size					**07.2**
					07.6

Output shaft type A (thread TR 16x4 LH, connection flange F07) ... for CV 3xx NPS ½" - 6"

Output speed [ot/min]	Tripping torgue	SA 07.2 / SA Ex 07.2	SAR 07.2 / SAREx 07.2	Motor power [kW]	SA 07.2 S2-15min	SA Ex 07.2 S2-15min	SAR 07.2 S4-25%	SAR Ex 07.2 S4-25%
4					0,02	0,02	0,02	0,02
5,6					0,02	0,02	0,02	0,02
8					0,04	0,04	0,04	0,04
11		10-30 Nm	15-30 Nm		0,04	0,04	0,04	0,04
16					0,06	0,06	0,06	0,06
22					0,06	0,06	0,06	0,06
32					0,10	0,10	0,10	0,10
45					0,10	0,10	0,10	0,10

Output shaft type A (thread TR 20x4 LH, flange F10) ... for CV 3xx DN 3" - 16"

Output speed [ot/min]	Tripping torgue	SA 07.6 / SA Ex 07.6	SAR 07.6 / SAREx 07.6	Motor power [kW]	SA 07.6 S2-15min	SA Ex 07.6 S2-15min	SAR 07.6 S4-25%	SAR Ex 07.6 S4-25%
4					0,03	0,03	0,03	0,03
5,6					0,03	0,03	0,03	0,03
8					0,06	0,06	0,06	0,06
11		20-60 Nm	30-60 Nm		0,06	0,06	0,06	0,06
16					0,12	0,12	0,12	0,12
22					0,12	0,12	0,12	0,12
32					0,20	0,20	0,20	0,20
45					0,20	0,20	0,20	0,20

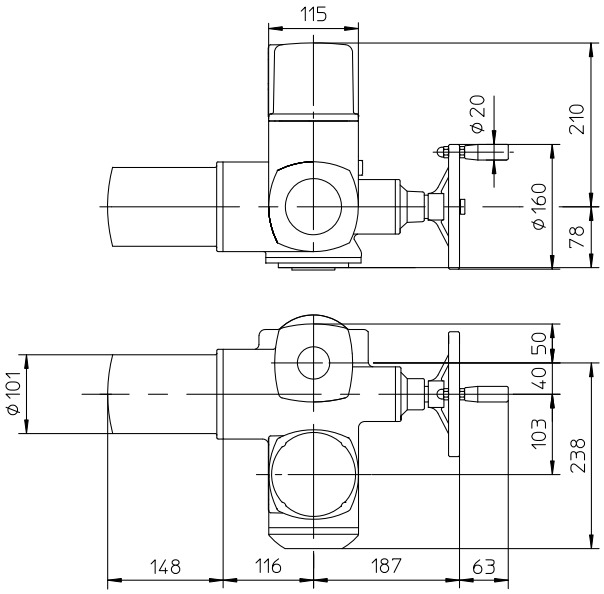
Accessories

→ 2 TANDEM switches
→ Gearing for signalisation of position
→ Mechanical position indicator
→ Potentiometer 1x200 Ω
→ Electronic position transmitter RWG (potentiometer included), 4 - 20 mA, 2-wire
→ Electronic position transmitter RWG (potentiometer included), 4 - 20 mA, 3/4-wire
→ Inductive position transmitter IWG, 4 - 20 mA
→ MATIC - or continuous control (specification of accessories acc. to catalogue of producer: IP 67; -25 to +70°C; ...), weight + 7 kg
→ AUMATIC - or continuous control (specification of accessories acc. to catalogue of producer: IP 68; -25 to +70°C; ...), weight + 7kg

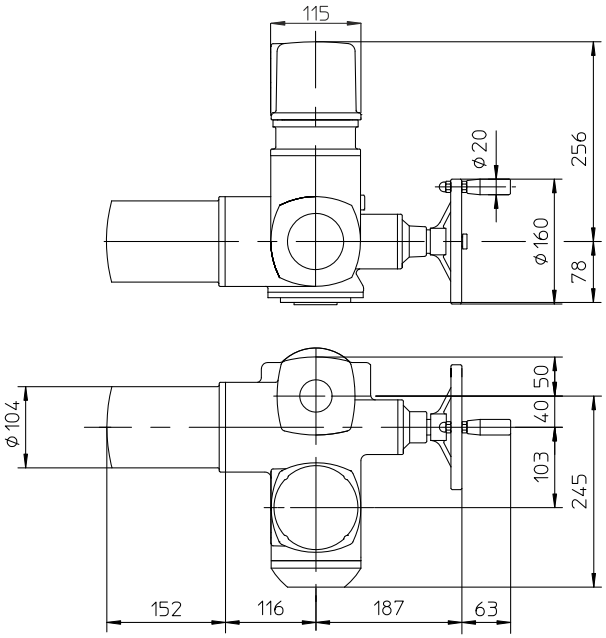
Other accessories acc. to catalogue of producer of actuators.

Dimensions of actuators Auma series 07.2 and 07.6

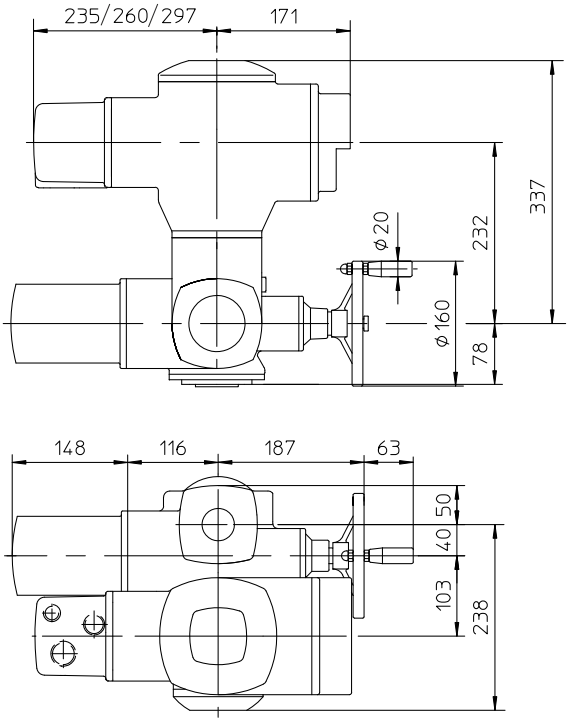
Normal version



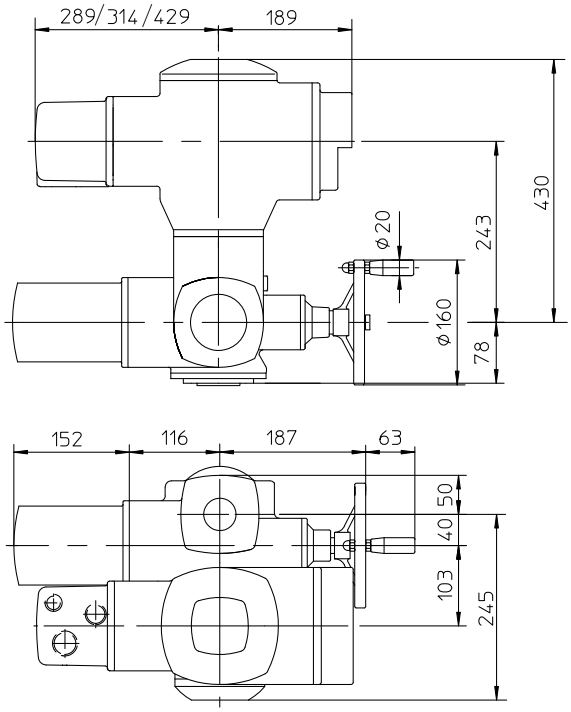
Version Ex norm



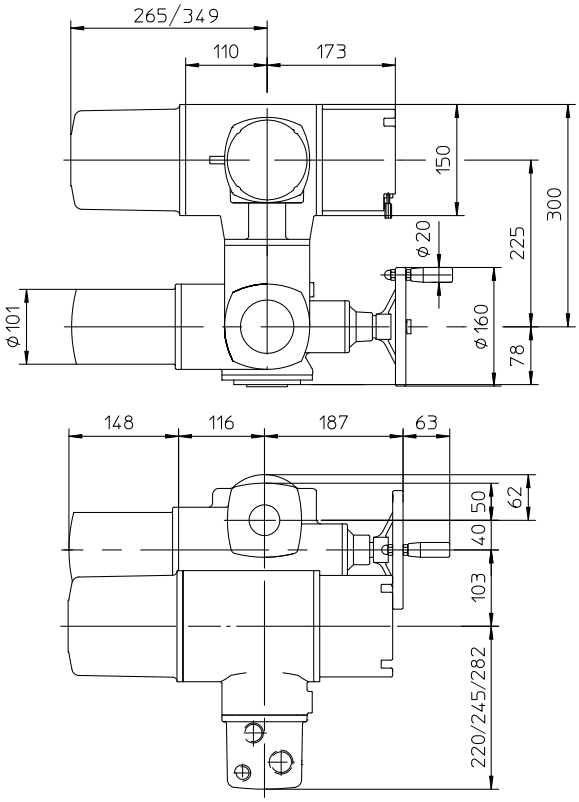
Version MATIC



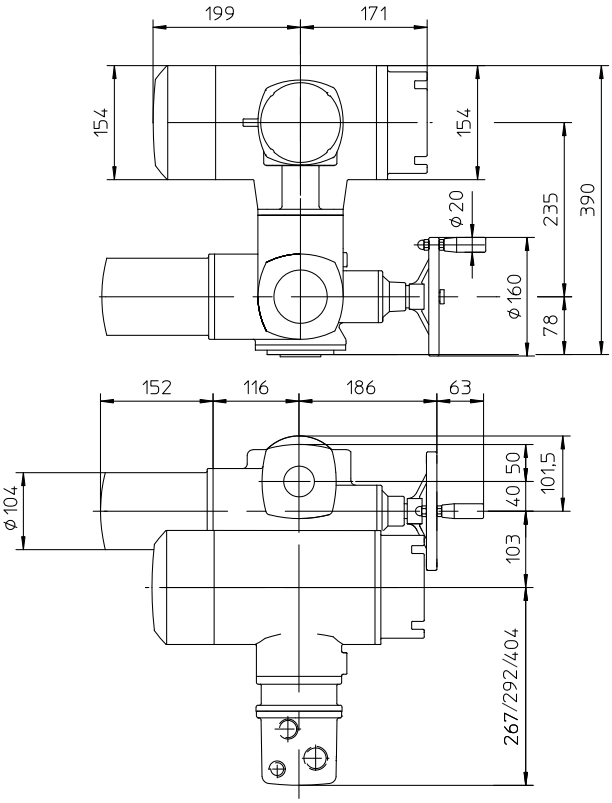
Version Ex MATIC



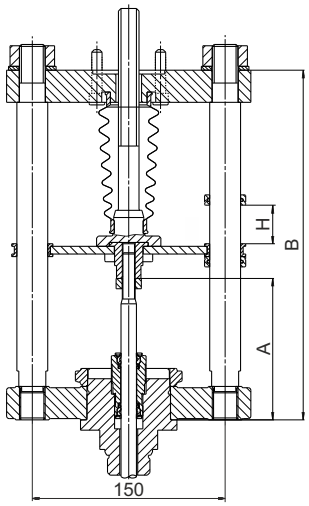
Version with AUMATIC



Version Ex AUMATIC

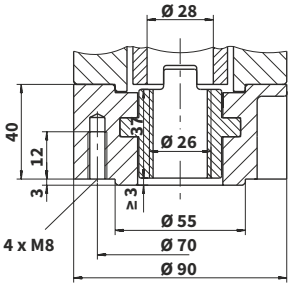


Attachment yoke (2 or 4 columns)



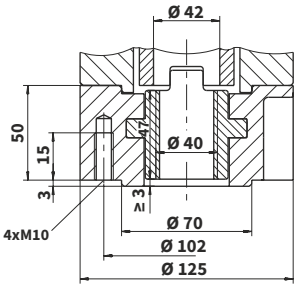
Output drive type A, F07

DN 15-65



Output drive type A, F10

DN 80-400



For valves	Number of columns	A	B	Weight
CV 3xx NPS ½" - 6"	2	110	272	~ 8 kg
CV 3xx NPS 8" - 16"	4	140	420	~ 15 kg



Electric actuators
Auma

SA 10.2, SA Ex 10.2
SAR 10.2, SAR Ex 10.2

marking in type number:
EAI, EAJ, EAK, EAL

Technical data

Type	SA 10.2	SA Ex 10.2	SAR 10.2	SAR Ex 10.2
Marking in valve spec. No.	**EAI**	**EAL**	**EAJ**	**EAK**
Voltage	3-phase ~ 380 or 400 V AC (1-phase ~ 230 V AC not applicable - high weight)			
Frequency	50 Hz			
Power consumption	see specification table			
Control	3 - point or with signal 4 - 20 mA			
Nominal force	80 Nm ~ 21,6 kN; 100 Nm ~ 27 kN; 120 Nm ~ 32 kN			
Travel	80, 100 mm			
Enclosure	IP 68			
Process medium max. temp.	acc. to used valve			
Ambient temperatrure range	-40 to 80 °C	-20 to 60 °C	-40 to 60 °C	-20 to 60 °C
Ambient humidity range	100 %			
Weight	22 to 47 kg			
Vibration resistance acc. to EN 60068-2-6	AUMA NORM: 2g, 10-200Hz; AUMA MATIC: 1g, 10-200Hz; AUMATIC: 1g, 10-200Hz			

→ **Note:** Specifications and technical data are for information only.
Detailed technical informations can be found in producer's data sheet or on the webside **www.auma.com**

Specification of Auma actuators

		SA	X	XX	10.2
Type		**SA**			
Duty	control		**R**		
	ON - OFF				
Version	standard				
	non-explosive			**Ex**	
Actuator size					**10.2**

Output drive shaft type A (thread TR 36x6 LH, flange F10) ... for CV 3xx NPS 8" - 16"

Output speed [ot/min]	Tripping torgue SA 10.2 SA Ex 10.2	Tripping torgue SAR 10.2 SAR Ex 10.2	Motor power [kW] SA 10.2 S2-15min	SA Ex 10.2 S2-15min	SAR 10.2 S4-25%	SAR Ex 10.2 S4-25%
4	40-120 Nm	60-120 Nm	0,06	0,09	0,09	0,09
5,6			0,06	0,09	0,09	0,09
8			0,12	0,18	0,18	0,18
11			0,12	0,18	0,18	0,18
16			0,25	0,37	0,37	0,37
22			0,25	0,37	0,37	0,37
32			0,40	0,75	0,75	0,75
45			0,40	0,75	0,75	0,75

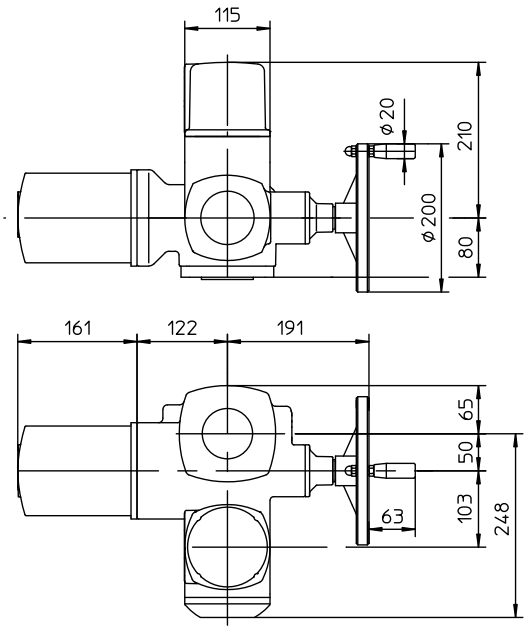
Accessories

- → 2 TANDEM switches
- → Gearing for signalisation of position
- → Mechanical position indicator
- → Potentiometer 1x200 Ω
- → Electronic position transmitter RWG (potentiometer included), 4 - 20 mA, 2-wire
- → Electronic position transmitter RWG (potentiometer included), 4 - 20 mA, 3/4-wire
- → Inductive position transmitter IWG, 4 - 20 mA
- → MATIC - or continuous control (specification of accessories acc. to catalogue of producer: IP 67; -25 to +70°C; ...), weight + 7 kg
- → AUMATIC - or continuous control (specification of accessories acc. to catalogue of producer: IP 68; -25 to +70°C; ...), weight + 7kg

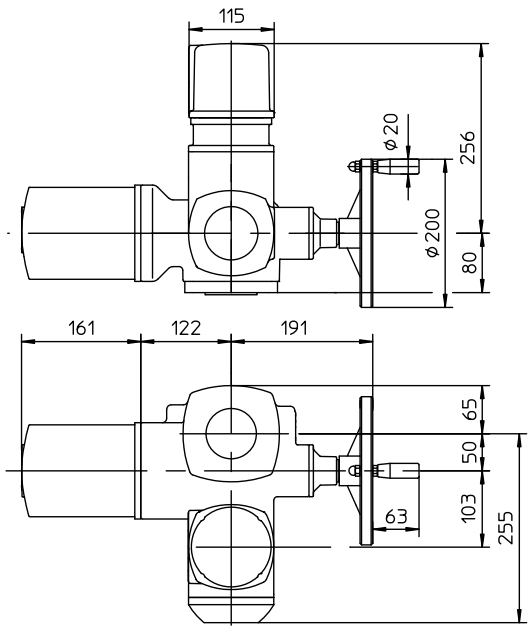
Other accessories acc. to catalogue of producer of actuators.

Dimensions of actuators Auma series 10

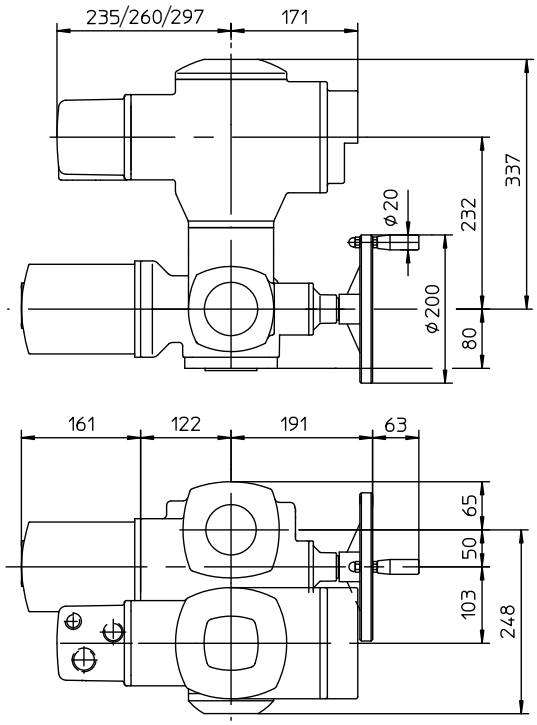
Normal version



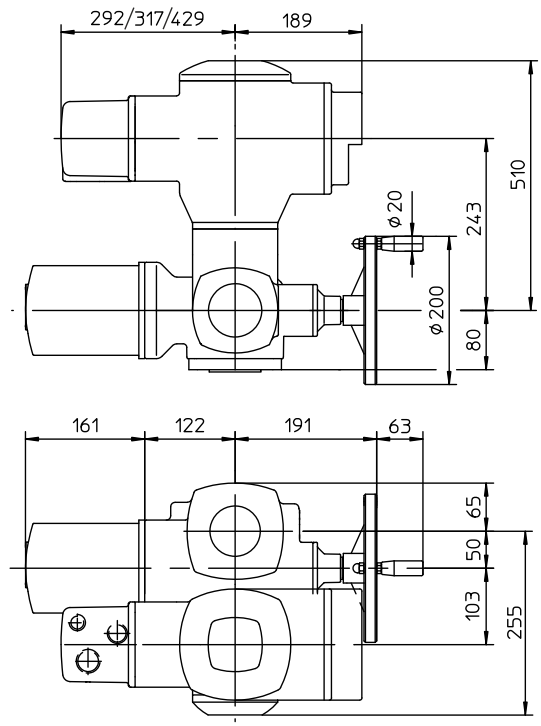
Ex norm version



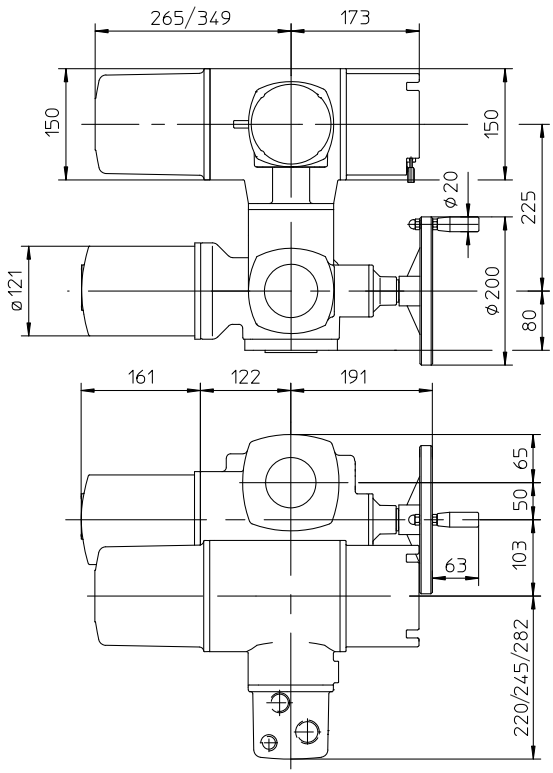
Version with MATIC



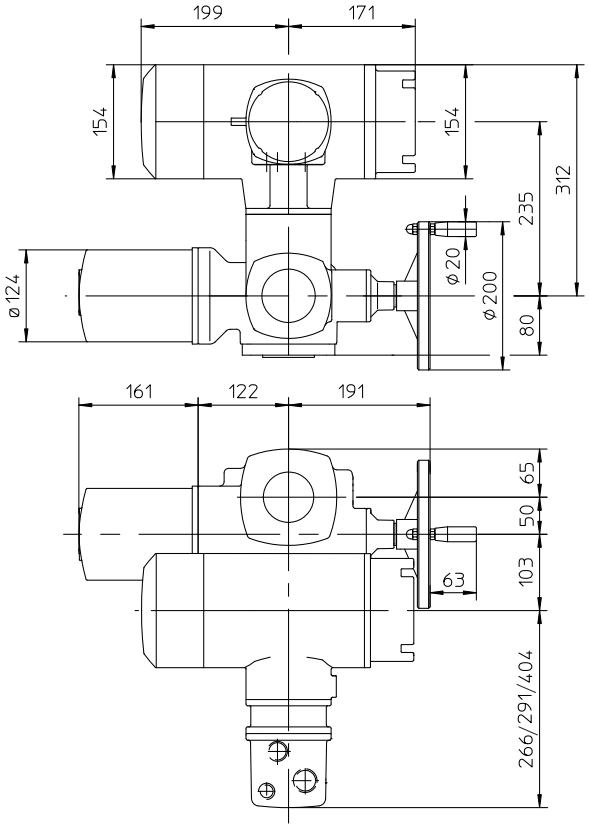
Version with Ex MATIC



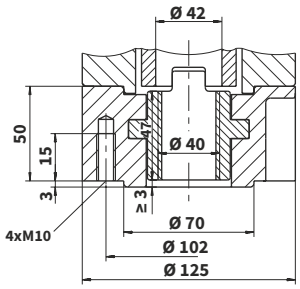
Version AUMATIC



Version Ex AUMATIC

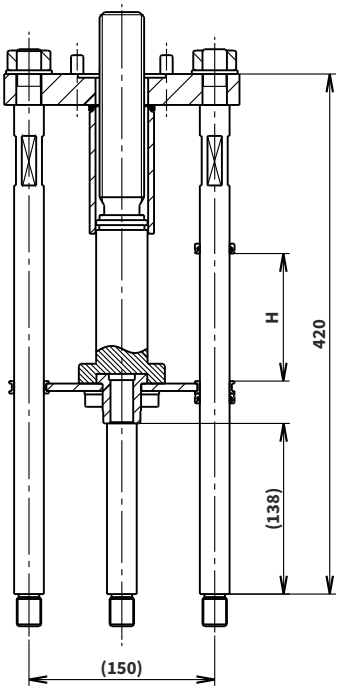


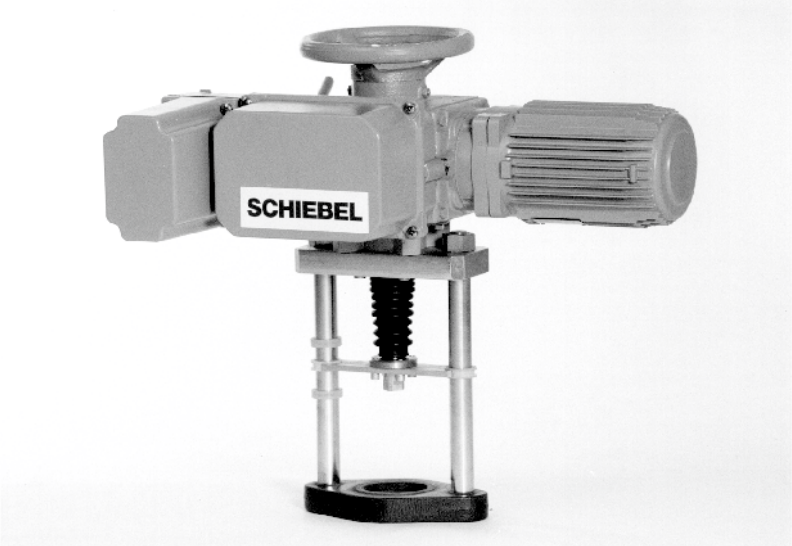
Output drive shaft A, F10



Attachment yoke NPS 8" - 16"

Connection A, F10, Tr36x6-LH





Elektric actuators

Schiebel

AB3, AB5

marking in type number:

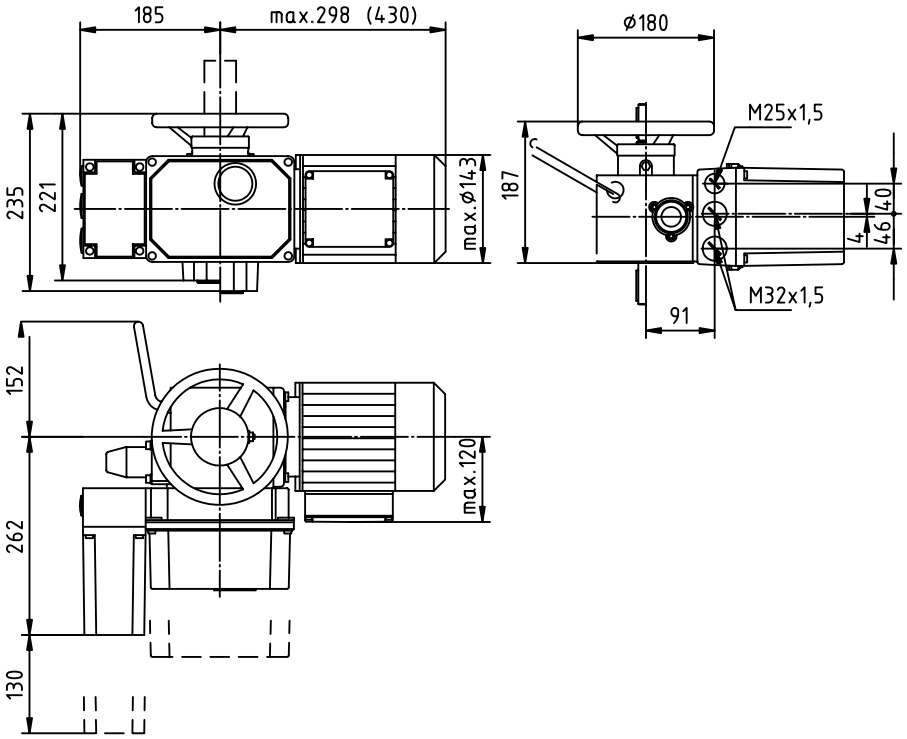
EZA, EZB, EZC, EZD
EZE, EZF, EZG, EZH

Technical data

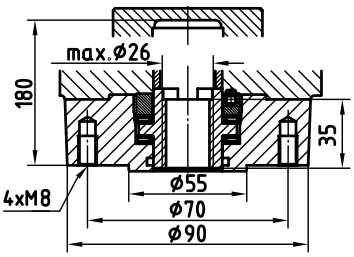
Type	AB3	AB5	exAB3	exAB5	rAB3	rAB5	exrAB3	exrAB5
Marking in valve spec. No.	**EZA**	**EZE**	**EZB**	**EZF**	**EZC**	**EZG**	**EZD**	**EZH**
Voltage	400 / 230 V; 230 V		400 / 230 V		400 / 230 V; 230 V		400 / 230 V	
Frequency	50 Hz							
Power consumption	see specification table							
Control	3-position or with signal 4 - 20 mA							
Nominal force	10 Nm ~ 5 kN; 15 Nm ~ 7,5 kN; 20 Nm ~ 10 kN; 30 Nm ~ 15 kN; 40 Nm ~ 20 kN							
Travel	acc. to used valve 16, 25, 40, 80 mm							
Enclosure	IP 66		IP 65		IP 66		IP 65	
Process medium max. temp.	acc. to used valve							
Ambient temperatrure range	-25 to 80 °C		-25 to 40 °C		-25 to 60 °C		-20 to 40 °C	
Ambient humidity range	90 % (tropical version: 100 % with condensation)							
Weight	16 - 20 kg							

→ **Note:** Specifications and technical data are for information only.
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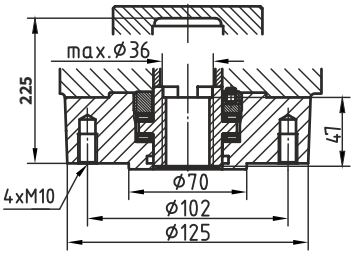
Dimensions of actuators ...AB5



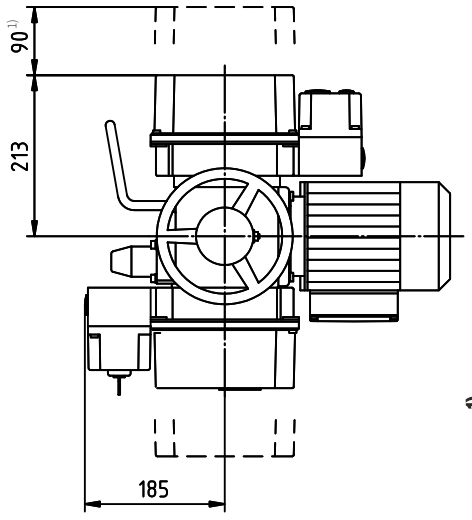
Output drive shaft A, flange F07



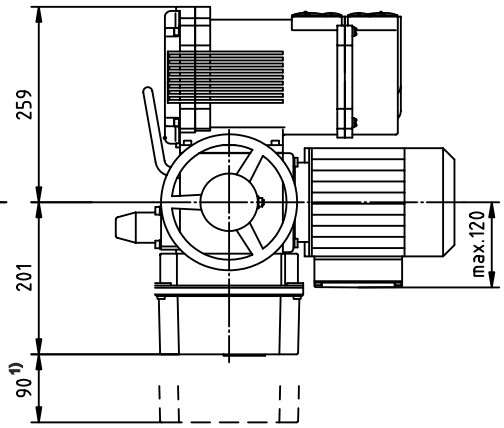
Connection acc. to ISO 5210, output drive shaft A, F10



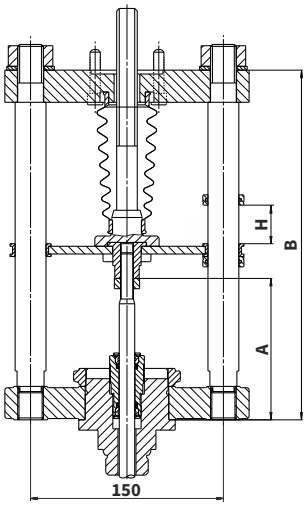
With ACTUMATIC R position regulator



With SMARTCON control unit



Attachment (2 or 4 columns)



For valves	Number of columns	A	B	H	Weight [kg]
CV 3xx NPS ½" - 6"	2	149	295	40	12
CV 3xx NPS 8" - 16"	4	141	295	80	12

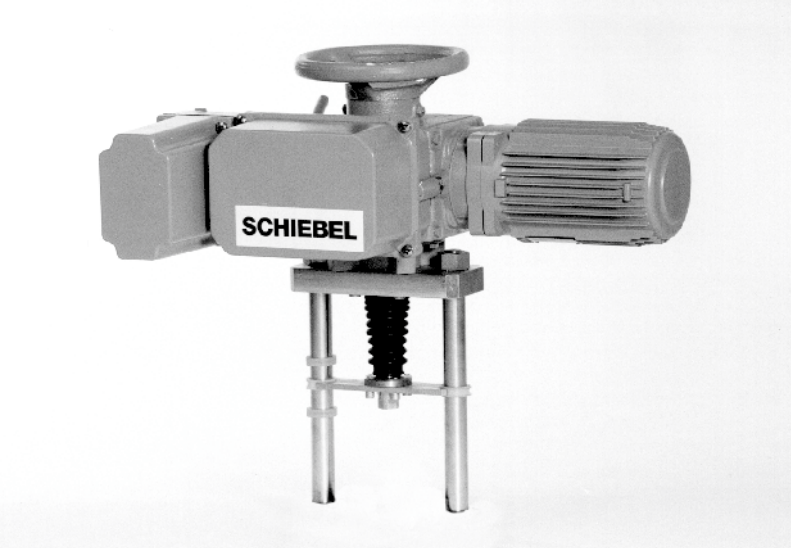
Specification of actuators

			XX	X	AB3	A	X	+	XXXXX
Version	non-explosive		ex						
	standard								
Function	control			r					
	ON - OFF								
Actuator size					AB3				
					AB5				
Output shaft type A (thread TR 16x4 LH, connection flange F07 ... NPS 1/2" to 2 1/2")						A			

Output speed [ot/min]	Tripping torgue	AB3 exAB3	rAB3 exrAB3	Motor power [kW]	AB3 400/230V	AB3 230V	rAB3 400/230V	rAB3 230V	exAB3 400/230V	exrAB3 400/230V	
2,5					0,09	0,09	0,09	0,09	0,09	0,09	**2,5**
5			tripping 7 - 30 Nm		0,03	0,12	0,03	0,12	0,12	0,12	**5**
7,5					0,09	0,09	0,09	0,09	0,09	0,09	**7,5**
10		7 - 30 Nm			0,09	0,09	0,09	0,09	0,09	0,09	**10**
15			loading 7 - 15 Nm		0,18	0,09	0,09	0,18	0,09	0,09	**15**
20					0,18	0,18	0,09	0,37	0,09	0,09	**20**
30					0,18	0,25	0,18	0,25	0,37	0,18	**30**
40					0,18	0,25	0,18	0,55	0,37	0,18	**40**

Output speed [ot/min]	Tripping torgue	AB5 exAB5	rAB5 exrAB5	Motor power [kW]	AB5 400/230V	AB5 230V	rAB5 400/230V	rAB5 230V	exAB5 400/230V	exrAB5 400/230V	
2,5					0,09	0,09	0,09	0,09	0,09	0,09	**2,5**
5			tripping 7 - 60 Nm		0,06	0,12	0,06	0,12	0,12	0,12	**5**
7,5					0,09	0,09	0,09	0,18	0,09	0,09	**7,5**
10		7-60 Nm			0,09	0,18	0,09	0,37	0,09	0,09	**10**
15			loading 7 - 30 Nm		0,18	0,18	0,18	0,37	0,18	0,18	**15**
20					0,18	0,55	0,18	0,75	0,18	0,18	**20**
30					0,37	0,55	0,37	1,10	0,37	0,37	**30**
40					0,37	0,55	0,37	1,10	0,37	0,37	**40**

Accessories		
	Potentiometer 1 x 1000 Ω	**F**
	Double potentiometer 2 x 1000 Ω	**FF**
	Electronic transmitter 4 - 20 mA, 2-wire	**ESG-Z**
	Electronic transmitter 4 - 20 mA, 2-wire, opto-electronic	**ESM21**
	SMARTCON control unit	**CSC**
	Additional torque switches	**2DER 2DEL**
	Additional signalisation switches	**2WER 2WEL**



Electric actuators

Schiebel

AB8

marking in type number:

EZK, EZL

Technical data

Type	rAB8	exrAB8
Marking in valve spec. No.	EZK	EZL
Voltage	400 / 230 V; 230 V	400 / 230 V
Frequency	50 Hz	
Power consumption	see specification table	
Control	3-position or with signal 4 - 20 mA	
Nominal force	(Tr 36x6 LH) 80 Nm ~ 21,6 kN; 100 Nm ~ 27 kN; 120 Nm ~ 32 kN	
Travel	80, 100 mm	
Enclosure	IP 66	IP 65
Process medium max. temp.	acc. to used valve	
Ambient temperatrure range	-25 to 60°C	-20 to 40°C
Ambient humidity range	90 % (tropical version: 100 % with condensation)	
Weight	24 - 35 kg	

→ **Note:** Specifications and technical data are for information only.
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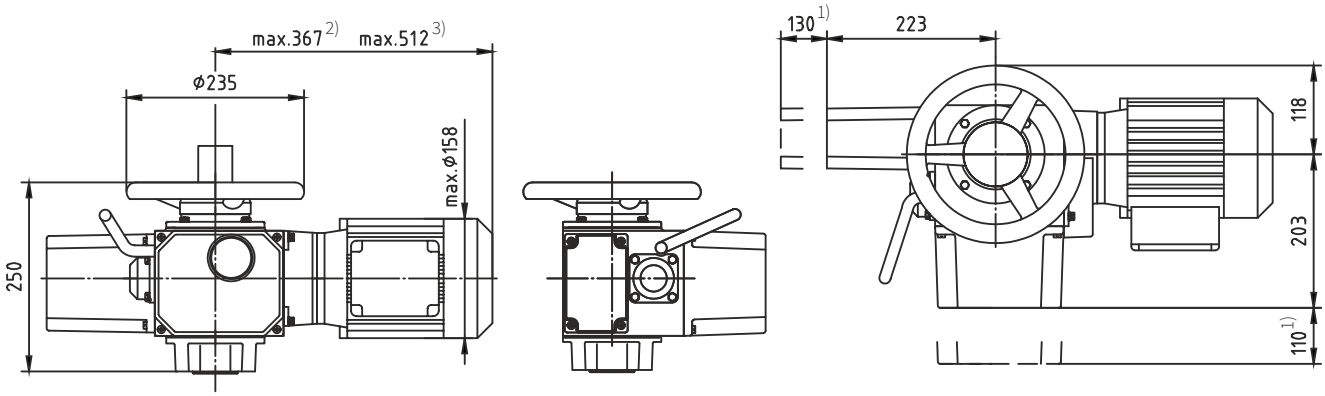
Specification of actuators

			xx	x	XXX	X	X	+	XXXXX
Version	normal								
Function	control			r					
Actuator size					AB8				
Output drive shaft A (thread TR 36x6 LH, flange F10)						A			

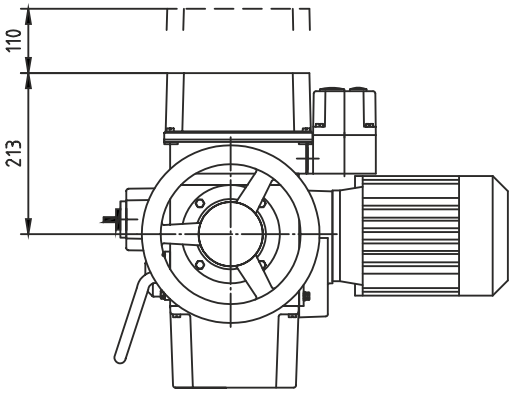
Output speed [ot/min]	Tripping torgue	rAB8	Motor power [kW]	rAB8 400/230V	rAB8 230V				
2,5	vypínací 50 - 120 Nm		0,06	0,12			2,5		
5			0,12	0,25			5		
7,5			0,18	0,37			7,5		
10			0,18	0,75			10		
15	zatěžovací 30 - 80 Nm		0,37	0,75			15		
20			0,37	1,10			20		
30			0,75	1,10			30		
40			0,75	1,10			40		

Accessories									
	Potentiometer 1 x 1000 Ω								F
	Double potentiometer 2 x 1000 Ω								FF
	Electronic transmitter 4 - 20 mA, 2-wire								ESM21
	Electronic transmitter 4 - 20 mA, 2-wire, opto-electronic								CMR
	SMARTCON control unit								CSC
	Additional torque switches								2DER 2DEL
	Additional signalisation switches								2WER 2WEL

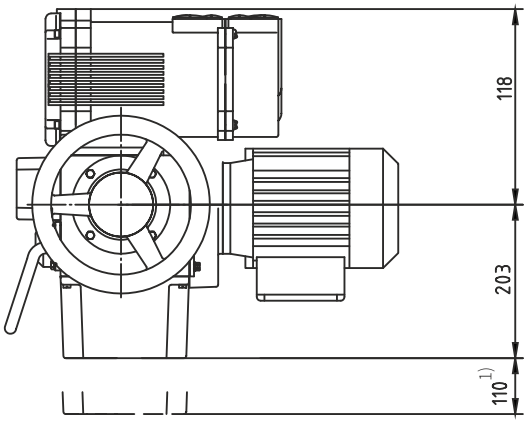
Dimensions of actuatros ...AB8



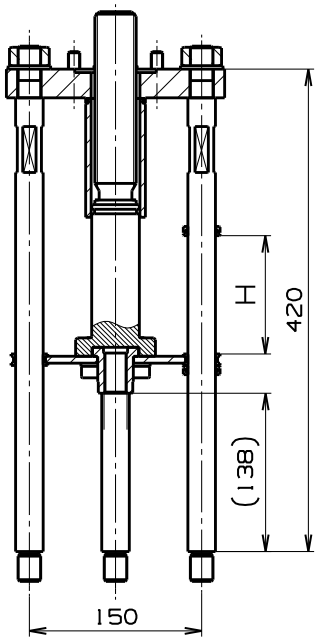
With ACTUMATIC R position regulator



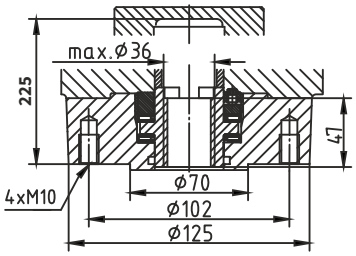
With SMARTCON control unit

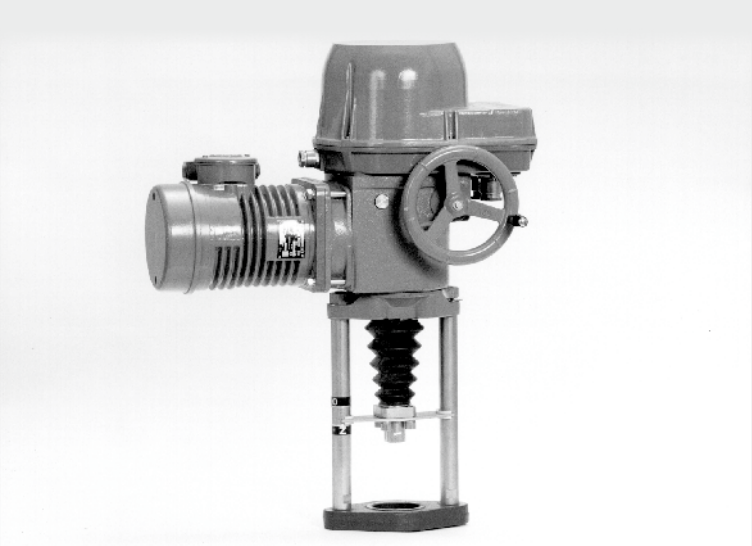


Attachment yoke DN200-400
Connection A, F10, Tr36x6-LH



Connection acc. to ISO 5210, output drive shaft A, F10





Electric actuator

Regada

Modact MTR

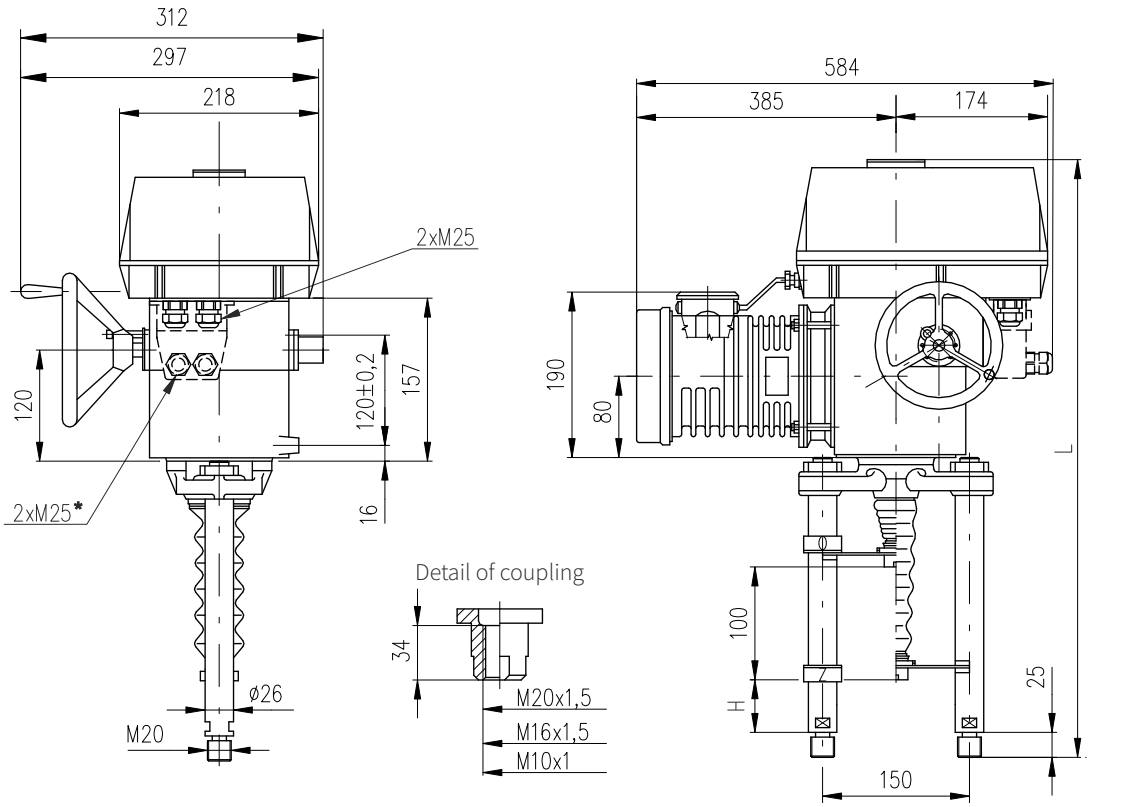
marking in type number:
EPD

Technical data

Type	**Modact MTR**
Marking in valve spec. No.	**EPD**
Voltage	230 V AC
Frequency	50 Hz
Power consumption	16 nebo 25 W
Control	3-position (with regulator NOTREP)
Nominal force	6.3, 10, 16, 25 kN
Travel	12,5 to 100 mm
Enclosure	IP 55 / IP 67
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-25 to 55 °C
Ambient humidity range	90 %
Weight	27 to 31 kg

→ **Note:** Specifications and technical data are for information only.
Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

Dimensions of actuator Modact MTR



*only exucution with connector

Columns	with acme thread		Columns	with ball bolt		For valves
version	H	L	version	H	L	
P-1045b/B	74	622	P-1045b/E	74	646	**CV 3xx NPS ½" - 6"**
P-1045b/C	130	680	P-1045b/H	130	702	**CV 3xx NPS 8" - 16"**

Specification of Modact MTR

Electric motor linear MTR — 52 420. X - X X X X X / X X

Climatic resistance		Temperature	Enclosure	Code
	Standard	-25°C to +55°C	Enclosure IP 55	0
	Standard	-25°C to +55°C	Enclosure IP 67	1
	Tropical	-25°C to +55°C	Enclosure IP 67	6

Electric connection	Voltage	Code
To terminal board	230 V AC	9
To connector	230 V AC	8

	Screw version	Switching-off thrust [32) 33)]	Rated operating speed	Operating speed	Electric motor Power	Speed	Current	Code
trapezoidal	6 300/32	4.0 - 6.3 kN	32 mm/min.	38 - 32 mm/min.	16 W	1 150	0.31 A	A
	4 000/50	2.5 - 4.0 kN	50 mm/min.	60 - 50 mm/min.				B
	10 000/32	6.3 - 10.0 kN	32 mm/min.	38 - 32 mm/min.	25 W	1 250	0.41 A	C
	6 300/50	4.0 - 6.3 kN	50 mm/min.	60 - 50 mm/min.				D
ball screw	16 000/32-G	10.0 - 16.0 kN	32 mm/min.	38 - 32 mm/min.	16 W	1 150	0.31 A	E
	10 000/50-G	6.3 - 10.0 kN	50 mm/min.	60 - 50 mm/min.				F
	25 000/32-G	10.0 - 25.0 kN	32 mm/min.	38 - 32 mm/min.	25 W	1 250	0.41 A	G
	16 000/50-G	10.0 - 16.0 kN	50 mm/min.	60 - 50 mm/min.				H
	10 000/63-G	6.3 - 10.0 kN	63 mm/min.	75 - 63 mm/min.				J
	6 300/100-G	4.0 - 6.3 kN	100 mm/min.	120 - 100 mm/min.				K

Control board version	Operating stroke	Code
Electromechanical control board - without local control	16 mm	B
	25 mm (for stroke 20 mm)	C
	40 mm	E
	80 mm	G

Transmitter		Connection	Output	Code
Without transmitter		—	—	A
Resistive	Single	—	1x100 Ω	B
	Double		2x100 Ω	C
	Single		1x2000 Ω	F
	Double		2x2000 Ω	P
Resistive with current converter	Without power supply	2-wire	4 - 20 mA	S
	With power supply			Q
	Without power supply		0 - 20 mA	T
	With power supply			U
	Without power supply	3-wire	4 - 20 mA	V
	With power supply			W
	Without power supply		0 - 5 mA	Y
	With power supply			Z
Capacitive CPT	Without power supply	2-wire	4 - 20 mA	I
	With power supply			J

Mechanical connection	Connection hight / stroke	Pillar spacing / Bore of flange	Thread of stem [3)]	Dimensional drawing	Code
Columns	130	150/ —	M20x1.5	P-1045b/B; P-1045b/E	B
			M16x1.5	P-1045b/C; P-1045b/H	C

	Additional equipment	Code
	Without additional equipment; adjusted max. switching-off thrust from range	0 1
A	2 additional position switches S5,S6	0 2

Possible combinations and version: A+B = 07

Notes:

1) State the switching-off thrust in your order by words. If not stated it is adjusted to the maximum rate of the corresponding range. The load torgue equals minimally the maximum switching-off thrust of the choosing range multiplied by 1.3.
2) The maximum load thrust equals the max. Switching-off thrust multiplied by:
   - 0.8 for duty cycle S2-10 min., or S4-25%, 6 - 90 cycles per hour
   - 0.6 for duty cycle S4-25%, 90 - 1200 cycles per hour
3) The thread in the coupling is to be specified in the order by words.



Electric actuators

Regada

ST 0
STR 0

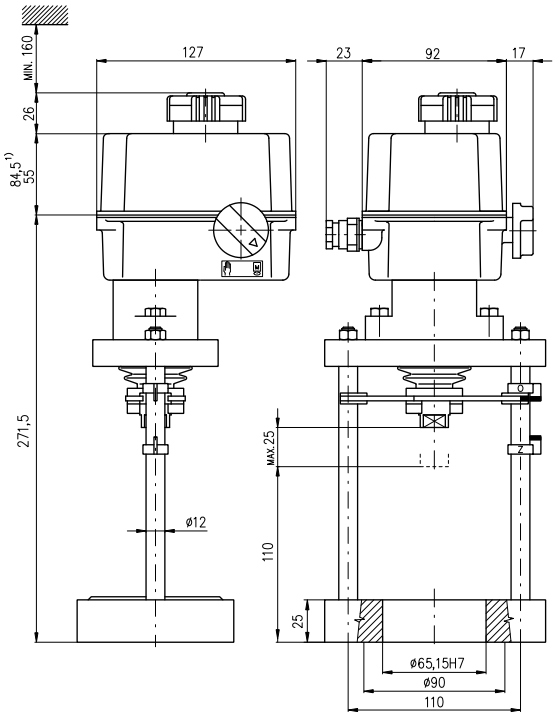
marking in type number:
EPK

Technical data

Type	**ST 0, STR 0**
Marking in valve spec. No.	**EPK**
Voltage	230 V AC, 24 V AC
Frequency	50 Hz
Power consumption	1 W
Control	3-position (0 - 10 V, (0)4 - 20 mA)
Nominal force	2,9 kN a 4,5 kN
Travel	16, 25 mm
Enclosure	IP 54/ IP 67
Process medium max. temp.	daná použitou armaturou
Ambient temperatrure range	-25 to 55 °C
Ambient humidity range	5 - 100% s kondenzací
Weight	2,5 to 4,5 kg

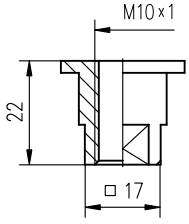
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

Dimensions of actuator



[1)] applies for version with electronic transmitter

Detail of coupling



Specification of actuator ST 0, STR 0

Electric servomotor ST 0, STR 0																									**490.**	**X**	**-**	**X**	**X**	**X**	**X**	**X**	**/**	**X**	**X**
Climatic resistance	Standard	-25°C to +55°C	IP 54	Without regulator **(ST 0)**																						**0**									
	Standard	-25°C to +55°C	IP 67																							**1**									
	Tropical	-25°C to +55°C	IP 67																							**6**									
	Standard	-25°C to +55°C	IP 54	With regulator **(STR 0)** resistance feedback [16]																						**A**									
	Tropical	-25°C to +55°C	IP 67																							**G**									
Electric connection				**To terminal board**						**Voltage**															230 V AC			**0**								
																										24 V AC			**3**							
Nominal force [N]	2900			**Running speed**						4 mm/min				**Motor power**										1 W				**0**							
	4500									5 mm/min														2,75 W				**A**							
	4500 [37]									10 mm/min														2,75 W				**N**							
	2900 [37]									16 mm/min														2,75 W				**P**							
Tripping torque				One-torque										**Travel**										16 mm					**D**						
																								20 mm					**E**						
Remote position transmitter	Without transmitter																													**A**					
	Resistance				**Wiring**	Single			**Output**	1 x 100 Ω																				**B**					
										1 x 2000 Ω																				**F**					
	Electronic - current (without generator)					2-wire				4 - 20 mA																				**S**					
						2-wire [6]																								**Q**					
						3-wire [6]				0 - 20 mA																				**T**					
																														U					
										4 - 20 mA																				**V**					
																														W					
Mechanic connection - flange, connection height 110 mm, thread on con. stem M10x1																															**L**				
Accessories				2 auxiliary position switches [76]																														**0**	**0**

Notes:
[6] applies for version without regulator
[16] the feedback to the regulator is realized by a resistance transmitter (without specifying a code when selecting a transmitter)
[37] applies for temperature range -15 to +55°C and voltage Un -5% to Un +10%
[76] it is not possible to specify 2 auxiliary position switches (S5, S6) in the version with regulator and transmitter



Electric actuators

Regada

STR 0PA

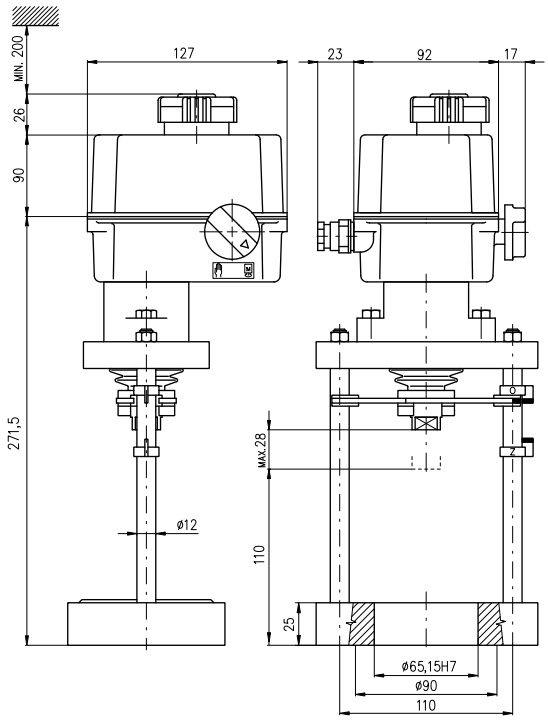
marking in type number:
EPK

Technical data

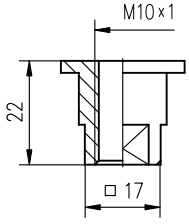
Type	**STR 0PA**
Marking in valve spec. No.	**EPK**
Voltage	230 V AC, 24 V AC
Frequency	50 Hz
Power consumption	1 W
Control	3-position (0 - 10 V, (0)4 - 20 mA)
Nominal force	2,4 kN and 4,5 kN
Travel	10 to 28 mm
Enclosure	IP 67
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-25 to 55 °C
Ambient humidity range	5 - 100% with condensation
Weight	2,5 to 4,5 kg

→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

Dimensions of actuator



Detail of coupling



Specifikace pohonu STR 0PA

Electric servomotor STR 0PA										430.	X	-	X	X	X	X	X	/	X	X
Climatic resistance										Standard	-25°C to +55°C	IP 67								1										
										Tropical	-25°C to +55°C	IP 67								6										
Electric connection										To terminal board	**Voltage**																			
													230 V AC									0								
													24 V AC									3								
Nominal force [N]										4500	**Running speed**		5 mm/min										A							
										4000			10 mm/min										N							
										2400			16 mm/min										P							
Travel										10-28 mm														J						
Control board	DMS3	**Con-trol**	modulating	0/4 - 20 mA	ON - OFF and pulse	24 V DC	**Output**	4 - 20 mA passive																	G						
				0/2 - 10 V																					H						
Mechanic connection - flange, connection height 110 mm, thread of stem M10x1																										L				
Accessories										Without accessories																				
										Setting the stroke position to the desired value																			0	1



Electric actuators

Regada

ST 0.1
STR 0.1

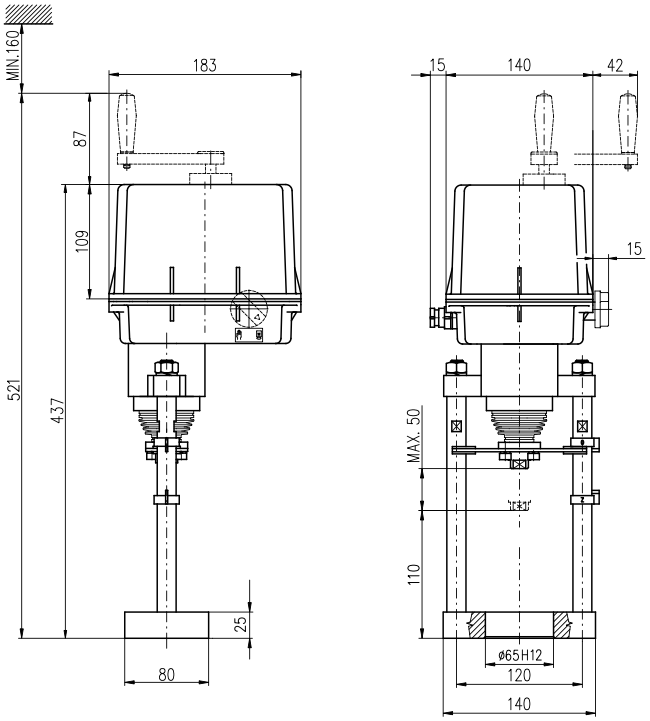
marking in type number:
EPL

Technical data

Type	**ST 0.1, STR 0.1**
Marking in valve spec. No.	**EPL**
Voltage	230 V AC, 3 x 400 V AC, 3 x 380 V AC, 24 V AC, 24 V DC
Frequency	50 Hz
Power consumption	15W, 20W
Control	3-position (0 - 10 V, (0)4 - 20 mA)
Nominal force	4,6 and 7,2 kN
Travel	16, 25, 40 mm
Enclosure	IP 65 / IP 67
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-25 to 55 °C
Ambient humidity range	5 - 100% with condensation
Weight	5,4 to 8 kg

→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

Dimensions of actuator



Specification of actuator ST 0.1, STR 0.1

Electric servomotor ST 0.1, STR 0.1							498.	X	-	X	X	X	X	X	/	X	X
Climatic resistance	Standard	-25°C to +55°C	IP 65	Without regulator (ST 0.1)				0									
			IP 67					1									
	Tropical	-25°C to +55°C	IP 67					6									
	Standard	-25°C to+55°C	IP 65	With regulator (STR 0.1)	Resistance feedback			A									
			IP 65		Resistance feedback			C									
	Tropicak	-25°C to +55°C	IP 67		Resistance feedback			G									
			IP 67		Resistance feedback			J									
Electric connection			To terminal board		Voltage	24 V DC				A							
						230 V AC				0							
						24 V AC				3							
						3x400 V AC[6]				9							
						3x380 V AC[6]				M							
			To connector			24 V DC				C							
						230 V AC				5							
						24 V AC				8							
						3x400 V AC[6]				7							
						3x380 V AC[6]				R							
Nominal force [N]	4600		Running speed	10 mm/min	Motor power	15 W (230; 3x400; 20 W (24V AC/DC); 3x380 V AC)					G						
				16 mm/min							H						
				25 mm/min							I						
				32 mm/min							J						
				40 mm/min							K						
	7200			10 mm/min							T						
				16 mm/min							U						
				25 mm/min							V						
				32 mm/min							W						
				40 mm/min							Y						
Tripping		Doublemoment			Stroke	16 mm						D					
						20 mm						E					
						40 mm						H					
Remote position transmitter	Without transmitter												A				
	Resistance	Sigle	Wiring	---	Output	1 x 100 Ω							B				
						1 x 2000 Ω							F				
		Double[6]		---		2 x 100 Ω							K				
						2 x 2000 Ω							P				
	Electronic - current	without its source		2-wire		4 - 20 mA							S				
				2-wire[6]									Q				
		with its source		3-wire[6]		0 - 20 mA							T				
													U				
						4 - 20 mA							V				
													W				
	Capacity	wo its source		2-wire[6]		4 - 20 mA							I				
		with its source		2-wire									J				
Mechanical connection - flange, connection height 110 mm, thread on con. stem M10x1 or M16x1,5														C			
Accessories	A	2 auxiliary position switches[8]														0	0
	B	Without space heater														0	1
	C	Space heater without terminal switch														0	3
	D	Manual control without permanent readiness														0	5

Permissible combinations of accessories and codes:
A+B=02, A+C=04, A+D=06, B+D=07, A+B+D=08, C+D=09, A+C+D=10

Notes:
[6] applies for version without regulator
[8] it is not possible to choose double tranmitter for version with 2 auxiliary position switches



Electric asctuators

Regada

STR 0.1PA

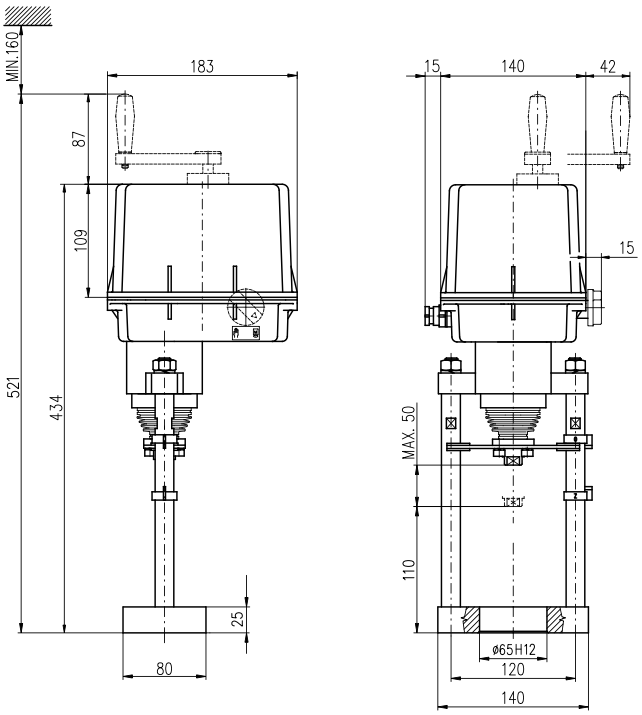
marking in type number:
EPL

Technical data

Type	**STR 0.1PA**
Marking in valve spec. No.	**EPL**
Voltage	230 V AC, 24 V AC
Frequency	50 Hz
Power consumption	15 W
Control	3-position (0 - 10 V, (0)4 - 20 mA)
Nominal force	4,6 and 7,2 kN
Travel	16, 25, 40 mm
Enclosure	IP 67
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-25 to 55 °C
Ambient humidity range	5 - 100% with condensation
Weight	5,4 to 8 kg

→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

Dimensions of actuators



Specification of actuator STR 0.1PA

Electric servomotor STR 0.1PA								438.	X	-	X	X	X	X	X	/	X	X
Climatic resistance	Standard	-25°C to +55°C	IP 67						1									
	Tropical	-25°C to +55°C	IP 67						6									
Electric connection		To terminal board	**Voltage**	230 V AC							0							
				24 V AC							3							
				3x400 V AC							2							
				3x380 V AC							N							
Nominal force [N]	4600	**Running speed**	10 mm/min									G						
			16 mm/min									H						
			25 mm/min									I						
			32 mm/min									J						
			40 mm/min									K						
	7200		10 mm/min									T						
			16 mm/min									U						
			25 mm/min									V						
			32 mm/min									W						
			40 mm/min									Y						
Stroke			10-50 mm										I					
Control board	DMS3	**Con-trol**	Modulating	0/4 - 20 mA	ON - OFF and pulse	24 V DC	**Output**	4 - 20 mA pasive						G				
				0/2 - 10 V										H				
Mechanical connection - flange, connection height 110 mm, thread on con. stem M10x1 or M16x1,5															C			

Accessories		Without accessories		
	A	Setting the stroke position to the desired value	**0**	**1**
	B	LED display (position indicator)	**0**	**4**
	D	Auxiliary relay module (system DMS3 RE3)	**0**	**5**
	F	Local control for actuators with system DMS3 and LCD	**0**	**7**

Permissible combinations of accessories and codes:
A+B=20, A+D=22, A+F=25, A+B+D=52, B+D=29, D+F=40



Electric actuators
Regada

ST 1
STR 1

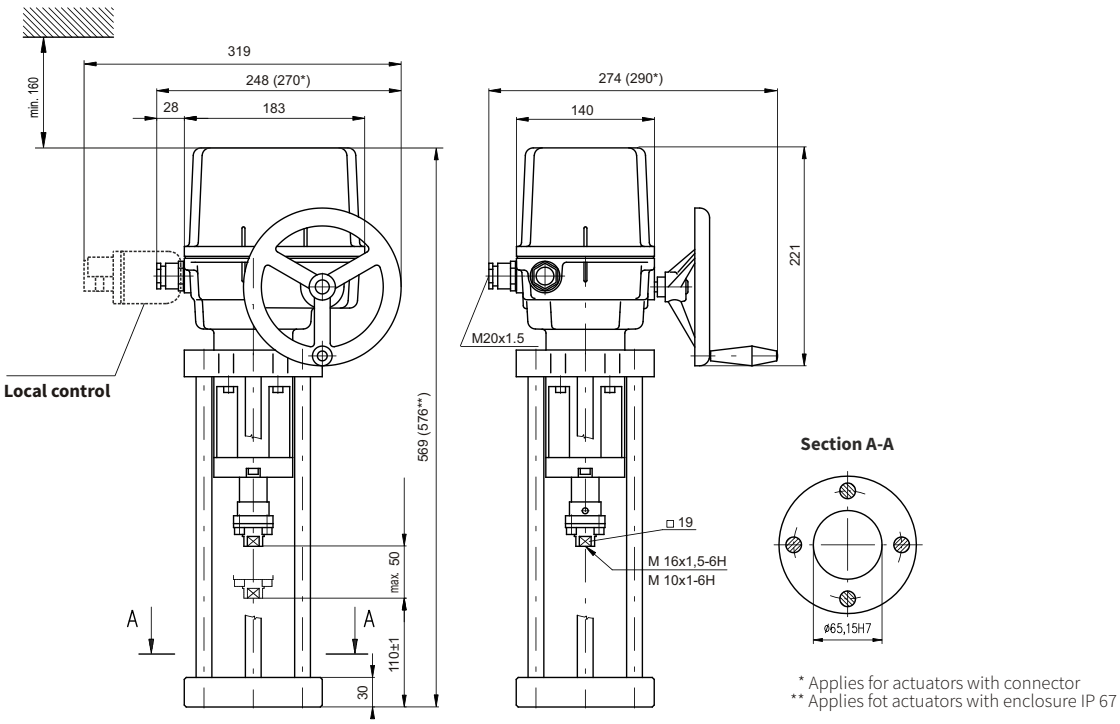
marking in type number:
EPI

Technical data

Type	**ST 1, STR 1**
Marking in valve spec. No.	**EPI**
Voltage	230 V AC, 3 x 400 V AC, 3 x 380 V AC, 24 V AC, 24 V DC
Frequency	50 Hz
Power consumption	15 W, 20 W
Control	3-position (0 - 10 V, (0)4 - 20 mA)
Nominal force	7,5 and 10 kN
Travel	16 - 40 mm
Enclosure	IP 65 / IP 67
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-50 to 55 °C
Ambient humidity range	5 to 100% with condensation
Weight	8,5 to 10,9 kg

→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

Dimensions of actuator



* Applies for actuators with connector
** Applies fot actuators with enclosure IP 67

Specification of actuators ST 1, STR 1

Electric servomotor ST 1, STR 1					491. X - X X X X X / X X
Climatic resistance	Standard	-25°C to +55°C	IP 65	Without regulator **(ST 0.1)**	0
			IP 67		1
	Tropical	-25°C to+55°C	IP 67		6
	Universal	-50°C to +40°C	IP 67		8
	Standard	-25°C to +55°C	IP 65	With regulator **(STR 0.1)** – Resistance feedback	A
			IP 65	Current feedback	C
	Tropical	-25°C to +55°C	IP 67	Resistance feedback	G
			IP 67	Current feedback	J
Electric connection	To terminal board	**Voltage**	24 V DC		A
			230 V AC		0
			24 V AC		3
			3x400 V AC[6]		9
			3x380 V AC[6]		M
	To connector		24 V DC		C
			230 V AC		5
			24 V AC		8
			3x400 V AC[6]		7
			3x380 V AC[6]		R
Nominal force [N]	10000	**Running speed**	8 mm/min	**Motor power**: 15 W (230; 3x400; 3x380 V AC)	0
			10 mm/min		1
			16 mm/min		2
	7500		32 mm/min	20 W (24V AC/DC)	5
			20 mm/min		6
Stroke			16 mm		D
			20 mm		E
			40 mm		H
Remote position transmitter	Without transmitter				A
	Resistance	Single	---	1 x 100 Ω	B
				1 x 2000 Ω	F
		Double[6]	---	2 x 100 Ω	K
				2 x 2000 Ω	P
	Electronic - current	without its source	2-wire	4 - 20 mA	S, Q
			3-wire[6]	0 - 20 mA	T, U
		without its source		4 - 20 mA	V, W
	Capacity	wo its source	2-wire[6]	4 - 20 mA	I
		with its source	2-wire		J
Mechanical connection - flange, connection height 110 mm, thread on con. stem M10x1 or M16x1,5					K
Accessories	A	2 auxiliary position switches[8]			0 0
	E	Space heater with terminal switch			0 2
	C	Local control			0 7
	D	Space heater			1 5

Permissible combinations of accessories and codes:
A+E=04, A+C=08, E+C=10, A+E+C=12, A+D=16, C+D=17, A+C+D=18

Notes:
[6] applies for version without regulator
[8] it is not possible to choose double tranmitter for version with 2 auxiliary position switches

Specification of actuators STR 1PA

Electric servomotor STR 1PA				431.	X	-	X	X	X	X	X	/	X	X
Climatic resistance	Standard	-25°C to +55°C	IP 67		**1**									
	Cold	-25°C to +55°C	IP 67		**3**									
	Tropical	-25°C to +55°C	IP 67		**6**									
Electric connection	To terminal board	**Voltage**	230 V AC				**0**							
			24 V AC				**3**							
			3x400 V AC				**2**							
			3x380 V AC				**N**							
Nominal force [N]	10000	**Running speed**	8 mm/min					**0**						
			10 mm/min					**5**						
			16 mm/min					**1**						
	7500		32 mm/min					**2**						
			20 mm/min					**6**						
Stroke	10-50 mm								**I**					
Control board DMS3	**Con-trol** Modulating	0/4 - 20 mA	ON - OFF and pulse; 24 V DC; **Output** 4 - 20 mA pasive							**G**				
		0/2 - 10 V								**H**				
Mechanical connection - flange, connection height 110 mm, thread on con. stem M10x1 or M16x1,5											**K**			
Accessories		Without accessories											**0**	**1**
	A	Setting the stroke position to the desired value												
	D	Auxiliary relay module R3, R4, R5 (module DMS3 RE3)											**0**	**5**
	E	Auxiliary relay module R1, R2, R3, R4, R5, READY (module DMS3 RE6)											**0**	**6**
	F	Local control for actuators with system DMS3 and LCD											**0**	**7**

Permissible combinations of accessories and codes:
A+D=22, A+E=23, A+F=24, D+F=40, E+F=44, A+D+F=63, A+E+F=67



Electric actuators
Regada

STR 1PA

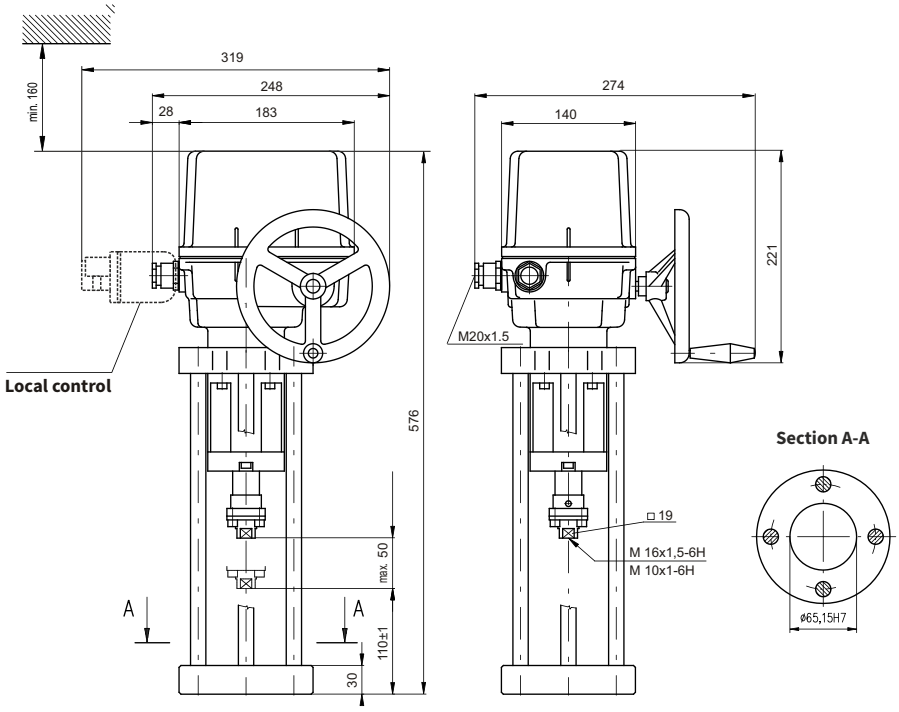
marking in type number:
EPI

Technical data

Type	**STR 1PA**
Marking in valve spec. No.	**EPI**
Voltage	230 V AC, 3 x 400 V AC, 3 x 380 V AC, 24 V AC, 24 V DC
Frequency	50 Hz
Power consumption	15 W, 20 W
Control	3-position (0 - 10 V, (0)4 - 20 mA)
Nominal force	7,5 and 10 kN
Travel	10 - 50 mm
Enclosure	IP 67
Process medium max. temp.	accorded to used valve
Ambient temperatrure range	-40 to 55 °C
Ambient humidity range	5 - 100% with condensation
Weight	8,5 to 10,9 kg

→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

Dimensions of actuator





Electric actuators
Regada

ST 1-Ex

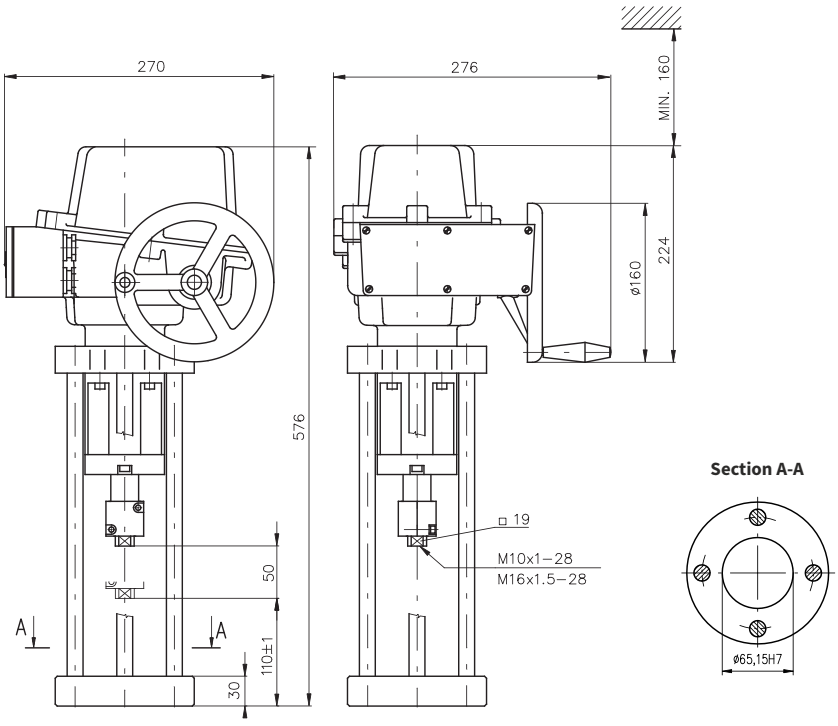
marking in type number:
EPJ

Technical data

Type	**ST 1-Ex**
Marking in valve spec. No.	**EPJ**
Voltage	230 V AC, 3 x 400 V AC, 3 x 380 V AC, 24 V AC, 24 V DC
Frequency	50 Hz
Power consumption	15 W, 20 W
Control	3-position, with regulator 0 - 10 V; (0) 4 - 20 mA
Nominal force	7,5 and 10 kN
Travel	16, 25, 40 mm
Enclosure	IP 67
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-50 to 55 °C
Ambient humidity range	5 - 100% with condensation
Weight	11 to 15 kg

→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

Dimensions of actuator



Specification of actuators ST 1-Ex

Electric servomotor ST 1-Ex							411.	X	-	X	X	X	X	X
Climatic resistance	Standard	-25°C to +55°C	**Basic version (without regulator)**			IP 67	1						
	Universal	-50°C to +40°C					8						
	Standard	-25°C to +55°C	**With regulator**	Resistance feedback		IP 67	B						
				Current feedback			D						
	Universal	-50°C to +40°C		Resistance feedback		IP 67	K						
				Current feedback			M						
Electric connection		To terminal board	**Voltage**	24 V DC					A					
				230 V AC					0					
				24 V AC					3					
				3x400 V AC [6]					9					
Nominal force [N]	10000 N	**Running speed**	8 mm/min	**Motor power**	15 W (230; 3x400; 3x380 V AC) 20 W (24V AC/DC)					0				
	7500 N		16 mm/min							1				
	10000 N		32 mm/min							2				
	8600 N		10 mm/min							5				
	5800 N		20 mm/min							6				
			40 mm/min							7				
Maximal stroke (without transmitter) acc. to mechanical connection For actuators without transmitter is possible to set up the stroke in between 0 to max.			50 mm	**Stroke**	16 mm						D			
					20 mm						E			
					40 mm						H			
Remote position transmitter	Without transmitter													A
	Resistance	Single	**Wiring**	---	**Output**	1 x 100 Ω								B
						1 x 2000 Ω								F
		Dvojitý [6) 58)]		---		2 x 100 Ω								K
						2 x 2000 Ω								P
	Electronic - current	Wo its source		2 - wire		4 - 20 mA								S
				3 - wire [6]		0 - 20 mA								T
						4 - 20 mA								V
		With its source [59]		2 - wire		4 - 20 mA								Q
				3 - wire [6]		0 - 20 mA								U
						4 - 20 mA								W
	Capacity	Wo its source		2 - wire [6]		4 - 20 mA								I
		Wi its source [59]				4 - 20 mA								J
		Wi its source [51]		2 - wire		4 - 20 mA								J
Mechanical connection - D-shape flange, connection height 110 mm, thread on con. stem M10x1 or M16x1,5														K

Notes:

[6] applies for version without regulator

[51] Only for version with regulator and current feedback, in this excution the output signal is not galvanically separated from the input signal

[58] applied just for version without auxiliary position switches S5, S6 for 24 V DC

[59] position transmitter with its source for feeding voltage 24 V DC after agreement with producer



Electric actuators

Regada

ST 2
STR 2

marking in type number:
EPM

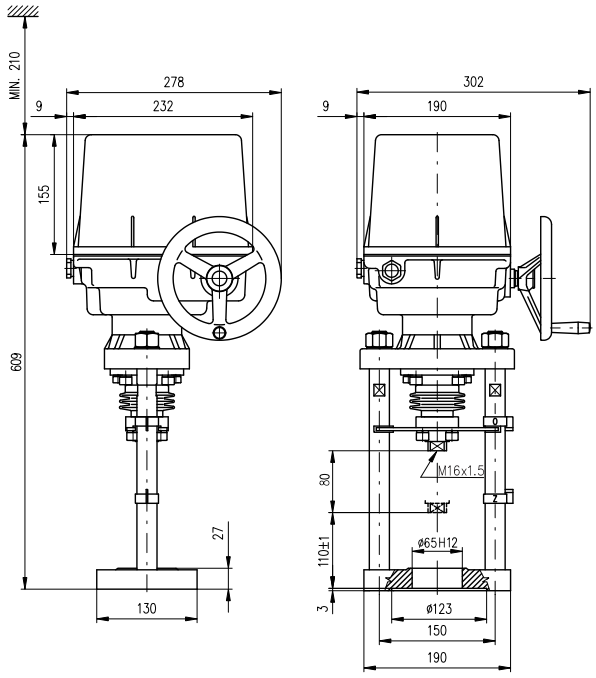
Technical data

Type	**ST 2, STR 2**
Marking in valve spec. No.	**EPM**
Voltage	230 V AC, 3x400 V AC, 3x380 V AC, 24 V AC, 24 V DC
Frequency	50 Hz
Power consumption	see specification table
Control	3-position, with regulator 0 - 10 V; (0) 4 - 20 mA
Nominal force	16 and 25 kN
Travel	40, 80 mm
Enclosure	IP 65 / IP 67
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-50 to 55 °C
Ambient humidity range	5 - 100% with condensation
Weight	17 to 21,5 kg

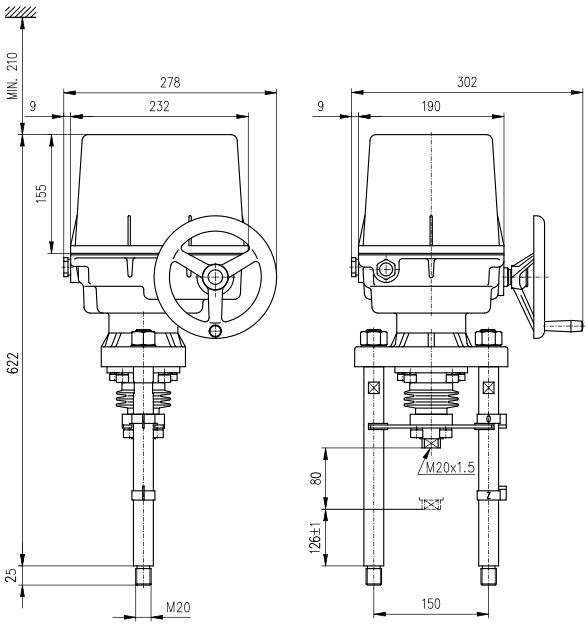
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

Dimensions of actuator

DN 80 - 150 (connection D)



DN 200 - 300 (connection M)



Specification of actuator ST 2, STR 2

Electric servomotor ST 2, STR 2							492.	X	-	X	X	X	X	X	/	X	X
Climatic resistance	Standard	-25°C to +55°C	IP 65	Without regulator **(ST 2)**				0									
			IP 67					1									
	Tropical	-25°C to +55°C	IP 67					6									
	Universal	-50°C to +40°C	IP 67					8									
	Standard	-25°C to +55°C	IP 67	With regulator **(STR 2)**		Resistance feedback		B									
			IP 67			Current feedback		D									
	Tropical	-25°C to +55°C	IP 67			Resistance feedback		G									
			IP 67			Current feedback		J									
Electric connection		To terminal board			**Voltage**	24 V DC				A							
						230 V AC				0							
						24 V AC				3							
						3x400 V AC [6]				9							
						3x400 V AC [28]				2							
						3x380 V AC [6]				M							
						3x380 V AC [28]				N							
		To connector [21]				24 V DC				C							
						230 V AC				5							
						24 V AC				8							
						3x400 V AC [6]				7							
						3x400 V AC [28]				6							
						3x380 V AC [6]				R							
						3x380 V AC [28]				S							

230 V AC, 24 V AC/DC - 65W				3x400 V AC					
Nominal force [N]	**Motor power**	**Nominal force [N]**	**Motor power**	**Running speed**					
25 000	20 W	---	90 W	10 mm/min				A	
20 000								H	
16 000								J	
25 000	60 W	25 000		20 mm/min				B	
20 000		20 000						K	
16 000		16 000						L	
25 000		25 000		32 mm/min				M	
20 000		20 000						N	
16 000		16 000						P	
25 000		25 000		40 mm/min				C	
20 000		20 000						Q	
16 000		16 000						R	
20 000		25 000		50 mm/min [6]				S	
16 000		20 000						T	
---		16 000						U	
20 000		25 000		60 mm/min [6]				D	
16 000		20 000						V	
---		16 000						W	
16 000		20 000		80 mm/min [6]				E	
---		16 000						Y	
---		20 000		100 mm/min [6]				F	
---		16 000						Z	

Stroke	Max. (without transmitter) [41] ... 100 mm	Wi transmitter	40 mm	H
			80 mm	K

Continued on next page

Remote position transmitter	Without transmitter								**A**					
	Resistance	single	**Wiring**		**Output**	1 x 100 Ω			**B**					
						1 x 2000 Ω			**F**					
		double				2 x 100 Ω			**K**					
						2 x 2000 Ω			**P**					
	Electronic - current	wo its source		2-wire		4 - 20 mA			**S**					
		with its source							**Q**					
		wo its source		3-wire[6]		0 - 20 mA			**T**					
		with its source							**U**					
		wo its source				4 - 20 mA			**V**					
		with its source							**W**					
	Capacity	wo its source		2-wire[6]					**I**					
		with its source[51]		2-wire					**J**					
Mechanical connection	Flange, connection height 110 mm, stem thread M16x1,5									**D**				
	Columns, connection height 126 mm, stem thread M20x1,5									**M**				
Accessories	**A**	2 auxiliary switches										**0**	**0**	
	E	Space heater with terminal switch										**0**	**2**	
	C	Local control										**0**	**7**	
	D	Space heater										**1**	**5**	
	G	Setting up the tripping torgue on demanded position										**2**	**5**	

Permissible combinations of accessories and codes:
A+E=04, A+C=08, C+E=10, A+C+E=12, A+D=16, C+D=17, A+C+D=18, A+G=26, E+G=27, C+G=28, D+G=29, A+E+G=30, A+C+G=31, A+D+G=32, C+E+G=33,C+D+G=34, A+D+E+G=35, A+C+D+G=36

Notes:
[6] applies for version without regulator
[21] version with connector only for -40°C
[28] version with reverse contactors
[41] version without transmitter - it is possible to set up stroke 0 - 80 mm
[51] only for version with regulator and current feedback



Electric actuators

Regada

STR 2PA

marking in type number:
EPM

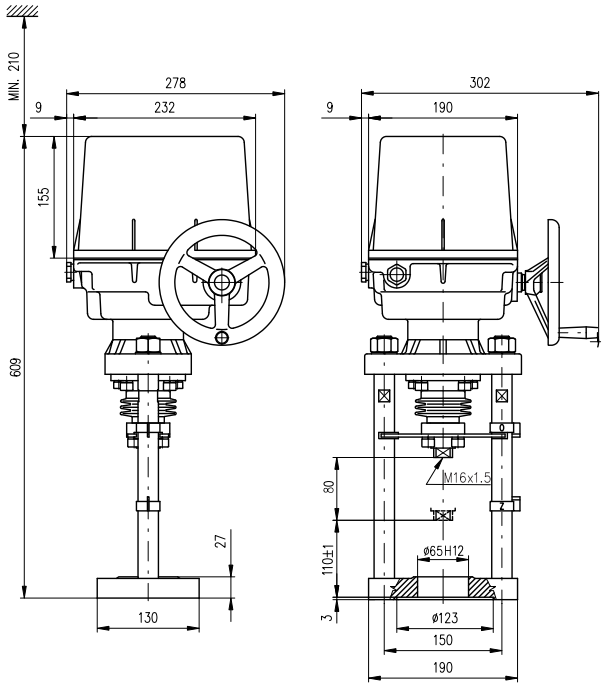
Technical data

Type	**STR 2PA**
Marking in valve spec. No.	**EPM**
Voltage	230 V AC, 3x400 V AC, 3x380 V AC, 24 V AC, 24 V DC
Frequency	50 Hz
Power consumption	see specification table
Control	3-position, with regulator 0 - 10 V; (0) 4 - 20 mA
Nominal force	16 and 25 kN
Travel	40, 80 mm
Enclosure	IP 67
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-40 to 55 °C
Ambient humidity range	5 - 100% with condensation
Weight	17 and 21,5 kg

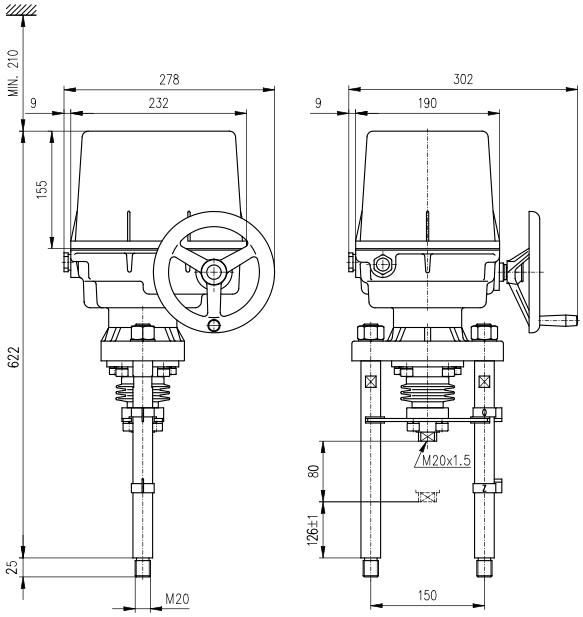
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

Dimensions of actuator

DN 80 - 150 (connection D)



DN 200 - 300 (connection M)



Specification of actuator STR 2PA

Electric servomotor STR 2PA				432.	X - X X X X X / X X
Climatic resistance	Standard	-25°C to +55°C		IP 67	1
	Cold	-40°C to +40°C		IP 67	3
	Tropical	-25°C to +55°C		IP 67	6
Electric connection to terminal board	**Switching electromotor**	Through optocouplers	**Napájecí napětí**	230 V AC	0
		Through reverse contactors		3x400 V AC	2
				3x380 V AC	N
		Contactless switching		3x400 V AC	E
				3x380 V AC	F
Nominal force [N]	**Running speed**	230 V		3x400 V, 3x380 V	
25 000	10 mm/min	●		–	A
	20 mm/min	●		●	J
	32 mm/min	●		●	B
	40 mm/min	●		●	L
	50 mm/min	–		●	C
	60 mm/min	–		●	R
20 000	10 mm/min	●		–	D
	20 mm/min	●		●	V
	32 mm/min	●		●	W
	40 mm/min	●		●	E
	50 mm/min	●		–	Y
	50 mm/min	–		–	Z
	60 mm/min	●		●	C
	60 mm/min	–		●	R
	80 mm/min	–		●	D
	100 mm/min	–		●	V
16 000	10 mm/min	●		–	W
	20 mm/min	●		●	E
	32 mm/min	●		●	Y
	40 mm/min	●		●	Z
	50 mm/min	●		–	W
	50 mm/min	–		●	E
	60 mm/min	●		–	Y
	60 mm/min	–		●	Z
	80 mm/min	●		–	E
	80 mm/min	–		●	Y
	100 mm/min	–		●	Z
Stroke				20-80 mm	K
Control board DMS3	**Con-trol** Modulating	0/4 - 20 mA	ON - OFF and pulse, 24 V DC	**Output** 4 - 20 mA pasive	G
		0/2 - 10 V			H
Mechanical connection	Flange, connection height 110 mm, stem thread M16x1,5				D
	Columns, connection height 126 mm, stem thread M20x1,5				M
Accessories		Without accessories			
	A	Setting the stroke position to the desired value			0 1
	D	Auxiliary relay module R3, R4, R5 (module DMS3 RE3)			0 5
	E	Auxiliary relay module R1, R2, R3, R4, R5, READY (module DMS3 RE6)			0 6
	F	Local control for actuators with system DMS3 and LCD			0 7

Permissible combinations of accessories and codes:
A+D=22, A+E=23, A+F=24, D+F=40, E+F=44, A+D+F=63, A+E+F=67



Electric actuators
Rotork

CVL

marking in type number:
EQL

Technical data

Type	CVL-500 (Ex)	CVL-1000 (Ex)	CVL-1500 (Ex)	CVL-5000 (Ex)
Marking in valve spec. No.	**EQL**			
Version	Electric actuator (optionally with safety function)			
Voltage	230V AC, 24V DC			
Frequency	50 Hz			
Power consumption	4 - 20 mA			
Control	4 - 20 mA			
Speed	6,35 mm/s	2,54 mm/s	2,54 mm/s	2,54 mm/s
Safety function resetting	max. 6 s	max. 20 s	max. 20 s	max. 45 s
Supercapacitor charge time	30 s	100 s	100 s	300 s
Safety function	Adjustable function direct (NO) / indirect (NC)			
Nominal force	2 kN	4 kN	6,3 kN	16 a 20 kN
Travel	16, 20 mm	16, 20 mm	16, 20, 40 mm	40, 80, 100 mm
Enclosure	IP 68			
Process medium max. temp.	acc. to used valve			
Ambient temperatrure range	-30 to 70°C (for low temperatures -40 to 60°C)			
	version Ex -20 to 60°C (for low temperatures -40 to 60°C)			
Manual control	optional equipment			
Weight	16 kg	24 kg	24 kg	53 kg

→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.rotork.com**

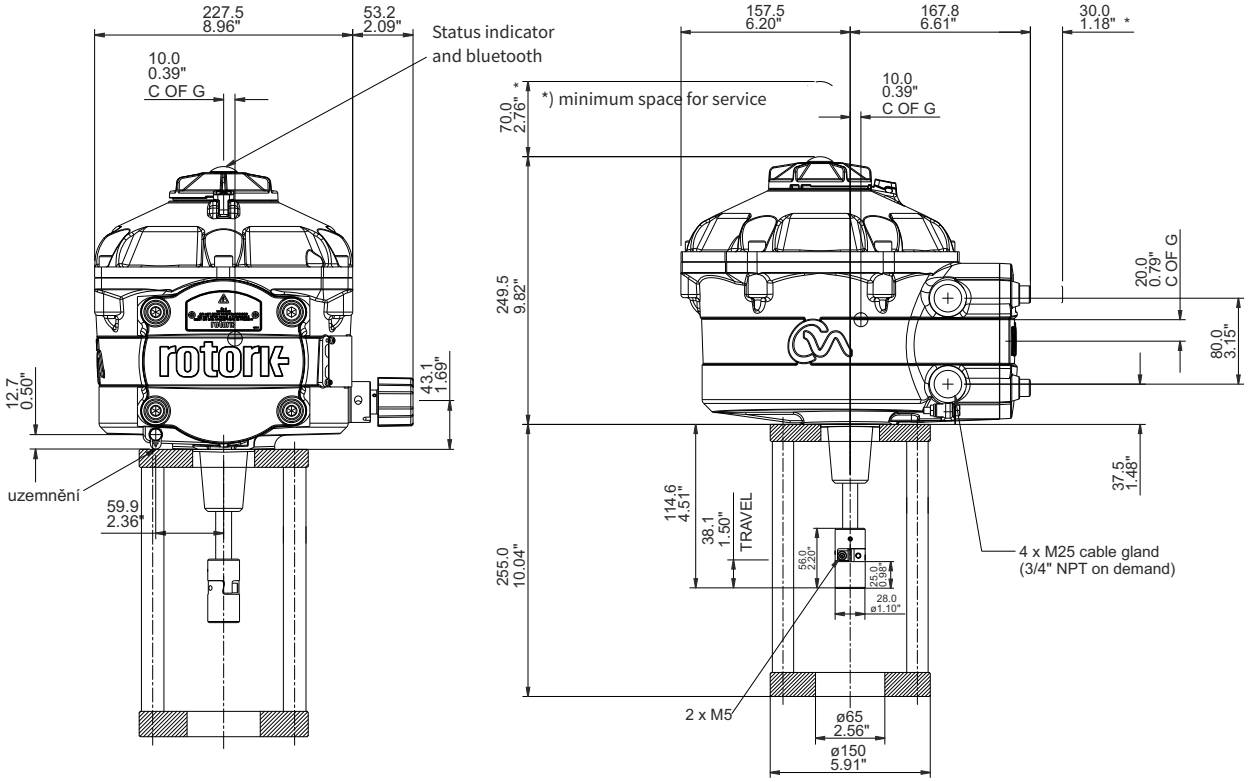
Optional accessories

Safety function	equipment equipped with supercapacitors, to ensure emergency adjustment
HART	communication protocol
Foundation Fieldbus	communication protocol
Profibus DP	communication protocol
Pakscan P3	2-wire system
Modbus	communication protocol
RIRO	communication protocol

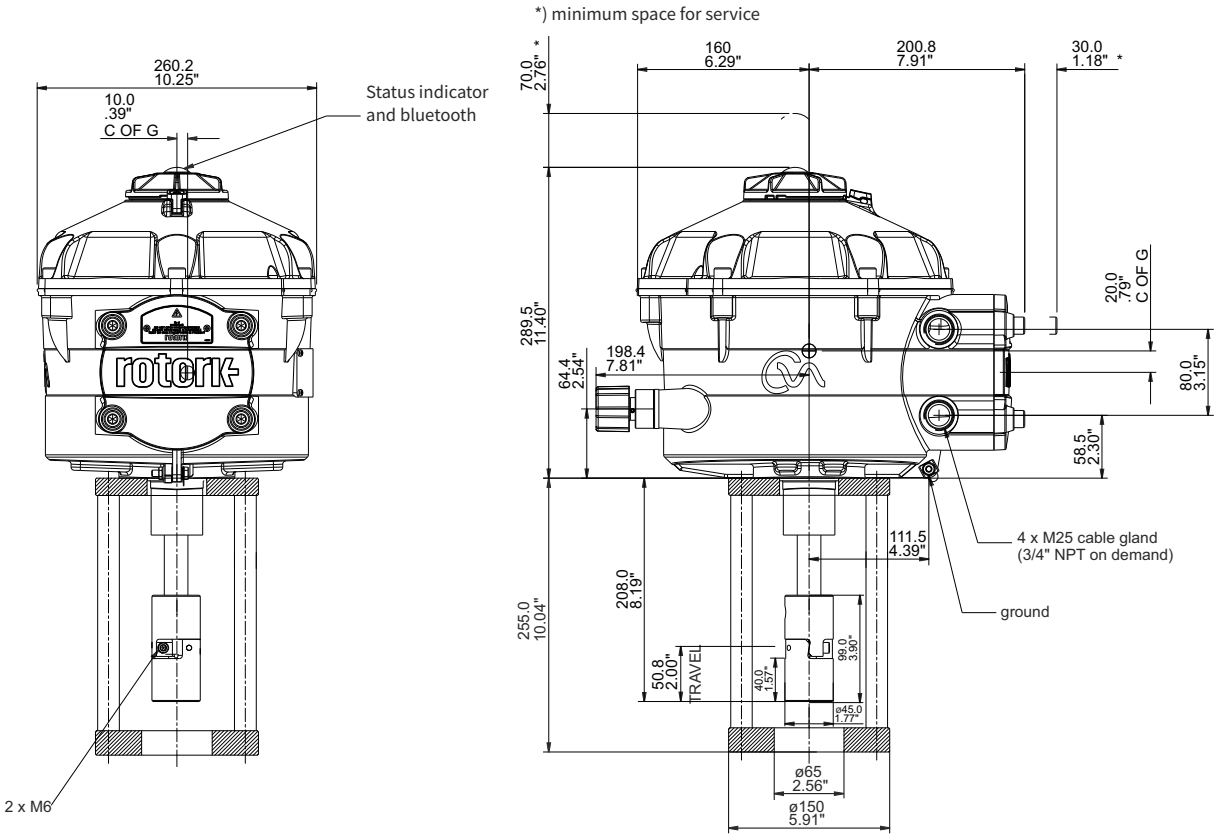
I / O parameterization
Possibility to set direct / indirect function of the drive, choice of action in case of signal loss.
Independent closing and opening settingsforces in the range of 40-100%.

Dimensions of actuator

CVL-500 (Ex)

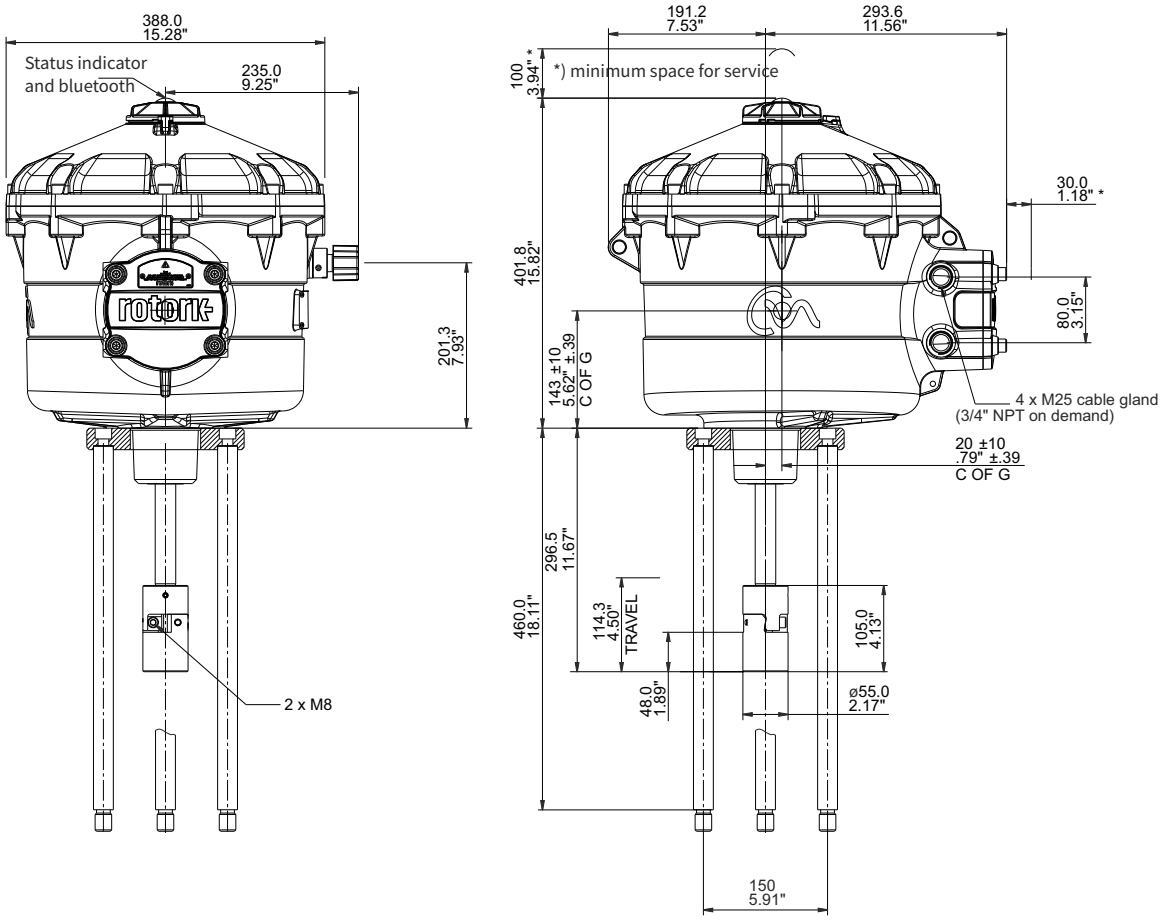


CVL-1000 (Ex), CVL-1500 (Ex)



Dimensions of actuator

CVL-5000 (Ex)





Electric actuators

Rotork

Ex IQM 10
Ex IQM 12

marking in type number:
EQA, EQB

Technical data

Type	IQM 10	IQM 12	Ex IQM 10	Ex IQM 12
Marking in valve spec. No.	**EQA**		**EQB**	
Version	Electric multi-turn actuator (3rd generation)			
Voltage	3-phase, 380 or 400V AC			
Frequency	50 Hz			
Control	4 - 20 mA			
Nominal force	10 Nm~5 kN, 15 Nm~7.5 kN, 20 Nm~10 kN, 30 Nm~15 kN, 40 Nm~20 kN			
Travel	acc. to valve travel 16, 20, 40 mm			
Enclosure	IP 68			
Process medium max. temp.	acc. to used valve			
Ambient temperatrure range	-30 to70°C (optionaly -40 to 70°C, -50 tož 40°C)		-20 to 70°C (optionaly -40 to 70°C, -50 to 40°C)	
Weight	31 kg			

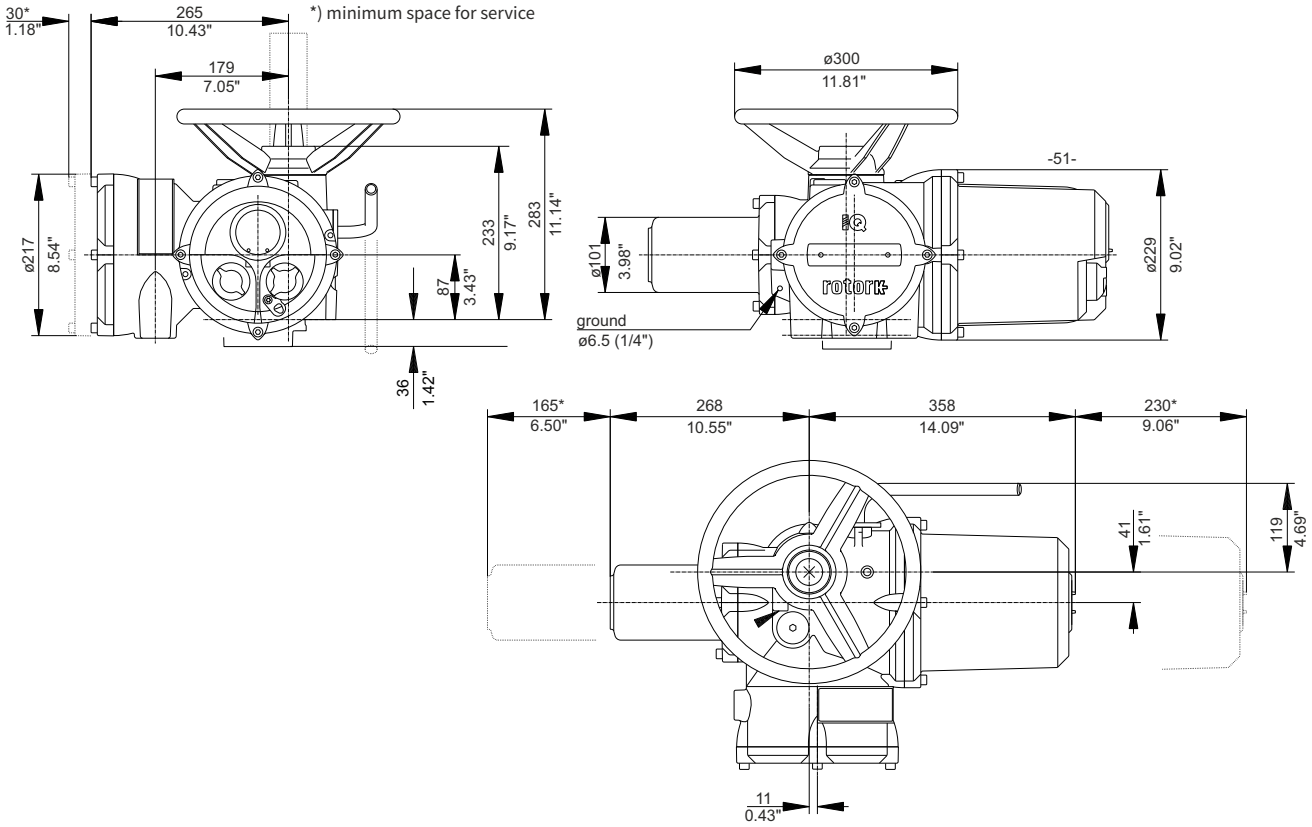
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.rotork.com**

Optional accessories

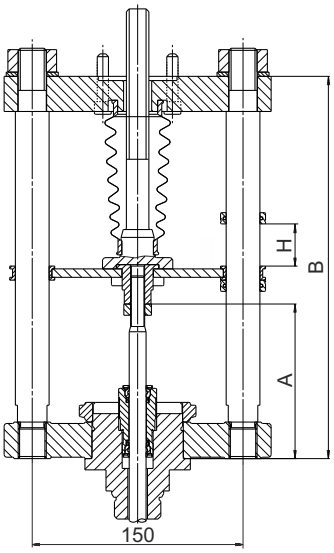
Expanding 4 pcs of freely programmable potential-free contacts S5 - S8 for signaling drive states.
The supply voltage of the above contacts can be selected between 24 V DC and 120 V AC
Actuator control via Folomatic module 4–20mA
Position transmitter CPT 4-20 mA
Interrupter timer (intermittent opening/ closing actuator)
HART - communication protocol
Foundation Fieldbus - communication protocol
Profibus DP - communication protocol
Pakscan P3 - communication protocol / 2-wire system
Modbus - communication protocol

Dimensions of actuator

IQM 10, Ex IQM 12



Attachement yoke (2 or 4 columns)



For valves	No. of columns	A	B	Weight
CV 3xx NPS ½" - 6"	2	110	272	~ 8 kg
CV 3xx NPS 8" - 16"	4	140	420	~ 15 kg



Electric actuators

Rotork

IQM 20
Ex IQM 20

marking in type number:
EQD, EQE

Technical data

Type	IQM 20	Ex IQM 20
Marking in valve spec. No.	**EQD**	**EQE**
Version	Electric multi-turn actuator (3rd generation)	
Voltage	3-phase, 380 or 400V AC	
Frequency	50 Hz	
Control	4 - 20 mA	
Nominal force	80 Nm~21,6 kN, 100 Nm~27 kN, 120 Nm~32 kN	
Travel	acc. to valve stroke 80, 100 mm	
Enclosure	IP 68	
Process medium max. temp.	acc. to used valve	
Ambient temperatrure range	-30 to 70°C (volitelně -40 to 70°C, -50 to 40°C)	-20 to 70°C (volitelně -40 to 70°C, -50 to 40°C)
Weight	54 kg	

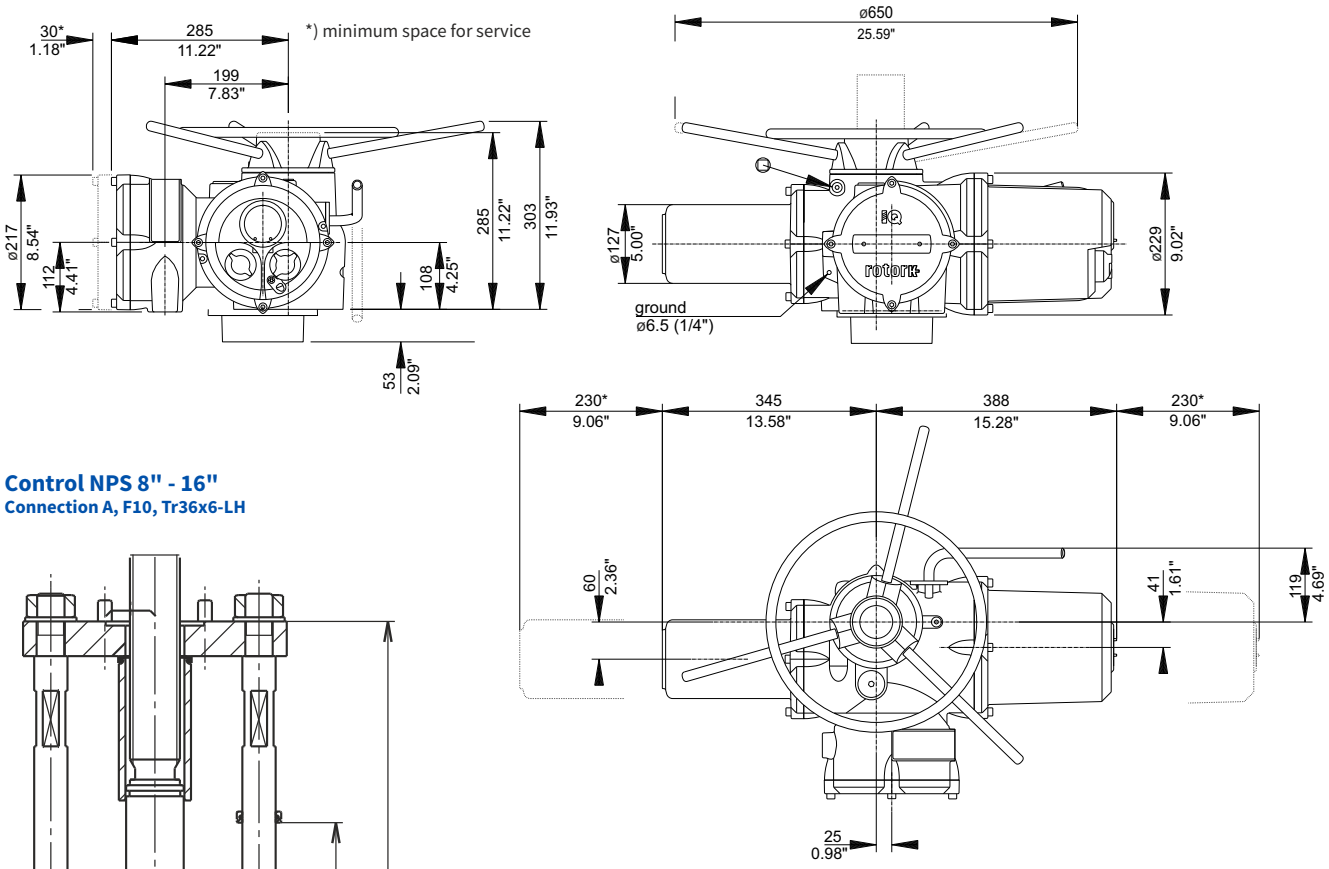
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.rotork.com**

Optional accessories

Expanding 4 pcs of freely programmable potential-free contacts S5 - S8 for signaling drive states.
The supply voltage of the above contacts can be selected between 24 V DC and 120 V AC
Actuator control via Folomatic module 4–20mA
Position transmitter CPT 4-20 mA
Interrupter timer (intermittent opening/ closing actuator)
HART - communication protocol
Foundation Fieldbus - communication protocol
Profibus DP - communication protocol
Pakscan P3 - communication protocol / 2-wire system
Modbus - communication protocol

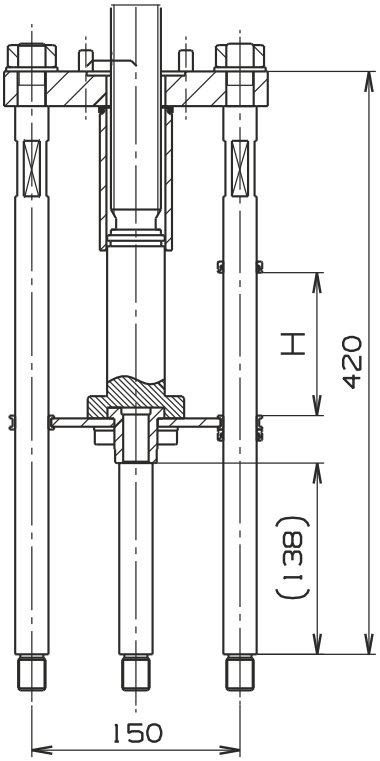
Dimensions of actuator

IQM 20, Ex IQM 20



Control NPS 8" - 16"

Connection A, F10, Tr36x6-LH





Pneumatic actuators

Flowserve

Series 253 - 701

marking in type number:
PFA, PFB, PFC

Technical data

Type	PA 253		PB 503		PB 701	
Marking in valve spec. No.	**PFA**		**PFB**		**PFC**	
Feeding pressure			6,0 bar max			
Function	direct	indirect	direct	indirect	direct	indirect
Control	pneumatic signal 0,2 - 1,0 bar pneumatic signal 0(4) - 20 mA					
Nominal force	according to table of nominal force values					
Travel	25 mm			40 mm		
Enclosure	IP 54					
Process medium max. temp.	CV/SV 300 line ... **68**		acc. to used valves			
Ambient temperatrure range	-40 to 80 °C					
Ambient humidity range	95 %					
Weight	see dimensions table					

→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.flowserve.com**

Accessories

Elektropneumatic positioner type SRI 981	Device with electric input of 20 - 100 kPa to control the pneumatic actuators with pneumatic control signal
Elektropneumatic positioner type SRI 986	Analog positioner with input signal 4(0) - 20 mA
Electropneumatic positioner (analog) type SRD 990	Device with electric input of 4 (0) - 20 mA and outlet of contolling air into actuator. It is adjusted by PC and special software
Electropneumatic positioner (inteligent) type SRD 991	Device with electric input of 4 (0) - 20 mA and outlet of contolling air into actuator. It is adjusted by PC and special software
Signalisation switches typ SGE985	Adjustable end position switches
Air set type typ FRS 923 (-40 to 80°C)	Reduces the supply pressure to a value requied
Solenoid valve standard type SC G327B001	Direct operated electromagnetic valve, version 3/2, function U (universal), G 1/4“
Solenoid valve inexplosive EEx em type EM G327B001	Direct operated electromagnetic valve, eversion 3/2, function U (universal) G 1/4“, with the increased safety/epoxy encapsulation operator
Solenoid valve inexplosive EEx d type NF G327B001	Direct operated electromagnetic valve, version 3/2, function U (universal), G 1/4“, solid conclusion
Air lock relay, type EIL 200	Retaining device for closing of air pipeline on a pressure drop

Operating conditions

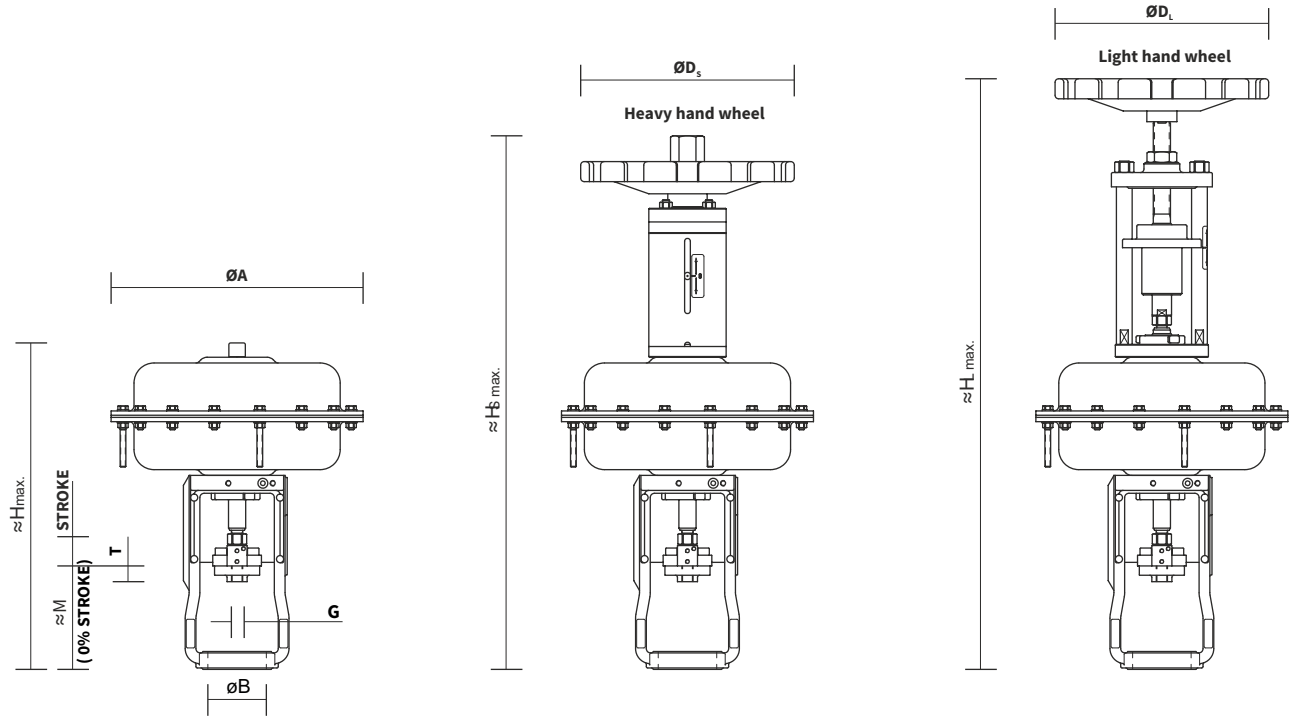
Pneumatic actuators Flowserve can operate with extremely high ambient temperatures with unique resistance to shock loads. They excel with resistance to vibrations and reached 10^6 of cycles in operation. It is possible to deliver the actuator with both fail to open and fail to close function, possibly with a position blocking (air lock) upon feeding pressure air supply failure. Various accessories can be delivered together with the actuator.

Direct and indirect functions

Direct function ensures that actuator´s stem retracts upon control air supply failure (valve opens).
Indirect function ensures that actuator´s stem extends upon control air supply failure (valve closes).

Dimensions and weight of actuators Flowserve series 253 - 701

Type	Actuator											Weight		
	A [mm]	H [mm]	H_S [mm]	H_L [mm]	D_S [mm]	D_L [mm]	Stroke [mm]	B [mm]	M [mm]	G [mm]	T [mm]	[kg]	with RK_S [kg]	with RK_L [kg]
PA 253	260	335	600	620	200	200	20	65	105	M10x1	23	10	17	15
PB 503	355	460	845	795	250	300	40	82	140	M16x1,5	25	22	31	30
PB 701	390	500	875	---	350	---	40	82	140	M16x1,5	25	31	53	---



Specification No. of Flowserve actuators 253 - 701

		PX XXX	X	X X	X	X	X
Actuator type	250 cm^2	**PA 253**					
	500 cm^2	**PB 503**					
	700 cm^2	**PB 701**					
Color		white	**B**				
Spring range [bar]		0,2 - 1,0		**A D**			
		1,5 - 2,7		**V C**			
		2,0 - 4,8		**F Y**			
		1,0 - 2,4		**D Y**			
		0,5 - 1,9		**B L**			
Hand wheel		without wheel			**O**		
		light wheel			**L**		
		heavy wheel			**H**		
Function		direct				**A**	
		indirect				**Z**	
Stroke		20					**A**
		40					**B**



Pneumatic actuators

Flowserve

PO 1502
PO 3002

marking in type number:

PFD

Technical data

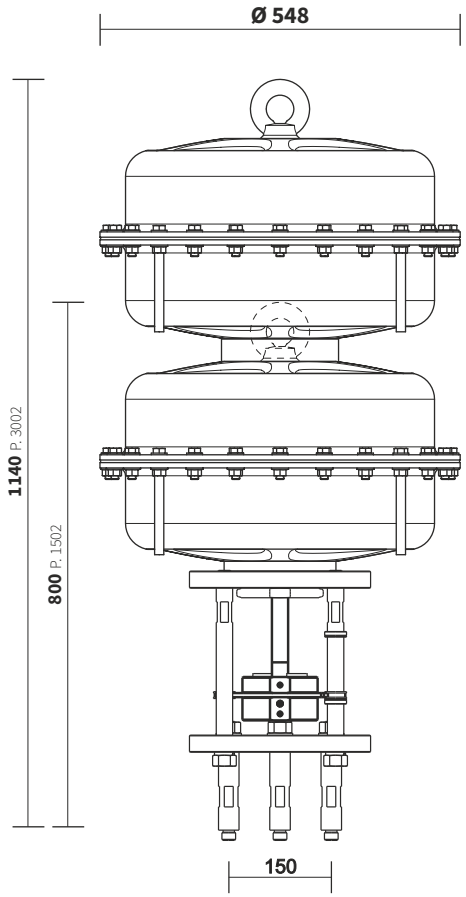
Type	PO 1502		PO 3002	
Marking in valve spec. No.	PFD		PFE	
Feeding pressure	6,0 bar max			
Function	direct	indirect	direct	indirect
Control	pneumatic signal 0,2 - 1,0 bar current signal 0(4) - 20 mA			
Nominal force	according to table of nominal force values			
Travel	80, 100 mm			
Enclosure	IP 54			
Process medium max. temp.	acc. to used valves			
Ambient temperatrure range	-40 to 80 °C			
Ambient humidity range	95 %			
Weight	124 kg - with hand wheel 174 kg		240 kg - with hand wheel 290 kg	

→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.flowserve.com**

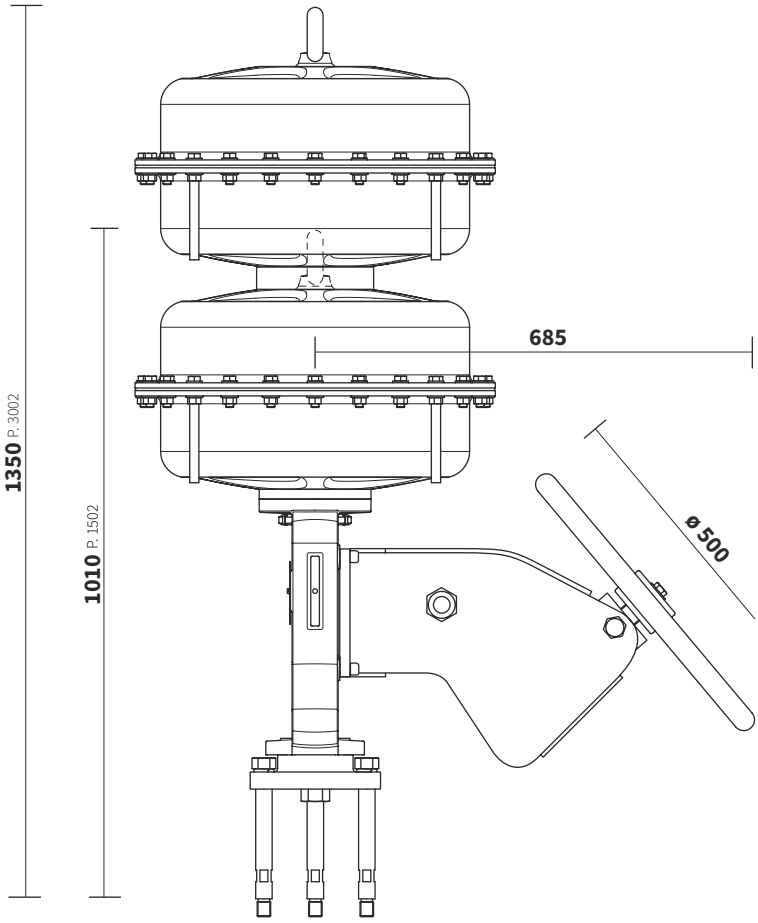
Accessories

Elektropneumatic positioner type SRI 981	Device with electric input of 20 - 100 kPa to control the pneumatic actuators with pneumatic control signal
Elektropneumatic positioner type SRI 986	Analog positioner with input signal 4(0) - 20 mA
Electropneumatic positioner (analog) type SRD 990	Device with electric input of 4 (0) - 20 mA and outlet of contolling air into actuator. It is adjusted by PC and special software
Electropneumatic positioner (inteligent) type SRD 991	Device with electric input of 4 (0) - 20 mA and outlet of contolling air into actuator. It is adjusted by PC and special software
Electropneumatic positioner (inteligent) type SRD 998	Device with electric input of 4 (0) - 20 mA and outlet of contolling air into actuator. Standard equipment: HART, LED display, setting using the multi selector
Electropneumatic positioner SIPART PS2 Electropneumatic positioner ABB TZIDC	Digital positioner with input 4(0) – 20 mA
Signalisation switches typ SGE985	Adjustable end position switches
Air set type G651 (-20 to 50°C) Air set type typ FRS 923 (-40 to 80°C)	Reduces the supply pressure to a value requied
Solenoid valve standard type SC G551A005 Solenoid valve standard type SC G327B001	Direct operated electromagnetic valve, version 3/2, function U (universal), G 1/4“
Solenoid valve inexplosive EEx em type EM G327B001	Direct operated electromagnetic valve, version 3/2, function U (universal) G 1/4“, with the increased safety/epoxy encapsulation operator
Solenoid valve inexplosive EEx d type NF G327B001	Direct operated electromagnetic valve, version 3/2, function U (universal), G 1/4“, solid conclusion
Solenoid valve 5/2-way type SCG551B417	Direct operated electromagnetic valve, version 5/2, function U (universal), G 1/4“, (use for double-acting actuators)
Air lock relay, type EIL 200	Retaining device for closing of air pipeline on a pressure drop
Booster-valve type EIL 100	Airflow enhancer

Rozměry pohonů Flowserve 1502 a 3002



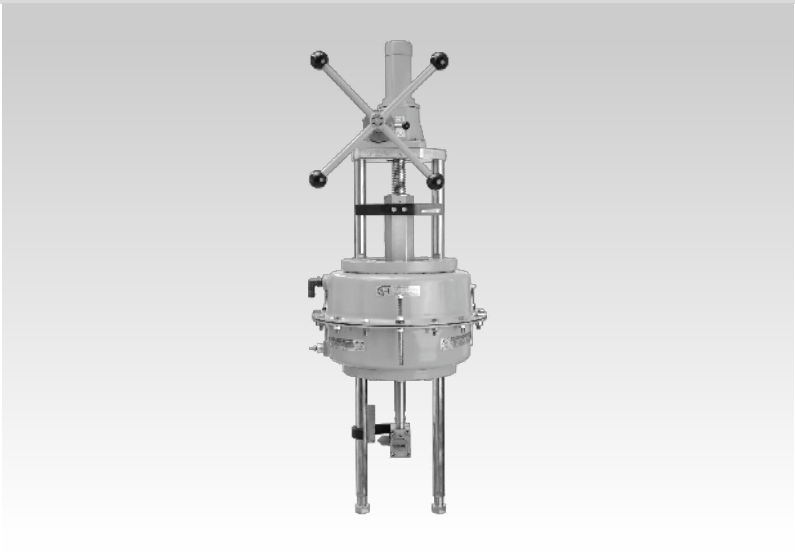
PO 1502 (3002)



PB 1502 (3002)

Specification No. of Flowserve actuators 1502 and 3002

				PX XXXX	X	X X	X	X	X
Type of actuator			1500 cm²	**PO 1502**					
			1500 cm²	**PB 1502**					
			3000 cm²	**PO 3002**					
			3000 cm²	**PB 3002**					
Colour				white	**B**				
Spring range [bar]	PO 1502	H = 80 mm		0,4 - 2,0		**G F**			
				1,5 - 2,7		**V C**			
				2,0 - 3,5		**F S**			
				2,6 - 4,2		**A J**			
	PO 1502	H = 100 mm		0,9 - 1,9		**H L**			
				1,8 - 3,8		**J I**			
				2,0 - 4,3		**F L**			
	PO 3002	H = 100 mm		1,2 - 2,6		**N A**			
Hand wheel				without hand wheel			**O**		
				side light wheel			**S**		
Function				direct				**A**	
				indirect				**Z**	
Travel H				80					**D**
				100					**E**



Pneumatic actuators

A. Hock

2109, 2112, 2112S
2112T, 2116, 2116S

marking in type number:
PHF, PHA, PHB, PHC

A. Hock pneumatic actuators are suitable for applications in extreme conditions and have good shock resistance. Actuators can be supplied in direct, reverse and springless configuration. Broad range of accessories is available.

Technical data

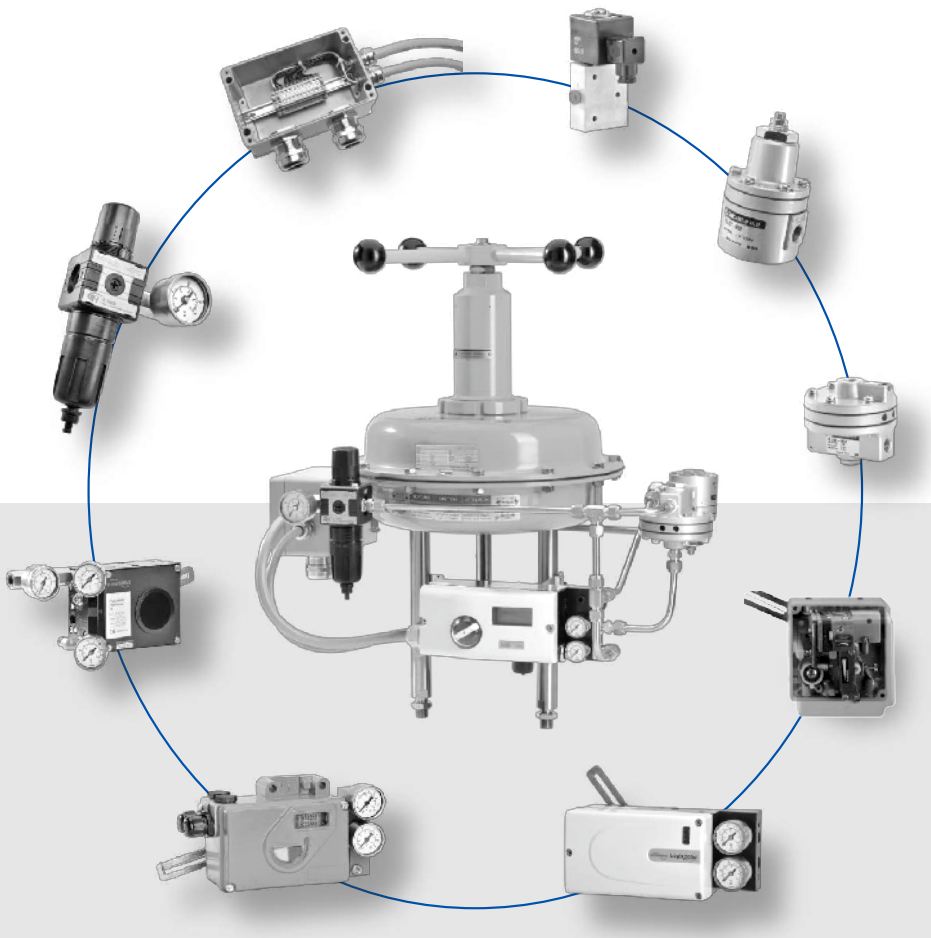
Type	2109	2112	2112S	2112T	2116	2116S
Marking in valve spec. No.	**PHF**	**PHA**		**PHB**	**PHC**	
Max. supply pressure NO, NC	6 bar			acc. to springs	6 bar	
Function double-acting	5,5 bar			3 bar	5,5 bar	
Control	direct (NO), reverse (NC), double-acting					
Nominal force	pneumatic signal 20-100 kPa electric singnal 4-20 mA					
Stroke	according to springs					
Enclosure	16, 20	16, 20, 25, 40		25, 40	40, 80,100	
Process medium max. temp.	according to used valve					
Ambient temperature range	standard -40 to 100 °C alternatively -60 to 80 °C					
Weight	see dimensions table					

Direct and reverse functions

Direct function ensures that actuator's stem retracts upon control air supply failure (valve opens).
Reverse function ensures that actuator's stem extends upon control air supply failure (valve closes).

Accessories

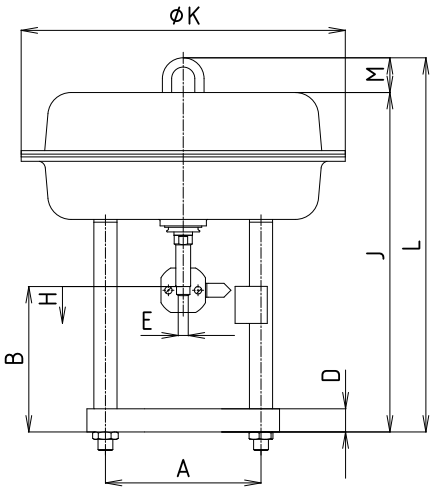
Pneumatic positioner type SRI 981	Device with pneumatic input of 20 - 100 kPa
Electropneumatic positioner type SRI 986	Analog positioner with input signal 4(0) - 20 mA
Electropneumatic positioner (analog) type SRD 990	Device with electric input of 4 (0) - 20 mA and direct pneumatic output into actuator. Adjusted by switches and potentiometers
Electropneumatic positioner (inteligent) type SRD 991	Device with electric input of 4 (0) - 20 mA and outlet of air into actuator. It is adjusted by PC and special software
Electropneumatic positioner (inteligent) type SRD 998	Device with electric input of 4 (0) - 20 mA and direct pneumatic output into actuator. Standard equipment: HART, LED display, adjustment by the multi selector
Electropneumatic positioner SIPART PS2 **Electropneumatic positioner ABB TZIDC**	Digital positioner with input 4(0) – 20 mA
Limit switch type SGE985	Adjustable end limit switches
Air set type G651 (-20 to 50°C) **Air set type FRS 923 (-40 to 80°C)**	Reduces the supply air pressure to a required value
Solenoid valve standard type SC G551A005 **Solenoid valve standard type SC G327B001**	Direct operated electromagnetic valve, version 3/2, function U (universal), G 1/4“
Solenoid valve EEx em b type EM G327B001, explosion-proof	Direct operated electromagnetic valve, eversion 3/2, function U (universal) G 1/4“, with increased safety, encapsulated epoxy moulded
Solenoid valve EEx d type NF G327B001, explosion-proof	Direct operated electromagnetic valve, version 3/2, function U (universal), G 1/4“, flameproof enclosure
Solenoid valve 5/2-way type SCG551B417	Direct operated electromagnetic valve, version 5/2, function U (universal), G 1/4“, (use for double-acting actuators)
Air lock relay, type EIL 200	Retaining device for closing of air pipeline on a pressure drop
Booster-valve type EIL 100	Airflow enhancer



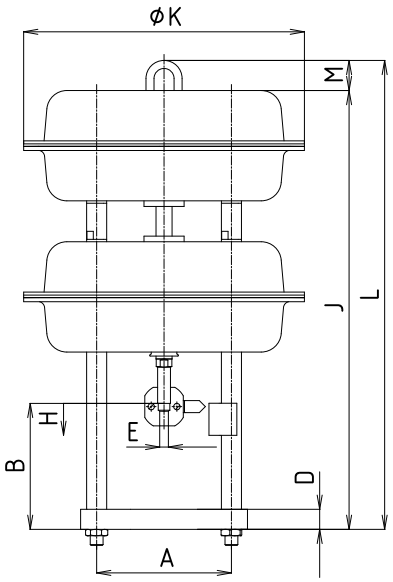
Dimensions and weight of actuators A. Hock series 2000

Typ	Connection version	Main dimensions of diaphragm actuators and manual control												Weight		Hand wheel	
		A [mm]	B [mm]	D [mm]	E [mm]	J [mm]	K [mm]	L [mm]	M [mm]	R [mm]	U [mm]	V [mm]	W [mm]	0,2-1,0 [kg]	> [kg]	side [kg]	upper [kg]
2109	A252	132	162	22	M10x1	349	268	387	38	297		265	210	10	10	7	6
2112-30 (NC)	A253	168	168	23	M10x1	400	352	438	38	316		350	265	20	20	7	8
2112T-30 (NC)	A253	168	168	23	M10x1	587	352	625	38			350	265	36	36		8
2112-30 (NO)	A255	168	157	25	M10x1	367	352	404	38	316		350	265	21	21	7	8
2112T-30 (NO)	A255	168	157	25	M10x1	555	352	593	38			350	265	38	38		8
2112-30 (NO)	A256	168	167	25	M10x1	377	352	414	38	316		350	265	21	21	7	8
2112T-30 (NO)	A256	168	167	25	M10x1	565	352	603	38			350	265	38	38		8
2112-50 (NC)	A254	168	177	25	M16x1,5	387	352	425	38	316		350	265	22	22	7	8
2112S-50 (NC)	A254	168	177	25	M16x1,5	387	352	425	38			350	265		23		8
2112T-50 (NC)	A254	168	177	25	M16x1,5	575	352	613	38			350	265	40	40		8
2112-50 (NO)	A257	168	177	25	M16x1,5	387	352	425	38	316		350	265	22	22	7	8
2112S-50 (NO)	A257	168	177	25	M16x1,5	387	352	425	38			350	264		23		8
2112T-50 (NO)	A257	168	177	25	M16x1,5	575	352	613	38			350	265	38	38		8
2116-40 (NO, NC)	A258	230	190	26	M16x1,5	597	520	654	57		500		670	105	110		48
2116-100 (NO,NC)	A302	150	184	25	M20x1,5	647	520	704	57		500		670	113	118		48
2116S-100 (NO,NC)	A302	150	184	25	M20x1,5	647	520	704	57		500		670		132		48

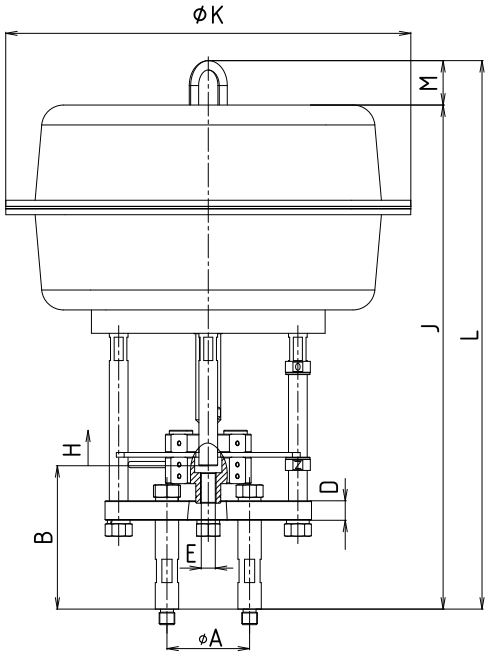
Standard actuator

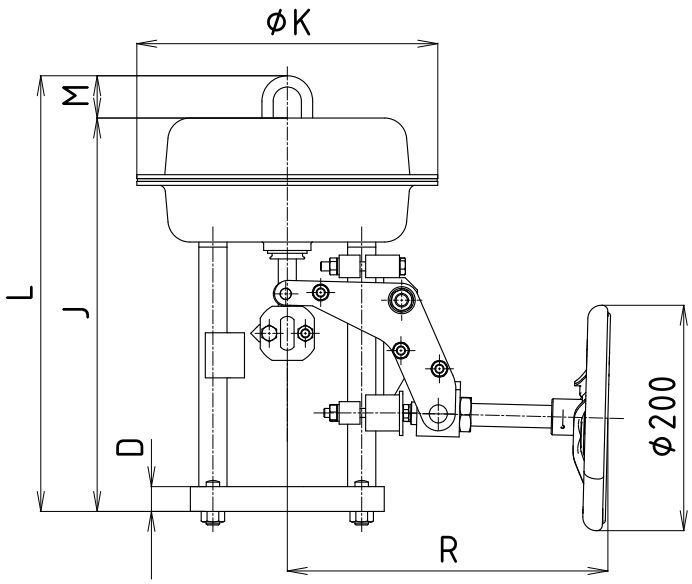


Tandem-type actuator 2112T

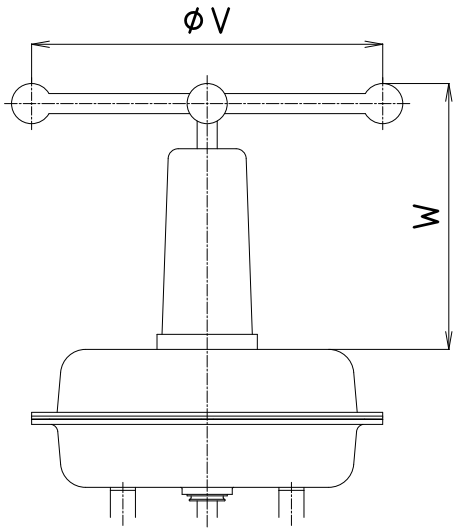


Standard actuator with linear unit 2116(S)

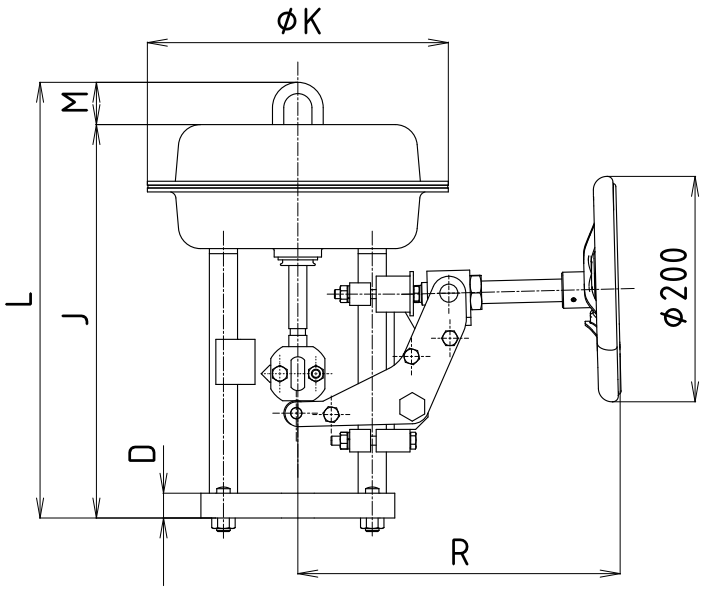




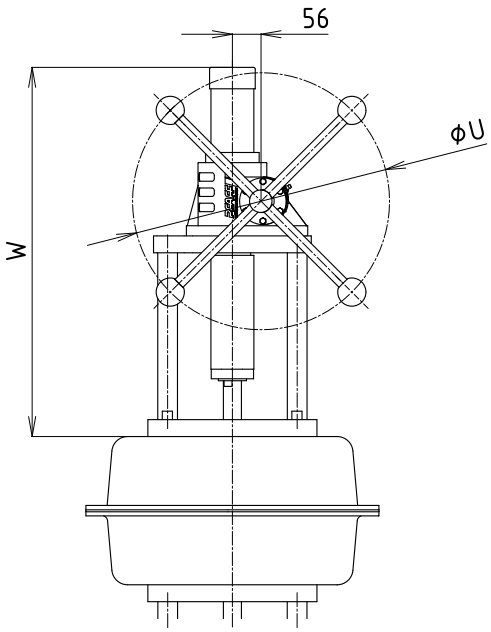
Standard actuator with side wheel (NO)



Upper wheel for actuators 2109, 2112, 2112S, 2112T



Standard actuator with side wheel (NC)



Upper wheel for actuators 2116(S)

Specification No. of actuators A. Hock series 2000

				P2-0K-	X	X	X	(AXXX)
Spring range [bar]	Without hand wheel	0,2 - 1,0	all actuators		A			
		0,8 - 2,2	all actuators, except 2112-50 / 2112T-50		B			
		1,2 - 3,0	2109		V			
		1,5 - 3,8	2109 (NC only)		H			
		1,6 - 3,2	2112-30 (NC only)		M			
		1,4 - 2,8	only 2112-30 / 2112T-30		W			
		1,5 - 3,0	2112T-30 (NC only)		R			
		0,5 - 1,7	2112-50 / 2112T-50		D			
		0,8 - 2,8	2112-50		S			
		0,7 - 2,5	only 2112-50		X			
		0,75 - 2,7	2112T-50 (NC only)		U			
		1,2 - 3,0	only 2112S-50		Y			
		1,4 - 3,4	only 2112S-50		Z			
		1,3 - 3,0	only 2116S-100		Y			
		1,5 - 3,5	only 2116S-100		Z			
	With upper wheel	0,2 - 1,0	all actuators		E			
		0,8 - 2,2	2109 / 2112-30 / 2112T-30		F			
		0,8 - 2,2	2116 / 2116T		F			
		1,2 - 3,0	2109 / 2112S-50		L			
		0,5 - 1,7	2112-50 / 2112T-50		G			
		0,7 - 2,5	2112-50 / 2112T-50		T			
		1,4 - 2,8	2112-30		N			
	With side wheel	0,2 - 1,0	except 2116 / 2116T		I			
		0,8 - 2,2	2109 / 2112-30		K			
		0,5 - 1,7	2112-50		P			
		0,7 - 2,5	2112-50 (NO only)		Q			
	Without hand wheel		Double-acting version		C			
Actuator size / nominal travel	2109-20					L		
	2112-30					M		
	2112-50 / 2112S-50					I		
	2112T-30					P		
	2112T-50					T		
	2116-40, 2116-100, 2116S-100					N		
Function	Direct (NO)						1	
	Reverse (NC)						2	
	Double-acting						3	
Connection version	2109		CV 3XX, NPS ½" - 2½"					A252
	2112-30 (NC) / 2112T-30 (NC)		CV 3XX, NPS ½" - 2½"					A253
	2112-30 (NO)		CV 3XX, NPS ½" - 1½"					A255
	2112-30 (NO) / 2112T-30 (NO)		CV 3XX, NPS 2" - 2½"					A256
	2112-50 (NC) / 2112S-50 (NC) 2112T-50 (NC)		CV 3XX, NPS 3" - 6"					A254
	2112-50 (NO) / 2112S-50 (NO) 2112T-50 (NO)		CV 3XX, NPS 3" - 6"					A257
	2116-40 (only NC & NO)		CV 3XX, NPS 3" - 6"					A258
	2116-100 / 2116S-100 (only NC & NO)		CV 3XX, NPS 8" - 16"					A302

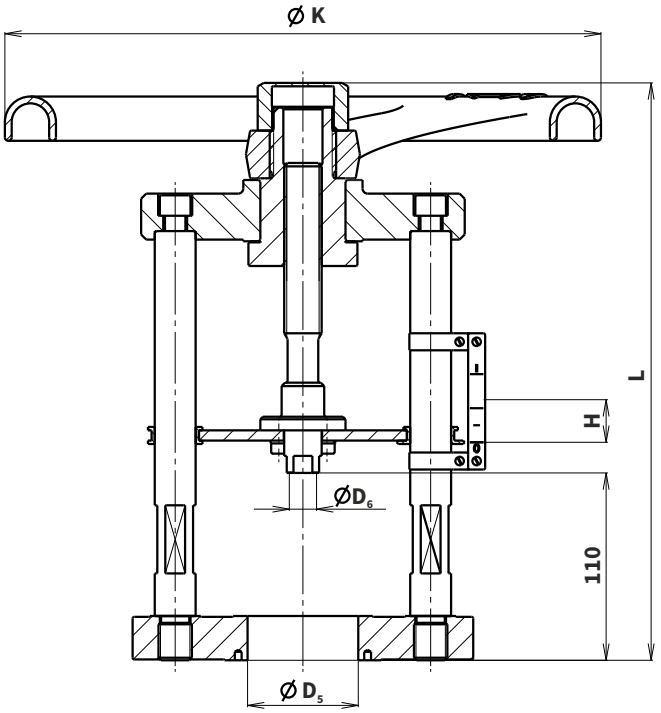
Ordering number example: **P2-0K-BL2 (A252)**

Specification No. of actuators A. Hock (stainless steel version) series 2000

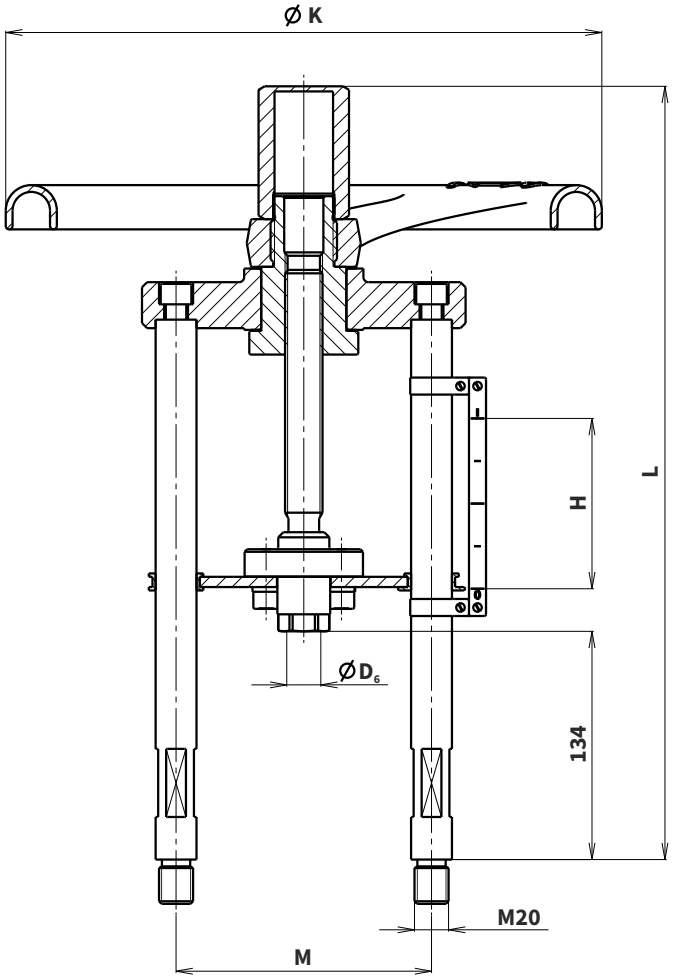
				P5-0K-	X	X	X	(AXXX)
Spring range [bar]	**Without hand wheel**	0,2 - 1,0	all actuators		**A**			
		0,8 - 2,2	all actuators, except 2112-50 / 2112T-50		**B**			
		1,6 - 3,2	2112-30 (NC only)		**M**			
		1,4 - 2,8	only 2112-30 / 2112T-30		**W**			
		1,5 - 3,0	2112T-30 (NC only)		**R**			
		0,5 - 1,7	2112-50 / 2112T-50		**D**			
		0,8 - 2,8	2112-50		**S**			
		0,7 - 2,5	only 2112-50		**X**			
		0,75 - 2,7	2112T-50 (NC only)		**U**			
		1,2 - 3,0	only 2112S-50		**Y**			
		1,4 - 3,4	only 2112S-50		**Z**			
	With upper wheel	0,8 - 2,2	2109 / 2112-30 / 2112T-30		**F**			
		1,2 - 3,0	2109 / 2112S-50		**L**			
		0,5 - 1,7	2112-50 / 2112T-50		**G**			
		0,7 - 2,5	2112-50 / 2112T-50		**T**			
		1,4 - 2,8	2112-30		**N**			
	Without hand wheel	double -acting			**C**			
Actuator size / nominal travel	2109-20					**L**		
	2112-30					**M**		
	2112-50, 2112S-50					**I**		
	2112T-30					**P**		
	2112T-50					**T**		
Function	Direct (NO)						**1**	
	Indirect (NC)						**2**	
	Double-acting						**3**	
Connection version	2109		CV 3XX, NPS ½" - 2½"					**A252**
	2112-30 (NC) / 2112T-30 (NC)		CV 3XX, NPS ½" - 2½"					**A253**
	2112-30 (NO)		CV 3XX, NPS ½" - 1½"					**A255**
	2112-30 (NO) / 2112T-30 (NO)		CV 3XX, NPS 2" - 2½"					**A256**
	2112-50 (NC) / 2112S-50 (NC) 2112T-50 (NC)		CV 3XX, NPS 3" - 6"					**A254**
	2112-50 (NO) / 2112S-50 (NO) 2112T-50 (NO)		CV 3XX, NPS 3" - 6"					**A257**

Ordering number example: **P5-0K-BL2 (A252)**

Hand wheels for RV / UV 3x0 and 3x2



Hand wheel actuating of valves DN 15 - 150



Hand wheel actuating of valves DN 200 - 400

Dimensions of hand wheels

DN	Marking	H [mm]	L [mm]	ØK [mm]	M [mm]	D_5 [mm]	D_6 [mm]	m [kg]	Ordering No. (part list no.)
15	R16	16	247	160	---	65	M10x1	5	S900 0231
20									
25									
32									
40									
50	R20	20	275	195				11	S900 0115
65									
80	R28	40	317	280			M16x1,5	13	S900 0116
100									
125	R35		339	350				15	S900 0117
150									
200		80	454		150	---	M20x1,5		S900 0141
250									
300									
400		100							S900 0235

Specification No. of actuators A. Hock (stainless steel version) series 2000

				P5-0K-	X	X	X	(AXXX)
Spring range [bar]	Without hand wheel	0,2 - 1,0	all actuators		A			
		0,8 - 2,2	all actuators, except 2112-50 / 2112T-50		B			
		1,6 - 3,2	2112-30 (NC only)		M			
		1,4 - 2,8	only 2112-30 / 2112T-30		W			
		1,5 - 3,0	2112T-30 (NC only)		R			
		0,5 - 1,7	2112-50 / 2112T-50		D			
		0,8 - 2,8	2112-50		S			
		0,7 - 2,5	only 2112-50		X			
		0,75 - 2,7	2112T-50 (NC only)		U			
		1,2 - 3,0	only 2112S-50		Y			
		1,4 - 3,4	only 2112S-50		Z			
	With upper wheel	0,8 - 2,2	2109 / 2112-30 / 2112T-30		F			
		1,2 - 3,0	2109 / 2112S-50		L			
		0,5 - 1,7	2112-50 / 2112T-50		G			
		0,7 - 2,5	2112-50 / 2112T-50		T			
		1,4 - 2,8	2112-30		N			
	Without hand wheel	double -acting			C			
Actuator size / nominal travel	2109-20					L		
	2112-30					M		
	2112-50, 2112S-50					I		
	2112T-30					P		
	2112T-50					T		
Function	Direct (NO)						1	
	Indirect (NC)						2	
	Double-acting						3	
Connection version	2109		RV 3XX, DN 15 - 65					A252
	2112-30 (NC) / 2112T-30 (NC)		RV 3XX, DN 15 - 65					A253
	2112-30 (NO)		RV 3XX, DN 15 - 40					A255
	2112-30 (NO) / 2112T-30 (NO)		RV 3XX, DN 50 - 65					A256
	2112-50 (NC) / 2112S-50 (NC) 2112T-50 (NC)		RV 3XX, DN 80 - 150					A254
	2112-50 (NO) / 2112S-50 (NO) 2112T-50 (NO)		RV 3XX, DN 80 - 150					A257

Ordering number example: **P5-0K-BL2 (A252)**

Actuator marking in valve specification No.

Electric actuator Regada Modact MTR	EPD	Electric actuator Schiebel AB5	EZE
Electric actuator Regada ST 0	EPK	Electric actuator Schiebel exAB5	EZF
Electric actuator Redgada ST 0.1	EPL	Electric actuator Schiebel rAB5	EZG
Electric actuator Regada Isomact ST 1 Ex	EPJ	Electric actuator Schiebel exrAB5	EZH
Electric actuator Regada Isomact ST 2	EPM	Electric actuator Schiebel rAB8	EZK
Electric actuator Auma SA 07.2	EAA	Electric actuator Schiebel exrAB8	EZL
Electric actuator Auma SA Ex 07.2	EAB	Electric actuator Rotork IQM10 and IQM12	EQA
Electric actuator Auma SAR 07.2	EAC	Electric actuator Rotork Ex IQM10 and Ex IQM12	EQB
Electric actuator Auma SAR Ex 07.2	EAD	Electric actuator Rotork IQM20	EQD
Electric actuator Auma SA 07.6	EAE	Electric actuator Rotork Ex IQM20	EQE
Electric actuator Auma SA Ex 07.6	EAF	Electric actuator Rotork CVL-500 to CVL-5000	EQL
Electric actuator Auma SAR 07.6	EAG	Pneumatic actuator Flowserve PA 253	PFA
Electric actuator Auma SAR Ex 07.6	EAH	Pneumatic actuator Flowserve PB 503	PFB
Electric actuator Auma SA 10.2	EAI	Pneumatic actuator Flowserve PB 701	PFC
Electric actuator Auma SAR 10.2	EAJ	Pneumatic actuator Flowserve PO 1502	PFD
Electric actuator Auma SAR Ex 10.2	EAK	Pneumatic actuator Flowserve PO 3002	PFE
Electric actuator Auma SA Ex 10.2	EAL	Pneumatic actuator A. Hock 2109-20	PHF
Electric actuator Schiebel AB3	EZA	Pneumatic actuator A. Hock 2112-30, A. Hock 2112-50	PHA
Electric actuator Schiebel exAB3	EZB	Pneumatic actuator A. Hock 2112T-30, A. Hock 2112T-50	PHB
Electric actuator Schiebel rAB3	EZC	Pneumatic actuator A. Hock 2116-40	PHC
Electric actuator Schiebel exrAB3	EZD	Hand wheel for NPS ½" - 1½"	R16
Electric actuator Schiebel AB5	EZE	Hand wheel for NPS 2"	R20
Electric actuator Schiebel exAB5	EZF	Hand wheel for NPS 3" - 4"	R28
		hand wheel for NPS 6" - 16"	R35

Maximal permissible operating pressures according to ASME B16.34-2013 [MPa]

Material	Class	Temperature [°C]																
		RT [1]	50	100	150	200	250	300	325	350	375	400	425	450	475	500	538	550
A216 WCB	150	1.96	1.92	1.77	1.58	1.38	1.21	1.02	0.93	0.84	0.74	0.65	0.55	---	---	---	---	---
	300	5.11	5.01	4.66	4.51	4.38	4.19	3.98	3.87	3.76	3.64	3.47	2.88	---	---	---	---	---
	600	10.21	10.02	9.32	9.02	8.76	8.39	7.96	7.74	7.51	7.27	6.94	5.75	---	---	---	---	---
A217 WC 6[2]	150	1.98	1.95	1.77	1.58	1.38	1.21	1.02	0.93	0.84	0.74	0.65	0.55	0.46	0.37	0.28	0.14	0.14
	300	5.17	5.17	5.15	4.97	4.80	4.63	4.29	4.14	4.03	3.89	3.65	3.52	3.37	3.17	2.57	1.49	1.27
	600	10.34	10.34	10.30	9.95	9.59	9.27	8.57	8.26	8.04	7.76	7.33	7.00	6.77	6.34	5.15	2.98	2.54
A351 CF8M[3]	150	1.90	1.84	1.62	1.48	1.37	1.21	1.02	0.93	0.84	0.74	0.65	0.55	0.46	0.37	0.28	0.14	0.14
	300	4.96	4.81	4.22	3.85	3.57	3.34	3.16	3.09	3.03	2.99	2.94	2.91	2.88	2.87	2.82	2.52	2.50
	600	9.93	9.62	8.44	7.70	7.13	6.68	6.32	6.18	6.07	5.98	5.89	5.83	5.77	5.73	5.65	5.00	4.98

[1] -29°C to 38°C

[2] Normalized annealed material only. The deliberate addition of any element which is not listed in ASTM A 217 is inadmissible, with the exception of Ca and Mg for deoxidation.

[3] With a temperature above 540°C (1004°F) use only when the carbon content is ≥ 0,04%.

Maximal permissible operating pressures according to ASME B16.34-2013 [psig]

Material	Class	Temperature [°F]														
		RT [1]	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050
A216 WCB	150	285	260	230	200	170	140	125	110	95	80	---	---	---	---	---
	300	740	680	655	635	605	570	550	530	505	410	---	---	---	---	---
	600	1480	1360	1310	1265	1205	1135	1100	1060	1015	825	---	---	---	---	---
A217 WC6 [2]	150	290	260	230	200	170	140	125	110	95	80	65	50	35	20	20
	300	750	750	720	695	665	605	590	570	530	510	485	450	320	215	145
	600	1500	1500	1445	1385	1330	1210	1175	1135	1065	1015	975	900	640	430	290
A351 CF8M [3]	150	275	235	215	195	170	140	125	110	95	80	65	50	35	20	20
	300	720	620	560	515	480	450	440	435	425	420	420	415	385	365	360
	600	1440	1240	1120	1025	955	900	885	870	855	845	835	830	775	725	720

[1] -20°F to 100°F

[2] Normalized annealed material only. The deliberate addition of any element which is not listed in ASTM A 217 is inadmissible, with the exception of Ca and Mg for deoxidation.

[3] With a temperature above 540°C (1004°F) use only when the carbon content is ≥ 0,04%.

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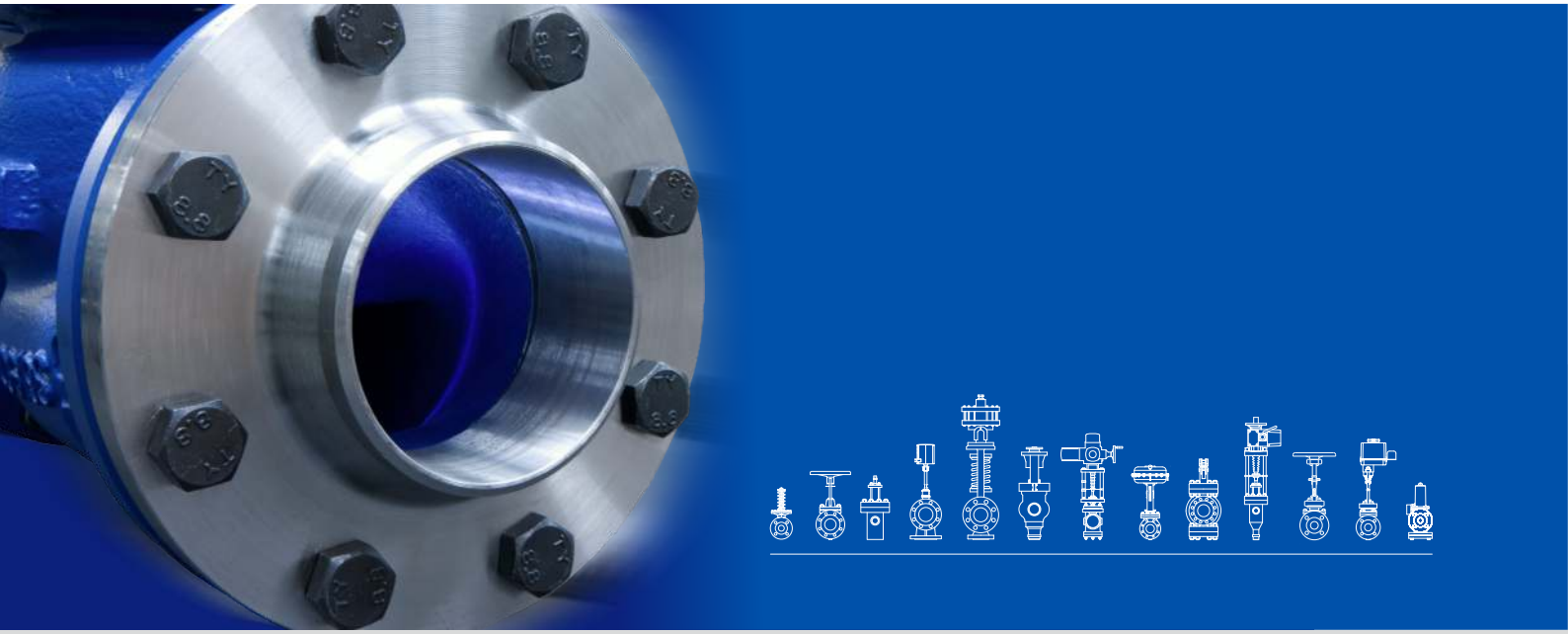
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