CERTIFIED
ISO 9001 · ISO 14001
ISO 45001

LDM®

02 - 09.1
03.20.GB

CONTROL AND SHUT-OFF VALVES
300 line

POWER THROUGH IDEAS
www.ldmvalves.com

300 line

RV / UV 320 (Ex)
RV / UV 330 (Ex)

single-seated,
control (shut-off) valve

RV 322 (Ex)
RV 332 (Ex)

single-seated,
control valve with
pressure-balanced plug

Control valves **RV / UV 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). 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.

The maximal permissible operating pressures in behaviour with types of material and temperature are specified in the table on page 70 of this catalogue.

Control

hand wheel,
electro-mechanics actuators of producers
ZPA Nová Paka, Regada, ZPA Pečky, Schiebel, Auma
pneumatic actuators **Flowserve**

Application

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

Process media

RV / UV 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
RV / UV 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.

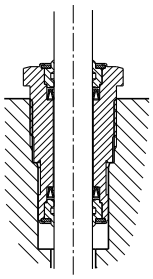
When medium temperature exceeds 150°C, it is necessary to protect the actuator against glowing heat from the pipeline e.g. by the means of proper insulating of the pipeline and valve or by tilting the valve away from the heat radiation.

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

Packings

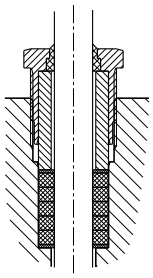
DRSpack® (PTFE)

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.



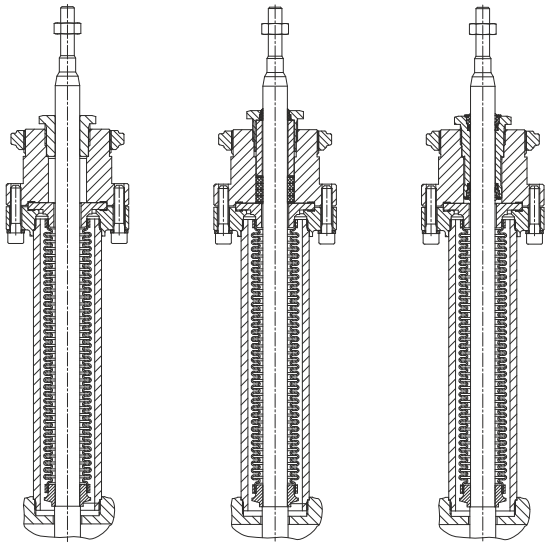
Graphite

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.

RV / UV 3x0

Control and shut-off valves

DN 15 to 400
PN 16 to 63

Technical data

Series		RV / UV 320 (Ex)	RV / UV 330 (Ex)
Type of valve		**Two-way, single-seated, control (shut-off) valve**	
Nominal size range		DN 15 to 400	
Nominal pressure		PN 63 (PN 16 to 63 weld ended)	
Body material		Cast steel 1.0619 (GP240GH) 1.7357 (G17CrMo5-5)	Stainless steel 1.4581(GX5CrNiMoNb19-11-2)
Seat material:	DN 15 - 50	1.4028 / 17 023.6	1.4571 / 17 348.4
DIN W.Nr./+ČSN	DN 65 - 400	1.4027 / 42 2906.5	1.4571 / 17 348.4
Plug material:	DN 15 - 65	1.4028 / 17 023.6	1.4581 / 42 2941.4
DIN W.Nr./+ČSN	DN 80 - 150	1.4021 / 17 027.6	1.4581 / 42 2941.4
	DN 200 - 400	1.4021 / 17 022.6	1.4581 / 42 2941.4
Operating temperature range		-10 to 550 °C	-10 to 550 °C
Face to face dimensions		Section 2 for flanged version acc. to ČSN EN 558+A1 (5/2012), Section 73 for weld ends version acc. to ČSN EN 12982 (1/2011)	
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 ČSN-EN 1349 (7/2010) (<0.1% Kvs) for c. valves with metal-metal seat sealing	
		Class IV. acc. to ČSN-EN 1349 (7/2010) (<0.01% Kvs) for shut off valve	
		Class IV. acc. to ČSN EN 1349 (7/2010) (<0.01% Kvs) pro uzavírací ventil	
Leakage rate for Ex version		RV 3xx class IV. acc. to ČSN EN 1349 (7/2010) (< 0.01% Kvs); UV 3xx step C acc. to ISO 5208:2008	
Rangeability r		50 : 1	
Packing		DRSpack® (PTFE) t_{max} = 260°C, Exp. graphite t_{max} = 550°C, Bellows (DN15-150) t_{max} = 550°C	

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 15 - 400 with countoured and V-ported plugs (flow direction below plug) with electro-mechanic actuators

Δp_{max} value is the valve max. differential pressure when open - close function is always guaranteed. Differential pressure must not exceed 4,0 Mpa for valves PN 40. In regard of service life of seat and plug, it is recommended so that differential pressure would not exceed 1.6 MPa. Otherwise it is suitable to use perforated plug (Δp 4,0 MPa) or sealing surfaces of seat and plug with a hard metal overlay (Δp_{max} up to 2,5 Mpa).

For further information on actuating, see actuators' catalogue sheets	**Actuating (actuating)**	**MIDI 660 ST 0 ST 0.1**	**Auma Schiebel**	**Zepadyn 670 ST 1 Ex ST 0.1**
	Marking in valve specification No.	**ENB EPK EPL**	**EA... EZ...**	**ENC EPJ EPL**
	Linear force	4 kN	5 kN	6,3 kN

			Kvs [m³/h]											**Δp_{max}** packing		**Δp_{max}** packing		**Δp_{max}** packing	
DN	**H**	**Ds**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**graphite**	**PTFE**	**graphite**	**PTFE**	**graphite**	**PTFE**
15	16	3	---	---	---	---	---	---	---	0.16[3]	0.1...0.01[3]			6.3	6.3	6.3	6.3	6.3	6.3
		6	---	---	---	---	---	---	0.25[1]	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		12	---	2.5[1]	1.6[1]	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		15	4.0[1]	---	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
20		3	---	---	---	---	---	---	---	---	0.16...0.01[3]			6.3	6.3	6.3	6.3	6.3	6.3
		6	---	---	---	---	---	---	---	0,25[1]	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	---	1.0[1]	0,63[1]	0,4[1]	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		12	---	---	2.5[1]	1.6[1]	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		15	---	4.0[1]	---	---	---	---	---	---	---	---	---	5.5	6.3	6.3	6.3	6.3	6.3
		20	6.3[1]	---	---	---	---	---	---	---	---	---	---	2.62	6.3	6.3	6.3	6.3	6.3
25		3	---	---	---	---	---	---	---	---	---	0.16...0.01[3]		6.3	6.3	6.3	6.3	6.3	6.3
		6	---	---	---	---	---	---	---	---	0.25[1]	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		12	---	---	---	2.5[1]	1.6[1]	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		15	---	---	4.0[1]	---	---	---	---	---	---	---	---	5.5	6.3	6.3	6.3	6.3	6.3
		20	---	6.3[2]	---	---	---	---	---	---	---	---	---	2.62	6.3	5.56	6.3	6.3	6.3
		25	10.0	6.3[4]	4.0[4]	---	---	---	---	---	---	---	---	1.53	5.42	3.36	6.3	5.73	6.3
32		6	---	---	---	---	---	---	---	---	---	0.25[1]	---	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		12	---	---	---	---	2.5[1]	1.6[1]	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		15	---	---	---	4.0[1]	---	---	---	---	---	---	---	5.5	6.3	6.3	6.3	6.3	6.3
		20	---	---	6.3[2]	---	---	---	---	---	---	---	---	2.62	5.56	6.3	6.3	6.3	6.3
		32	16	10	6.3[4]	---	---	---	---	---	---	---	---	0.85	1.95	4.31	4.31	3.39	5.74
40		6	---	---	---	---	---	---	---	---	---	---	0.25[1]	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	---	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	6.3	6.3	6.3	6.3	6.3	6.3
		12	---	---	---	---	---	2.5[1]	1.6[1]	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		15	---	---	---	---	4.0[2]	---	---	---	---	---	---	5.5	6.3	6.3	6.3	6.3	6.3
		20	---	---	---	6.3[2]	---	---	---	---	---	---	---	2.62	6.3	5.56	6.3	6.3	6.3
		40	25	16	10	6.3[4]	4.0[4]	---	---	---	---	---	---	0.49	2.0	1.2	2.71	2.12	3.64

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
[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	Actuating (actuator)	Auma Schiebel ST 1	Auma Schiebel ST 1 Zepadyn 670 Modact MTR	Hand wheel
	Marking in valve specification No.	EA... EZ... EPI	EA... EZ... EPI ENC EPD	Rxx
	Linear force	7.5 kN	10 kN	

DN	H	Ds	Kvs [m³/h] 1	2	3	4	5	6	7	8	9			Δp_{max} packing graphite	PTFE	Δp_{max} packing graphite	PTFE	Δp_{max} packing graphite	PTFE
15	16	3	---	---	---	---	---	---	---	0.16[3]	0.1...0.01[3]			6.3	6.3	6.3	6.3	6.3	6.3
		6	---	---	---	---	---	---	0.25[1]	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		12	---	2.5[1]	1.6[1]	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		15	4.0[1]	---	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
20		3	---	---	---	---	---	---	---	---	0.16...0.01[3]			6.3	6.3	6.3	6.3	6.3	6.3
		6	---	---	---	---	---	---	---	0,25[1]	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	---	1.0[1]	0,63[1]	0,4[1]	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		12	---	---	2.5[1]	1.6[1]	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		15	---	4.0[1]	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		20	6.3[1]	---	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
25		3	---	---	---	---	---	---	---	---	---	0.16...0.01[3]		6.3	6.3	6.3	6.3	6.3	6.3
		6	---	---	---	---	---	---	---	---	0.25[1]	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		12	---	---	---	2.5[1]	1.6[1]	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		15	---	---	4.0[1]	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		20	---	6.3[2]	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		25	10.0	6.3[4]	4.0[4]	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
32		6	---	---	---	---	---	---	---	---	---	0.25[1]	---	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		12	---	---	---	---	2.5[1]	1.6[1]	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		15	---	---	---	4.0[1]	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		20	---	---	6.3[2]	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		32	16	10	6.3[4]	---	---	---	---	---	---	---	---	4.72	6.3	6.3	6.3	6.3	6.3
40		6	---	---	---	---	---	---	---	---	---	---	0.25[1]	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	---	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	6.3	6.3	6.3	6.3	6.3	6.3
		12	---	---	---	---	---	2.5[1]	1.6[1]	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		15	---	---	---	---	4.0[2]	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		20	---	---	---	6.3[2]	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3
		40	25	16	10	6.3[4]	4.0[4]	---	---	---	---	---	---	2.98	4.49	4.75	6.26	4.75	6.26

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
[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

			Actuating (actuator)					MIDI 660 ST 0 ST 0.1		Auma Schiebel		Zepadyn 670 ST 1 Ex ST 0.1		Auma Schiebel ST 1		Auma Schiebel ST 1		Zepadyn 670 Modact MTR	
			Marking in valve specification No.					ENB EPK EPL		EA... EZ...		ENC EPJ EPL		EA... EZ... EPI		EA... EZ... EPI		ENC EPD	
			Linear force					4 kN		5 kN		6.3 kN		7.5 kN		10 kN		10 kN	
			Kvs [m³/h]					Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing	
DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
50	20	50	40	25	16	10	6.3[4]	0.25	1.16	0.68	1.58	1.23	2.14	1.74	2.65	2.8	3.71	2.8	3.71
65		65	63	40	25	16	10	0.11	0.67	0.37	0.93	0.71	1.27	1.02	1.58	1.67	2.23	1.67	2.23
80	40	80	100	63	40	25	16	---	---	---	---	0.23	0.68	0.45	0.9	0.9	1.35	0.9	1.35
100		100	160	100	63	40	25	---	---	---	---	0.13	0.42	0.27	0.56	0.56	0.85	0.56	0.85
125		125	250	160	100	63	40	---	---	---	---	0.06	0.25	0.15	0.34	0.34	0.53	0.34	0.53
150		150	360	250	160	100	63	---	---	---	---	---	0.16	0.1	0.23	0.23	0.36	0.23	0.36

For further information on actuating, see actuators catalogue sheets

*) max. DN 300

			Actuating (actuator)					Modact Cont. Modact MTN Auma Schiebel		Modact MTR ST 2 Zepadyn 671*)		Auma Schiebel Zepadyn 671*) ST 2		Modact MTR Modact MTN Modact Cont. ST 2		Auma Schiebel		Hand wheel	
			Marking in valve specification No.					EYA EYB EA... EZ...		EPD EPM ENE		EA... EZ... ENE EPM		EPD EYA EYB EPM		EA... EZ...		Rxx	
			Linear force					15 kN		16 kN		20 kN		25 kN		32 kN			
			Kvs [m³/h]					Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing	
DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
50	20	50	40	25	16	10	6.3[4]	4.93	5.89	---	---	---	---	---	---	---	---	2.8	3.71
65		65	63	40	25	16	10	2.97	3.53	---	---	---	---	---	---	---	---	1.67	2.23
80	40	80	100	63	40	25	16	1.8	2.25	1.98	2.43	2.70	3.15	3.60	4.05	---	---	1.98	2.43
100		100	160	100	63	40	25	1.14	1.43	1.26	1.55	1.73	2.02	2.31	2.60	---	---	1.26	1.55
125		125	250	160	100	63	40	0.72	0.91	0.8	0.99	1.10	1.29	1.48	1.67	---	---	0.8	0.99
150		150	360	250	160	100	63	0.49	0.63	0.55	0.68	0.76	0.89	1.02	1.16	---	---	0.55	0.68
200	80	100	---	---	250	160	100	1.02	1.36	1.14	1.48	1.61	1.95	2.2	2.54	3.03	3.37	3.98	4.32
		150	---	400	---	---	---	0.43	0.59	0.49	0.64	0.7	0.85	0.97	1.12	1.34	1.49	1.77	1.92
		200	570	---	---	---	---	0.23	0.32	0.26	0.35	0.38	0.47	0.53	0.62	0.75	0.83	0.99	1.08
250	80	150	---	---	400	250	160	0.34	0.51	0.39	0.57	0.61	0.78	0.88	1.05	1.26	1.43	1.69	1.86
		200	---	630	---	---	---	0.17	0.27	0.21	0.30	0.33	0.43	0.48	0.58	0.69	0.79	0.94	1.04
		230	800	---	---	---	---	0.13	0.20	0.15	0.22	0.24	0.32	0.36	0.43	0.52	0.60	0.71	0.78
300	80	150	---	---	---	400	250	0.34	0.51	0.39	0.57	0.61	0.78	0.88	1.05	1.26	1.43	1.69	1.86
		200	---	---	630	---	---	0.17	0.27	0.21	0.30	0.33	0.43	0.48	0.58	0.69	0.79	0.94	1.04
		230	---	800	---	---	---	0.13	0.20	0.15	0.22	0.24	0.32	0.36	0.43	0.52	0.60	0.71	0.78
		250	1000	---	---	---	---	0.10	0.17	0.12	0.19	0.20	0.26	0.30	0.36	0.44	0.50	0.59	0.66
400	100	150	---	---	---	400	250	0.34	0.51	0.39	0.57	0.61	0.78	0.88	1.05	1.26	1.43	1.69	1.86
		200	---	---	630	---	---	0.17	0.27	0.21	0.30	0.33	0.43	0.48	0.58	0.69	0.79	0.94	1.04
		250	---	1000	---	---	---	0.10	0.17	0.12	0.19	0.20	0.26	0.30	0.36	0.44	0.50	0.59	0.66
		330	1600	---	---	---	---	0.05	0.09	0.06	0.10	0.11	0.14	0.16	0.20	0.24	0.28	0.33	0.37

[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
[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.

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 15 - 400 with countoured and V-ported plugs (flow direction below plug) with pneumatic actuators

Δp_{max} value is the valve max. differential pressure when open - close function is always guaranteed. Differential pressure must not exceed 4,0 Mpa for valves PN 40. In regard of service life of seat and plug, it is recommended so that differential pressure would not exceed 1.6 MPa. Otherwise it is suitable to use perforated plug (Δp 4,0 MPa) or sealing surfaces of seat and plug with a hard metal overlay (Δp_{max} up to 2,5 Mpa).

For further information on actuating, see actuators' catalogue sheets

Pneumatic actuators		Flowserve PA 253	
Specification No. of actuator		direct	indirect
Actuator function		BDYxAA	BFYxZA
Spring range	[bar]	1.0 - 2.4	2.0 - 4.8
Spring setting	[bar]	1.0 - 2.12	2.56 - 4.8
Feeding pressure	[bar]	4.8	5.8
Marking in valve specification No.		PFA	
Linear force		6.4 kN	6.4 kN

DN	H	Ds	Kvs [m³/h] 1	2	3	4	5	6	7	8	9			Δp_{max} packing graphite	PTFE	Δp_{max} packing graphite	PTFE
15	16	3	---	---	---	---	---	---	---	0.16[3]	0.1...0.01[3]			6.3	6.3	6.3	6.3
		6	---	---	---	---	---	---	0.25[1]	---	---	---	---	6.3	6.3	6.3	6.3
		8	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	---	---	---	---	6.3	6.3	6.3	6.3
		12	---	2.5[1]	1.6[1]	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3
		15	4.0[1]	---	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3
20		3	---	---	---	---	---	---	---	---	0.16...0.01[3]			6.3	6.3	6.3	6.3
		6	---	---	---	---	---	---	---	0,25[1]	---	---	---	6.3	6.3	6.3	6.3
		8	---	---	---	---	1.0[1]	0,63[1]	0,4[1]	---	---	---	---	6.3	6.3	6.3	6.3
		12	---	---	2.5[1]	1.6[1]	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3
		15	---	4.0[1]	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3
		20	6.3[1]	---	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3
25		3	---	---	---	---	---	---	---	---	---	0.16...0.01[3]		6.3	6.3	6.3	6.3
		6	---	---	---	---	---	---	---	---	0.25[1]	---	---	6.3	6.3	6.3	6.3
		8	---	---	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	---	---	6.3	6.3	6.3	6.3
		12	---	---	---	2.5[1]	1.6[1]	---	---	---	---	---	---	6.3	6.3	6.3	6.3
		15	---	---	4.0[1]	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3
		20	---	6.3[2]	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3
		25	10.0	6.3[4]	4.0[4]	---	---	---	---	---	---	---	---	5.91	6.3	5.91	6.3
32		6	---	---	---	---	---	---	---	---	---	0.25[1]	---	6.3	6.3	6.3	6.3
		8	---	---	---	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	---	6.3	6.3	6.3	6.3
		12	---	---	---	---	2.5[1]	1.6[1]	---	---	---	---	---	6.3	6.3	6.3	6.3
		15	---	---	---	4.0[1]	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3
		20	---	---	6.3[2]	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3
		32	16	10	6.3[4]	---	---	---	---	---	---	---	---	3.5	5.86	3.5	5.86
40		6	---	---	---	---	---	---	---	---	---	---	0.25[1]	6.3	6.3	6.3	6.3
		8	---	---	---	---	---	---	---	1.0[1]	0.63[1]	0.4[1]	---	6.3	6.3	6.3	6.3
		12	---	---	---	---	---	2.5[1]	1.6[1]	---	---	---	---	6.3	6.3	6.3	6.3
		15	---	---	---	---	4.0[2]	---	---	---	---	---	---	6.3	6.3	6.3	6.3
		20	---	---	---	6.3[2]	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3
		40	25	16	10	6.3[4]	4.0[4]	---	---	---	---	---	---	2.19	3.71	2.19	3.71

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
[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 PA 253		Flowserve PB 503		Flowserve PB 503		Flowserve PB 701	
Specification No. of actuator			direct	indirect	direct	indirect	direct	indirect	direct	indirect
Actuator function			BDYxAA	BFYxZA	BBLxAA	BFYxZA	BBLxAB	BFYxZB	BBLxAB	BFYxZB
Spring range	[bar]		1.0 - 2.4	2.0 - 4.8	0.5 - 1.9	2.0 - 4.8	0.5 - 1.9	2.0 - 4.8	0.5 - 1.9	2.0 - 4.8
Spring setting	[bar]		1.0 - 2.4	2.0 - 4.8	0.5 - 1.9	2.0 - 4.8	0.5 - 1.9	2.0 - 4.8	0.5 - 1.9	2.0 - 4.8
Feeding pressure	[bar]		6.0	5.8	5.3	5.3	4.1	5.4	4.1	5.3
Marking in valve spec.			PFA		PFB		PFB		PFC	
Linear force			8.5 kN	5 kN	10 kN	10 kN	10 kN	10 kN	14 kN	14 kN
Kvs [m³/h]			Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}	
			packing		packing		packing		packing	

DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
50	20	50	40	25	16	10	6.3[4]	2.16	3.07	0.68	1.58	2.8	3.71	2.8	3.71	---	---	---	---	---	---	---	---	---	---
65		65	63	40	25	16	10	1.28	1.84	0.37	0.93	1.67	2.23	1.67	2.23	---	---	---	---	---	---	---	---	---	---
80	40	80	100	63	40	25	16	---	---	---	---	---	---	---	---	0.9	1.35	0.9	1.35	1.62	2.07	1.62	2.07		
100		100	160	100	63	40	25	---	---	---	---	---	---	---	---	0.56	0.85	0.56	0.85	1.03	1.32	1.03	1.32		
125		125	250	160	100	63	40	---	---	---	---	---	---	---	---	0.34	0.53	0.34	0.53	0.65	0.84	0.65	0.84		
150		150	360	250	160	100	63	---	---	---	---	---	---	---	---	0.23	0.36	0.23	0.36	0.44	0.57	0.44	0.57		

[4] V-ported plug with linear characterictic only

For further information on actuating, see actuators catalogue sheets

Pneumatic actuators			Flowserve PO 1502									
Specification No. of actuator			direct	indirect	direct	indirect	direct	indirect				
Actuator function			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				
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				
Feeding pressure	[bar]		3.5	3.1	4.0	3.9	4.6	4.6				
Marking in valve spec.			PFD									
Linear force			22.5 kN	22.5 kN	30 kN	30 kN	38 kN	38 kN				
Kvs [m³/h]			Δp_{max}		Δp_{max}		Δp_{max}					
			packing		packing		packing					

DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
200	80	100	---	---	250	160	100	1.91	2.25	1.91	2.25	2.8	3.14	2.8	3.14	3.74	4.08	3.74	4.08
		150	---	400	---	---	---	0.83	0.99	0.83	0.99	1.23	1.39	1.23	1.39	1.66	1.81	1.66	1.81
		200	570	---	---	---	---	0.46	0.55	0.46	0.55	0.69	0.77	0.69	0.77	0.93	1.02	0.93	1.02
250	80	150	---	---	400	250	160	0.74	0.92	0.74	0.92	1.15	1.32	1.15	1.32	1.58	1.76	1.58	1.76
		200	---	630	---	---	---	0.40	0.50	0.40	0.50	0.63	0.73	0.63	0.73	0.88	0.98	0.88	0.98
		230	800	---	---	---	---	0.30	0.37	0.30	0.37	0.47	0.55	0.47	0.55	0.66	0.73	0.66	0.73
300	80	150	---	---	---	400	250	0.74	0.92	0.74	0.92	1.15	1.32	1.15	1.32	1.58	1.76	1.58	1.76
		200	---	---	630	---	---	0.40	0.50	0.40	0.50	0.63	0.73	0.63	0.73	0.88	0.98	0.88	0.98
		230	---	800	---	---	---	0.30	0.37	0.30	0.37	0.47	0.55	0.47	0.55	0.66	0.73	0.66	0.73
		250	1000	---	---	---	---	0.25	0.31	0.25	0.31	0.40	0.46	0.40	0.46	0.55	0.62	0.55	0.62

For further information on actuating, see actuators catalogue sheets

Pneumatic actuators			Flowserve PO 1502		Flowserve PO 3002	
Specification No. of actuator			direct	indirect	direct	indirect
Actuator function			BGFxAD	BVCxZD	BGFxAD	BFSxZD
Spring range	[bar]		0.9 - 1.9	2.0 - 4.3	0.9 - 1.9	1.2 - 2.6
Spring setting	[bar]		0.9 - 1.9	2.0 - 4.3	0.9 - 1.9	1.2 - 2.6
Feeding pressure	[bar]		4.0	5.2	4.5	3.2
Marking in valve spec.			PFD		PFE	
Linear force			30 kN	30 kN	38 kN	36 kN
Kvs [m³/h]			Δp_{max}		Δp_{max}	
			packing		packing	

DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
400	100	150	---	---	---	400	250	1.15	1.32	1.15	1.32	1.58	1.76	1.47	1.65
		200	---	---	630	---	---	0.63	0.73	0.63	0.73	0.88	0.98	0.82	0.92
		250	---	1000	---	---	---	0.40	0.46	0.40	0.46	0.55	0.62	0.52	0.58
		330	1600	---	---	---	---	0.22	0.26	0.22	0.26	0.31	0.35	0.29	0.33

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] of valves DN 25 - 400 with perforated plugs (flow direction above plug) with electromechanic actuators

Δp_{max} value is the valve max. differential pressure when open - close function is always guaranteed. Differential pressure must not exceed 4,0 MPa. In regard of service life of seat and plug, it is recommended so that differential pressure would not exceed 1.6 MPa. Otherwise it is suitable to use perforated plug (Δp 4,0 MPa)

For further information on actuating, see actuators' catalogue sheets			Actuating (actuator)	MIDI 660 ST 0 ST 0.1		Auma Schiebel		Zepadyn 670 ST 1 Ex ST 0.1		Auma Schiebel ST 1		Auma Schiebel ST 1		Zepadyn 670 Modact MTR	
			Marking in valve specification No.	ENB EPK EPL		EA... EZ...		ENC EPJ EPL		EA... EZ... EPI		EA... EZ... EPI		ENC EPD	
			Linear force	4 kN		5 kN		6.3 kN		7.5 kN		10 kN		10 kN	
			Kvs [m³ /h]	Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing	
DN	H	Ds	1	2	3	4	5	grafit	PTFE	grafit	PTFE	grafit	PTFE	grafit	PTFE	grafit	PTFE
25	16	25	---	6.3	4.0	2.5[5]	1.6[5]	1.53	5.42	3.36	6.3	5.73	6.3	6.3	6.3	6.3	6.3
32		32	---	10	6.3	4.0	2.5[5]	0.85	3.2	1.95	4.31	3.39	5.74	4.72	6.3	6.3	6.3
40		40	---	16	10	6.3	4.0	0.49	2.0	1.2	2.71	2.12	3.64	2.98	4.49	4.75	6.26
50	20	50	---	25	16	10	6.3	0.25	1.16	0.68	1.58	1.23	2.14	1.74	2.65	2.8	3.71
65		65	---	40	25	16	10	0.11	0.67	0.37	0.93	0.71	1.27	1.02	1.58	1.67	2.23
80	40	80	---	63	40	25	16	---	---	---	---	0.23	0.68	0.45	0.9	0.9	1.35
100		100	---	100	63	40	25	---	---	---	---	0.13	0.42	0.27	0.56	0.56	0.85
125		125	---	160	100	63	40	---	---	---	---	0.06	0.25	0.15	0.34	0.34	0.53
150		150	---	250	160	100	63	---	---	---	---	---	0.16	0.1	0.23	0.23	0.36

For further information on actuating, see actuators' catalogue sheets *) max. DN 300			Actuating (actuator)	Modact Cont. Modact MTN Auma Schiebel		Modact MTR ST 2 Zepadyn 671*)		Auma Schiebel Zepadyn 671*) ST 2		Modact MTR Modact MTN Modact Cont. ST 2		Auma Schiebel		Hand wheel	
			Marking in valve specification No.	EYA EYB EA... EZ...		EPD EPM ENE		EA... EZ... ENE EPM		EPD EYA EYB EPM		EA... EZ...		Rxx	
			Linear force	15 kN		16 kN		20 kN		25 kN		32 kN			
			Kvs [m³ /h]	Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing		Δp_{max} packing	
DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
25	16	25	---	6.3	4.0	2.5[5]	1.6[5]	---	---	---	---	---	---	---	---	---	---	6.3	6.3
32		32	---	10	6.3	4.0	2.5[5]	---	---	---	---	---	---	---	---	---	---	6.3	6.3
40		40	---	16	10	6.3	4.0	---	---	---	---	---	---	---	---	---	---	4.75	6.26
50	20	50	---	25	16	10	6.3	4.93	5.89	---	---	---	---	---	---	---	---	2.8	3.71
65		65	---	40	25	16	10	2.97	3.53	---	---	---	---	---	---	---	---	1.67	2.23
80	40	80	---	63	40	25	16	1.8	2.25	1.98	2.43	2.70	3.15	3.60	4.05	---	---	1.98	2.43
100		100	---	100	63	40	25	1.14	1.43	1.26	1.55	1.73	2.02	2.31	2.60	---	---	1.26	1.55
125		125	---	160	100	63	40	0.72	0.91	0.8	0.99	1.10	1.29	1.48	1.67	---	---	0.8	0.99
150		150	---	250	160	100	63	0.49	0.63	0.55	0.68	0.76	0.89	1.02	1.16	---	---	0.55	0.68
200	80	200	---	400	250	160	100	0.23	0.32	0.26	0.35	0.38	0.47	0.53	0.62	0.75	0.83	0.99	1.08
250		230	---	630	400	250	160	0.13	0.20	0.15	0.22	0.24	0.32	0.36	0.43	0.52	0.60	0.71	0.78
300		250	---	800	630	400	250	0.10	0.17	0.12	0.19	0.20	0.26	0.30	0.36	0.44	0.50	0.59	0.66
400	100	330	---	1000	630	400	250	0.05	0.09	0.06	0.10	0.11	0.14	0.16	0.20	0.24	0.28	0.33	0.37

[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.

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 25 - 200 with perforated plugs (flow direction above plug) with pneumatic actuators

Δp_{max} value is the valve max. differential pressure when open - close function is always guaranteed. Differential pressure must not exceed 4,0 MPa. In regard of service life of seat and plug, it is recommended so that differential pressure would not exceed 1.6 MPa. Otherwise it is suitable to use perforated plug (Δp 4,0 MPa)

For further information on actuating, see actuators catalogue sheets

			Pneumatic actuators					Flowserve PA 253						Flowserve PB 503			
			Spec. No. of actuator					direct		indirect		direct		indirect		direct	
			Actuator function					BVCxAA		BVCxZA		BVCxAA		BVCxZA		BVCxAA	
			Spring range [bar]					1.5 - 2.7		1.5 - 2.7		1.5 - 2.7		1.5 - 2.7		1.5 - 2.7	
			Spring setting [bar]					1.5 - 2.46		1.75 - 2.7		1.5 - 2.7		1.5 - 2.7		1.5 - 2.7	
			Feeding pressure [bar]					4.5		4.5		4.5		4.5		4.5	
			Marking in valve spec.					PFA								PFB	
			Linear force					4.3 kN		4.3 kN		3.7 kN		3.7 kN		7.5 kN	
			Kvs [m³ /h]					Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}	
								packing		packing		packing		packing		packing	
DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
25	16	25	---	6.3	4.0	2.5[5)]	1.6[5)]	0.77	1.55	0.77	1.55	---	---	---	---	---	---
32		32	---	10	6.3	4.0	2.5[5)]	0.46	0.94	0.46	0.94	---	---	---	---	---	---
40		40	---	16	10	6.3	4.0	0.3	0.6	0.3	0.6	---	---	---	---	---	---
50	20	50	---	25	16	10	6.3	---	---	---	---	0.13	0.31	0.13	0.31	0.45	0.63
65		65	---	40	25	16	10	---	---	---	---	0.08	0.19	0.08	0.19	0.28	0.39

0.45	0.63	0.45	0.63
0.28	0.39	0.28	0.39

[5)] linear characteristic only

For further information on actuating, see actuators catalogue sheets

			Pneumatic actuators					Flowserve PB 503				Flowserve PB 701			
			Spec. No. of actuator					direct		indirect		direct		indirect	
			Actuator function					BVCxAB		BVCxZB		BVCxAB		BVCxZB	
			Spring range [bar]					1.5 - 2.7		1.5 - 2.7		1.5 - 2.7		1.5 - 2.7	
			Spring setting [bar]					1.5 - 2.7		1.75 - 2.7		1.5 - 2.7		1.5 - 2.7	
			Feeding pressure [bar]					4.5		4.5		4.5		4.5	
			Marking in valve spec.					PFB				PFC			
			Linear force					7.5 kN		7.5 kN		10.5 kN		10.5 kN	
			Kvs [m³ /h]					Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}	
								packing		packing		packing		packing	
DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	grafit	PTFE	grafit	PTFE
80	40	80	---	63	40	25	16	0.18	0.27	0.18	0.27	0.28	0.37	0.28	0.37
100		100	---	100	63	40	25	0.11	0.17	0.11	0.17	0.18	0.24	0.18	0.24
125		125	---	160	100	63	40	0.07	0.11	0.07	0.11	0.12	0.16	0.12	0.16
150		150	---	250	160	100	63	0.05	0.08	0.05	0.08	0.08	0.11	0.08	0.11

For further information on actuating, see actuators catalogue sheets

			Pneumatic actuators					Flowserve PO 1502						Flowserve PO 3002			
			Spec. No. of actuator					direct		indirect		direct		indirect		direct	
			Actuator function					BVCxAD		BVCxZD		BFSxAD		BFSxZD		BEPxAD	
			Spring range [bar]					1.5 - 2.7		1.5 - 2.7		2.0 - 3.5		2.0 - 3.5		1.3 - 2.1	
			Spring setting [bar]					1.5 - 2.7		1.5 - 2.7		2.0 - 3.5		2.0 - 3.5		1.3 - 2.1	
			Feeding pressure [bar]					4.5		4.5		5.5		5.5		3.4	
			Marking in valve spec.					PFD								PFE	
			Linear force					22.5 kN		22.5 kN		30 kN		30 kN		39 kN	
			Kvs [m³ /h]					Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}	
								packing		packing		packing		packing		packing	
DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
200	80	200	---	400	250	160	100	0.12	0.14	0.12	0.14	0.16	0.18	0.16	0.18	0.22	0.24

0.22	0.24	0.22	0.24

the table continues on the next page

Valves of serie RV 3x0 DN 250 - 400 with pneumatic actuators are not available with perforated plugs.

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

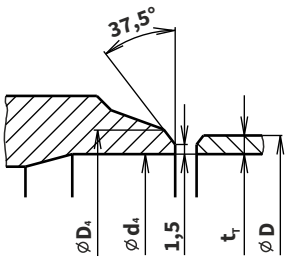
Dimensions and weights of valves RV / UV 3x0 (Ex) with flanged and welded connection, DN 15 - 400

DN	H	L_1	V_1	V_2	#V_2	V_3	#V_3	V_4	$ØD_1$	$ØD_2$	$ØD_3$	a	d	n	$ØD_5$	M	$ØD_6$	L_2	V_5	$ØD_4$	m_1	m_2	#m_v
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	kg	kg	kg
15	16	210	52.5	90	328	220	458	130	105	75	45	20	14	4	65	---	M10x1	203	47	22	7	4.5	4
20		230	65	90	328	220	458		130	90	58	22	18					206	47	28	8.5	4.5	4
25		230	70	100	336	230	466		140	100	68	24	18					210	52	35	10.5	5	4
32		260	77.5	100	336	230	466		155	110	78	24	22					260	49	44	12.5	6.5	4
40		260	85	100	336	230	466		170	125	88	26						251	52	50	15	7.5	4
50	20	300	90	132	330	262	460		180	135	102	26		8				286	73	62	20	12	4
65		340	102.5	132	330	262	460		205	160	122	26						311	73	77	25	15	4
80	40	380	107.5	164	489	294	619		215	170	138	28					M16x1.5	337	105	91	36	24	6
100		430	125	164	489	294	619		250	200	162	30	26					394	105	117	54	38	6
125		500	147.5	183	492	313	622		295	240	188	34	30					500	133	144	92	70	7
150		550	172.5	200	492	330	622		415	280	218	36	33					508	134	172	140	105	7
200	80	650	207.5	262	---	422	---	160	345	345	285	42	36	12	---	150	M20x1.5	610	203	223	260	210	---
250		775	235	346	---	506	---		470	400	345	46	36	12				752	253	278	485	370	---
300		900	265	395	---	555	---		530	460	410	52	36	16				819	296	329	665	520	---
400	100	1150	335	512	---	672	---		670	585	535	60	42	16				1108	382	413	1305	1130	---

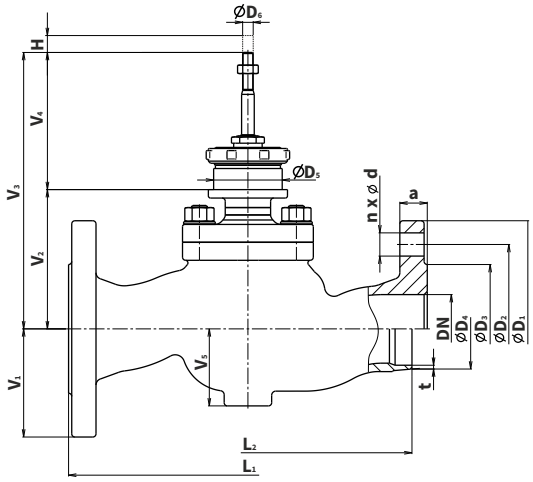
m_1 - weight of flanged connection
m_2 - weight of welded connection
t - wall thickness of weld ends: $t = [D_4 - (D - 2 * t_T)] / 2$
#) - for valve with bellows packing
#**m_v** - weight to be added to weight of valve equipped with bellows packing

Dimensions of weld ends for pipes ISO 4200 line1

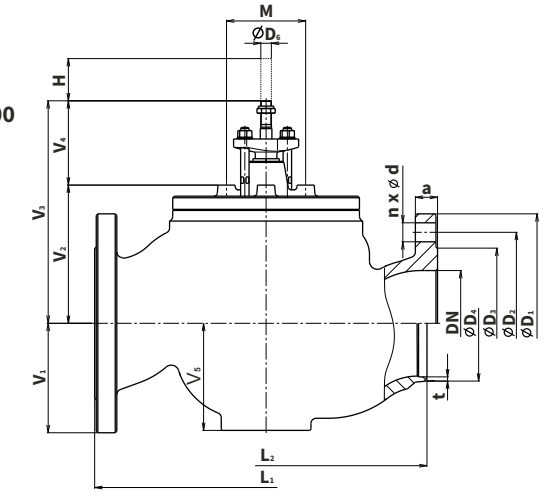
DN	$ØD_4$	ØD	t_T				$ØD_{4\,max}$	$Ød_{4\,min}$
15	22	21.3	2.0	2.6	3.2	3.6	25	14
20	28	26.9	2.0	2.6	3.2	3.6	32	18
25	35	33.7	2.3	2.6	3.2	3.6	39	23
32	44	42.4	2.6	2.9	3.6	4.0	48	28
40	50	48.3	2.6	2.9	3.6	4.0	54	37
50	62	60.3	2.9	3.2	4.0	4.5	66	48
65	77	76.1	2.9	3.2	3.6	5.0	82	62
80	91	88.9	3.2	3.6	4.0	5.6	96	74
100	117	114.3	3.6	4.0	5.0	6.3	122	98
125	144	139.7	4.5	5.0	6.3	7.1	154	118
150	172	168.3	4.5	5.0	7.1	8.0	177	144
200	223	219.1	6.3	8.0	8.8	10.0	235	193
250	278	273.0	7.1	8.0	10.0	14.2	278	229
300	329	323.9	8.0	10.0	12.5	17.5	329	281
400	413	406.4	11.0	12.5	14.2	20.0	426	345



DN 15 -150



DN 200 - 400



RV 3x2

Pressure balanced control valves

DN 25 to 400
PN 16 to 63

Technical data

Series		RV 322 (Ex)	RV 332 (Ex)
Type of valve		Two-way, single-seated, control valve with pressure balanced plug	
Nominal size range		DN 25 to 400	
Nominal pressure		PN 63 (PN 16 to 63 weld ends version)	
Body material		Cast steel 1.0619 (GP240GH) 1.7357 (G17CrMo5-5)	Stainless steel 1.4581(GX5CrNiMoNb19-11-2)
Seat material:	DN 15 - 50	1.4028 / 17 023.6	1.4571 / 17 348.4
DIN W.Nr./+ČSN	DN 65 - 400	1.4027 / 42 2906.5	1.4571 / 17 348.4
Plug material:	DN 15 - 65	1.4028 / 17 023.6	1.4581 / 42 2941.4
DIN W.Nr./+ČSN	DN 80 - 150	1.4021 / 17 027.6	1.4581 / 42 2941.4
	DN 200 - 400	1.4021 / 17 022.6	1.4581 / 42 2941.4
Operating temperature range		-10 to 550 °C	
Face to face dimensions		Section 2 acc. to ČSN-EN 558 + A1 (5/2012) or serie 73 for welded connection acc. to ČSN EN 12982 (1/2011)	
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, perforated	
Flow characteristic		Linear, equal-percentage, LDMspline, parabolic	
Kvs value		1.6 - 1600 m^3/h	
Leakage rate		Class III. acc. to ČSN EN 1349 (7/2010) (<0.1% Kvs) for control valves with metal-metal seat sealing	
		Class IV. acc. to ČSN EN 1349 (7/2010) (<0.01% Kvs) for control valves with metal - PTFE seat sealing	
Leakage rate for Ex version		RV 3xx class IV. acc. to ČSN EN<1349 (7/2010) (0.01% Kvs)	
Rangeability r		50 : 1	
Packing		DRSpack® (PTFE) t_{max} = 260°C, Expanded graphite t_{max} = 550°C, Bellows (DN15-150) t_{max} = 550°C	

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 25 - 400 with pressure-balanced plug and with electromechanic actuators

Δp_{max} value is the valve max. differential pressure when open - close function is always guaranteed. Differential pressure must not exceed 4,0 MPa for valves PN 40. In regard of service life of seat and plug, it is recommended so that differential pressure would not exceed 1.6 MPa. Otherwise it is suitable to use perforated plug (Δp 4,0 MPa) or sealing surfaces of seat and plug with a hard metal overlay (Δp_{max} up to 2,5 MPa).

For further information on actuating, see actuators catalogue sheets			**Actuating (actuator)**					**MIDI 660**		**ST 0**		**Auma Schiebel**		**Zepadyn 670 ST 1 Ex ST 0.1**		**ST 1**		**ST 1**	
			Marking in valve specification No.					**ENB**		**EPK**		**EA... EZ...**		**ENC EPJ EPL**		**EPI**		**EPI**	
			Linear force					2 kN		2.5 kN		5 kN		6.3 kN		7.5 kN		10 kN	
			Kvs [m³/h]					**Δp_{max}**		**Δp_{max}**		**Δp_{max}**		**Δp_{max}**		**Δp_{max}**		**Δp_{max}**	
								packing		packing		packing		packing		packing		packing	
DN	**H**	**Ds**	**1**	**2**	**3**	**4**	**5**	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
25	16	25	10	6.3[5]	4.0[5]	2.5[5]	1.6[5]	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	---	---
32		32	16	10	6.3[5]	4.0[5]	2.5[5]	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	---	---
40		40	25	16	10	6.3[5]	4.0[5]	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	---	---
50	20	50	40	25	16	10	6.3[5]	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
65		65	63	40	25	16	10	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
80	40	80	100	63	40	25	16	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
100		100	160	100	63	40	25	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
125		125	250	160	100	63	40	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
150		150	360	250	160	100	63	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3

[5] linear characteristic only

For further information on actuating, see actuators catalogue sheets ***) max. DN 300**			**Actuating (actuator)**					**Modact Cont. Modact MTN**		**Auma Schiebel**		**Modact MTR ST 2** Zepadyn 671*)		**Auma Schiebel** Zepadyn 671*)		**Modact MTR Modact MTN Modact Cont. ST 2**		**Hand wheel**	
			Marking in valve specification No.					**EYA EYB**		**EA... EZ...**		**EPD EPM ENE**		**EA... EZ... ENE**		**EPD EYA EYB EPM**		**Rxx**	
			Linear force					15 kN		15 kN		16 kN		20 kN		25 kN			
			Kvs [m³/h]					**Δp_{max}**		**Δp_{max}**		**Δp_{max}**		**Δp_{max}**		**Δp_{max}**		**Δp_{max}**	
								packing		packing		packing		packing		packing		packing	
DN	**H**	**Ds**	**1**	**2**	**3**	**4**	**5**	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
25	16	**25**	10	6.3[5]	4.0[5]	2.5[5]	1.6[5]	---	---	---	---	---	---	---	---	---	---	6.3	6.3
32		**32**	16	10	6.3[5]	4.0[5]	2.5[5]	---	---	---	---	---	---	---	---	---	---	6.3	6.3
40		**40**	25	16	10	6.3[5]	4.0[5]	---	---	---	---	---	---	---	---	---	---	6.3	6.3
50	20	**50**	40	25	16	10	6.3[5]	---	---	---	---	---	---	---	---	---	---	6.3	6.3
65		**65**	63	40	25	16	10	---	---	---	---	---	---	---	---	---	---	6.3	6.3
80	40	**80**	100	63	40	25	16	6.3	6.3	---	---	6.3	6.3	---	---	---	---	6.3	6.3
100		**100**	160	100	63	40	25	6.3	6.3	---	---	6.3	6.3	---	---	---	---	6.3	6.3
125		**125**	250	160	100	63	40	6.3	6.3	---	---	6.3	6.3	---	---	---	---	6.3	6.3
150		**150**	360	250	160	100	63	6.3	6.3	---	---	6.3	6.3	---	---	---	---	6.3	6.3
200	80	**200**	570	400	250	160	100	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	---	---	6.3	6.3
250		**230**	800	630	400	250	160	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
300		**250**	1000	800	630	400	250	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
400	100	**330**	1600	1000	630	400	250	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3

[5] linear characteristic only

Max. differential pressures specified in table apply to PTFE and graphite packing.
Perforated plug available only with 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

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 25 - 400 with pressure-balanced plug and with pneumatic actuators

Δp_{max} value is the valve max. differential pressure when open - close function is always guaranteed. Differential pressure must not exceed 4,0 MPa for valves PN 40. In regard of service life of seat and plug, it is recommended so that differential pressure would not exceed 1.6 MPa. Otherwise it is suitable to use perforated plug (Δp 4,0 MPa) or sealing surfaces of seat and plug with a hard metal overlay (Δp_{max} up to 2,5 MPa).

For further information on actuating, see actuators catalogue sheets

Pneumatic actuators			Flowserve PA 253			
Spec. No. of actuator			direct	indirect	direct	indirect
Actuator function			BVCxAA	BVCxZA	BVCxAA	BVCxZA
Spring range	[bar]		1.5 - 2.7	1.5 - 2.7	1.5 - 2.7	1.5 - 2.7
Spring setting	[bar]		1.5 - 2.46	1.75 - 2.7	1.5 - 2.7	1.5 - 2.7
Feeding pressure	[bar]		4.5	4.5	4.5	4.5
Marking in valve spec.			PFA			
Linear force			4.3 kN	4.3 kN	3.7 kN	3.7 kN
Kvs [m³/h]			packing	packing	packing	packing
			Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}

DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
25	16	25	10	6.3[5]	4.0[5]	2.5[5]	1.6[5]	6.3	6.3	6.3	6.3	---	---	---	---
32		32	16	10	6.3[5]	4.0[5]	2.5[5]	6.3	6.3	6.3	6.3	---	---	---	---
40		40	25	16	10	6.3[5]	4.0[5]	6.3	6.3	6.3	6.3	---	---	---	---
50	20	50	40	25	16	10	6.3[5]	---	---	---	---	6.3	6.3	6.3	6.3
65		65	63	40	25	16	10	---	---	---	---	6.3	6.3	6.3	6.3

For further information on actuating, see actuators catalogue sheets

Pneumatic actuators			Flowserve PB 503				Flowserve PB 701	
Spec. No. of actuator			direct	indirect	direct	indirect	direct	indirect
Actuator function			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
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
Feeding pressure	[bar]		4.5	4.5	4.5	4.5	4.5	4.5
Marking in valve spec.			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}	Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}
			packing	packing	packing	packing	packing	packing

DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
50	20	50	40	25	16	10	6.3[5]	6.3	6.3	6.3	6.3	---	---	---	---	---	---	---	---
65		65	63	40	25	16	10	6.3	6.3	6.3	6.3	---	---	---	---	---	---	---	---
80	40	80	100	63	40	25	16	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
100		100	160	100	63	40	25	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
125		125	250	160	100	63	40	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
150		150	360	250	160	100	63	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3

For further information on actuating, see actuators catalogue sheets

Pneumatic actuators			Flowserve PO 1502		Flowserve PO 1502		Flowserve PO 1502	
Spec. No. of actuator			direct	indirect	direct	indirect	direct	indirect
Actuator function			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
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
Feeding pressure	[bar]		4.5	4.5	5.5	5.5	5.6	5.6
Marking in valve spec.			PFD		PFD		PFD	
Linear force			22.5 kN	22.5 kN	30 kN	30 kN	27 kN	27 kN
Kvs [m³/h]			Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}
			packing	packing	packing	packing	packing	packing

DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE
200	80	200	570	400	250	160	100	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	---	---	---	---
250		230	800	630	400	250	160	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	---	---	---	---
300		250	1000	800	630	400	250	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	---	---	---	---
400	100	330	1600	1000	630	400	250	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3

[5] linear characteristic only

Max. differential pressures specified in table apply to PTFE and graphite packing.
Perforated plug available only with 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

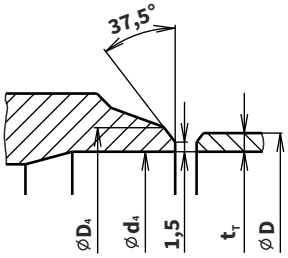
Dimensions and weights of valves RV 3x2 (Ex) with flanged and welded connection DN 25 - 400

DN	H	L_1	V_1	V_2	#V_2	V_3	#V_3	V_4	$ØD_1$	$ØD_2$	$ØD_3$	a	d	n	$ØD_5$	M	$ØD_6$	L_2	V_5	$ØD_4$	m_1	m_2	#m_V
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	kg	kg	kg
25	16	230	70	100	336	230	466	130	140	100	68	24	18	4	65	---	M10x1	210	52	35	11	5.5	4
32		260	77.5						155	110	78	24						260	49	44	13	7.0	4
40		260	85						170	125	88	26						251	52	50	16	8.5	4
50	20	300	90	132	330	262	460		180	135	102	26	22	8				286	73	62	21	13	4
65		340	102.5	132	330	262	460		205	160	122	26						311	73	77	26	16	4
80	40	380	107.5	164	489	294	619		215	170	138	28					M16x1.5	337	105	91	38	26	6
100		430	125	164	489	294	619		250	200	162	30	26					394	105	117	56	40	6
125		500	147.5	183	492	313	622		295	240	188	34	30					500	133	144	95	73	7
150		550	172.5	200	492	330	622		345	280	218	36	33					508	134	172	143	108	7
200	80(60[1])	650	207.5	262	---	422	---	160	415	345	285	42	36	12	---	150	M20x1.5	610	203	223	272	222	---
250	80	775	235	346	---	506	---		470	400	345	46	36	12				752	253	278	485	400	---
300	80	900	265	395	---	555	---		530	460	410	52	36	16				819	296	329	665	550	---
400	100	1150	335	512	---	672	---		670	585	535	60	42	16				1108	382	413	1305	1200	---

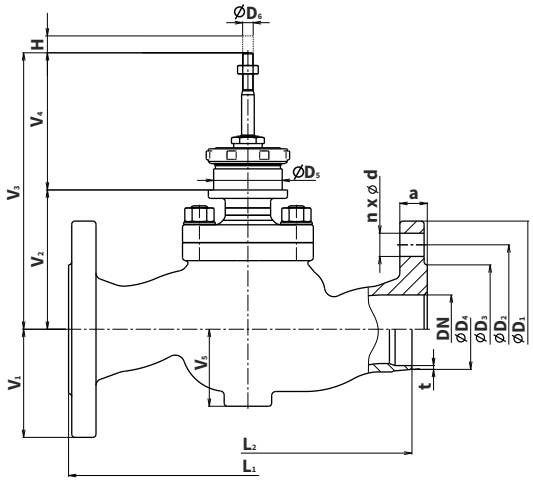
m_1 - weight of flanged connection
m_2 - weight of welded connection
t - wall thickness of weld ends: $t = [D_4 - (D - 2 * t_T)] / 2$
#) - for valve with bellows packing
#**m_V** - weight to be added to weight of valve equipped with bellows packing
1) - DN200 balanced by graphite, travel = 63 mm

Dimensions of weld ends for pipes acc. to ISO 4200 section 1

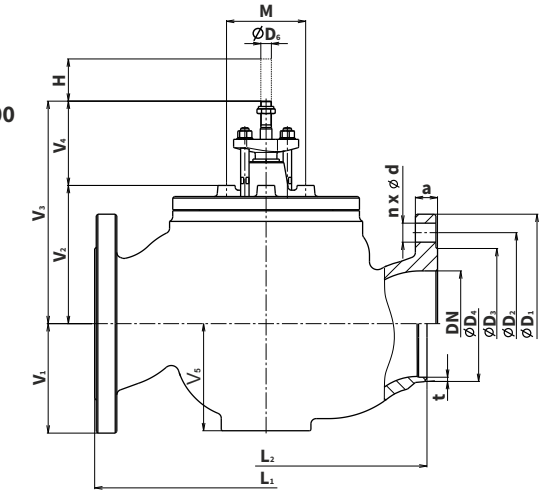
DN	$ØD_4$	ØD	t_T				$ØD_{4\,max}$	$Ød_{4\,min}$
25	35	33.7	2.3	2.6	3.2	3.6	39	23
32	44	42.4	2.6	2.9	3.6	4.0	48	28
40	50	48.3	2.6	2.9	3.6	4.0	54	37
50	62	60.3	2.9	3.2	4.0	4.5	66	48
65	77	76.1	2.9	3.2	3.6	5.0	82	62
80	91	88.9	3.2	3.6	4.0	5.6	96	74
100	117	114.3	3.6	4.0	5.0	6.3	122	98
125	144	139.7	4.5	5.0	6.3	7.1	154	118
150	172	168.3	4.5	5.0	7.1	8.0	177	144
200	223	219.1	6.3	8.0	8.8	10.0	235	193
250	278	273.0	7.1	8.0	10.0	14.2	278	229
300	329	323.9	8.0	10.0	12.5	17.5	329	281
400	413	406.4	11.0	12.5	14.2	20.0	426	345



DN 15 -150



DN 200 - 400



Valve complete specification No. for ordering RV/UV 3x0 (Ex), RV 3x2 (Ex)

			XX	XXX	XXX	XXXX	XX	XX	/	XXX	-	XXX	XX
1. Valve	Control valve		**RV**										
	Shut-off valve		**UV**										
2. Series	Valves made of steel			**32**									
	Valves made of stainless steel			**33**									
	Straight-throgh			**0**									
	Straight-throgh with pressure balanced plug			**2**									
3. Actuating	Electric actuator				**EXX**								
	Pneumatic actuator				**PXX**								
	Hand wheel				**RXX**								
4. Connecting	Raised flange	(type B1)				**1**							
	Femeale flange	(type F)				**2**							
	Flange with groove	(type D)				**3**							
	Plain flange	(type B2)				**4**							
	Weld ends					**5**							
5. Body material	Cast steel 1.0619	(-10 to 450 °C)				**1**							
	CrMo steel 1.7357	(-10 to 550 °C)				**7**							
	Stainless steel 1.4581	(-10 to 500 °C)				**8**							
	Other material on request												
6. Seat sealing	Metal - metal					**1**							
2) DN 25 - 150 ; t_{max} = 260°C	Soft sealing (metal - PTFE) [2]					**2**							
3) DN 80 - 400	Hard metal overlay on sealilng surfaces					**3**							
4) DN 40 - 400	Balanced by graphite, metal-metal [3]					**5**							
	Balanced by graphit , hard metal overlay [4]					**7**							
	Hard metal overlay on sealilng surfaces of RV 3x2, a plug with metal sealing cuff					**8**							
7. Packing	DRSpack® (PTFE)					**3**							
1) DN 15 to 150 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. Kvs	Column No. acc. to Kvs value table							**X**					
10. Nominal pressure	PN 16 (weld ends only)							**16**					
	PN 25 (weld ends only)							**25**					
	PN 40 (weld ends only)							**40**					
	PN 63							**63**					
11. Max. operating temp. °C	DRSpack® (PTFE)									**260**			
	Expanded graphite									**300**			
	Expanded graphite									**315**			
	Expanded graphite									**400**			
	Expanded graphite									**500**			
	Expanded graphite									**550**			
12. Nominal size	DN											**XXX**	
13. Execution	Normal												
	Non - explosive												**Ex**
	Oxygen												**Ox**

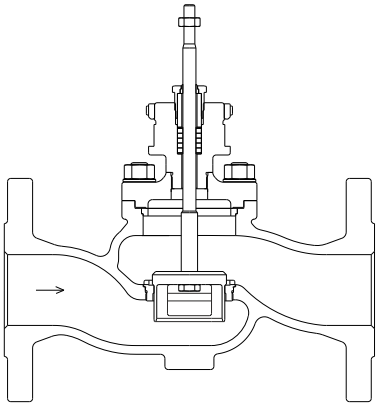
Ordering example of flanged execution:
RV320 ENC 1135 L1 63/400-065

Ordering example of weld ends execution:
RV320 ENC 5135 L1 63/400-065, weld ends size Ø 77 x 5,5 acc. to ČSN EN 12627-2-DN65 for tube size Ø 76,1 x 5

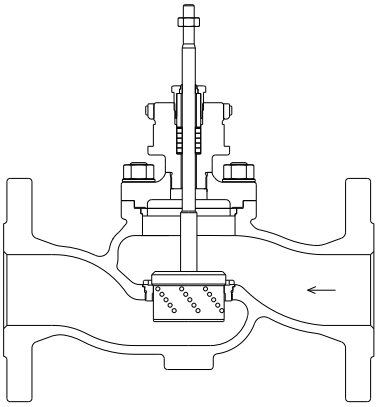
For marking of actuators in specification code, refer to table on page No. 70 of this catalogue

Ventily RV / UV 3x0 (Ex)

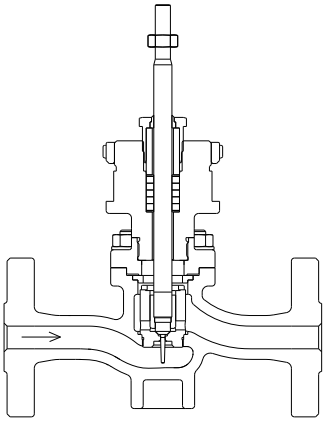
Section of valve with V-ported plug



Section of valve with perforated plug

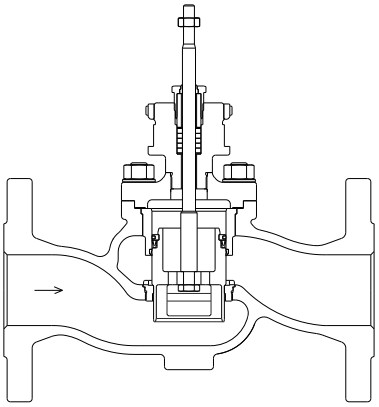


Section of valve with micro-throttling system

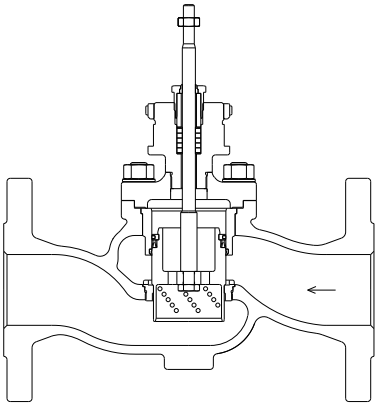


Valves RV 3x2 (Ex)

Section of pressure-balanced valve with V-ported plug



Section of pressure-balanced valve with perforated plug



Eectric actuators

ZPA Nová Paka

MIDI 660

marking in type number:
ENB

Technical data

Type	**MIDI 660 XXX**
Marking in valve specification No.	**ENB**
Voltage	230 V AC nebo 24 V AC
Frequency	50 Hz
Power consumption	max. 19
Control	3 - position control, 0 - 10 V, 0(4) - 20 mA
Nominal force	2000, 4000 N
Travel	16, 20 mm
Enclosure	IP 65
Process medium max. temperature	acc. to used valve
Ambient temperatrure range	-25 to 55 °C
Ambient humidity range	10 - 100 % with condensation
Weight	3,5 kg

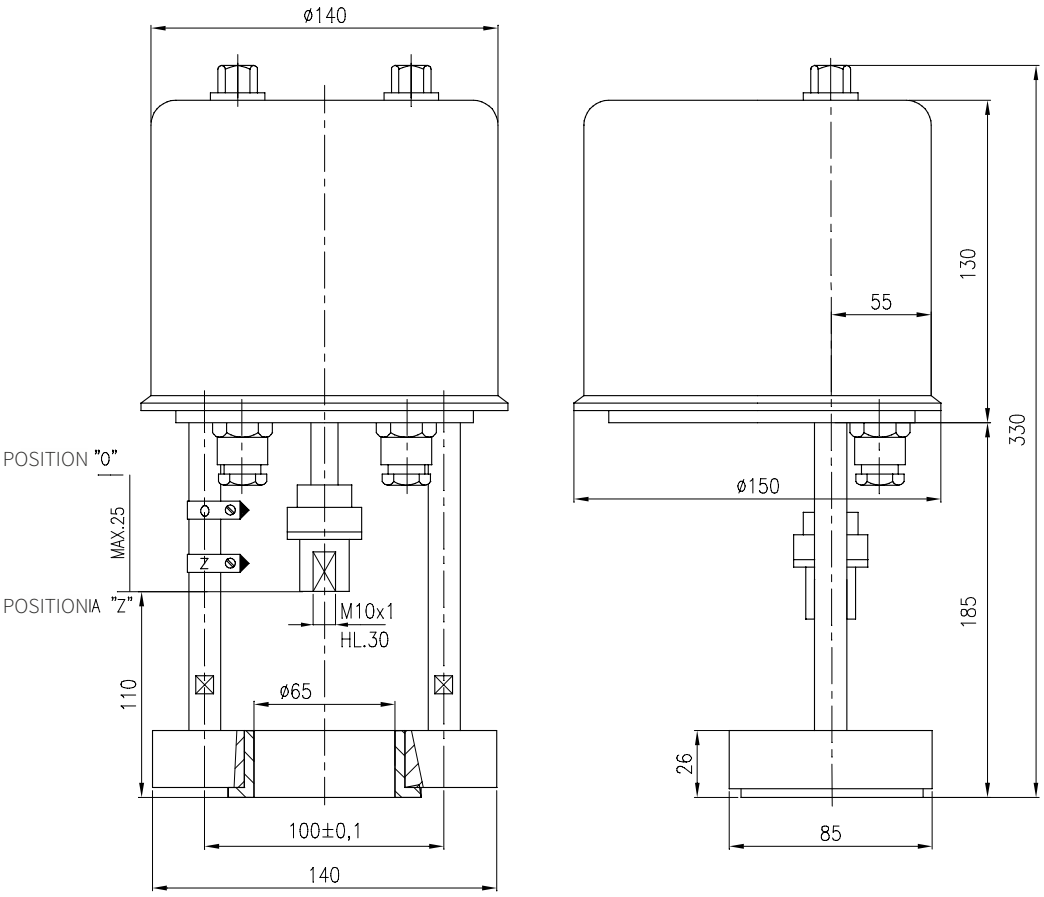
→ **Note:** Specifications and technical data are for information only.
Detailed technical informations can be found in producer's data sheet or on the webside **www.zpanp.cz**

Specification of actuators MIDI 660

		MIDI 660	X	X	X	/	XXX
Feeding voltage AC	230 V (50 Hz)		**1**				
	24 V (50 Hz)		**2**				
Linear force [kN]	2,0			**1**			
	4,0			**4**			
Resetting speed [mm/min]	10				**1**		
	16				**2**		
	25				**3**		
Accessories	Positioner 0-1 V, 0-10 V, 0(4)-20 mA						**OP1**
	Signalization switches SO and SZ						**S1**
	1 resistance transmitter 100W						**R1**
	2 resistance transmitters 100W - without OP1, I1 and C1						**R2**
	Converter 4 - 20 mA - without OP1, R2 and C1						**I1**
	Capacity transmitter CPT 1 - without R2 and I1						**C1**
	Manual operating outside the housing						**RK1**
	Connection flange for Ć 65, coupling M10x1						**P3**

Basic version:
3-position control, manual operating, limit switches for Open and Closed positions, without transmitter and connection elements.

Dimensions of MIDI 660



Electric actuators

ZPA Nová Paka

Zepadyn 670

marking in type number:
ENC

Technical data

Type	**Zepadyn 670 XXX**
Marking in valve spec. No.	**ENC**
Voltage	230 V AC or 24 V AC
Frequency	50 Hz
Power consumption	38,5 VA, heat resistor 15 W
Control	3 - position, 0 - 10 V, 0(4) - 20 mA
Nominal force	6300 and 10000 N
Travel	16, 25, 40 mm
Enclosure	IP 65
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-25 to 55 °C
Ambient humidity range	10 - 100 % with condensation
Weight	11 kg

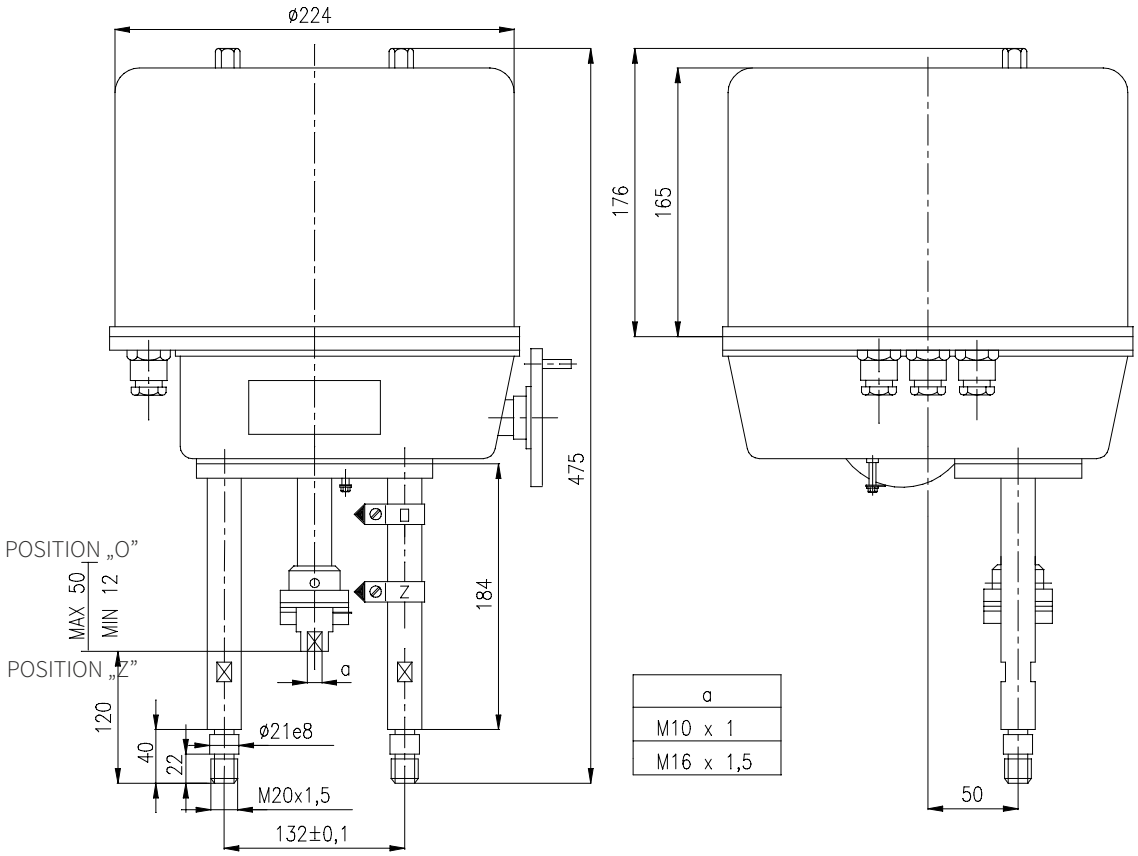
→ **Note:** Specifications and technical data are for information only.
Detailed technical informations can be found in producer's data sheet or on the webside **www.zpanp.cz**

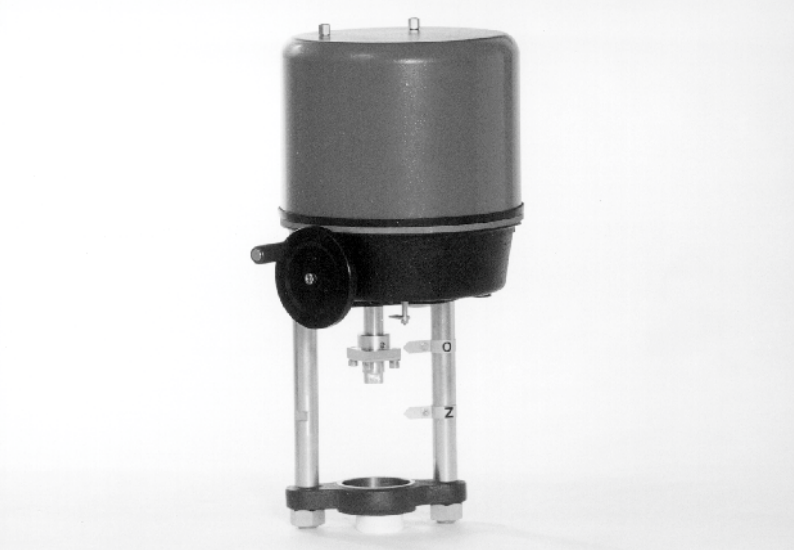
Specification of actuator Zepadyn 670

		Zepadyn 670	X	X	X	/	XXXX
Feeding voltage AC	230 V (50 Hz)		**1**				
	24 V (50 Hz)		**2**				
Linear force [kN]	6,3			**2**			
	10			**4**			
Resetting speed [mm/min]	6,3				**1**		
	16				**2**		
	25				**3**		
	32 (ne u provedení s OP1)				**4**		
Accessories	Positioner 0-1 V, 0-10 V, 0(4)-20 mA - without R2						**OP1**
	Signalization SO a SZ						**S1**
	1 resistance transmitter 100W						**R1**
	2 resistance transmitters 100W - without OP1, I1 and C1						**R2**
	1 resistance transmitter 1000 Ω						**R3**
	Converter 4 - 20 mA - without R2 and C1						**I1**
	Capacity transmitter CPT1 - without R2 and I1						**C1**
	Heater						**T1**
	Connection - pitch 132, M20, coupling M10x1, M16x1,5						**P3**
	Adapter with setting program for actuators with OP1						**ANP1**
	Stroke for valve - xx = 16, 20, 40 mm						**ZDxx**

Basic version: 3-position control, manual operating, limit switches for Open and Closed positions and end position switch without transmitter and connection elements

Dimensions of actuator Zepadyn 670





Electric actuators

ZPA Nová Paka

Zepadyn 671

marking in type number:
ENE

Technical data

Type	**Zepadyn 671 XXX**
Marking in valve spec. No.	**ENE**
Voltage	230 V AC nebo 24 V AC
Frequency	50 Hz
Power consumption	max 120 VA, heat resistor 15 W
Control	3 - position, 0 - 10 V, 0(4) - 20 mA
Nominal force	16 000 and 20 000 N
Travel	40, 80 mm
Enclosure	IP 65
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-25 to 55 °C
Ambient humidity range	10 - 100 % with condesation
Weight	12,5 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.zpanp.cz**

Specification of actuator Zepadyn 671

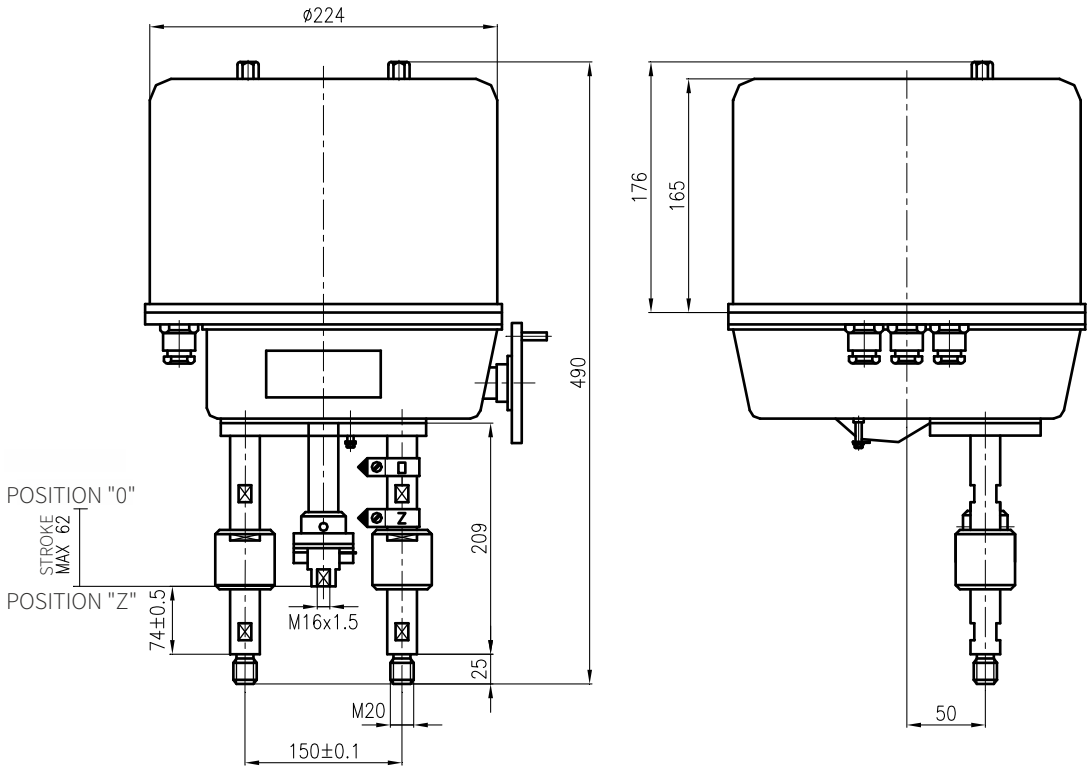
		Zepadyn 671	X	X	X	/	XXXX
Feeding voltage AC	230 V (50 Hz)		**1**				
	24 V (50 Hz)		**2**				
Linear force [kN]	16			**1**			
	20			**2**			
Resetting speed [mm/min]	16				**1**		
	25				**2**		
	32				**3**		
	50				**4**		
Accessories	Positioner 0-1 V, 0-10 V, 0(4)-20 mA - without R2 and I1						**OP1**
	Signalization SO a SZ						**S1**
	1 resistance transmitter 100W						**R1**
	2 resistance transmitters 100W - without OP1, I1 and C1						**R2**
	Converter 4 - 20 mA - without R2 and C1						**I1**
	Capacity transmitter CPT1 - without R2 and I1						**C1**
	Heater						**T1**
	Connection - pitch 150, M20, coupling M16x1,5						**P3***
	Connection - pitch 150, 4 columns M20, coupling M20x1,5						**P5***
	Adapter with setting program for actuators with OP1						**ANP1**
	Stroke for valve - xx = 40, 80 mm						**ZDxx**

Basic version: 3-position control, manual operating, limit switches for Open and Closed positions and end position switch without transmitter and connection elements.

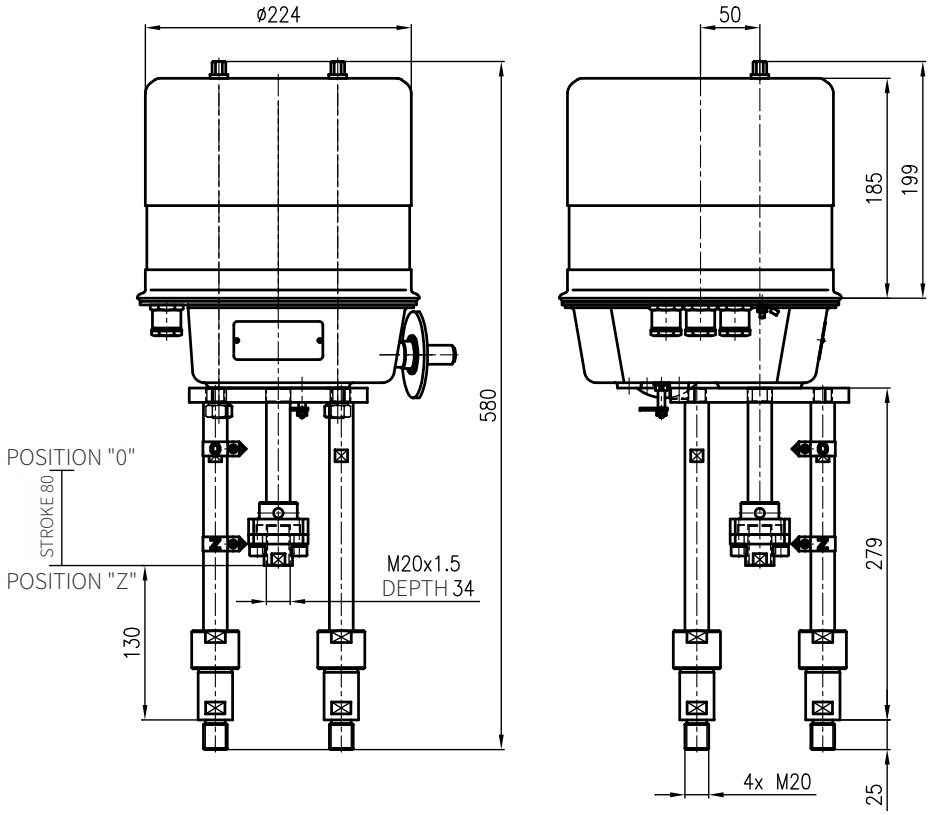
* Connections for LDM valves
P3 ... RV 3xx DN 80 - 150
P5 ... RV 3xx DN 200 - 300

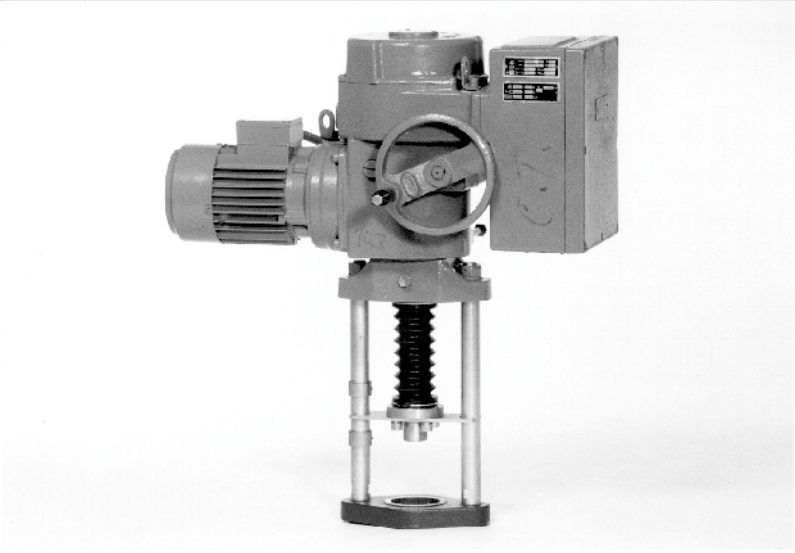
Dimensions of actuators Zepadyn 671

Connection P3 - pitch 150; 2 columns M20; clutch M16x1,5; stroke 12...62



Connection P5 - pitch 150; 4 columns M20; clutch M20x1,5; stroke 80





Electric actuators

ZPA Pečky

Modact MTN
Modact MTP
Modact MTN Control
Modact MTP Control

type 52 442

marking in type number:
EYA, EYB

Technical data

Type	Modact MTN Control	Modact MTN	Modact MTP Control	Modact MTP
Marking in valve spec. No.	**EYA**	**EYB**	**EYA**	**EYB**
Voltage	3 ~ 230 V AC / 400 V AC			
Frequency	50 Hz			
Power consumption	see specification table			
Control	3 - position; with regulator ZP2.RE5			
Nominal force	15 to 25 kN			
Travel	10 to 100 mm			
Enclosure	IP 55		IP 67	
Process medium max. temp.	acc. to used valve			
Ambient temperatrure range	-40 to 70°C			
Ambient humidity range	10 - 100 % with condensation			
Weight	33 to 45 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.zpa-pecky.cz**

Specification of actuators Modact MTN, MTP a Modact MTN, MTP Control

Basic equipment

2 x power switches MO, MZ
2 x limit switches PO, PZ
2 x limit and signalisation switches SO, SZ
1 x position transmitter - resist 2x100 Ω or current
1 x heating element
2 limit and signalisation switches SO, SZ

Basic technical parameters

Type	Power switch setting range [kN]	Direct power [kN]	Resetting speed [mm.min^{-1}]	Travel [mm]	Power [W]	Electromotor rpm 1/min	Electromotor In (400V) [A]	Electromotor Iz/In	Weight Aluminium [kg]	Specification No. Basic	Specification No. Additional [2]
MTN 15 MTP 15	11,5 - 15	17	50	10 - 100	180	850	0.74	2.3	33	52 442	XX0XXM
			80		180	850	0.74	2.3			XX1XXM
			125		250	1350	0.77	3.0			XX3XXM
			36		120	645	0.51	2.2			XX2XXM
			27		120	645	0.51	2.2			XXAXXM
MTN 25 MTP 25	15 - 25	32,5	50	10 - 100	180	835	0.74	2.3			XX4XXM
			80		180	835	0.74	2.3			XX5XXM
			125		250	1350	0.77	3.0			XX6XXM
			36		120	645	0.51	2.2			XX7XXM
			27		120	645	0.51	2.2			XX8XXM

Version, electric connection

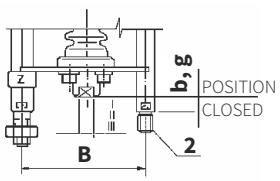
Via terminal board	6XXXXM
With connector HARTING	7XXXXM
Version Modact MTN; Modact MTN Control ... enclosure IP55	XXXXNM
Version Modact MTP; Modact MTP Control ... enclosure IP67	XXXXPM

		Current transmitter CPT wo source	Current trasmitter DCPT with source
Position transmitter	current 4 - 20 mA	XXX0XM	XXXRXM
	current 4 - 20 mA s BMO	XXX1XM	XXXSXM
	resistance 2x 100 Ω	XXX2XM	
	resistance 2x 100 Ω s BMO	XXX3XM	
	without transmitter, with BMO	XXXPXM	
	without transmitter, without BMO	XXXZXM	

Additional electric equipment [1]			Resist. transmitter 2x 100 Ω	Current transmitter CPT wo source	Current transmitter DCPT with source
Control (with built-in contactor combination)	wo BMO	without brake BAM and positioner	XXX4XM	XXXAXM	XXXKXM
		with brake BAM and without positioner	XXX5XM	XXXBXM	XXXLXM
		with brake BAM and with positioner		XXXCX5M [3]	
	with BMO	without brake BAM and positioner	XXX7XM	XXXDXM	XXXMXM
		with brake BAM and without positioner	XXX8XM	XXXEXM	XXXNXM
		with brake BAM and with positioner		XXXFX5M [3]	

Notes:
[1] When version with flasher is requested, specify this requirment in writing: **version with flasher**
[2] Design without force locking after reversation have at end position capital letter M (for example: 52442.6211NM)
[3] For actuators **MODACT MTN Control** s with position controllers **ZP2.RE5** specify number 5 on place 11 (e.g.: 52442.6M5FN5M)

Connection dimensions - details of additional specification No. 52 442

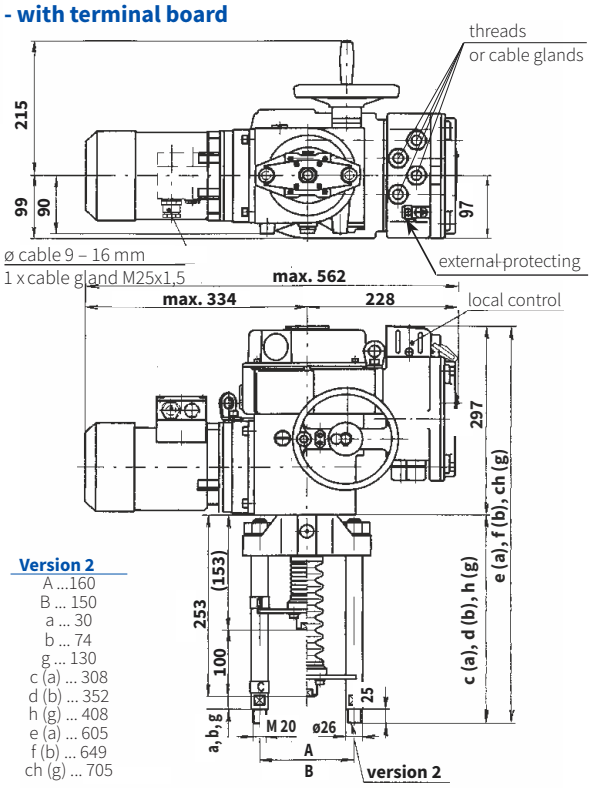


Columns pitch	B	150
Position "closed"	b	74
	g	130
Cluth thread	I	M 20x1,5
	II	M 16x1,5
	III	M 10x1

Version	Specification No. basic	Specification No. additional	For valves
Bb2I	52 442	XLXXXM	---
Bb2II	52 442	XMXXXM	RV 3xx DN 80 to 150
Bb2III	52 442	XPXXXM	RV 3xx DN 15 to 65
Bg2I	52 442	XRXXXM	RV 3xx DN 200 to 400

Dimensions of actuator Modact MTN, MTP

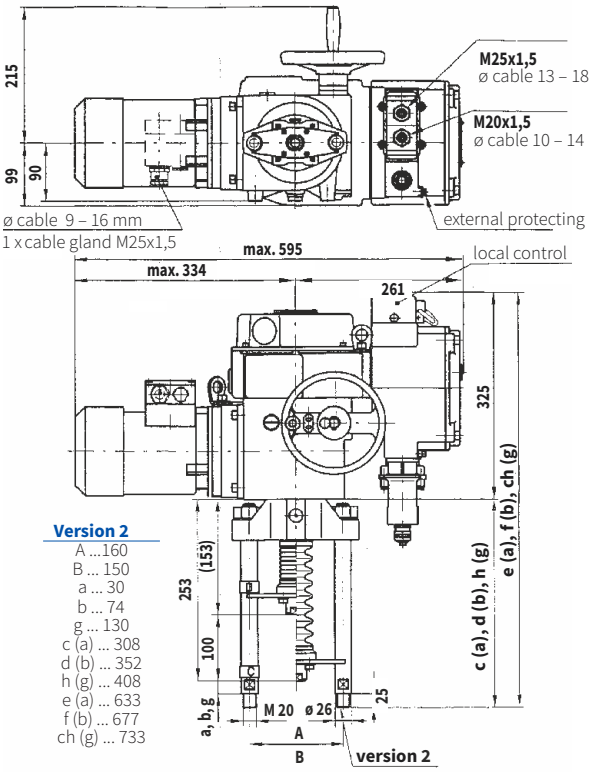
- with terminal board



Version 2
A ...160
B ... 150
a ... 30
b ... 74
g ... 130
c (a) ... 308
d (b) ... 352
h (g) ... 408
e (a) ... 605
f (b) ... 649
ch (g) ... 705

Dimensions of actuator MTN, MTP and Modact MTN, MTP Control

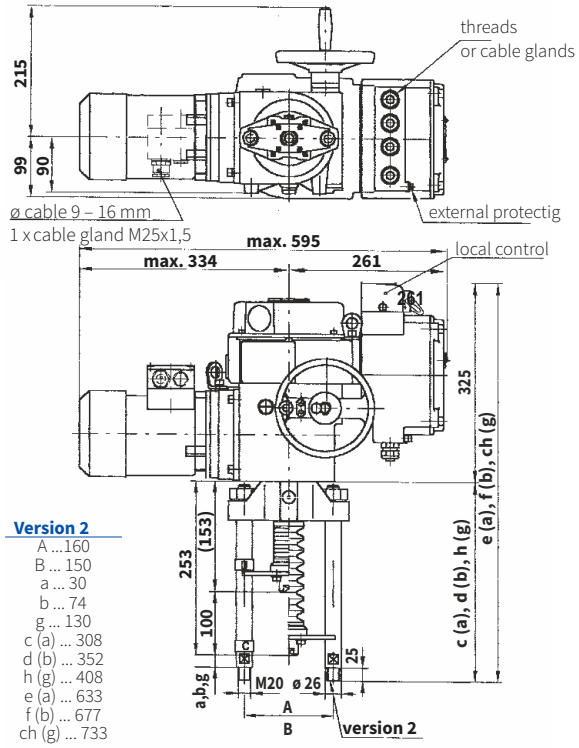
- with connector



Version 2
A ...160
B ... 150
a ... 30
b ... 74
g ... 130
c (a) ... 308
d (b) ... 352
h (g) ... 408
e (a) ... 633
f (b) ... 677
ch (g) ... 733

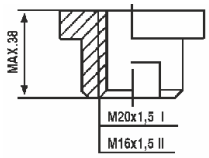
Dimensions of actuator Modact MTN, MTP Control

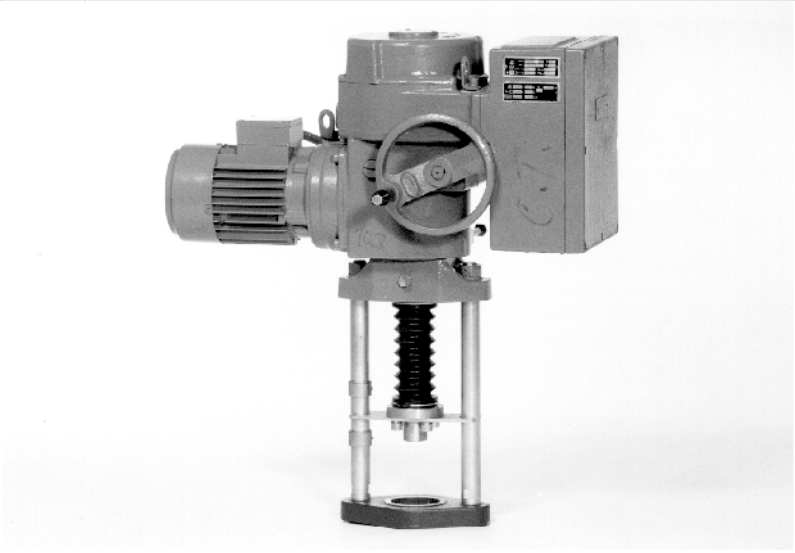
- with terminal board



Version 2
A ...160
B ... 150
a ... 30
b ... 74
g ... 130
c (a) ... 308
d (b) ... 352
h (g) ... 408
e (a) ... 633
f (b) ... 677
ch (g) ... 733

Detail of coupling





Electric actuators

ZPA Pečky

Modact MTNED
Modact MTPED

type 52 442

marking in type number:
EYA

Technical data

Type	Modact MTNED	Modact MTPED
Marking in valve spec. No.	**EYA**	
Version	The actuator equiped with electronic system DMS2 or DMS2 ED	
Voltage	3 ~ 230 / 400 V AC	
Frequency	50 Hz	
Power consumption	see specification table	
Control	3-position, or continuous	
Nominal force	15 to 25 kN	
Travel	10 to 100 mm	
Enclosure	IP 55	IP 67
Process medium max. temp.	acc. to used valve	
Ambient temperatrure range	-40 to 70 °C	
Ambient humidity range	10 - 100 % with condensation	
Weight	33 to 45 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.zpa-pecky.cz**

Electric equipment

System DMS2 ED
The more simple system DMS2 ED substitutes electromechanical parts and/or provides for controlling the electric actuator by input analog signal as in the version Control.

Basic equipment	
Control unit	It also contains the sensor of position of the output shaft, 4 push-buttons and 3 signal LEDs for setting and checking the actuator.
Torque-limit unit	
Source unit	Contacts of seven relays (MO, MZ, PO, PZ, SO, SZ, READY) are connected to the terminal board; state of each relay is signalized by LED. The unit enables the heating resistor to be connected and controlled by the thermostat.
Optional equipment	
Feedback signal	4-20 mA
Analog regulator	
Position Indicator	LED display
Relay control or contactless control unit	
Electronic brake	

System DMS2

The system DMS2 enables the electric actuator to be used for two-position and three-position regulation or to be connected to the industrial bus bar Profibus.

Basic equipment	
Control unit	It also includes a sensor of the output shaft position 2 signal LED
Torgue-limit	
Source unit	- 2 relays for electric motor control - Relay Ready with change-over contact connected to the terminal board - Signalling relays 1 - 4 with one pole of the switching contact connected to the terminal board Second poles of the switching contacts of relays 1 - 4 are interconnected and brought out to the terminal COM Heating resistor switched by a thermostat is connected to the unit The unit controls power switches of the electric motor (reversing relay) To the unit can be connected an electronic brake
Unit of display	Two-row display, 2 x 12 alpha-numeric characters
unit of push-buttons	Pus-buttons *"otvírat", "zavírat", "stop"*, otočný přepínač *"místní, dálkové, stop"*
Recommended equipment	
Electronic brake	After switching-off the motor reduces running down and precises the control
Optional equipment	
Unit of two- and three-position control	Control of the electric actuator by shifting to position Open and Close or by analog signal 0(4) - 20 mA
Unit of connection Profibus	Control of the electric actuator by industrial bus bar Profibus

Note: The electronic control DMS2 checks, within its function, sequence and fall-out of phases of supply voltage

Specification of actuators Modact MTNED and MTPED

Basic technical parameters

Type	Power switch setting range [kN]	Direct power [kN]	Resetting speed [mm.min^{-1}]	Travel [mm]	Power [W]	Electromotor RPM [1/min]	Electromotor In (400V) [A]	Electromotor Iz/In	Weight Aluminium [kg]	Specification No. Basic	Specification No. Additional
MTNED 15 MTPED 15	11,5 - 15	17	50	10 - 100	180	850	0.74	2.3	33	52 442	XX4XXED
			80		180	850	0.74	2.3			XX5XXED
			125		250	1350	0.77	3.0			XX6XXED
			36		120	645	0.51	2.2			XX7XXED
			27		120	645	0.51	2.2			XX8XXED
MTNED 25 MTPED 25	15 - 25	32,5	50	10 - 100	180	835	0.74	2.3	33	52 442	XX4XXED
			80		180	835	0.74	2.3			XX5XXED
			125		250	1350	0.77	3.0			XX6XXED
			36		120	645	0.51	2.2			XX7XXED
			27		120	645	0.51	2.2			XX8XXED
Version Modact MTNED ... enclosure IP55											XXXXNED
Version Modact MTPED ... enclosure IP67											XXXXPED

Version, circuity, electric equipment

	Terminal board	Connector	Term. board, brake	Connector, brake
DMS2 ED electronics	EXXXXED	FXXXXED	HXXXXED	KXXXXED
DMS2, Profibus electronics	PXX0XED	TXX0XED	UXX0XED	YXX0XED
DMS2, 2-position or 3-position control *)	RXX0XED	VXX0XED	WXX0XED	1XX0XED

*) Producer will set in production 2- or 3- position control. If not specified in the order, the gearmotor is set to 3-position control (signal control 4-20 mA).

Equipment of DMS2 ED electronics

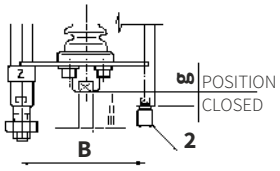
Equipment DMS2 ED		Character at the 9th place (52442 xxxXxED)																							
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	H	J	K	L	M	N	V	W
Local control			x		x		x		x		x		x		x		x		x		x		x		x
Display				x	x			x	x			x	x			x	x			x	x			x	x
Relay						x	x	x	x					x	x	x	x					x	x	x	x
Analog module	Transmitter									x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Regulator																	x	x	x	x	x	x	x	x

Note: In the case of using an electronic DMS2 is the character at the 9. position 0

Ambient temperature	Type of actuator				Marking
	MTNED		MTPED		
(°C)	DMS2 ED	DMS2	DMS2 ED	DMS2	
-25 to +70	YES	YES	NO	NE	---
-40 to +60	YES	YES	YES	ANO	F1
-25 to +60	---	---	YES	ANO	---

Note: YES - supplied version | NE - not supplied
Relative humidity from 10 to 100% with condensation.

Connection dimensions - details of additional specification No. 52 442

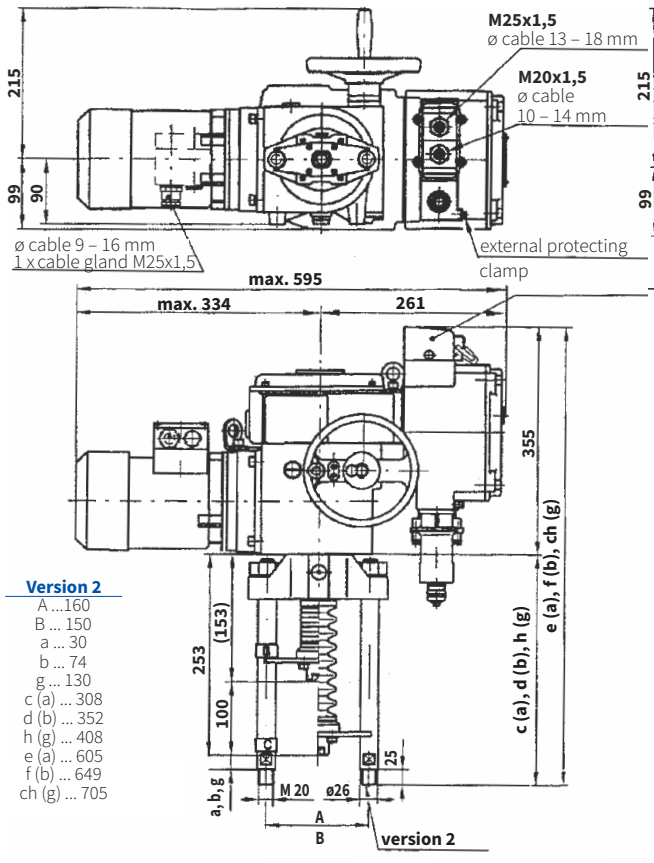


Columns pitch	B	150
Position "closed"	b	74
	g	130
Clutch thread	I	M 20x1,5
	II	M 16x1,5
	III	M 10x1

Version	Specification No.		For valves
	basic	additional	
Bb2I	52 442	XLXXXM	---
Bb2II	52 442	XMXXXM	DN 80 - 15
Bb2III	52 442	XPXXXM	DN 15 - 65
Bg2I	52 442	XRXXXM	DN 200 - 400

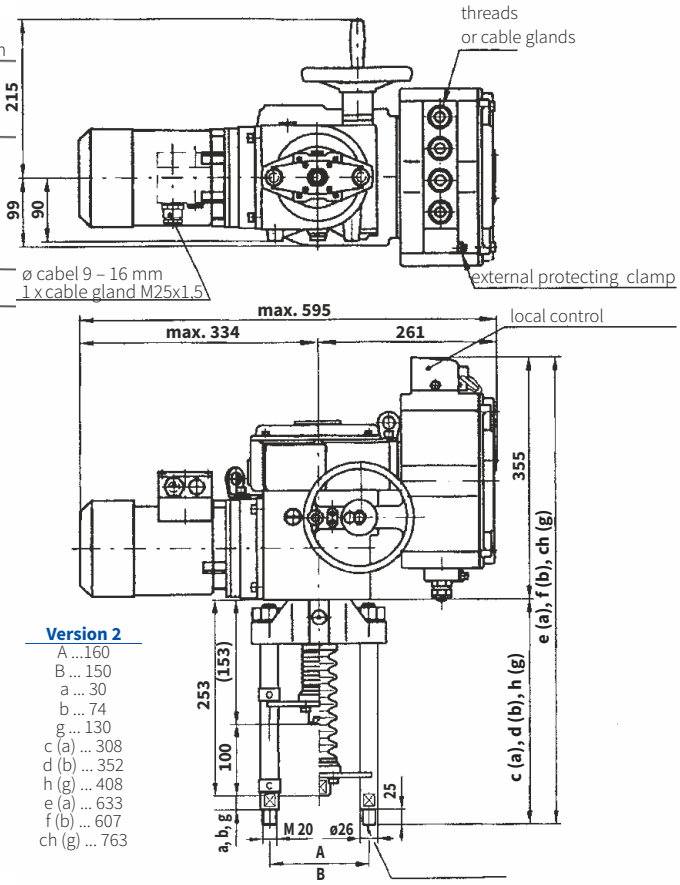
Dimensions of actuator Modact MTNED/MTPED

- with connector



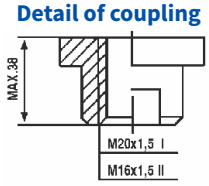
Version 2
A ...160
B ... 150
a ... 30
b ... 74
g ... 130
c (a) ... 308
d (b) ... 352
h (g) ... 408
e (a) ... 605
f (b) ... 649
ch (g) ... 705

- with terminal board



Version 2
A ...160
B ... 150
a ... 30
b ... 74
g ... 130
c (a) ... 308
d (b) ... 352
h (g) ... 408
e (a) ... 633
f (b) ... 607
ch (g) ... 763

Detail of coupling



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 RV 3xx DN 15 to 150

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 RV 3xx DN 80 to 400

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

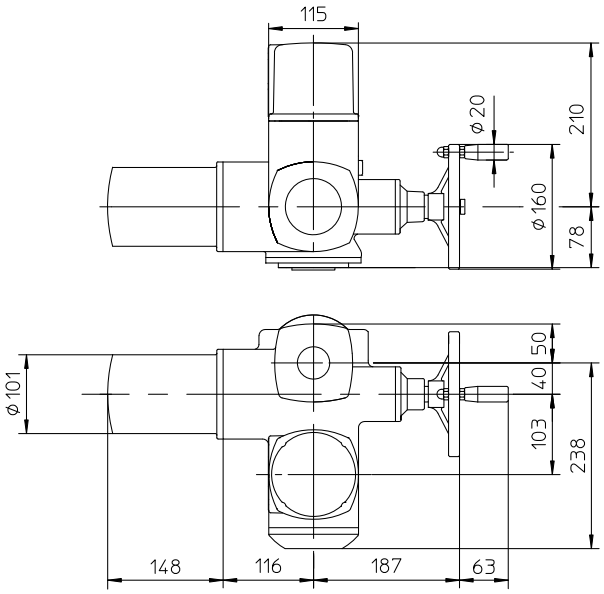
Accessories

→ 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

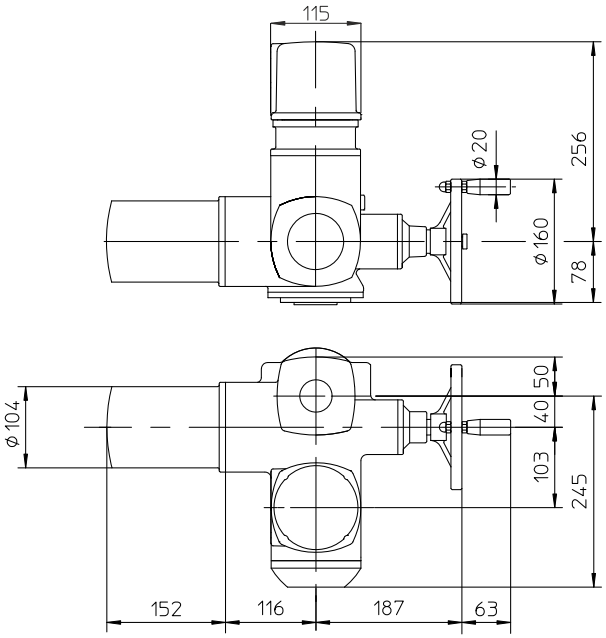
Other accessories acc. to catalogue of producer of actuators.

Dimensions of actuators Auma series 07.2 and 07.6

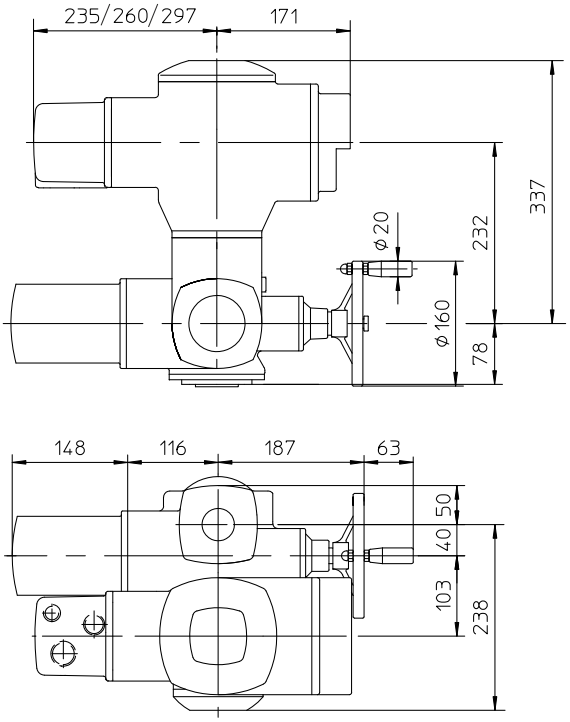
Normal version



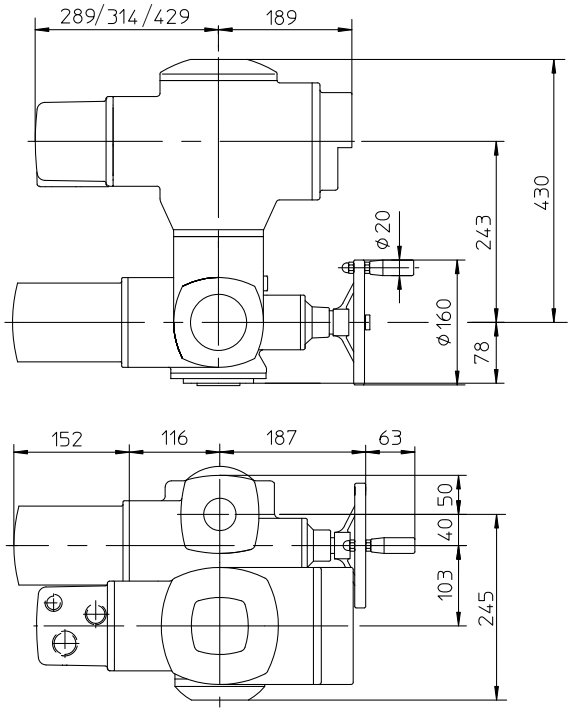
Version Ex norm



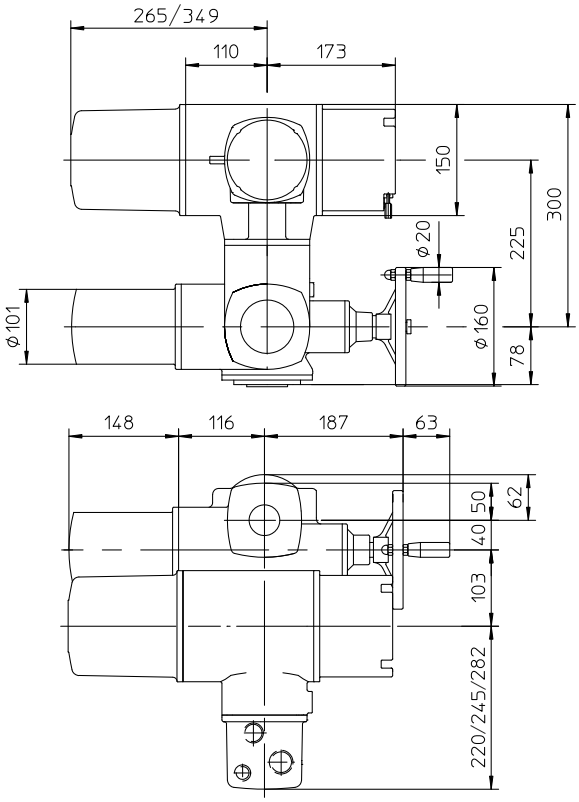
Version MATIC



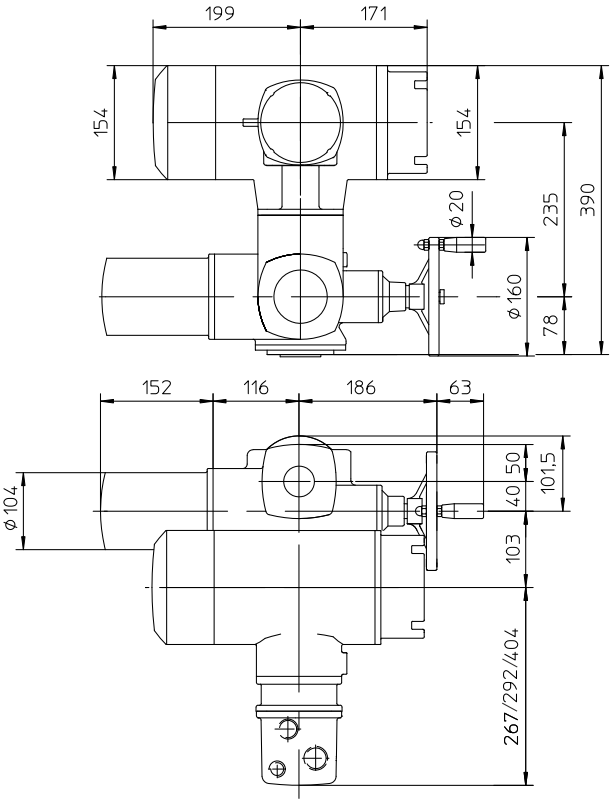
Version Ex MATIC



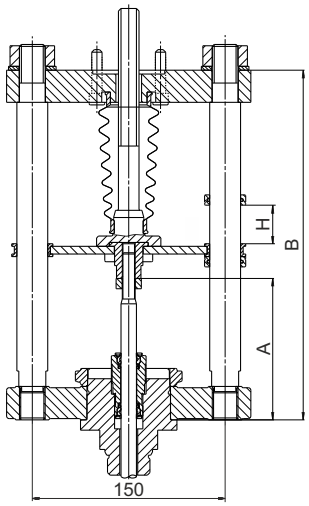
Version with AUMATIC



Version Ex AUMATIC

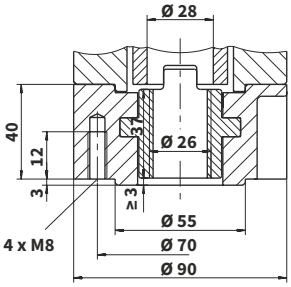


Attachment yoke (2 or 4 columns)



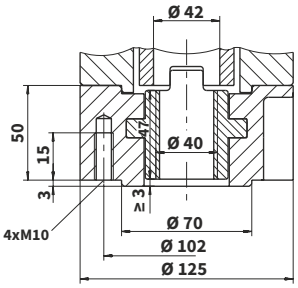
Output drive type A, F07

DN 15-65



Output drive type A, F10

DN 80-400



For valves	Number of columns	A	B	Weight
DN 15 - 150	2	110	272	~ 8 kg
DN 200 - 400	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 RV 3xx DN 200 - 400

Output speed [ot/min]	Tripping torgue	SA 10.2 SA Ex 10.2	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					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		40-120 Nm	60-120 Nm		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

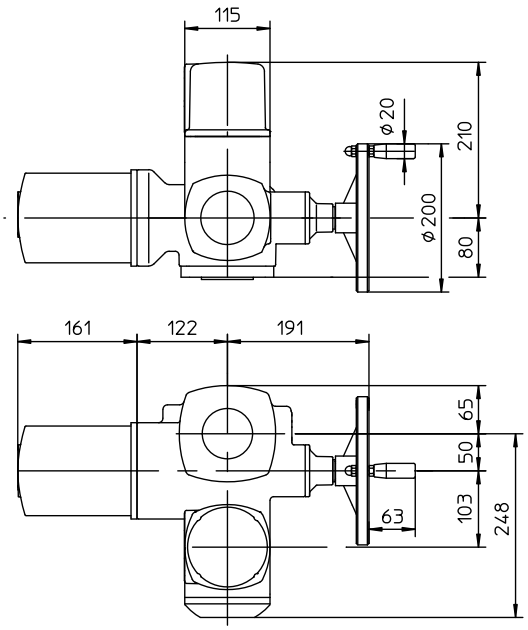
Accessories

- → 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

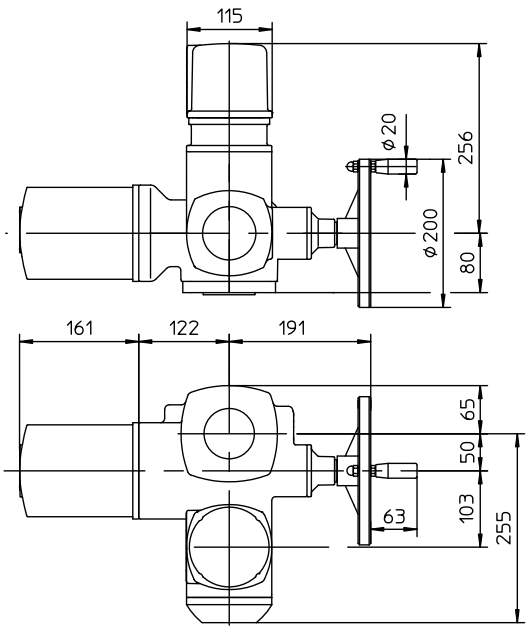
Other accessories acc. to catalogue of producer of actuators.

Dimensions of actuators Auma series 10

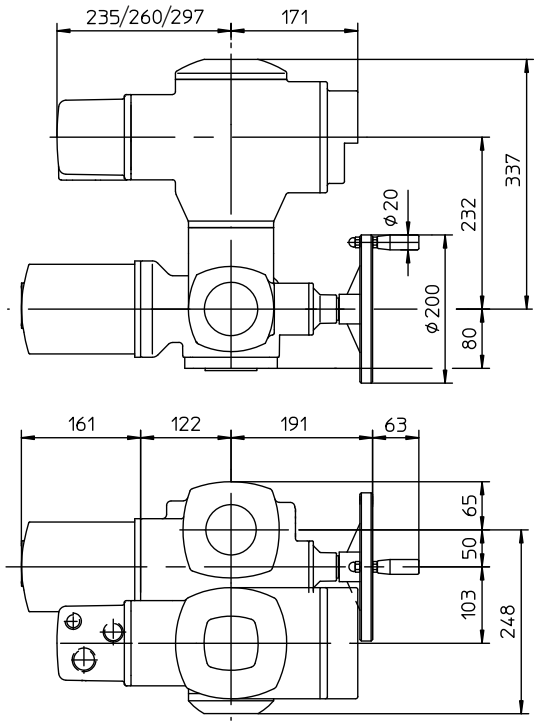
Normal version



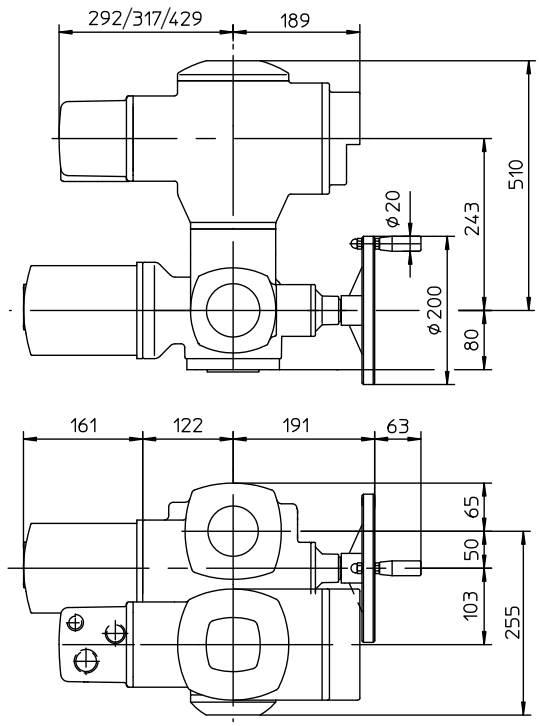
Ex norm version



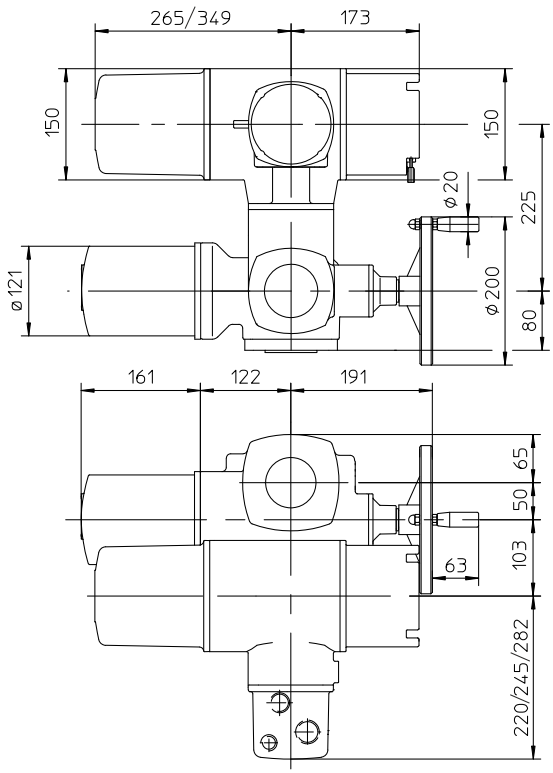
Version with MATIC



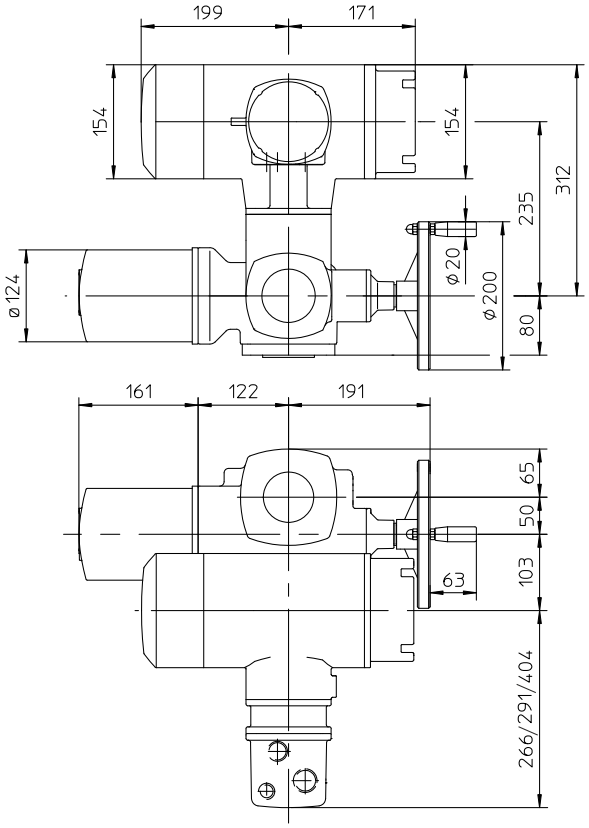
Version with Ex MATIC



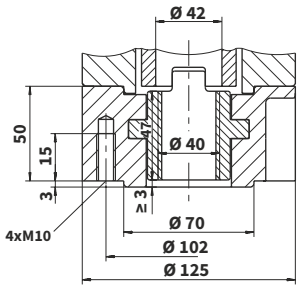
Version AUMATIC



Version Ex AUMATIC

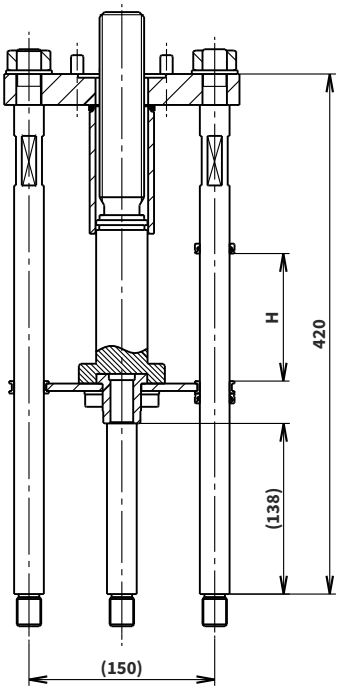


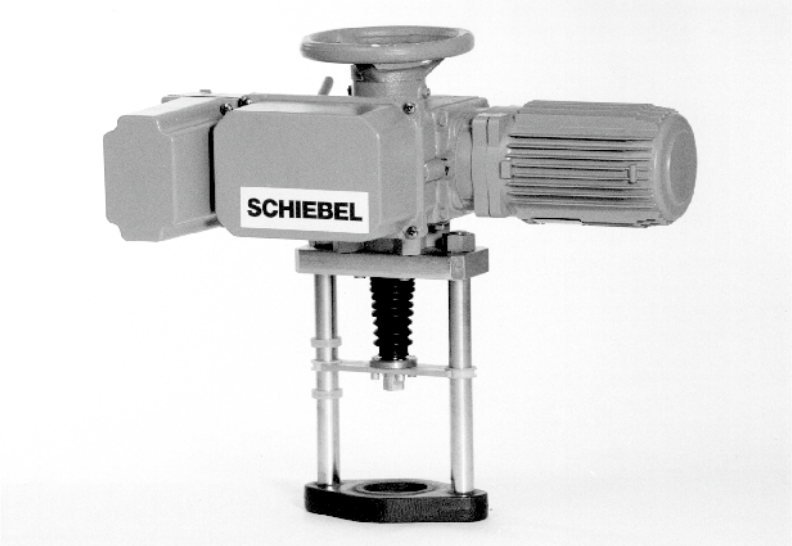
Output drive shaft A, F10



Attachment yoke DN 200 - 400

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.
Detailed technical informations can be found in producer's data sheet or on the webside **www.schiebel.com**

Specification of actuators

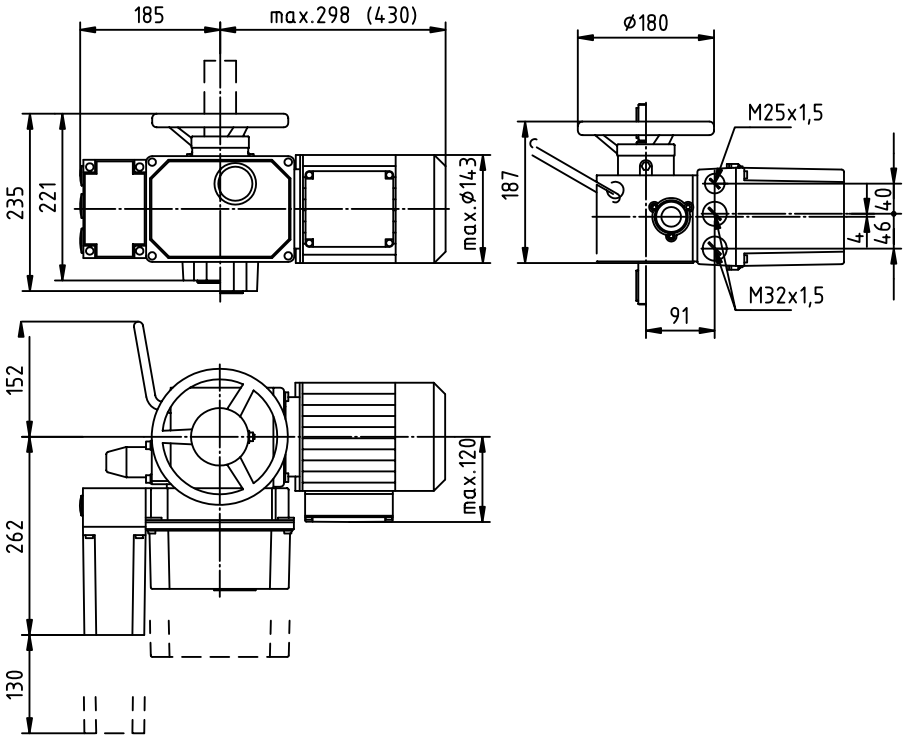
			XX	X	AB3	A	X	+	XXXXX
Version	non-explosive		**ex**						
	standard								
Function	control			**r**					
	ON - OFF								
Actuator size					**AB3**				
					AB5				
Output shaft type A (thread TR 16x4 LH, connection flange F07 ... DN 15 to 65)						**A**			

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	7 - 30 Nm	7 - 30 Nm	tripping 7 - 30 Nm loading 7 - 15 Nm		0,09	0,09	0,09	0,09	0,09	0,09		**2,5**
5					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					0,09	0,09	0,09	0,09	0,09	0,09		**10**
15					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**

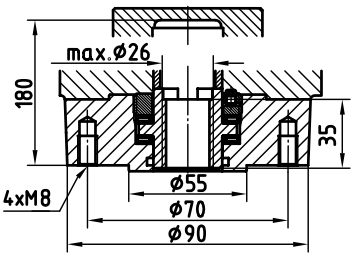
Output speed [ot/min]	Tripping torgue	AB5 exAB5	rAB5 exrAB5	Motor power [kW]	AB5 400/230V	AB5 230V	rAB5 400/230V	rAB5 230V	exAB5 400/230V	exrAB5 400/230V		
2,5	7-60 Nm	7-60 Nm	tripping 7 - 60 Nm loading 7 - 30 Nm		0,09	0,09	0,09	0,09	0,09	0,09		**2,5**
5					0,06	0,12	0,06	0,12	0,12	0,12		**5**
7,5	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

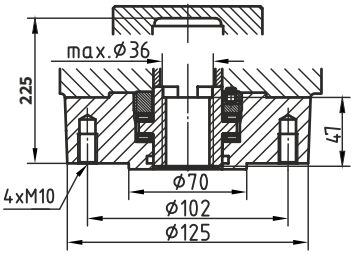
Dimensions of actuators ...AB5



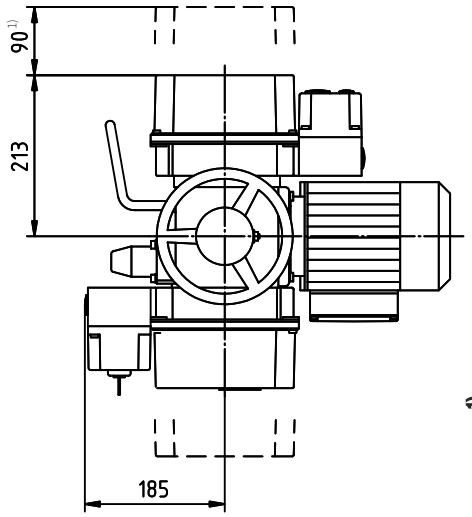
Output drive shaft A, flange F07



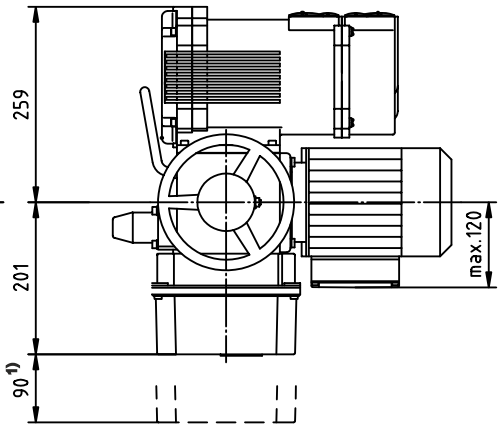
Connection acc. to ISO 5210, output drive shaft A, F10



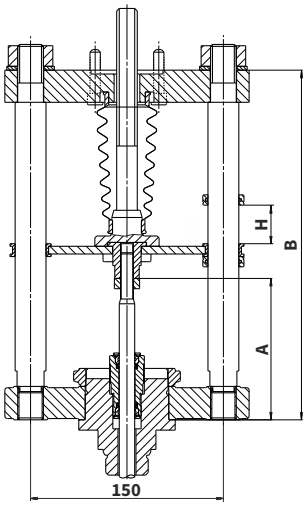
With ACTUMATIC R position regulator



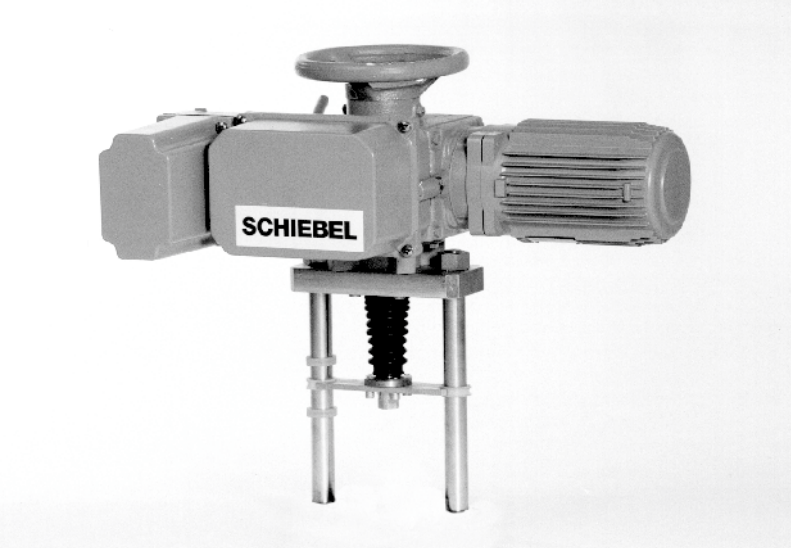
With SMARTCON control unit



Attachment (2 or 4 columns)



For valves	Number of columns	A	B	H	Weight [kg]
DN 15 - 150	2	149	295	40	12
DN 200 - 400	4	141	295	80	12



Electric actuators
Schiebel

AB8

marking in type number:
EZK, EZL

Technical data

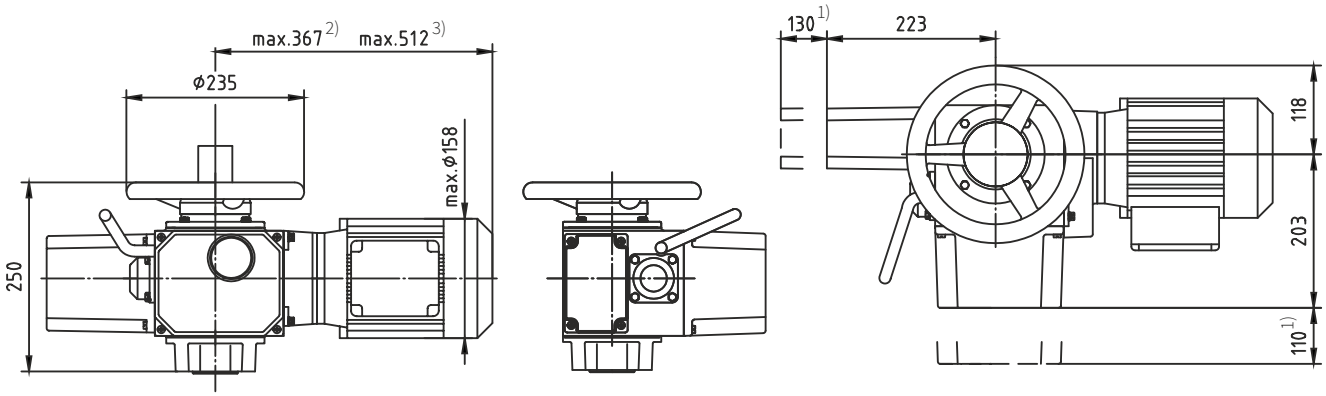
Type	rAB8	exrAB8
Marking in valve spec. No.	EZK	EZL
Voltage	400 / 230 V; 230 V	400 / 230 V
Frequency	50 Hz	
Power consumption	see specification table	
Control	3-position or with signal 4 - 20 mA	
Nominal force	(Tr 36x6 LH) 80 Nm ~ 21,6 kN; 100 Nm ~ 27 kN; 120 Nm ~ 32 kN	
Travel	80, 100 mm	
Enclosure	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.
Detailed technical informations can be found in producer's data sheet or on the webside **www.schiebel.com**

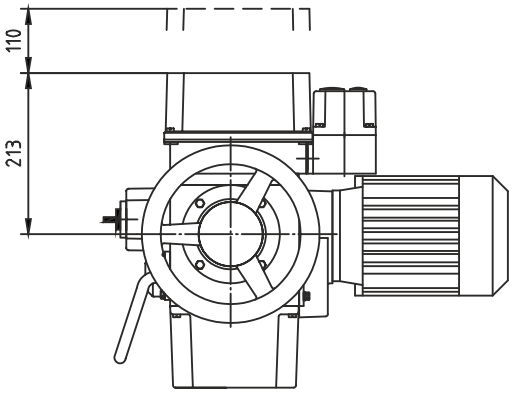
Specification of actuators

							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	**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**

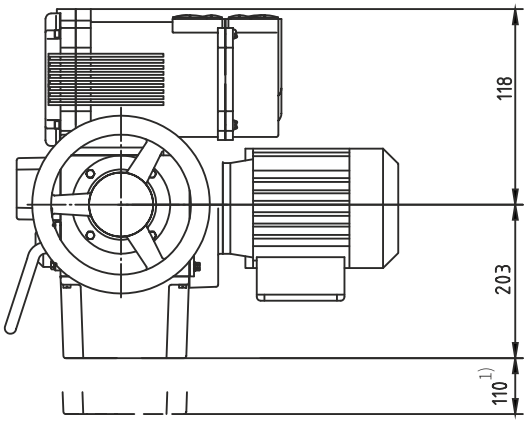
Dimensions of actuatros ...AB8



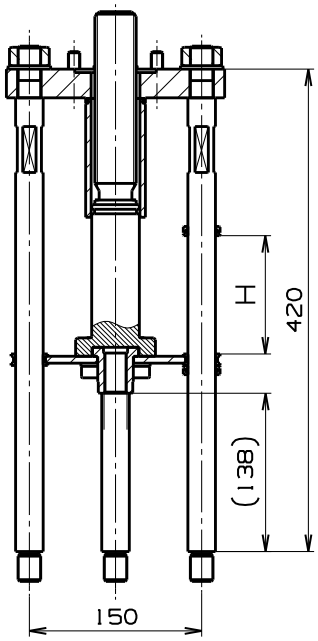
With ACTUMATIC R position regulator



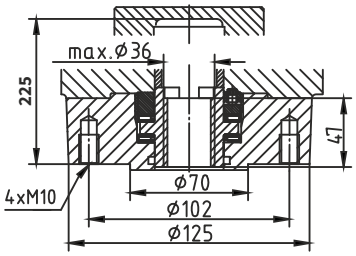
With SMARTCON control unit

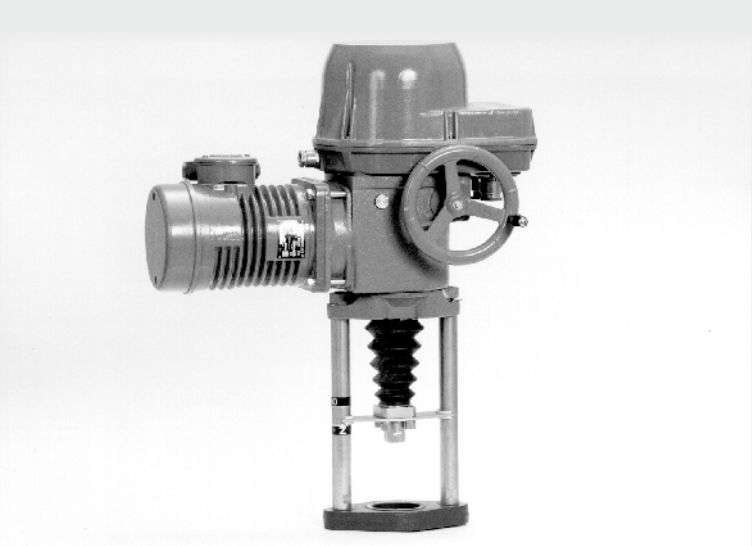


Attachment yoke DN200-400
Connection A, F10, Tr36x6-LH



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





Electric actuator

Regada

Modact MTR

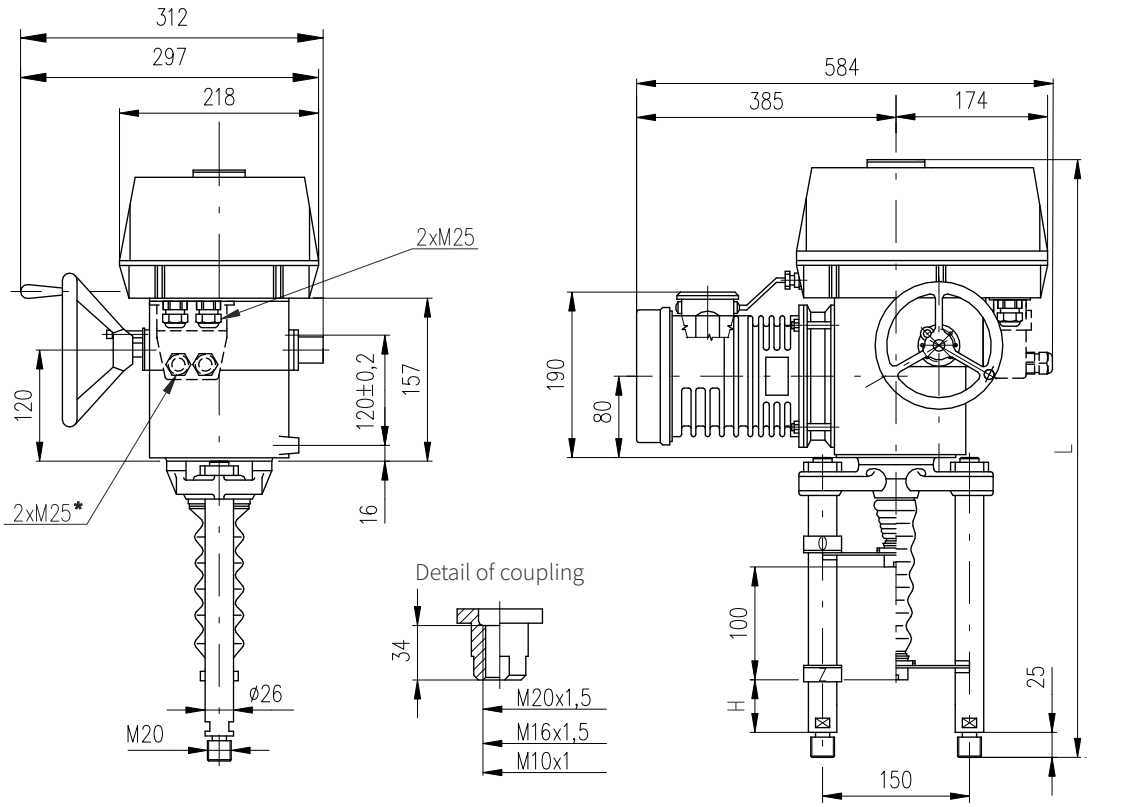
marking in type number:
EPD

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	**DN 15 - 150**
P-1045b/C	130	680	P-1045b/H	130	702	**DN 200 - 400**

Specification of Modact MTR

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

Climatic resistance				Code
Climatic resistance	Standard	-25°C to +55°C	Enclosure IP 55	0
			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		8

	Screw version	Switching-off thrust [32) 33)]	Rated operating speed	Operating speed	Electric motor Power	Electric motor Speed	Electric motor 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

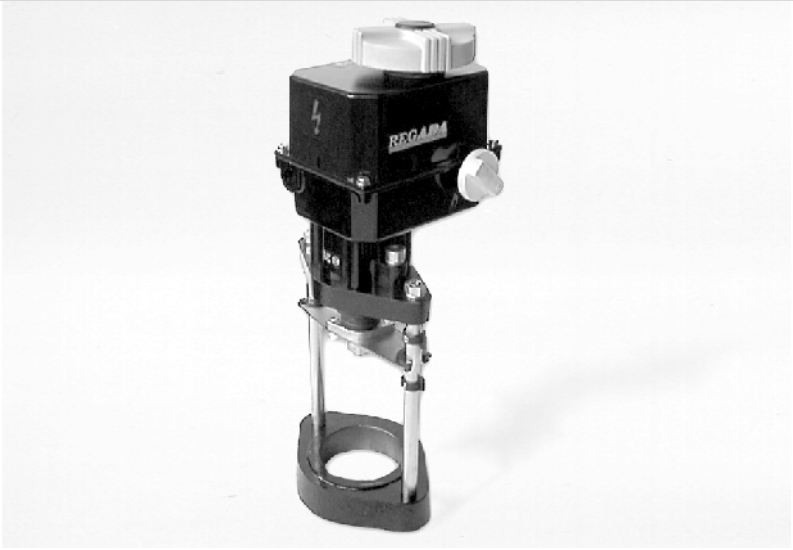
Mechanical connection	Connection hight / stroke	Pillar spacing / Bore of flange	Thread of stem [3)]	Dimensional drawing	Code
Columns	130	150/ —	M20x1.5	P-1045b/B; P-1045b/E	B
			M16x1.5	P-1045b/C; P-1045b/H	C

	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

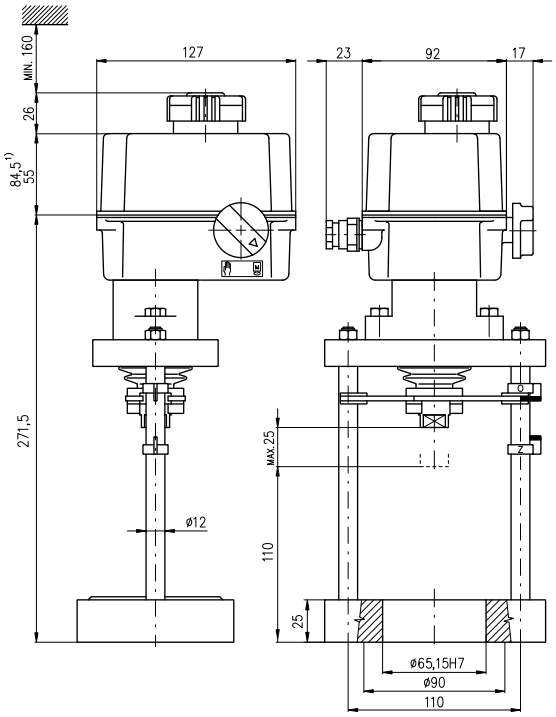
marking in type number:
EPK

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

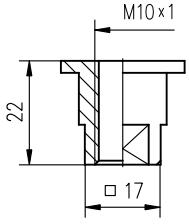
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

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 – Without regulator **(ST 0)**	1									
	Tropical, -25°C to +55°C, IP 67 – Without regulator **(ST 0)**	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 – With regulator **(STR 0)** resistance feedback [16]	G									
Electric connection – To terminal board – Voltage	230 V AC			0							
	24 V AC			3							
Nominal force [N] – Running speed – Motor power	2900 – 4 mm/min – 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				
	Resistance – Wiring: Single – Output: 1 x 2000 Ω						F				
	Electronic - current (without generator) – Wiring: 2-wire – Output: 4 - 20 mA						S				
	Electronic - current (without generator) – Wiring: 2-wire [6] – Output: 4 - 20 mA						Q				
	Electronic - current (without generator) – Wiring: 3-wire [6] – Output: 0 - 20 mA						T				
	Electronic - current (without generator) – Wiring: 3-wire [6] – Output: 0 - 20 mA						U				
	Electronic - current (without generator) – Wiring: 3-wire [6] – Output: 4 - 20 mA						V				
	Electronic - current (without generator) – Wiring: 3-wire [6] – Output: 4 - 20 mA						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

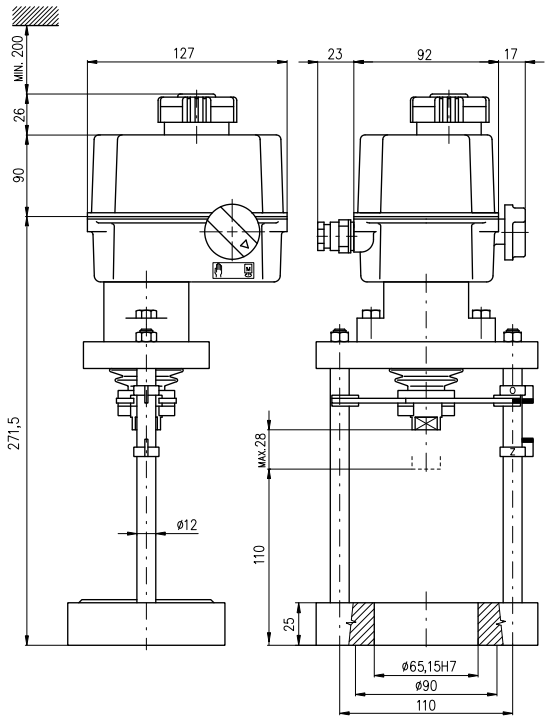
marking in type number:
EPK

Technical data

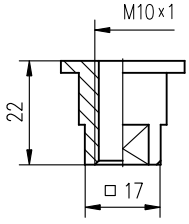
Type	**STR 0PA**
Marking in valve spec. No.	**EPK**
Voltage	230 V AC, 24 V AC
Frequency	50 Hz
Power consumption	1 W
Control	3-position (0 - 10 V, (0)4 - 20 mA)
Nominal force	2,4 kN and 4,5 kN
Travel	10 to 28 mm
Enclosure	IP 67
Process medium max. temp.	acc. to used valve
Ambient temperatrure range	-25 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	**Control**	modulating	0/4 - 20 mA 0/2 - 10 V	ON - OFF and pulse	24 V DC	**Output**	4 - 20 mA passive								G 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 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					

Electric actuators

Regada

ST 0.1
STR 0.1

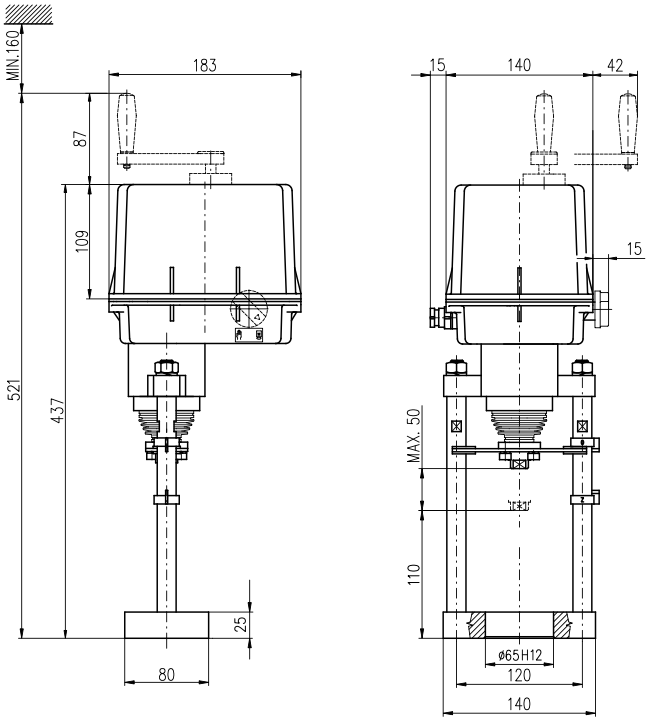
marking in type number:
EPL

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

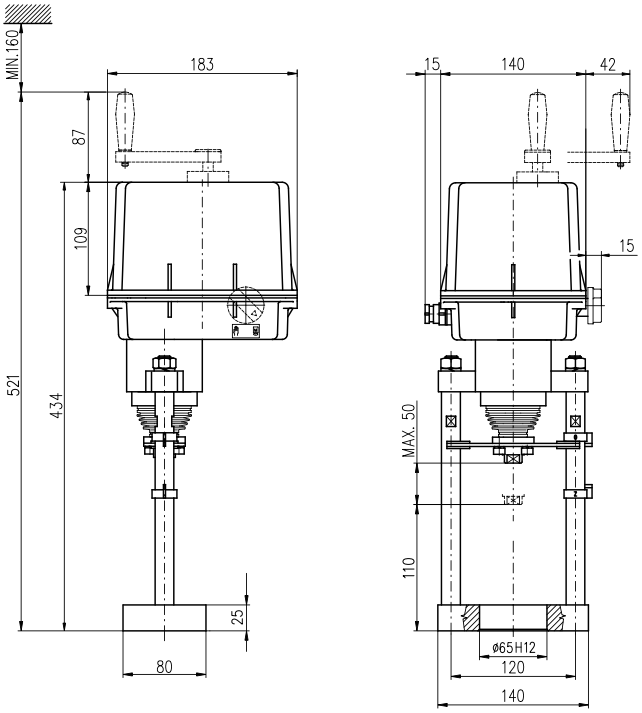
marking in type number:
EPL

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 0/2 - 10 V	ON - OFF and pulse	24 V DC	**Output**	4 - 20 mA pasive						G 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

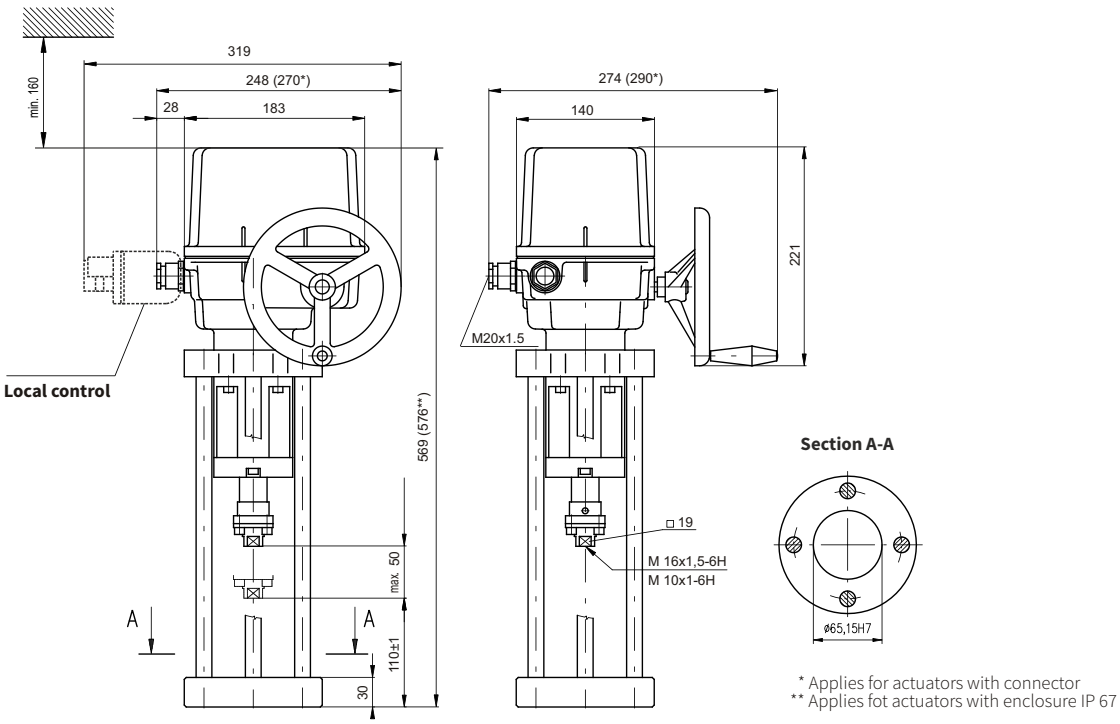
marking in type number:
EPI

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
	Standard	-25°C to +55°C	IP 67	Without regulator **(ST 0.1)**		1
	Tropical	-25°C to+55°C	IP 67	Without regulator **(ST 0.1)**		6
	Universal	-50°C to +40°C	IP 67	Without regulator **(ST 0.1)**		8
	Standard	-25°C to +55°C	IP 65	With regulator **(STR 0.1)**	Resistance feedback	A
	Standard	-25°C to +55°C	IP 65	With regulator **(STR 0.1)**	Current feedback	C
	Tropical	-25°C to +55°C	IP 67	With regulator **(STR 0.1)**	Resistance feedback	G
	Tropical	-25°C to +55°C	IP 67	With regulator **(STR 0.1)**	Current feedback	J
Electric connection	To terminal board			**Voltage**	24 V DC	A
	To terminal board				230 V AC	0
	To terminal board				24 V AC	3
	To terminal board				3x400 V AC[6]	9
	To terminal board				3x380 V AC[6]	M
	To connector				24 V DC	C
	To connector				230 V AC	5
	To connector				24 V AC	8
	To connector				3x400 V AC[6]	7
	To connector				3x380 V AC[6]	R
Nominal force [N]	10000	**Running speed**	8 mm/min	**Motor power**	15 W (230; 3x400; 3x380 V AC) 20 W (24V AC/DC)	0
	10000		10 mm/min			1
	10000		16 mm/min			2
	7500		32 mm/min			5
	7500		20 mm/min			6
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
	Resistance	Single	---	1 x 2000 Ω		F
	Resistance	Double[6]	---	2 x 100 Ω		K
	Resistance	Double[6]	---	2 x 2000 Ω		P
	Electronic - current	without its source	2-wire	4 - 20 mA		S, Q
	Electronic - current	without its source	3-wire[6]	0 - 20 mA		T, U
	Electronic - current	without its source	3-wire[6]	4 - 20 mA		V, W
	Capacity	wo its source	2-wire[6]	4 - 20 mA		I
	Capacity	with its source	2-wire	4 - 20 mA		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

Electric actuators

Regada

STR 1PA

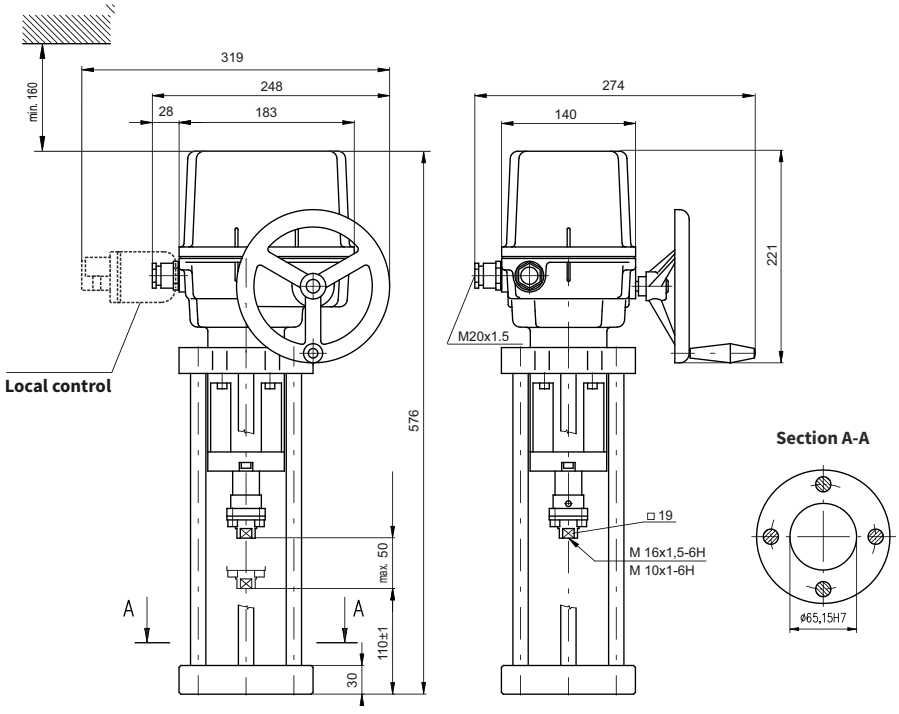
marking in type number:
EPI

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



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						
Nominal force [N] 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										0	5
	D	Auxiliary relay module R3, R4, R5 (module DMS3 RE3)										0	6
	E	Auxiliary relay module R1, R2, R3, R4, R5, READY (module DMS3 RE6)										0	7
	F	Local control for actuators with system DMS3 and LCD											

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

ST 1-Ex

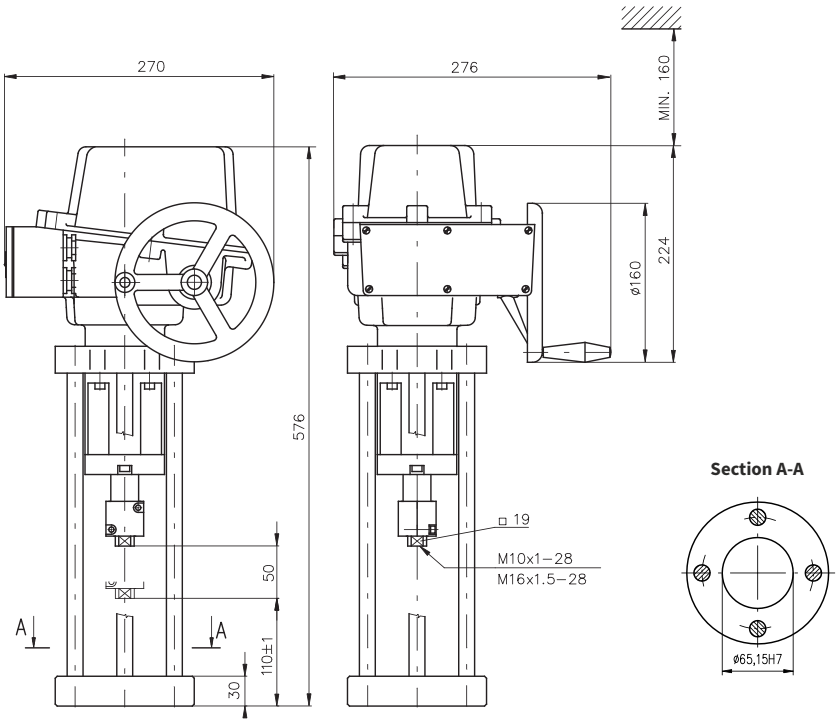
marking in type number:
EPJ

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	
		With its source [59)]		2 - wire		4 - 20 mA							V	
						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

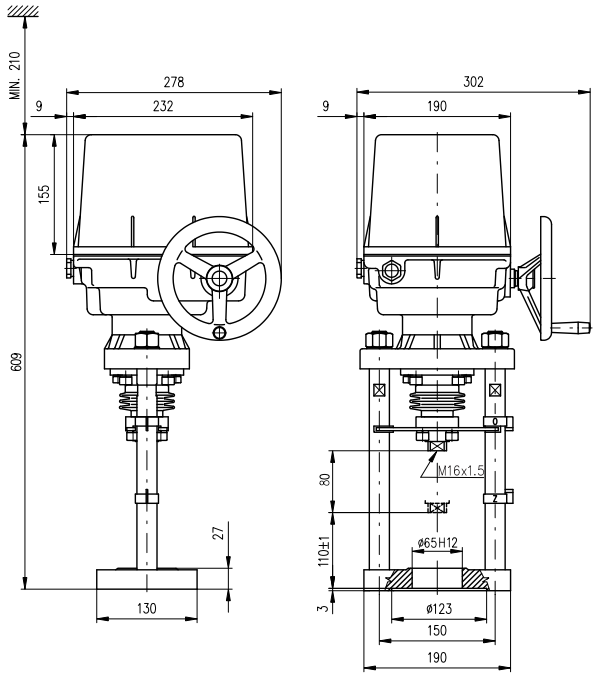
Technical data

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

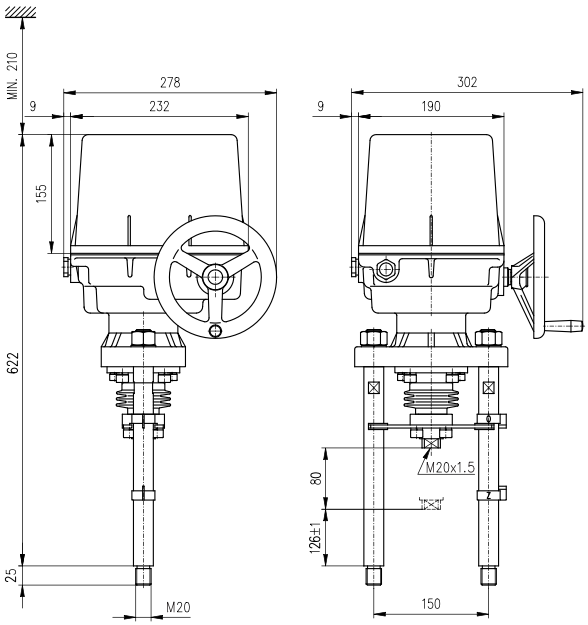
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

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

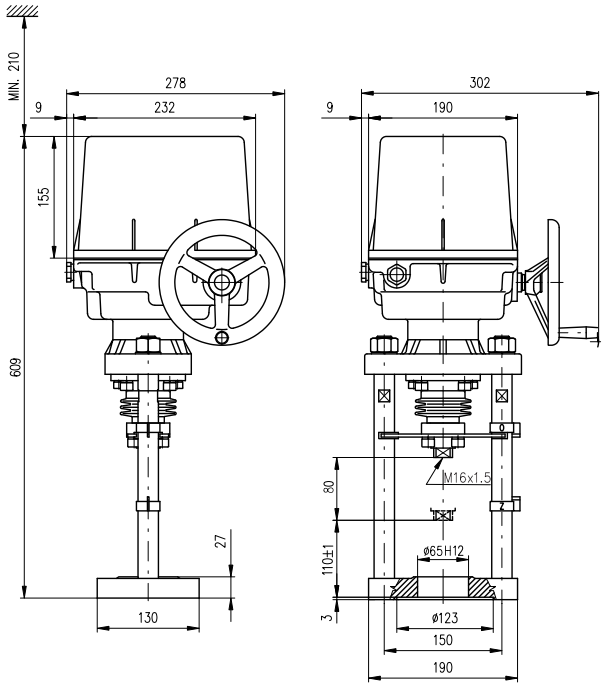
Technical data

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

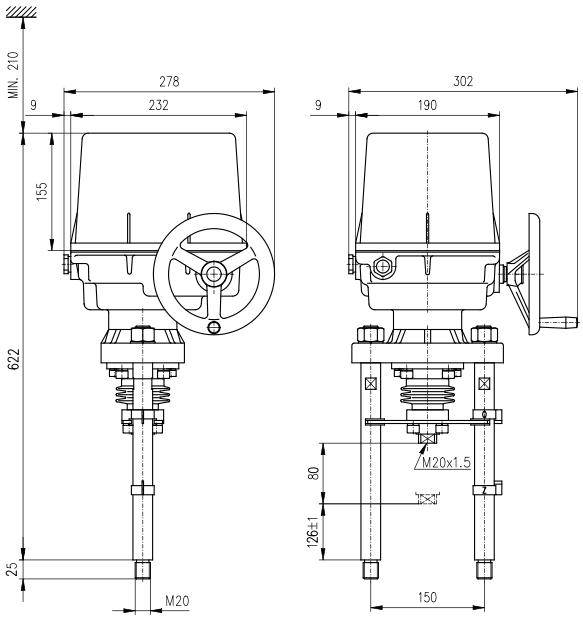
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the webside **www.regada.sk**

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	Control: 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

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.	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

Electropneumatic positioner type SRI 981	Device with electric input of 20 - 100 kPa to control the pneumatic actuators with pneumatic control signal
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 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, 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
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

Operating conditions

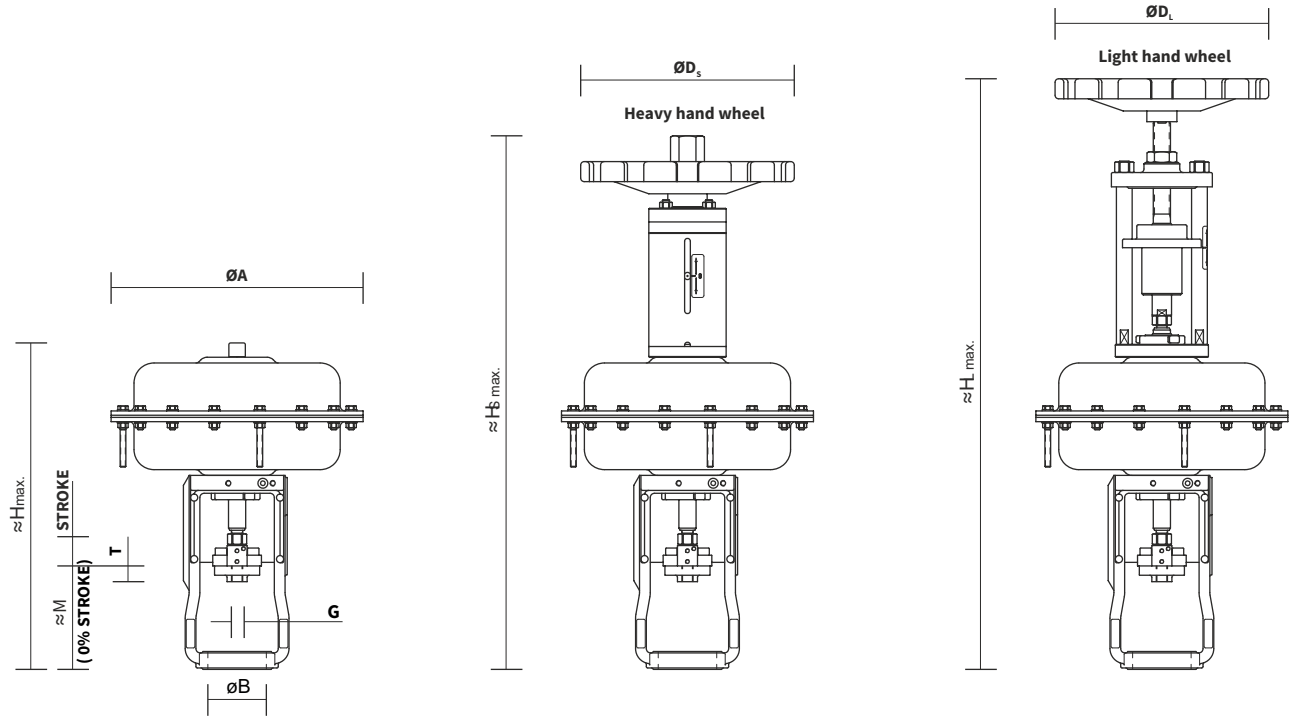
Pneumatic actuators Flowserve can operate with extremely high ambient temperatures with unique resistance to shock loads. They excel with resistance to vibrations and reached 10^6 of cycles in operation. It is possible to deliver the actuator with both fail to open and fail to close function, possibly 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

marking in type number:

PFD

Technical data

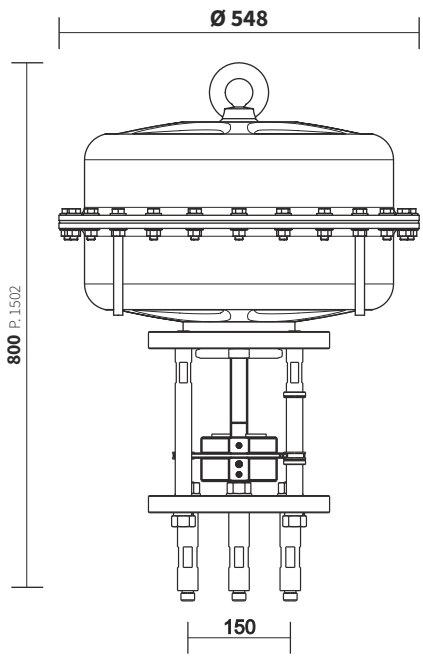
Type	**PO 1502**	
Marking in valve spec. No.	**PFD**	
Feeding pressure	6,0 bar max	
Function	direct	indirect
Control	pneumatic signal 0,2 - 1,0 bar current signal 0(4) - 20 mA	
Nominal force	according to table of nominal force values	
Travel	80, 100 mm	
Enclosure	IP 54	
Process medium max. temp.	acc.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

→ **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**

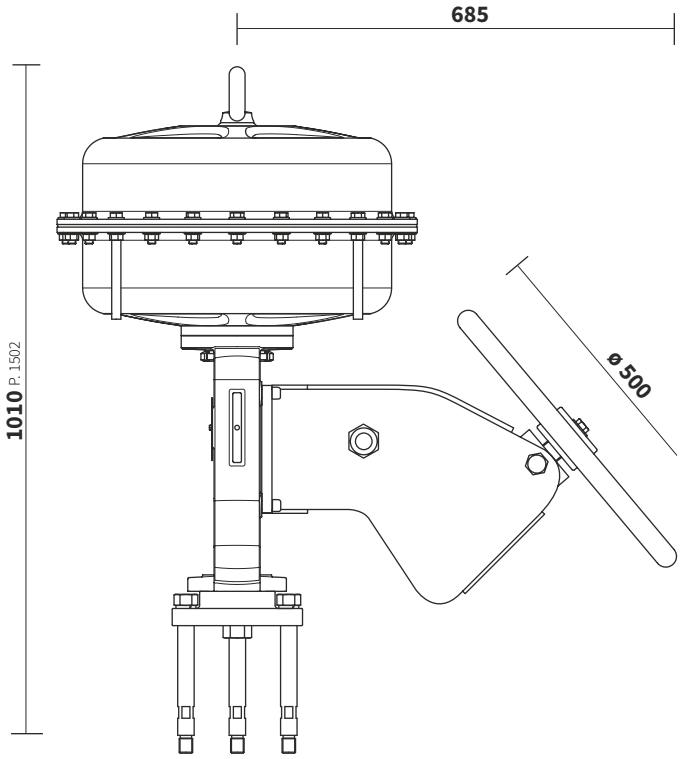
Accessories

Electropneumatic positioner type SRI 981	Device with electric input of 20 - 100 kPa to control the pneumatic actuators with pneumatic control signal
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 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

Dimensions of actuator Flowserve 1502



PO 1502

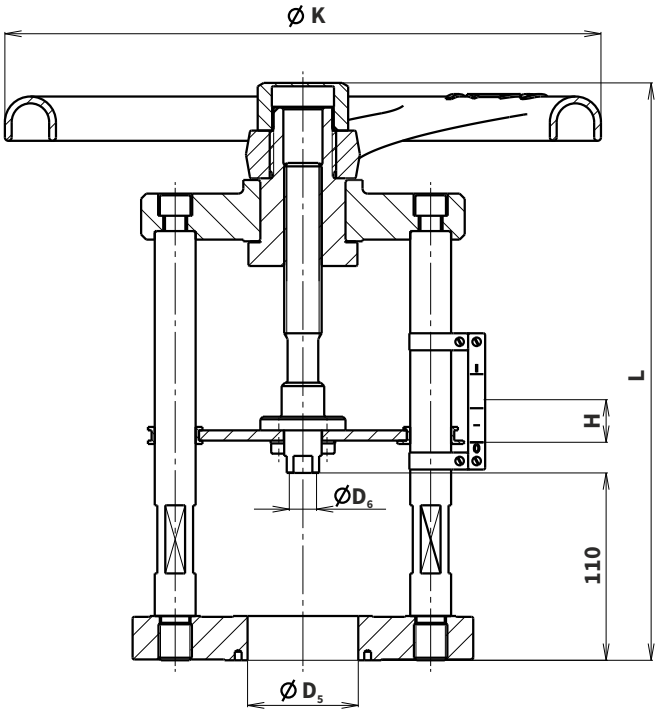


PB 1502

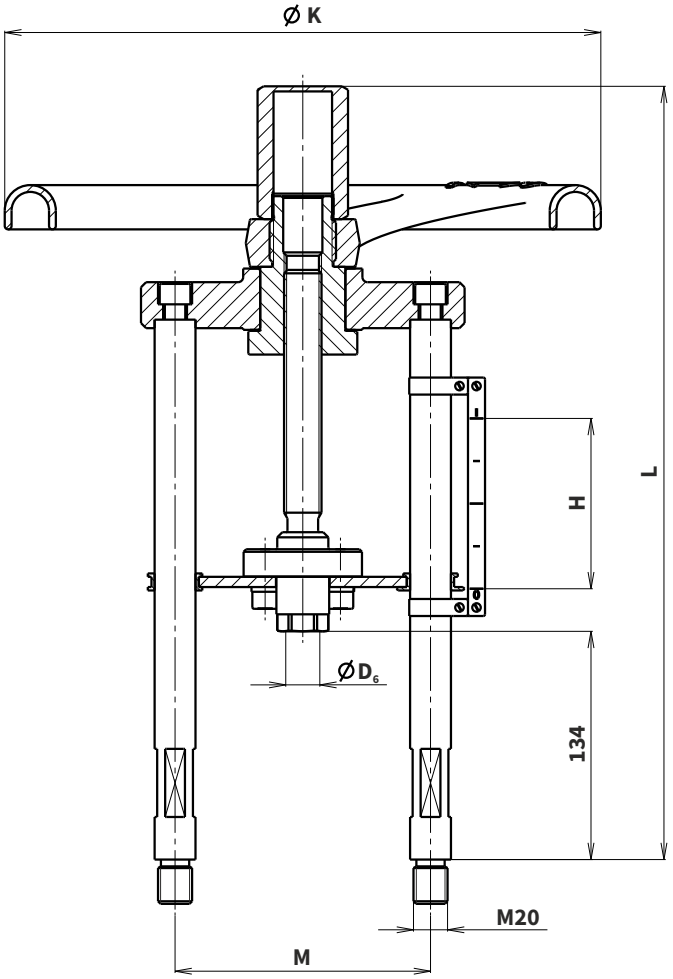
Specification No. of Flowserve actuators 1502

			PX XXXX	X	X X	X	X	X
Type of actuator		1500 cm²	**PO 1502**					
		1500 cm²	**PB 1502**					
Color			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**			
Hand wheel			without wheel			**O**		
			side light wheel			**S**		
Function			direct				**A**	
			indirect				**Z**	
Stroke H			80					**D**

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

Max. permissible operating pressures acc. to ČSN EN 12516-1 (08/21015) [bar]

Material	PN	Temperature [°C]													
		RT [1]	100	150	200	250	300	350	375	400	425	450	475	500	550
Cast steel	**40**	40,0	37,4	35,5	33,6	30,7	27,8	25,9	25,0	24,0	20,8	14,7	---	---	---
1.0619 (GP240GH)	**63**	63,0	59,0	55,9	52,9	48,4	43,8	40,8	39,3	37,8	32,7	23,2	---	---	---
Chrommolybden	**40**	40,0	40,0	40,0	40,0	40,0	40,0	37,3	35,9	34,1	32,7	31,5	29,5	25,0	11,7
1.7357 (G17CrMo5-5)	**63**	63,0	63,0	63,0	63,0	63,0	63,0	58,7	56,5	53,8	51,4	49,7	46,5	39,3	18,5
Stainless steel	**40**	40,0	40,0	38,6	35,8	34,2	32,5	30,8	30,0	29,1	28,6	28,0	27,4	26,3	---
1.4581 (GX5CrNiMoNb19-11-2)	**63**	63,0	63,0	60,9	56,4	53,8	51,2	48,5	47,2	45,9	45,0	44,1	43,2	41,5	---

[1] -10°C to 50°C

Marking of actuators in type no.

Electric actuator 660 MIDI	**ENB**	Electric actuator Schiebel AB3	**EZA**
Electric actuator Zepadyn 670	**ENC**	Electric actuator Schiebel exAB3	**EZB**
Eelectric actuator Zepadyn 671	**ENE**	Electric actuator Schiebel rAB3	**EZC**
Electric actuator Modact MTR	**EPD**	Electric actuator Schiebel exrAB3	**EZD**
Electric actuator ST 0	**EPK**	Electric actuator Schiebel AB5	**EZE**
Electric actuator ST 0.1	**EPL**	Electric actuator Schiebel exAB5	**EZF**
Electric actuator Isomact ST 1 Ex	**EPJ**	Electric actuator Schiebel rAB5	**EZG**
Electric actuator Isomact ST 2	**EPM**	Electric actuator Schiebel exrAB5	**EZH**
Electric actuator Modact MTN Control, MTP Control	**EYA**	Electric actuator Schiebel rAB8	**EZK**
Electric actuator Modact MTN, MTP	**EYB**	Electric actuator Schiebel exrAB8	**EZL**
Electric actuator Modact MTNED, MTPED	**EYA**	Pneumatic actuator Flowserve PA 253	**PFA**
Electric actuator Auma SA 07.1	**EAA**	Pneumatic actuator Flowserve PB 503	**PFB**
Electric actuator Auma SA Ex 07.1	**EAB**	Pneumatic actuator Flowserve PB 701	**PFC**
Electric actuator Auma SAR 07.1	**EAC**	Pneumatic actuator Flowserve PO 1502	**PFD**
Electric actuator Auma SAR Ex 07.1	**EAD**	Pneumatic actuator Flowserve PO 3002	**PFE**
Electric actuator Auma SA 07.5	**EAE**	Hand wheel for DN 15 - 40	**R16**
Electric actuator Auma SA Ex 07.5	**EAF**	Hand wheel for DN 50 - 65	**R20**
Electric actuator Auma SAR 07.5	**EAG**	Hand wheel for DN 80 - 100	**R28**
Electric actuator Auma SAR Ex 07.5	**EAH**	Hand wheel for DN 125 - 200	**R35**
Electric actuator Auma SA 10.1	**EAI**		
Electric actuator Auma SAR 10.1	**EAJ**		
Electric actuator Auma SAR Ex 10.1	**EAK**		
Electric actuator Auma SA Ex 10.1	**EAL**		

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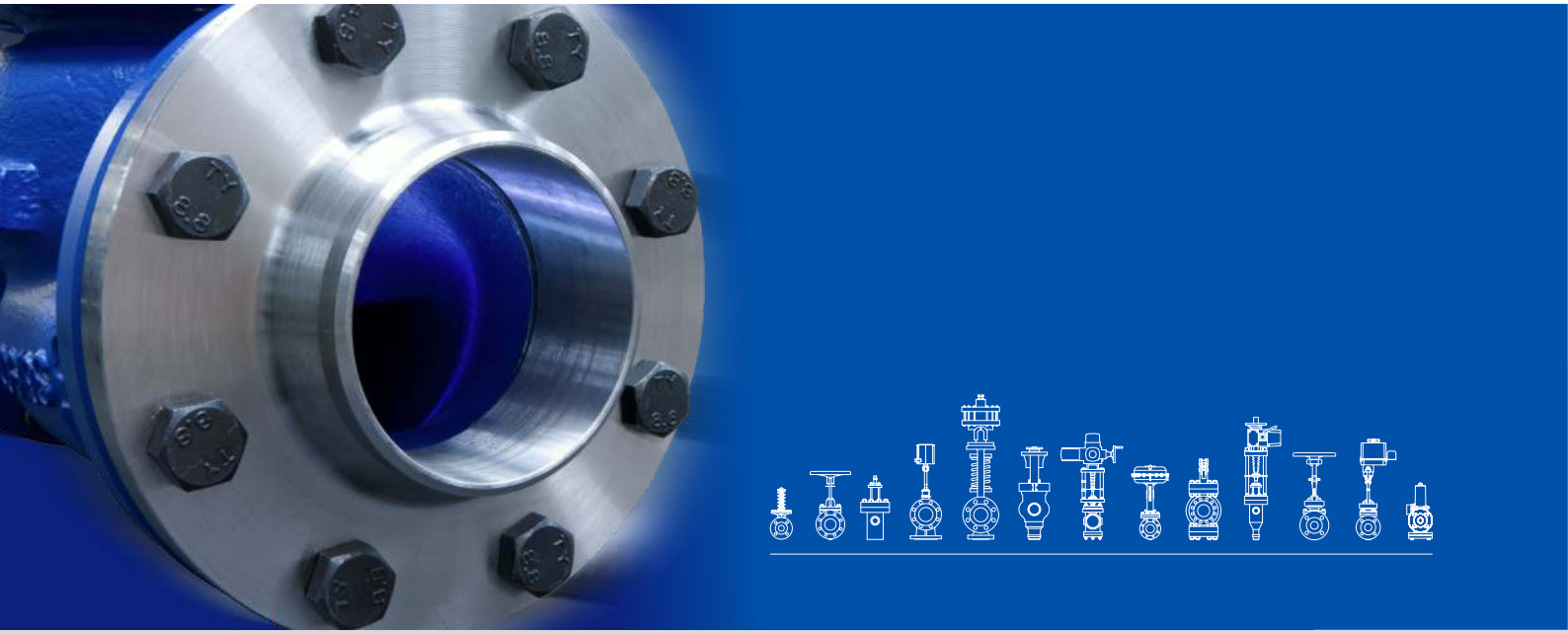

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