



01 - 02.1
12.22.GB

CONTROL AND SHUT-OFF VALVES

200 line



200 line

RV / UV 210 (Ex)
RV / UV 220 (Ex)
RV / UV 230 (Ex)

two-way, single-seated,
control (shut-off) valve

RV 212 (Ex)
RV 222 (Ex)
RV 232 (Ex)

two-way, single-seated,
control valve with
pressure-balanced plug

RV 214 (Ex)
RV 224 (Ex)
RV 234 (Ex)

three-way mixing
or diverting control valves

Control valves **200 line** are designed for regulation and shut-off of process liquid flow. In **Ex proof version** meet the requirements II 1/2G IIC T6...T1 Ga/Gb according to ČSN EN ISO 80079-36 (9/2016) and ČSN EN 1127-1 ed.2 (1/2012). The selected materials correspond to recommendations stipulated by ČSN EN 12516-1 (8/2015) - steel and ČSN EN 1503-3 (1/2002) - cast. The maximal permissible operating pressures in behaviour with types of material and temperature are specified in the table on page 102 of this catalogue.

Control

hand wheel
or electromechanical actuators of producers **ZPA Nová Paka, Regada, ZPA Pečky, Schiebel, Auma** and pneumatic actuators of producers **Flowserve, A. Hock**

Application

RV / UV 2xx - heating, ventilation, power generation and chemical processing industries
RV / UV 2xx Ex - gas and chemical industries

Process media

RV / UV 2xx - liquids, gases and vapours without abrasive particles
e.g. water, steam, air and other media compatible with material of the valve inner parts
RV / UV 2xx Ex - technical and fuel gases and inflammable liquids

The usage of the valve made of spheroidal cast iron (RV 210) for steam is limited by the following parameters. The steam must be superheated (its dryness at valve inlet $x_1 \geq 0,98$) and inlet pressure $p_1 \leq 0,4$ MPa when differential pressure is of above-critical value or $p_1 \leq 1,6$ MPa when differential pressure is of under critical value. In case these two conditions are not kept, it is necessary to use the valve body made of cast steel (RV 22x). To ensure a reliable regulation, the producers recommends 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 can be installed in any position except position when the actuator is under the valve body. The valve is to be piped the way so that the direction of medium flow will coincide with the arrows on the body.

It is necessary to protect the actuator from excessive heat from the pipeline at medium temperatures above 150 °C, e.g. by appropriately insulating the pipeline and valve and tilting the actuator from the vertical axis. When the valve is used as diverting, process medium flows through common valve port AB and split streams leave through valve ports A and B.). Detailed informations are given in the instruction for installation and service.

Packings

O-ring EPDM

Packing is designed for non-aggressive media with temperature from 0°C to 140°C. Packing excels with its reliability and long time tightness. It has ability of sealing even if the valve stem is a bit damaged. Low frictional forces enables valve to be actuated with a low-linear-force actuator. Service life of sealing rings depends on operating conditions and it is more than 400 000 cycles on average.

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

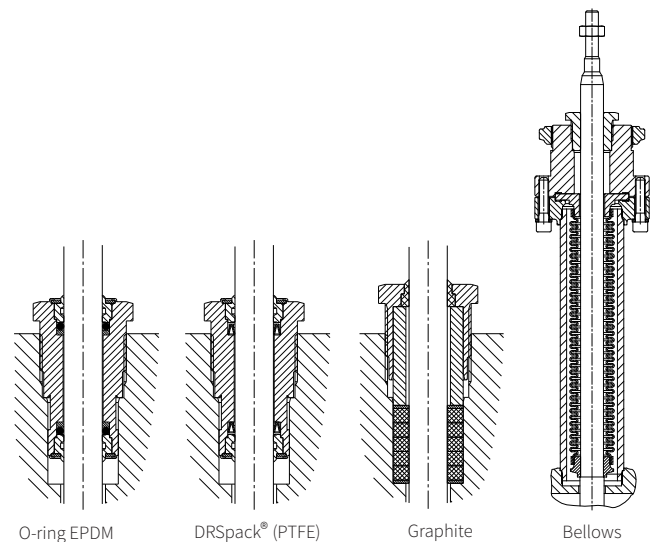
Bellows packing is suitable for low and high temperatures ranging from -50°C to 550°C. Bellows ensures absolute tightness to environment. Packing is equipped with safety PTFE packing as standard to prevent medium from leaking in case of damage to bellows. Intensive linear forces are not required.

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 temperatures when bellows ensures medium cooling.



Service life of bellows packing

Bellows material	Temperature				
	200°C	300°C	400°C	500°C	550°C
1.4541	100 000	40 000	28 000	7 000	not applicable
1.4571	90 000	34 000	22 000	13 000	8 000

Values specified in the table above show minimal guaranteed number of cycles with the valve full stroke when the bellows is fully lengthened and pressed. In regulation, when the valve plug moves only in a portion of the stroke range at the inner centre of the valve, the service life of the bellows is many times longer then depending on concrete operating conditions.

Principles for plug type selection

V-ported plugs should not to be used in supercritical differential pressures with inlet pressure $p \geq 0,4$ 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. stellite 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 2x0

Control and
Shut-off valves

DN 15 - 400
PN 10 - 40

Control valves **RV / UV 210 (Ex)**, **RV / UV 220 (Ex)** and **RV / UV 230 (Ex)** (further only RV / UV 2x0 (Ex) are single-seated valves designed for regulation and shut-off of process liquid flow.

Technical data		RV / UV 210 (Ex)	RV / UV 220 (Ex)	RV / UV 230 (Ex)
Series				
Type of valve		Two-way, single-seated, control (shut-off) valve		
Nominal size range		DN 15 to 400	DN 15 to 400	
Nominal pressure		DN 15-150: PN16, 40; DN 200-400: PN16	PN 10, 16, 25, 40	
Body material		Spheroidal cast iron EN-JS 1025 (EN-GJS-400-18-LT)	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	1.4028 / 17 023.6	1.4571 / 17 348.4
DIN W.Nr./ČSN	DN 65 - 400	1.4027 / 42 2906.5	1.4027 / 42 2906.5	1.4581 / 42 2941.4
Plug material	DN 15 - 65	1.4021 / 17 027.6	1.4021 / 17 027.6	1.4571 / 17 348.4
DIN W.Nr./ČSN	DN 80 - 150	1.4027 / 42 2906.5	1.4027 / 42 2906.5	1.4581 / 42 2941.4
	DN 200 - 400	1.4021 / 17 022.6	1.4021 / 17 022.6	1.4581 / 42 2941.4
Stem material	DN 15 - 150	1.4305		1.4571
	DN 200 - 400	1.4923		1.4980
Operating temperature range		-10 to 300 °C	-50 to 500 °C - (request for negative temperature need to be specified in order)	
Face to face dimensions		Section 1 acc. to ČSN EN 558 (9/2017)		
Connection flanges		Acc. to ČSN-EN 1092-2 (1/1999)	Acc. to ČSN EN 1092-1 (11/2018)	
Flange faces		Typ B1 (raised-faced) acc. to ČSN-EN 1092-2 (1/1999)	Type B1 (raised-faced) or Type F (female) or Type D (groove) according to ČSN EN 1092-1 (11/2018)	
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 c. valves with metal-PTFE seat sealing Class IV. acc. to ČSN-EN 1349 (7/2010) (<0.01% Kvs) for shut-off valve		
Leakage rate for Ex version		RV 2xx Class IV. acc. to ČSN EN 1349 (7/2010) (<0.01% Kvs); UV 2xx Rate C acc. to ISO 5208:2008		
Rangeability r		50 : 1		
Packing		O - ring EPDM t _{max} =140°C, DRSpack®(PTFE) t _{max} =260°C, Exp. graphite, bellows t _{max} =500°C		

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 15 - 150 with V-ported plugs, contoured plugs (flow direction below plug) for electromechanical actuators

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

For further information on actuating, see actuators' catalogue sheets		Actuating (actuator)										PTN 2.20 MIDI 660		ST 0		PTN 2.32 MIDI 660		MIDI 660 ST 0 ST 0.1 PTN 2.40		AUMA Schiebel Rotork Sipos		Zepadyn ST 1 Ex ST 0.1 PTN 6		
		Marking in valve specification No.										ERB ENB		EPK		ERC ENB		ENB EPK EPL ERC		EA..., EZ..., EQ..., ET...		ENC EPJ EPL ERD		
		Linear force										2 kN		2,5 kN		3,2 kN		4,0 kN		5 kN		6,3 kN		
DN	H	Kvs [m ³ /h]										Δp_{max} [Mpa] metal PTFE		Δp_{max} [Mpa] metal PTFE		Δp_{max} [Mpa] metal PTFE		Δp_{max} [Mpa] metal PTFE		Δp_{max} [Mpa] metal PTFE		Δp_{max} [Mpa] metal PTFE		
		1	2	3	4	5	6	7	8	9	10	11	1	2	1	2	1	2	1	2	1	2		
15	16	---	2.5 ¹⁾	1.6 ¹⁾	1.0 ¹⁾	0.6 ¹⁾	0.4 ¹⁾	0.25 ¹⁾	0.16 ³⁾	0.1 ³⁾	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---		
15		4.0 ¹⁾	---	---	---	---	---	---	---	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---		
20		---	---	2.5 ¹⁾	1.6 ¹⁾	1.0 ¹⁾	0.6 ¹⁾	---	---	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---		
20		---	4.0 ¹⁾	---	---	---	---	---	---	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---		
20		6.3 ¹⁾	---	---	---	---	---	---	---	---	3.77	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---		
25		---	---	---	2.5 ¹⁾	1.6 ¹⁾	---	---	---	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---		
25		10.0	6.3 ²⁾	4.0 ²⁾	---	---	---	---	---	---	2.24	2.65	3.16	3.57	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00		
32		---	---	---	4.0 ¹⁾	---	---	---	---	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---		
32		16.0	10.0	6.3 ²⁾	---	---	---	---	---	---	1.28	1.60	1.83	2.15	2.61	2.92	3.49	3.81	4.00	4.00	4.00	4.00		
40		25.0	16.0	10.0	---	---	---	---	---	---	0.77	1.02	1.12	1.38	1.62	1.87	2.19	2.44	2.90	3.15	3.60	3.90		
50	25	40.0	25.0	16.0	---	---	---	---	---	---	---	---	0.63	0.82	0.93	1.12	1.27	1.46	1.69	1.88	2.10	2.30		
65		63.0	40.0	25.0	---	---	---	---	---	---	---	---	0.35	0.50	0.53	0.68	0.74	0.89	1.00	1.15	1.20	1.40		
80	40	100.0	63.0	40.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.73	0.86
100		160.0	100.0	63.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.45	0.56
125		250.0	160.0	100.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.27	0.36
150		360.0	250.0	160.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.18	0.25

For further information on actuating, see actuators' catalogue sheets		Actuating (actuator)										AUMA Schiebel Rotork Sipos		AUMA Schiebel Rotork Sipos		Zepadyn Modact MTR PTN 6		Modact Cont. Modact MTN Auma Schiebel		Modact MTR ST 2 Zepadyn 671 PTN 7		Hand wheel *)			
		Marking in valve specification No.										EA..., EZ..., EQ..., ET...		EA..., EZ..., EQ..., ET...		ENC EPD ERD		EYA EYB EA..., EZ...		EPD EPM ENE ERG		Rxxx			
		Linear force										7,5 kN		10 kN		10 kN		15 kN		16 kN					
DN	H	Kvs [m ³ /h]										Δp_{max} [Mpa] metal PTFE		Δp_{max} [Mpa] metal PTFE		Δp_{max} [Mpa] metal PTFE		Δp_{max} [Mpa] metal PTFE		Δp_{max} [Mpa] metal PTFE		Δp_{max} [Mpa] metal PTFE			
		1	2	3	4	5	6	7	8	9	10	11	1	2	1	2	1	2	1	2	1	2			
50	25	40.0	25.0	16.0	---	---	---	---	---	---	---	2.76	2.95	3.82	4.00	3.82	4.00	---	---	---	---	---	---	3.80	4.00
65		63.0	40.0	25.0	---	---	---	---	---	---	---	1.65	1.80	2.30	2.45	2.30	2.45	---	---	---	---	---	---	2.30	2.45
80	40	100.0	63.0	40.0	---	---	---	---	---	---	---	1.01	1.13	1.46	1.58	1.46	1.58	2.36	2.48	2.54	2.66	2.54	2.66	2.54	2.66
100		160.0	100.0	63.0	---	---	---	---	---	---	---	0.63	0.73	0.92	1.02	0.92	1.02	1.50	1.61	1.62	1.72	1.62	1.72		
125		250.0	160.0	100.0	---	---	---	---	---	---	---	0.39	0.47	0.58	0.66	0.58	0.66	0.96	1.04	1.03	1.12	1.03	1.12		
150		360.0	250.0	160.0	---	---	---	---	---	---	---	0.26	0.33	0.39	0.46	0.39	0.46	0.66	0.73	0.71	0.78	0.71	0.78		

- 1) parabolic plug
- 2) V-ported plug with linear characteristic, parabolic plug with equal-percentage, LDMspline® or parabolic characteristic
- 3) valve with micro-throttling trim. Version with Kvs 0.01 to 0.063 m³/hour is possible after agreement with the producer.
LDMspline® or parabolic characteristic from Kvs ≥ 1.0, equal-percentage, from Kvs ≥ 0.4 Perforated plug available only with Kvs values in shadowed frames with the following restrictions:
 - Kvs values 2.5 to 1.6 m³/hour available with linear characteristic only
 - Perforated plug with Kvs value acc. to column No. 2 available with linear or parabolic characteristic only.

Max. differential pressure Δp for valves PN 16 must be 1.6 MPa
 metal - version with metal - metal seat sealing
 PTFE - version with metal - PTFE seat sealing (is not applicable to contoured plugs)

Max. differential pressures specified in table apply to PTFE and O-ring packing.
 Δp_{max} for bellows must be consulted with the producer.
 Values Δp_{max} are set for the most unfavourable pressure ratios on the valve PN 40, but in concrete cases the real Δp_{max} value can be higher than values specified in the table above.

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 15 - 150 with V-ported plugs, contoured plugs (flow direction below plug) for pneumatic actuators

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

		Pneumatic actuator									Flowserve PA 253		Flowserve PB 503					
		Specification No. of actuator									BADxAA	BVCxZA	BADxAB	BVCxZB				
		Actuator function									direct	indirect	direct	indirect				
		Spring range [bar]									0,2 - 1,0	1,5 - 2,7	0,2 - 1,0	1,5 - 2,7				
		Spring setting [bar]									0,2 - 0,84	1,75 - 2,7	0,2 - 0,7	1,95 - 2,7				
		Feeding pressure [bar]									3,0	2,9	3,0	2,9				
		Marking in valve specific. No.									PFA		PFB					
		Linear force									4,9 kN	4,35 kN	10,5 kN	9,75 kN				
		Kvs [m ³ /h]									Δp_{max} [Mpa]	Δp_{max} [Mpa]	Δp_{max} [Mpa]	Δp_{max} [Mpa]				
DN	H	1	2	3	4	5	6	7	8	9	metal PTFE	metal PTFE	metal PTFE	metal PTFE				
15	16	---	2.5 ¹⁾	1.6 ¹⁾	1.0 ¹⁾	0.6 ¹⁾	0.4 ¹⁾	0.25 ¹⁾	0.16 ³⁾	0.1 ³⁾	4.00	---	4.00	---	---	---	---	
15		4.0 ¹⁾	---	---	---	---	---	---	---	---	4.00	---	4.00	---	---	---	---	
20		---	---	2.5 ¹⁾	1.6 ¹⁾	1.0 ¹⁾	0.6 ¹⁾	---	---	---	---	4.00	---	4.00	---	---	---	---
20		---	4.0 ¹⁾	---	---	---	---	---	---	---	---	4.00	---	4.00	---	---	---	---
20		6.3 ¹⁾	---	---	---	---	---	---	---	---	---	4.00	---	4.00	---	---	---	---
25		---	---	---	2.5 ¹⁾	1.6 ¹⁾	---	---	---	---	---	4.00	---	4.00	---	---	---	---
25		10.0	6.3 ²⁾	4.0 ²⁾	---	---	---	---	---	---	---	4.00	4.00	4.00	4.00	---	---	---
32		---	---	---	4.0 ¹⁾	---	---	---	---	---	---	4.00	---	4.00	---	---	---	---
32		16.0	10.0	6.3 ²⁾	---	---	---	---	---	---	---	4.00	4.00	3.88	4.00	---	---	---
40		25.0	16.0	10.0	---	---	---	---	---	---	---	2.83	3.08	2.44	2.69	---	---	---
50	25	40.0	25.0	16.0	---	---	---	---	---	---	---	---	---	---	4.00	4.00	3.71	3.91
65		63.0	40.0	25.0	---	---	---	---	---	---	---	---	---	---	---	2.43	2.58	2.23

		Pneumatic actuator									A. Hock 2109		A. Hock 2112-30					
		Specification No. of actuator									P2-0K-AL1	P2-0K-VL2	P2-0K-AM1	P2-0K-BM2				
		Actuator function									direct	indirect	direct	indirect				
		Spring range [bar]									0,2 - 1,0	1,2 - 3,0	0,2 - 1,0	0,8 - 2,2				
		Spring setting [bar]									0,2 - 0,84	1,56 - 3,0	0,2 - 0,87	1,03 - 2,2				
		Feeding pressure [bar]									2,4	3,2	2,2	2,4				
		Marking in valve specific. No.									PHF		PHA					
		Linear force									4,6 kN	4,6 kN	7,6 kN	5,9 kN				
		Kvs [m ³ /h]									Δp_{max} [Mpa]	Δp_{max} [Mpa]	Δp_{max} [Mpa]	Δp_{max} [Mpa]				
DN	H	1	2	3	4	5	6	7	8	9	metal PTFE	metal PTFE	metal PTFE	metal PTFE				
15	16	---	2.5 ¹⁾	1.6 ¹⁾	1.0 ¹⁾	0.6 ¹⁾	0.4 ¹⁾	0.25 ¹⁾	0.16 ³⁾	0.1 ³⁾	4.00	---	4.00	---	---	---	---	
15		4.0 ¹⁾	---	---	---	---	---	---	---	---	---	4.00	---	4.00	---	---	---	---
20		---	---	2.5 ¹⁾	1.6 ¹⁾	1.0 ¹⁾	0.6 ¹⁾	---	---	---	---	4.00	---	4.00	---	---	---	---
20		---	4.0 ¹⁾	---	---	---	---	---	---	---	---	4.00	---	4.00	---	---	---	---
20		6.3 ¹⁾	---	---	---	---	---	---	---	---	---	4.00	---	4.00	---	---	---	---
25		---	---	---	2.5 ¹⁾	1.6 ¹⁾	---	---	---	---	---	4.00	---	4.00	---	---	---	---
25		10.0	6.3 ²⁾	4.0 ²⁾	---	---	---	---	---	---	---	4.00	4.00	4.00	4.00	---	---	---
32		---	---	---	4.0 ¹⁾	---	---	---	---	---	---	4.00	---	4.00	---	---	---	---
32		16.0	10.0	6.3 ²⁾	---	---	---	---	---	---	---	4.00	4.00	4.00	4.00	---	---	---
40		25.0	16.0	10.0	---	---	---	---	---	---	---	2.61	2.87	2.61	2.87	---	---	---
50	25	40.0	25.0	16.0	---	---	---	---	---	---	---	---	---	---	2.80	2.99	2.08	2.27
65		63.0	40.0	25.0	---	---	---	---	---	---	---	---	---	---	---	1.67	1.82	1.23

The table continues on next page

For further information on actuating, see actuators' catalogue sheets											Pneumatic actuator		Flowserve PB 503		Flowserve PB 701					
											Specification No. of actuator		BADxAB	BVCxZB	BADxAB	BVCxZB				
											Actuator function		direct	indirect	direct	indirect				
											Spring range [bar]		0,2 - 1,0	1,5 - 2,7	0,2 - 1,0	1,5 - 2,7				
											Spring setting [bar]		0,2 - 1,0	1,5 - 2,7	0,2 - 1,0	1,5 - 2,7				
											Feeding pressure [bar]		3,0	2,9	3,2	2,9				
											Marking in valve specific. No.		PFB		PFC					
											Linear force		9,0 kN	7,5 kN	14 kN	10,5 kN				
											Kvs [m³/h]		Δp_{max} [Mpa]		Δp_{max} [Mpa]		Δp_{max} [Mpa]		Δp_{max} [Mpa]	
DN	H	1	2	3	4	5	6	7	8	9	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE		
80	40	100.0	63.0	40.0	---	---	---	---	---	---	1.28	1.40	1.01	1.13	2.18	2.30	1.55	1.67		
100		160.0	100.0	63.0	---	---	---	---	---	---	0.80	0.91	0.63	0.73	1.39	1.49	0.98	1.08		
125		250.0	160.0	100.0	---	---	---	---	---	---	0.50	0.59	0.39	0.47	0.88	0.96	0.61	0.70		
150		360.0	250.0	160.0	---	---	---	---	---	---	0.34	0.41	0.26	0.33	0.60	0.68	0.42	0.49		

For further information on actuating, see actuators' catalogue sheets											Pneumatic actuator		A. Hock 2112-50		A. Hock 2112-50					
											Specification No. of actuator		P2-0K-AI1	P2-0K-XI2	P2-0K-AI1	P2-0K-SI2				
											Actuator function		direct	indirect	direct	indirect				
											Spring range [bar]		0,2 - 1,0	0,7 - 2,5	0,2 - 1,0	0,8 - 2,8				
											Spring setting [bar]		0,2 - 0,84	1,06 - 2,5	0,2 - 0,84	1,2 - 2,8				
											Feeding pressure [bar]		2,6	2,8	3,6	3,1				
											Marking in valve specific. No.		PHA		PHA					
											Linear force		10 kN	6,0 kN	15,8 kN	6,9 kN				
											Kvs [m³/h]		Δp_{max} [Mpa]		Δp_{max} [Mpa]		Δp_{max} [Mpa]		Δp_{max} [Mpa]	
DN	H	1	2	3	4	5	6	7	8	9	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE		
80	40	100.0	63.0	40.0	---	---	---	---	---	---	1.46	1.58	0.73	0.86	2.50	2.63	0.90	1.03		
100		160.0	100.0	63.0	---	---	---	---	---	---	0.92	1.02	0.45	0.56	1.60	1.70	0.56	0.66		
125		250.0	160.0	100.0	---	---	---	---	---	---	0.58	0.66	0.27	0.36	1.02	1.10	0.34	0.43		
150		360.0	250.0	160.0	---	---	---	---	---	---	0.39	0.46	0.18	0.25	0.70	0.77	0.23	0.30		

- 1) parabolic plug
 - 2) V-ported plug with linear characteristic, parabolic plug with equal-percentage, LDMspline® and parabolic characteristic
 - 3) valve with micro-throttling trim. Version with Kvs 0.01 to 0.063 m³/hour is possible after agreement with the producer.
- LDMspline® and parabolic characteristic from Kvs ≥ 1.0, equal-percentage, from Kvs ≥ 0.4
- Perforated plug available only with Kvs values in shadowed frames with the following restrictions:
- Kvs values 2.5 to 1.6 m³/hour available with linear characteristic only
 - Perforated plug with Kvs value acc. to column No. 2 available with linear or parabolic characteristic only.

Max. differential pressure Δp for valves PN 16 must be 1.6 MPa

metal - version with metal - metal seat sealing

PTFE - version with metal - PTFE seat sealing (is not applicable to contoured plugs)

Max. differential pressures specified in table apply to PTFE and O-ring packing.

Δp_{max} for bellows must be consulted with the producer.

Values Δp_{max} are set for the most unfavourable pressure ratios on the valve PN 40, but in concrete cases the real Δp_{max} value can be higher than values specified in the table above.

Kvs values and differential pressures Δp_{\max} [MPa] of valves DN 15 to 150 with perforated plugs (flow direction above plug) for pneumatic actuators

Δp_{\max} value is the valve max. differential pressure when open - close function is always guaranteed.

								Pneumatic actuator		Flowserve PA 253		Flowserve PB 503			
								Specification No. of actuator		BVCxAA	BVCxZA	BVCxAB	BVCxZB		
								Actuator function		direct	indirect	direct	indirect		
								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 - 2,25	1,95 - 2,7		
								Feeding pressure [bar]		4,0	4,5	3,8	4,7		
								Marking in valve specific. No.		PFA		PFB			
								Linear force		3,7 kN	4,35 kN	7,5 kN	9,75 kN		
										packing	packing	packing	packing		
										graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE		
DN	H	1	2	3	4	5	6	Kvs [m ³ /h]							
25		---	6.3	4	2.5	1.6	---	0.55	1.33	0.79	1.56	---	---	---	---
32	16	---	10	6.3	4.0	2.5	1.6	0.33	0.80	0.48	0.95	---	---	---	---
40		---	16	10	6.3	4.0	2.5	0.21	0.52	0.31	0.61	---	---	---	---
50	25	---	25	16	10	6.3	4.0	---	---	---	---	0.45	0.63	0.64	0.82
65		---	40	25	16	10	6.3	---	---	---	---	0.28	0.39	0.39	0.50

								Pneumatic actuator		Flowserve PB 503		Flowserve PB 701			
								Specification No. of actuator		BVCxAB	BVCxZB	BADxAB	BVCxZB		
								Actuator function		direct	indirect	direct	indirect		
								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	1,5 - 2,7	1,5 - 2,7	1,5 - 2,7		
								Feeding pressure [bar]		4,2	4,2	4,2	4,2		
								Marking in valve specific. No.		PFB		PFC			
								Linear force		7,5 kN	7,5 kN	10,5 kN	10,5 kN		
										packing	packing	packing	packing		
										graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE		
DN	H	1	2	3	4	5	6	Kvs [m ³ /h]							
80		---	63	40	25	16	10	0.18	0.27	0.18	0.27	0.28	0.37	0.28	0.37
100	40	---	100	63	40	25	16	0.11	0.17	0.11	0.17	0.18	0.24	0.18	0.24
125		---	160	100	63	40	25	0.07	0.11	0.07	0.11	0.12	0.16	0.12	0.16
150		---	250	160	100	63	40	0.05	0.08	0.05	0.08	0.08	0.11	0.08	0.11

The table continues on next page

For further information on actuating, see actuators' catalogue sheets

							Pneumatic actuator		A. Hock 2109		A. Hock 2112-30		
							Specification No. of actuator		P2-0K-VL1	P2-0K-VL2	P2-0K-WM1	P2-0K-WM2	
							Actuator function		direct	indirect	direct	indirect	
							Spring range [bar]		1,2 - 3,0	1,2 - 3,0	1,4 - 2,8	1,4 - 2,8	
							Spring setting [bar]		1,2 - 2,64	1,56 - 3,0	1,4 - 2,57	1,63 - 2,8	
							Feeding pressure [bar]		3,9	4,6	4,0	4,5	
							Marking in valve specific. No.		PHF		PHA		
							Linear force		3,5 kN	4,6 kN	8,0 kN	9,3 kN	
									packing	packing	packing	packing	
									graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE	
DN	H	1	2	3	4	5	6						
25	16	---	6.3	4	2.5	1.6	---	0.47	1.25	0.88	1.66	---	---
32		---	10	6.3	4.0	2.5	1.6	0.29	0.76	0.53	1.00	---	---
40		---	16	10	6.3	4.0	2.5	0.18	0.49	0.34	0.64	---	---
50	25	---	25	16	10	6.3	4.0	---	---	---	---	0.49	0.67
65		---	40	25	16	10	6.3	---	---	---	---	0.30	0.41

For further information on actuating, see actuators' catalogue sheets

							Pneumatic actuator		A. Hock 2112-50		A. Hock 2112T-50		
							Specification No. of actuator		P2-0K-SI1	P2-0K-SI2	P2-0K-DT1	P2-0K-UT2	
							Actuator function		direct	indirect	direct	indirect	
							Spring range [bar]		0,8 - 2,8	0,8 - 2,8	0,5 - 1,7	0,75 - 2,7	
							Spring setting [bar]		0,8 - 2,4	1,2 - 2,8	0,5 - 1,46	1,14 - 2,7	
							Feeding pressure [bar]		3,3	4,0	2,0	3,9	
							Marking in valve specific. No.		PHA		PHB		
							Linear force		4,6 kN	6,9 kN	5,7 kN	13 kN	
									packing	packing	packing	packing	
									graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE	
DN	H	1	2	3	4	5	6						
80	40	---	63	40	25	16	10	0.07	0.16	0.15	0.24	0.11	0.20
100		---	100	63	40	25	16	0.05	0.11	0.10	0.16	0.07	0.13
125		---	160	100	63	40	25	0.03	0.07	0.07	0.10	0.05	0.08
150		---	250	160	100	63	40	0.02	0.05	0.05	0.07	0.03	0.06

Perforated plugs is possible to delivery with following limitations:

- Kvs values 2.5 and 1.6 m³/hod with linear characteristic only
 - is possible to delivery perforated plug with linear or parabolic characteristic with Kvs value according to the column No.2
- Max. differential pressure Δp for valves PN 16 must be 1,6 MPa.

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

Max. differential pressures are valid for metal-metal seat sealing and for hard metal overlay on sealing surfaces.

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 200 - 400 with V-ported plugs (flow direction below plug) for electromechanical actuators

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

For further information on actuating, see actuators' catalogue sheets *) max. DN 300 Ds - seat diameter Max. differential pressures specified in table are valid for seat sealing metal-metal and hard metal overlay on sealing surf. Max. differential pressure Δp for valves PN 16 (PN 25) must be 1,6 MPa (2,5 MPa).			Actuating (actuator)					AUMA Schiebel Rotork EMG Modact MTN Modact Cont.		Modact MTR ST 2 *) Zepadyn 671*) PTN 7 *)		AUMA Schiebel EMG Zepadyn 671*) PTN 7 *)		Modact MTR Modact MTN Modact Cont. ST 2 *)		AUMA Schiebel		Hand wheel
			Marking in valve specification No.					EA... EZ... EQ... ED... EYA EYB		EPD EPM ENE ERG		EA... EZ... ED... ENE ERG		EPD EYA EYB EPM		EA... EZ...		Rxx
			Linear force					15 kN		16 kN		20 kN		25 kN		32 kN		
			Kvs [m³/h]					packing		packing		packing		packing		packing		packing
DN	Ds	H	1	2	3	4	5	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE			
200	100	80	---	---	250	160	100	1.12	1.46	1.24	1.58	1.71	2.05	2.31	2.64	3.14	3.47	4.00
	150		---	400	---	---	---	0.48	0.63	0.53	0.68	0.75	0.90	1.01	1.17	1.39	1.54	1.80
	200		570	---	---	---	---	0.26	0.34	0.29	0.37	0.41	0.50	0.56	0.65	0.77	0.86	1.00
250	150	80	---	---	400	250	160	0.41	0.59	0.47	0.64	0.68	0.86	0.95	1.13	1.33	1.50	1.80
	200		---	630	---	---	---	0.22	0.32	0.25	0.35	0.37	0.47	0.52	0.62	0.74	0.84	1.00
	230		800	---	---	---	---	0.16	0.23	0.18	0.26	0.27	0.35	0.39	0.46	0.55	0.63	0.75
300	150	80	---	---	---	400	250	0.41	0.59	0.47	0.64	0.68	0.86	0.95	1.13	1.33	1.50	1.80
	200		---	---	630	---	---	0.22	0.32	0.25	0.35	0.37	0.47	0.52	0.62	0.74	0.84	1.00
	230		---	800	---	---	---	0.16	0.23	0.18	0.26	0.27	0.35	0.39	0.46	0.55	0.63	0.75
400	150	100	---	---	---	400	250	0.41	0.59	0.47	0.64	0.68	0.86	0.95	1.13	1.33	1.50	1.80
	200		---	---	630	---	---	0.22	0.32	0.25	0.35	0.37	0.47	0.52	0.62	0.74	0.84	1.00
	250		---	1000	---	---	---	0.13	0.19	0.15	0.21	0.23	0.29	0.33	0.39	0.46	0.53	0.60
400	330	100	---	---	---	---	---	0.07	0.10	0.08	0.11	0.12	0.16	0.18	0.22	0.26	0.30	0.35

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 200 - 400 with perforated plugs (flow direction above plug) for electromechanical actuators

For further information on actuating, see actuators' catalogue sheets *) max. DN 300 Ds - seat diameter It is not possible to delivery perforated plugs for Kvs acc. to the column No.1, for Kvs acc. to the column No.2 it is possible only with linear or parabolic characteristic. For another columns without limitation. Max. differential pressures speci-fied in table apply to PTFE and graphite packing. Max. differential pressure Δp for valves PN 16 (PN 25) must be 1,6 MPa (2,5 MPa).			Actuating (actuator)					AUMA Schiebel EMG Modact MTN Modact Cont.		Modact MTR ST 2 *)		AUMA Schiebel EMG		Modact MTR Modact MTN Modact Cont. ST 2 *)		AUMA Schiebel		Hand wheel
			Marking in valve specification No.					EA... EZ... ED... EYA EYB		EPD EPM		EA... EZ... ED...		EPD EYA EYB EPM		EA... EZ...		Rxx
			Linear force					15 kN		16 kN		20 kN		25 kN		32 kN		
			Kvs [m³/h]					packing		packing		packing		packing		packing		packing
DN	Ds	H	1	2	3	4	5	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE			
200	200	80	---	400	250	160	100	0.26	0.34	0.29	0.37	0.41	0.50	0.56	0.65	0.77	0.86	1.00
250	230	80	---	630	400	250	160	0.16	0.23	0.18	0.26	0.27	0.35	0.39	0.46	0.55	0.63	0.75
300	250	80	---	800	630	400	250	0.13	0.19	0.15	0.21	0.23	0.29	0.33	0.39	0.46	0.53	0.60
400	330	100	---	1000	630	400	250	0.07	0.10	0.08	0.11	0.12	0.16	0.18	0.22	0.26	0.30	0.35

Kvs values and differential pressures Δp_{\max} [MPa] of valves DN 200 to 400 with V-ported, contoured plugs (flow direction below plug) for pneumatic actuators

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

			Pneumatic actuator					Flowserve PO 1502												
								Specification No. of actuator		BGFxAD	BVCxZD	BGFxAD	BFSxZD	BGFxAD	BAJxZD					
			Actuator function					direct	indirect	direct	indirect	direct	indirect							
			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 specific. No.					PFD												
			Linear force					22,5 kN	22,5 kN	30 kN	30 kN	38 kN	38 kN							
			Kvs [m ³ /h]					packing	packing	packing	packing	packing	packing							
DN	Ds	H	1	2	3	4	5	graph.	PTFE	graph.	PTFE	graph.	PTFE	graph.	PTFE					
200	100	80	---	---	250	160	100	2.01	2.35	2.01	2.35	2.90	3.24	2.90	3.24	3.85	4.00	3.85	4.00	
	150		---	400	---	---	---	0.88	1.03	0.88	1.03	1.28	1.43	1.28	1.43	1.71	1.86	1.71	1.86	
	200		570	---	---	---	---	---	0.48	0.57	0.48	0.57	0.71	0.80	0.71	0.80	0.96	1.04	0.96	1.04
250	150	80	---	---	400	250	160	0.82	0.99	0.82	0.99	1.22	1.40	1.22	1.40	1.66	1.83	1.66	1.83	
	200		---	630	---	---	---	0.45	0.55	0.45	0.55	0.68	0.78	0.68	0.78	0.92	1.02	0.92	1.02	
	230		800	---	---	---	---	---	0.33	0.41	0.33	0.41	0.51	0.58	0.51	0.58	0.69	0.77	0.69	0.77
300	200	80	---	---	630	400	250	0.45	0.55	0.45	0.55	0.68	0.78	0.68	0.78	0.92	1.02	0.92	1.02	
	230		---	800	---	---	---	---	0.33	0.41	0.33	0.41	0.51	0.58	0.51	0.58	0.69	0.77	0.69	0.77
	250		1000	---	---	---	---	---	0.28	0.34	0.28	0.34	0.43	0.49	0.43	0.49	0.58	0.65	0.58	0.65

			Pneumatic actuator					A. Hock 2116-100		A. Hock 2116S-100		A. Hock 2116-100		A. Hock 2116S-100	
								Specification No. of actuator		P2-0K-BN1	P2-0K-YN2	P2-0K-BN1	P2-0K-ZN2		
			Actuator function					direct	indirect	direct	indirect	direct	indirect		
			Spring range [bar]					0,8 - 2,2	1,3 - 3,0	0,8 - 2,2	1,5 - 3,5	0,8 - 2,2	1,5 - 3,5		
			Spring setting [bar]					0,8 - 1,92	1,64 - 3,0	0,8 - 1,92	1,9 - 3,5	0,8 - 1,92	1,9 - 3,5		
			Feeding pressure [bar]					3,6	4,0	5,1	4,5	3,6	4,0		
			Marking in valve specific. No.					PHC				PHC			
			Linear force					20 kN		19,6 kN		38 kN		22,8 kN	
			Kvs [m ³ /h]					packing		packing		packing		packing	
DN	Ds	H	1	2	3	4	5	graph.	PTFE	graph.	PTFE	graph.	PTFE	graph.	PTFE
200	100	80	---	---	250	160	100	1.71	2.06	1.67	2.01	3.85	4.00	2.05	2.39
	150		---	400	---	---	---	0.75	0.90	0.72	0.88	4.71	1.86	0.90	1.05
	200		570	---	---	---	---	---	0.41	0.50	0.40	0.48	0.96	1.04	0.49
250	150	80	---	---	400	250	160	0.68	0.86	0.66	0.84	1.66	1.83	0.83	1.01
	200		---	630	---	---	---	0.37	0.47	0.34	0.46	0.92	1.02	0.46	0.56
	230		800	---	---	---	---	0.27	0.35	0.27	0.34	0.69	0.77	0.34	0.41
300	200	80	---	---	630	400	250	0.37	0.47	0.36	0.46	0.92	1.02	0.46	0.56
	230		---	800	---	---	---	0.27	0.35	0.27	0.34	0.69	0.77	0.34	0.41
	250		1000	---	---	---	---	0.23	0.29	0.22	0.28	0.58	0.65	0.28	0.35

the table continues on the next page

For further information on actuating, see actuators' catalogue sheets			Pneumatic actuator					Flowserve PO 1502							
			Specification No. of actuator					BDYxAE	BFYxZE	BDYxAE					
			Actuator function					direct	indirect	direct					
			Spring range [bar]					1,0 - 2,4	2,0 - 4,8	1,0 - 2,4					
			Spring setting [bar]					1,0 - 2,4	2,0 - 4,8	1,0 - 2,4					
			Feeding pressure [bar]					4,5	5,0	5,0					
			Marking in valve specific. No.					PFD							
			Linear force					30 kN	30 kN	38 kN					
			Kvs [m ³ /h]					packing	packing	packing					
DN	Ds	H	1	2	3	4	5	graph.	PTFE	graph.	PTFE	graph.	PTFE	graph.	PTFE
400	200	100	---	---	630	400	250	0.68	0.78	0.68	0.78	0.92	1.02	0.31	0.41
	250		---	1000	---	---	---	0.43	0.49	0.43	0.49	0.58	0.65	0.19	0.25
	330		1600	---	---	---	---	0.24	0.27	0.24	0.27	0.33	0.36	0.10	0.14

For further information on actuating, see actuators' catalogue sheets			Pneumatic actuator					A. Hock		A. Hock		A. Hock		A. Hock	
			Specification No. of actuator					2116-100	2116S-100	2116-100				2116S-100	
			Actuator function					direct	indirect	direct				indirect	
			Spring range [bar]					0,8 - 2,2	1,3 - 3,0	0,8 - 2,2				1,5 - 3,5	
			Spring setting [bar]					0,8 - 2,2	1,3 - 3,0	0,8 - 2,2				1,5 - 3,5	
			Feeding pressure [bar]					3,9	4,0	5,4				5,4	
			Marking in valve specific. No.					PHC						PHC	
			Linear force					20 kN	15,6 kN	38 kN				18 kN	
			Kvs [m ³ /h]					packing	packing	packing				packing	
DN	Ds	H	1	2	3	4	5	graph.	PTFE	graph.	PTFE	graph.	PTFE	graph.	PTFE
400	200	100	---	---	630	400	250	0.37	0.47	0.24	0.34	0.92	1.02	0.31	0.41
	250		---	1000	---	---	---	0.23	0.29	0.14	0.21	0.58	0.65	0.19	0.25
	330		1600	---	---	---	---	0.12	0.16	0.07	0.11	0.33	0.36	0.10	0.14

Max. differential pressures specified in table are valid for seat sealing metal-metal and hard metal overlay on sealing surf.

Max. differential pressure Δp for valves PN 16 (PN 25) must be 1,6 MPa (2,5 MPa).

Valves RV 2x0 DN 200 to 400 in combination with perforated plugs and pneumatic actuators are not available.

Dimensions and weights of valves made of spheroidal cast iron for the type RV / UV 210 (Ex), DN 15 - 150

DN	PN 16					PN 40					PN 16, PN 40											
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D mm	D ₄ mm	D ₅ mm	L mm	V ₁ mm	V ₂ mm	*V ₂ mm	V ₃ mm	*V ₃ mm	a mm	m kg	*m _v kg
15	95	65	46	14	4	95	65	46	14	4	15	65	M10x1	130	51	90	257	220	387	14	4.5	3.5
20	105	75	56			105	75	56			20			150	54	90	257	220	387	16	5.5	3.5
25	115	85	65			115	85	65			25			160	58	100	267	230	397	16	6.5	3.5
32	140	100	76			140	100	76			32			180	70	100	267	230	397	18	8	3.5
40	150	110	84			150	110	84			40			200	75	100	267	230	397	19	9	3.5
50	165	125	99			165	125	99			50			230	85	132	339	262	469	19	14	4
65	185	145	118			185	145	118			65			290	93	132	339	262	469	19	18	4
80	200	160	132			200	160	132			80			310	105	164	482	294	612	19	26	4.5
100	220	180	156			235	190	156			100			350	118	164	482	294	612	19	38	4.5
125	250	210	184			270	220	184			125			400	135	183	501	313	631	23.5	58	5
150	285	240	211			300	250	211			150			480	150	200	518	330	648	26	78	5

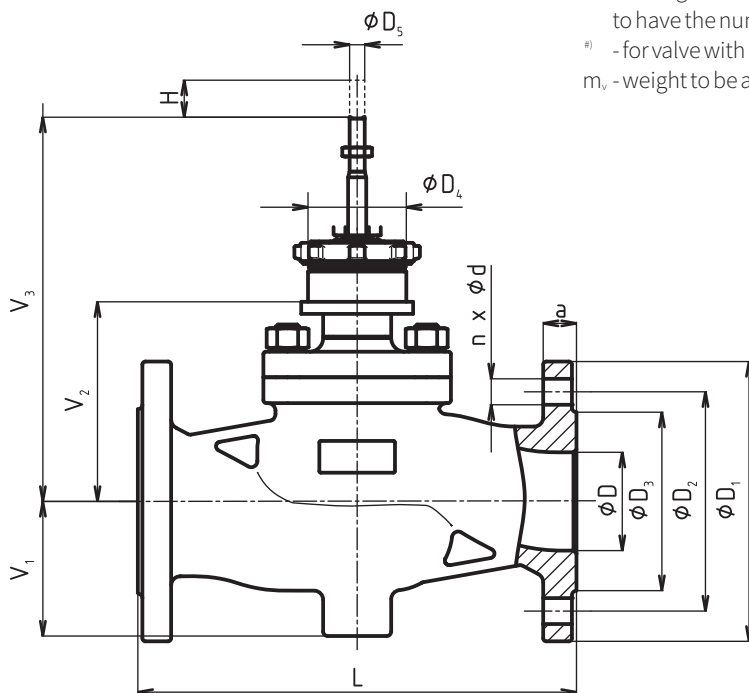
Dimensions and weights of valves made of cast steel and stainless steel RV / UV 220 (Ex), RV / UV 230 (Ex) DN 15 - 150

DN	PN 10-16					PN 25-40					PN 10-40											
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D mm	D ₄ mm	D ₅ mm	L mm	V ₁ mm	V ₂ mm	*V ₂ mm	V ₃ mm	*V ₃ mm	a mm	m kg	*m _v kg
15	95	65	45	14	4	95	65	45	14	4	15	65	M10x1	130	51	90	257	220	387	16	5.5	3.5
20	105	75	58			105	75	58			20			150	54	90	257	220	387	18	6.5	3.5
25	115	85	68			115	85	68			25			160	58	100	267	230	397	18	8	3.5
32	140	100	78			140	100	78			32			180	70	100	267	230	397	18	9.5	3.5
40	150	110	88			150	110	88			40			200	75	100	267	230	397	18	11	3.5
50	165	125	102			165	125	102			50			230	85	132	339	262	469	20	21	4
65	185	145	122			185	145	122			65			290	93	132	339	262	469	22	27	4
80	200	160	138			200	160	138			80			310	105	164	482	294	612	24	40	4.5
100	220	180	158			235	190	162			100			350	118	164	482	294	612	24	49	4.5
125	250	210	188			270	220	188			125			400	135	183	501	313	631	26	82	5
150	285	240	212			300	250	218			150			480	150	200	518	330	648	28	100	5

¹⁾ with regard of the standard previously in force, there is an option to have the number of connection bolts as stipulated in ČSN-EN 1092-1

²⁾ - for valve with bellows packing

m_v - weight to be added to weight of valve equipped with bellows packing



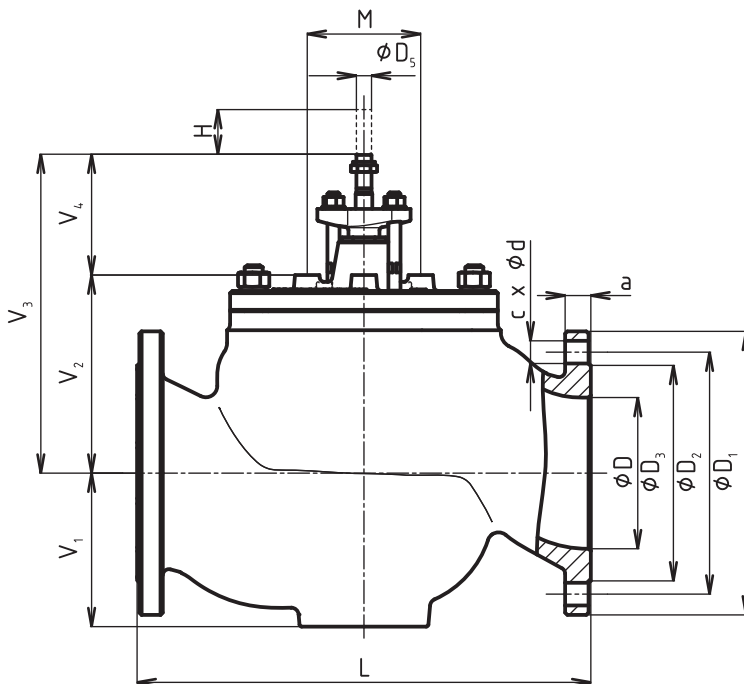
Dimensions and weights of valves made of spheroidal cast iron for the type RV / UV 210 (Ex), DN 200 - 400

DN	PN 16															
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D mm	D ₅ mm	M mm	L mm	V ₁ mm	V ₂ mm	V ₃ mm	V ₄ mm	H mm	m kg
200	340	295	266	23		20	200	M20x1.5	150	600	203	262	422	160	80	141
250	400	355	319	28	12	22	250			730	253	346	506			259
300	455	410	370	28		24.5	300			850	296	395	555			364
400	580	525	480	31	16	28	400			1100	382	512	672			747

Dimensions and weights of valves made of cast steel and stainless steel for the type RV/UV 2x0 (Ex), DN 200 - 400

DN	PN 10						PN 16						PN 25					
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm
200	340	295	268		8	24	340	295	268	22		24	360	310	278	26		30
250	395	350	320	22	12	26	405	355	320	26	12	26	425	370	335	30	12	32
300	445	400	370		12	26	460	410	378	26		28	485	430	395	30		34
400	565	515	482	26	16	26	580	525	490	30	16	32	620	550	505	36	16	40

DN	PN 40						PN 10-40									
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D mm	D ₅ mm	M mm	L mm	V ₁ mm	V ₂ mm	V ₃ mm	V ₄ mm	H mm	m kg
200	375	320	285	30	12	34	200	M20x1.5	150	600	203	262	422	160	80	220
250	450	385	345	33	12	38	250			730	253	346	506			390
300	515	450	410	33	16	42	300			850	296	395	555			570
400	660	585	535	39	16	50	400			1100	382	512	672			1170





RV 2x2

Control valves

DN 25 - 600
PN 10 - 40

Control valves **RV 212 (Ex)**, **RV 222 (Ex)** and **RV 232 (Ex)** [further only RV 2x2 (Ex)] are single-seated valves with pressure-balanced plug designed for regulation of process liquids flow.

Technical data		RV 212 (Ex)	RV 222 (Ex)	RV 232 (Ex)
Series		RV 212 (Ex)	RV 222 (Ex)	RV 232 (Ex)
Type of valve		Two-way, single-seated, control valve with pressure-balanced plug		
Nominal size range		DN 25 to 400	DN 25 to 600	
Nominal pressure		DN 25-150: PN16, 40; DN 200-400: PN16	PN 10, 16, 25, 40	
Body material		Spheroidal cast iron	Cast steel	Stainless steel
		EN-JS 1025	1.0619 (GP240GH)	1.4581
		(EN-GJS-400-18-LT)	1.7357 (G17CrMo5-5)	(GX5CrNiMoNb19-11-2)
Seat material	DN 25 - 50	1.4028 / 17 023.6	1.4028 / 17 023.6	1.4571 / 17 347.4
DIN W.Nr./ČSN	DN 65 - 400	1.4027 / 42 2906.5	1.4027 / 42 2906.5	1.4581 / 42 2941.4
Plug material	DN 25 - 65	1.4021 / 17 027.6	1.4021 / 17 027.6	1.4571 / 17 347.4
DIN W.Nr./ČSN	DN 80 - 150	1.4027 / 42 2906.5	1.4027 / 42 2906.5	1.4581 / 42 2941.4
	DN 200 - 600	1.4021 / 17 022.6	1.4021 / 17 022.6	1.4581 / 42 2941.4
Stem material	DN 15 - 150	1.4305		1.4571
	DN 200 - 600	1.4923		1.4980
Operating temperature range		-10 to 300 °C	-50 to 500 °C - (negative temperature requirement must be stated in the order)	
Face to face dimensions		Section 1 acc. to ČSN EN 558 (9/2017)		
Connection flanges		Acc. to ČSN-EN 1092-2 (1/1999)	Acc. to ČSN EN 1092-1 (11/2018)	
Flange faces		Typ B1 (raised-faced) acc. to ČSN-EN 1092-2 (1/1999)	Type B1 (raised-faced) or Type F (female) or Type D (groove) acc. to ČSN EN 1092-1 (11/2018)	
Type of plug		V-ported, perforated		
Flow characteristic		Linear, equal-percentage, LDMspline [®] , parabolic		
Kvs value		4 to 4000 m ³ /h		
Leakage rate		Class III. acc. to ČSN-EN 1349 (<0.1% Kvs) for c. valves with metal-metal seat sealing (7/2010)		
		Class IV. acc. to ČSN-EN 1349 (<0.01% Kvs) for c. valves with metal-PTFE seat sealing (7/2010)		
Leakage rate for Ex version		RV 2xx Class IV. acc. to ČSN EN 1349 (7/2010) (<0.01% Kv)		
Rangeability r		50 : 1		
Packing		O - ring EPDM t _{max} = 140 °C, DRSpack (PTFE) t _{max} = 260 °C, Exp. graphite, bellows t _{max} = 500 °C		

Kvs values and differential pressures Δp_{\max} [MPa] of valves DN 25 - 150 for electromechanical actuators

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

For further information on actuating, see actuators' catalogue sheets			Actuating (actuator)					PTN 2.20 MIDI 660	ST 0	AUMA Schiebel Rotork Sipos	Zepadyn ST 1 Ex ST 0.1 PTN 6	Modact Cont. Modact MTN	Modact MTR ST 2 Zepadyn 671 PTN7	Hand wheel
Marking in valve spec. No.			ERB ENB					EPK	EA..., EZ..., EQ..., ET...	ENC EPJ EPL ERD	EYA EYB	EPD EPM ENE ERG	Rxx	
Linear force			2 kN					2,5 kN	5 kN	6,3 kN	15 kN	16 kN		
DN	H	Kvs [m ³ /h]					Δp_{\max}	Δp_{\max}	Δp_{\max}	Δp_{\max}	Δp_{\max}	Δp_{\max}	Δp_{\max}	
		1	2	3	4	5								
25		10.0	6.3 ¹⁾	4.0 ¹⁾	2.5 ¹⁾	1.6 ¹⁾	4.00	4.00	---	4.00	---	---	4.00	
32	16	16.0	10.0	6.3 ¹⁾	4.0 ¹⁾	2.5 ¹⁾	4.00	4.00	---	4.00	---	---	4.00	
40		25.0	16.0	10.0	6.3 ¹⁾	4.0 ¹⁾	4.00	4.00	---	4.00	---	---	4.00	
50	25	40.0	25.0	16.0	10.0	6.3 ¹⁾	---	4.00	4.00	4.00	---	---	4.00	
65		63.0	40.0	25.0	16.0	10.0	---	4.00	4.00	4.00	---	---	4.00	
80	40	100.0	63.0	40.0	25.0	16.0	---	---	4.00	4.00	4.00	4.00	4.00	
100		160.0	100.0	63.0	40.0	25.0	---	---	4.00	4.00	4.00	4.00	4.00	
125		250.0	160.0	100.0	63.0	40.0	---	---	4.00	4.00	4.00	4.00	4.00	
150		360.0	250.0	160.0	100.0	63.0	---	---	4.00	4.00	4.00	4.00	4.00	

1) linear characteristic only

Valves RV 2x2 can be optionally assembled with all the actuators specified in catalogue sheet RV / UV 2x0. Max. differential pressures specified in table apply to PTFE and O-ring packing. Δp_{\max} for bellows must be consulted with the producer.

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.

Max. differential pressure p for valves PN 16 must be 1.6 MPa.

Kvs values and differential pressures Δp_{\max} [MPa] of valves DN 200 - 600 for electromechanical actuators

For further information on actuating, see actuators' catalogue sheets			Actuating (actuator)					AUMA Schiebel Sipos Modact MTN Modact Cont.	Modact MTR ST 2 Zepadyn 671 PTN 7	AUMA Schiebel Sipos Zepadyn 671*) PTN 7 *)	Modact MTR Modact MTN Modact Cont. ST 2 *)	AUMA Schiebel Sipos	Ruční kolo
Marking in valve spec. No.			EA... EZ... ET... EYA EYB					EPD EPM ENE ERG	EA... EZ... ET... ENE ERG	EPD EYA EYB EPM	EA... EZ... ET...	Rxx	
Linear force			15 kN					16 kN	20 kN	25 kN	32 kN		
DN	Ds	H	Kvs [m ³ /h]					packing	packing	packing	packing	packing	packing
			1	2	3	4	5	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE	graphite PTFE
200	200	80	570	400	250	160	100	4.00	4.00	---	---	---	4.00
250	230	80	800	630	400	250	160	---	---	4.00	4.00	---	4.00
300	250	80	1000	800	630	400	250	---	---	4.00	4.00	---	4.00
400	330	100	1600	1000	630	400	250	---	---	4.00	4.00	---	4.00
500	420	100	2800	2000	1600	1000	630	---	---	---	---	4.00	---
600	500	120	4000	2500	1600	1000	630	---	---	---	---	4.00	---

It is not possible to delivery perforated plugs for Kvs acc. to the column No.1, for Kvs acc. to the column No.2 it is possible only with linear or parabolic characteristic. For another columns without limitation.

Max. differential pressures specified in table apply to PTFE and graphite packing.

Max. differential pressure Δp for valves PN 16 (PN 25) must be 1,6 MPa (2,5 MPa).

Kvs values and differential pressures Δp_{\max} [MPa] of valves DN 25 to 150 for pneumatic actuators

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

		Pneumatic actuator		Flowserve PA 253				A. Hock 2109						
				Specification No. of actuator		BVCxAA		BVCxZA		P2-0K-VL1		P2-0K-VL2		
		Actuator function		direct		indirect		direct		indirect				
		Spring range [bar]		1,5 - 2,7		1,5 - 2,7		1,2 - 3,0		1,2 - 3,0				
		Spring setting [bar]		1,5 - 2,46		1,75 - 2,7		1,2 - 2,64		1,56 - 3,0				
		Feeding pressure [bar]		4,0		4,5		3,9		4,6				
		Marking in valve specific. No.		PFA				PHF						
		Linear force		3,7 kN		4,35 kN		3,5 kN		4,6 kN				
		Kvs [m ³ /h]		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}				
DN	H	1	2	3	4	5	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE
25		10	6,3 ¹⁾	4,0 ¹⁾	2,5 ¹⁾	1,6 ¹⁾	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
32	16	16	10	6,3 ¹⁾	4,0 ¹⁾	2,5 ¹⁾	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
40		25	16	10	6,3 ¹⁾	4,0 ¹⁾	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

		Pneumatic actuator		Flowserve PB 503				A. Hock 2112-30						
				Specification No. of actuator		BVCxAB		BVCxZB		P2-0K-WM1		P2-0K-WM2		
		Actuator function		direct		indirect		direct		indirect				
		Spring range [bar]		1,5 - 2,7		1,5 - 2,7		1,4 - 2,8		1,4 - 2,8				
		Spring setting [bar]		1,5 - 2,25		1,95 - 2,7		1,4 - 2,57		1,63 - 2,8				
		Feeding pressure [bar]		3,8		4,7		4,0		4,5				
		Marking in valve specific. No.		PFB				PHA						
		Linear force		7,5 kN		9,75 kN		8,0 kN		9,3 kN				
		Kvs [m ³ /h]		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}				
DN	H	1	2	3	4	5	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE
50	25	40	25	16	10	6,3 ¹⁾	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
65	25	63	40	25	16	10	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

		Pneumatic actuator		Flowserve PB 503				A. Hock 2112-50						
				Specification No. of actuator		BVCxAB		BVCxZB		P2-0K-S11		P2-0K-S12		
		Actuator function		direct		indirect		direct		indirect				
		Spring range [bar]		1,5 - 2,7		1,5 - 2,7		0,8 - 2,8		0,8 - 2,8				
		Spring setting [bar]		1,5 - 2,7		1,75 - 2,7		0,8 - 2,4		1,2 - 2,8				
		Feeding pressure [bar]		4,2		4,2		3,3		4,0				
		Marking in valve specific. No.		PFB				PHA						
		Linear force		7,5 kN		7,5 kN		4,6 kN		6,9 kN				
		Kvs [m ³ /h]		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}				
DN	H	1	2	3	4	5	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE
80		100	63	40	25	16	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
100	40	160	100	63	40	25	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
125		250	160	100	63	40	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
150		360	250	160	100	63	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

		Pneumatic actuator		Flowserve PB 701				A. Hock 2112T-50						
				Specification No. of actuator		BADxAB		BVCxZB		P2-0K-DT1		P2-0K-UT2		
		Actuator function		direct		indirect		direct		indirect				
		Spring range [bar]		1,5 - 2,7		1,5 - 2,7		0,5 - 1,7		0,75 - 2,7				
		Spring setting [bar]		1,5 - 2,7		1,5 - 2,7		0,5 - 1,46		1,14 - 2,7				
		Feeding pressure [bar]		4,2		4,2		2,0		3,9				
		Marking in valve specific. No.		PFC				PHB						
		Linear force		10,5 kN		10,5 kN		5,7 kN		13 kN				
		Kvs [m ³ /h]		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}				
DN	H	1	2	3	4	5	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE
80		100	63	40	25	16	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
100	40	160	100	63	40	25	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
125		250	160	100	63	40	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
150		360	250	160	100	63	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Kvs values and differential pressures Δp_{\max} [MPa] of valves DN 200 to 400 for pneumatic actuators

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

			Pneumatic actuator		Flowserve PO 1502								
			Specification No. of actuator		BVCxAD	BVCxZD	BFSxAD	BFSxZD	BDYxAE	BFYxZE			
			Actuator function		direct	indirect	direct	indirect	indirect	direct			
			Spring range [bar]		1,5 - 2,7	1,5 - 2,7	2,0 - 3,5	2,0 - 3,5	1,0 - 2,4	2,0 - 4,8			
			Spring setting [bar]		1,5 - 2,7	1,5 - 2,7	2,0 - 3,5	2,0 - 3,5	1,0 - 2,4	2,0 - 4,8			
			Feeding pressure [bar]		4,2	4,2	5,5	5,5	4,5	5,8			
			Marking in valve specific. No.		PFD								
			Linear force		22,5 kN	22,5 kN	30 kN	30 kN	30 kN	30 kN			
			Kvs [m ³ /h]		packing	packing	packing	packing	packing	packing			
DN	Ds	H	1	2	3	4	5	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE
200	200	80	570	400	250	160	100	4.00 4.00	4.00 4.00	---	---	---	---
250	230	80	800	630	400	250	160	4.00 4.00	4.00 4.00	4.00 4.00	4.00 4.00	---	---
300	250	80	1000	800	630	400	250	4.00 4.00	4.00 4.00	4.00 4.00	4.00 4.00	---	---
400	330	100	1600	1000	630	400	250	---	---	---	---	4.00 4.00	4.00 4.00
500	420	100	2800	2000	1600	1000	630	---	---	---	---	4.00 4.00	4.00 4.00
600	500	120	4000	2500	1600	1000	630	---	---	---	---	---	---

			Pneumatic actuator		A.Hock 2116S-100								
			Specification No. of actuator		P2-0K-YN1	P2-0K-YN2	P2-0K-ZN1	P2-0K-ZN2	P2-0K-YN1	P2-0K-YN2	P2-0K-ZN1	P2-0K-ZN2	
			Actuator function		direct	indirect	direct	indirect	direct	indirect	direct	indirect	
			Spring range [bar]		1,3 - 3,0	1,3 - 3,0	1,5 - 3,5	1,5 - 3,5	1,3 - 3,0	1,3 - 3,0	1,5 - 3,5	1,5 - 3,5	
			Spring setting [bar]		1,3 - 2,66	1,64 - 3,0	1,5 - 3,1	1,9 - 3,5	1,3 - 3,0	1,3 - 3,0	1,5 - 3,5	1,5 - 3,5	
			Feeding pressure [bar]		4,0	4,8	4,6	5,4	4,4	4,4	5,0	5,0	
			Marking in valve specific. No.		PFC								
			Linear force		16 kN	19,6 kN	18 kN	22,8 kN	16 kN	15,6 kN	18 kN	18 kN	
			Kvs [m ³ /h]		packing	packing	packing	packing	packing	packing	packing	packing	
DN	Ds	H	1	2	3	4	5	grafit PTFE	grafit PTFE	grafit PTFE	grafit PTFE	grafit PTFE	grafit PTFE
200	200		570	400	250	160	100	4.00 4.00	4.00 4.00	4.00 4.00	4.00 4.00	---	---
250	230	80	800	630	400	250	160	4.00 4.00	4.00 4.00	4.00 4.00	4.00 4.00	---	---
300	250		1000	800	630	400	250	4.00 4.00	4.00 4.00	4.00 4.00	4.00 4.00	---	---
400	330	100	1600	1000	630	400	250	---	---	---	---	4.00 4.00	4.00 4.00
500	420	100	2800	2000	1600	1000	630	---	---	---	---	4.00 4.00	4.00 4.00
600	500	120	4000	2500	1600	1000	630	---	---	---	---	---	---

¹⁾linear characteristic only

■ 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. For further columns without restrictions.

Max. differential pressures specified in table are valid for seat sealing metal-metal and hard metal overlay on sealing surf. Max. differential pressure Δp for valves PN 16 (PN 25) must be 1,6 MPa (2,5 MPa).

Dimensions and weights of valves made of spheroidal cast iron for the type RV 212 (Ex) DN 25 - 150

DN	PN 16					PN 40					PN 16, PN 40														
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D mm	D ₄ mm	D ₅ mm	L mm	V ₁ mm	V ₂ mm	*V ₂ mm	V ₃ mm	*V ₃ mm	a mm	m kg	*m _v kg			
25	115	85	65	14	4	115	85	65	14	4	25	65	M10x1	160	58	100	267	230	397	16	7	3.5			
32	140	100	76	140		100	76	140	100		76			32	180	70	100	267	230	397	18	8.5	3.5		
40	150	110	84	150		110	84	150	110		84			40	200	75	100	267	230	397	19	8.5	3.5		
50	165	125	99	165		125	99	165	125		99			50	230	85	132	339	262	469	19	14.5	4		
65	185	145	118	19	8	185	145	118	19	8	65	65	M16x1,5	290	93	132	339	262	469	19	18.5	4			
80	200	160	132			200	160	132			200			160	132	80	310	105	164	482	294	612	19	27.5	4.5
100	220	180	156	23	8	235	190	156	23	8	100	65	M16x1,5	350	118	164	482	294	612	19	39	4.5			
125	250	210	184			270	220	184			270			220	184	125	400	135	183	501	313	631	23.5	60	5
150	285	240	211			300	250	211			300			250	211	150	480	150	200	518	330	648	26	81	5

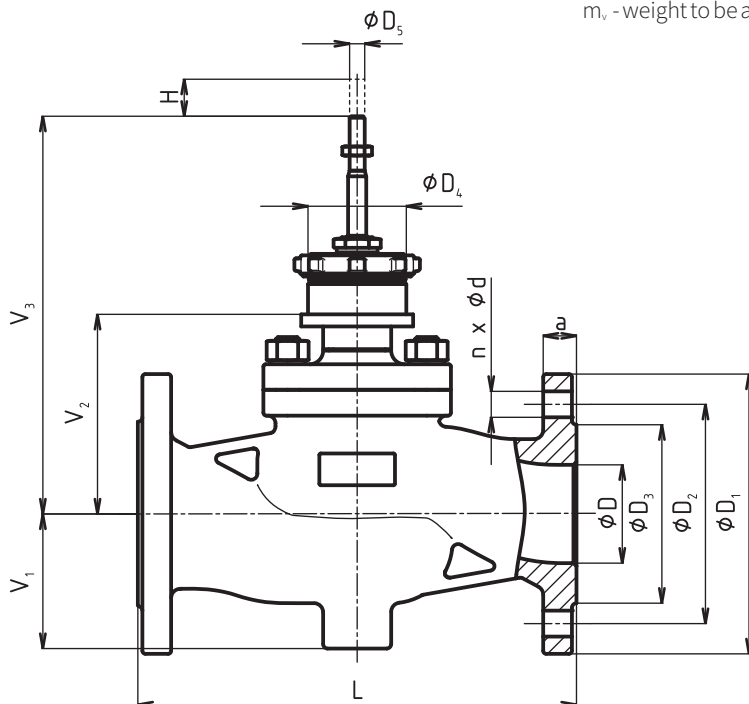
Dimensions and weights of valves made of cast steel and stainless steel for the type RV 222 (Ex), RV 232 (Ex) DN 25 - 150

DN	PN 10-16					PN 25-40					PN 10-40														
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D mm	D ₄ mm	D ₅ mm	L mm	V ₁ mm	V ₂ mm	*V ₂ mm	V ₃ mm	*V ₃ mm	a mm	m kg	*m _v kg			
25	115	85	68	14	4	115	85	68	14	4	25	65	M10x1	160	58	100	267	230	397	18	8.5	3.5			
32	140	100	78	140		100	78	140	100		78			32	180	70	100	267	230	397	18	10	3.5		
40	150	110	88	150		110	88	150	110		88			40	200	75	100	267	230	397	18	10	3.5		
50	165	125	102	165		125	102	165	125		102			50	230	85	132	339	262	469	20	21	4		
65	185	145	122	18	4 ¹⁾	185	145	122	18	8	65	65	M16x1,5	290	93	132	339	262	469	22	27	4			
80	200	160	138			200	160	138			200			160	138	80	310	105	164	482	294	612	24	42	4.5
100	220	180	158	22	8	235	190	162	22	8	100	65	M16x1,5	350	118	164	482	294	612	24	50	4.5			
125	250	210	188			270	220	188			270			220	188	125	400	135	183	501	313	631	26	84	5
150	285	240	212			300	250	218			300			250	218	150	480	150	200	518	330	648	28	103	5

¹⁾ with regard of the standard previously in force, there is an option to have the number of connection bolts as stipulated in ČSN-EN 1092-1

^{*)} - for valve with bellows packing

m_v - weight to be added to weight of valve equipped with bellows packing



Dimensions and weights of valves made of spheroidal cast iron for the type RV 212 (Ex), DN 200 - 400

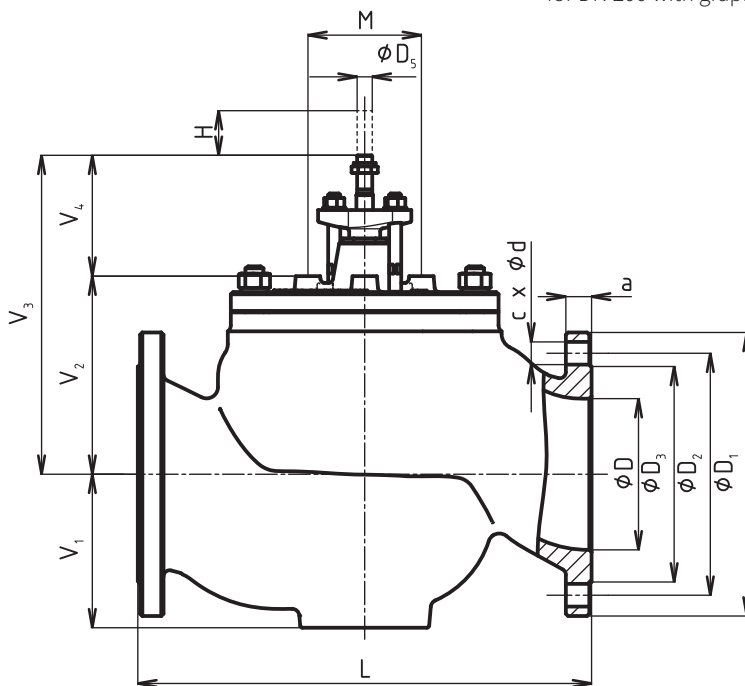
DN	PN 16																	
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D mm	D ₅ mm	M mm	L mm	V ₁ mm	V ₂ mm	V ₃ mm	V ₄ mm	H mm	m kg		
200	340	295	266	23	12	20	200	M20x1.5	150	600	203	262	422	160				
250	400	355	319	28	12	22	250			730	253	346	506				80	264
300	455	410	370	28	12	24.5	300			850	296	395	555				390	
400	580	525	480	31	16	28	400			1100	382	512	672				100	790

Dimensions and weights of valves made of cast steel and stainless steel for the type RV 222 (Ex), RV 232 (Ex), DN 200 - 600

DN	PN 10						PN 16						PN 25					
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm
200	340	295	268	22	8	24	340	295	268	22	12	24	360	310	278	26	12	30
250	395	350	320	22	12	26	405	355	320	26	12	26	425	370	335	30	12	32
300	445	400	370	22	12	26	460	410	378	26	12	28	485	430	395	30	16	34
400	565	515	482	26	16	26	580	525	490	30	16	32	620	550	505	36	16	40
500	670	620	585	26	20	28	715	650	615	33	20	44	730	660	615	36	20	48
600	780	725	685	30	20	34	840	770	725	36	20	54	845	770	720	39	20	58

DN	PN 40						PN 10-40										
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D mm	D ₅ mm	M mm	L mm	V ₁ mm	V ₂ mm	V ₃ mm	V ₄ mm	H mm	m kg	
200	375	320	285	30	12	34	200	M20x1.5	150	600	203	262	422	160	80(63) ¹⁾	232	
250	450	385	345	33	12	38	250			730	253	346	506	160	80	395	
300	515	450	410	33	16	42	300			850	296	395	555	160	80	596	
400	660	585	535	39	16	50	400			1100	382	512	672	160	100	1213	
500	755	670	615	42	20	57	492	M30x2	300	1250	510	595	805	210	100	2200	
600	890	795	735	48	20	72	580			1450	590	675	885	210	120	3500	

¹⁾ for DN 200 with graphite pressure-balanced version - stroke = 63 mm





RV 2x4

Control valves

DN 15 - 300
PN 10 - 40

Control valves **RV 214 (Ex)**, **RV 224 (Ex)** and **RV 234 (Ex)** (further only RV 214 (Ex)) are three-way valves with mixing or

Technical data			
Series	RV 214	RV 224	RV 234
Type of valve	Three-way control valve		
Nominal size range	DN 15 to 300	DN 15 to 300	
Nominal pressure	DN 15-150: PN16, 40; DN 200-300: PN16	PN 10, 16, 25, 40	
Body material	Spheroidal cast iron EN-JS 1025 (EN-GJS-400-18-LT)	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 / 17 347.4
DIN W.Nr./ČSN	DN 65 - 300	1.4027 / 42 2906.5	1.4581 / 42 2941.4
Plug material	DN 15 - 65	1.4021 / 17 027.6	1.4571 / 17 347.4
DIN W.Nr./ČSN	DN 80 - 300	1.4027 / 42 2906.5	1.4581 / 42 2941.4
Stem material	DN 15 - 150	1.4305	1.4571
	DN 200 - 300	1.4923	1.4980
Operating temperature range	-10 to 300 °C	-50 to 500 °C - (negative temperature requirement must be stated in the order)	
Face to face dimensions	Section 1 acc. to ČSN EN 558 (9/2017)		
Connection flanges	Acc. to ČSN-EN 1092-2 (1/1999)	Acc. to ČSN EN 1092-1 (11/2018)	
Flange faces	Type B1 (raised-faced) acc. to ČSN-EN 1092-2 (1/1999)	Type B1 (raised-faced) or Typ F (female) or Type D (groove) acc. to ČSN EN 1092-1 (11/2018)	
Type of plug	Spheroidal cast iron		
Flow characteristic	Linear, equal-percentage, in direct way		
Kvs value	1.6 to 1000 m ³ /h		
Leakage rate	Třída III. acc. to ČSN-EN 1349 (7/2010) (<0.1% Kvs) Třída IV. acc. to ČSN-EN 1349 (7/2010) (<0.01% Kvs)		
Leakage rate for Ex version	RV 2xx class IV. acc.to ČSN EN 1349 (7/2010) (<0.01% Kv)		
Rangeability r	50 : 1		
Packing	O - ring EPDM t _{max} = 140 °C, DRSpack (PTFE) t _{max} = 260 °C, Exp. graphite, bellows t _{max} = 500 °C		

Kvs values and differential pressures Δp_{\max} [MPa]

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

For further information on actuating, see actuators' catalogue sheets		Actuating (actuator)			PTN 2.20 MIDI 660		ST 0		PTN 2.32 MIDI 660		MIDI 660 ST 0		AUMA Schiebel Rotork Sipos		Zepadyn ST 1 EX ST 0.1 PTN 6		AUMA Schiebel Rotork Sipos		Hand wheel		
		Marking in valve spec. No.			ERB ENB		EPK		ERC ENB		ENB EPK EPL ERC		EA..., EZ..., EQ..., ET...		ENC EPJ EPL ERD		EA... EZ... EQ... ET...		Rxx		
		Linear force			2 kN		2,5 kN		3,2 kN		4,0 kN		5 kN		6,3 kN		7,5 kN				
		Kvs [m ³ /h]			Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		
DN	H	1	2	3	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	
15		4.0 ¹⁾	2.5 ¹⁾	1.6 ¹⁾	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---	---	---	---	---	4.0
20		6.3 ¹⁾	4.0 ¹⁾	2.5 ¹⁾	3.77	---	4.00	---	4.00	---	4.00	---	4.00	---	4.00	---	---	---	---	---	4.0
25	16	10.0	6.3 ²⁾	4.0 ²⁾	2.24	2.65	3.16	3.57	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	---	---	---	---	4.0
32		16.0	10.0	6.3 ²⁾	1.28	1.60	1.83	2.15	2.61	2.92	3.49	3.81	4.00	4.00	4.00	4.00	---	---	---	---	4.0
40		25.0	16.0	10.0	0.77	1.02	1.12	1.38	1.62	1.87	2.19	2.44	2.90	3.15	3.60	3.90	---	---	---	---	4.0
50	25	40.0	25.0	16.0	---	---	0.63	0.82	0.93	1.12	1.27	1.46	1.69	1.88	2.10	2.30	2.76	2.95	3.8	4.0	
65		63.0	40.0	25.0	---	---	0.35	0.50	0.53	0.68	0.74	0.89	1.00	1.15	1.20	1.40	1.65	1.80	2.3	2.45	
80		100.0	63.0	40.0	---	---	---	---	---	---	---	---	---	---	0.73	0.86	1.01	1.13	2.54	2.66	
100	40	160.0	100.0	63.0	---	---	---	---	---	---	---	---	---	---	0.45	0.56	0.63	0.73	1.62	1.72	
125		250.0	160.0	100.0	---	---	---	---	---	---	---	---	---	---	0.27	0.36	0.39	0.47	1.03	1.12	
150		360.0	250.0	160.0	---	---	---	---	---	---	---	---	---	---	0.18	0.25	0.26	0.33	0.71	0.78	

For further information on actuating, see actuators' catalogue sheets		Actuating (actuator)			Zepadyn PTN 6		Auma Schiebel Rotork Sipos Modact MTR		Modact Cont. Modact MTN AUMA Schiebel Rotork Sipos		Modact MTR ST 2 Zepadyn 671 PTN 7		AUMA Schiebel Sipos Zepadyn 671 PTN 7		Modact Cont. Modact MTN Modact MTR ST 2		Auma Schiebel		Ruční kolo	
		Marking in valve spec. No.			ENC ERD		EA... EZ... EQ... ET... EPD		EYA EYB EA... EZ... EQ... ET...		EPD EPM ENE ERG		EA... EZ... ET... ENE ERG		EYA EYB EPD EPM		EA... EZ...		Rxx	
		Linear force			10 kN		10 kN		15 kN		16 kN		20 kN		25 kN		32 kN			
		Kvs [m ³ /h]			Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}	
DN	H	1	2	3	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE
50	25	40.0	25.0	16.0	3.82	4.00	3.82	4.00	---	---	---	---	---	---	---	---	---	---	---	---
65		63.0	40.0	25.0	2.30	2.45	2.30	2.45	---	---	---	---	---	---	---	---	---	---	---	---
80		100.0	63.0	40.0	1.46	1.58	1.46	1.58	2.36	2.48	2.54	2.66	---	---	---	---	---	---	---	---
100	40	160.0	100.0	63.0	0.92	1.02	0.92	1.02	1.50	1.61	1.62	1.72	---	---	---	---	---	---	---	---
125		250.0	160.0	100.0	0.58	0.66	0.58	0.66	0.96	1.04	1.03	1.12	---	---	---	---	---	---	---	---
150		360.0	250.0	160.0	0.39	0.46	0.39	0.46	0.66	0.73	0.71	0.78	---	---	---	---	---	---	---	---
200		570.0	400.0	250.0	---	---	0.19	---	0.34	---	0.37	---	0.50	---	0.65	---	0.86	---	1.0	
250	80	800.0	630.0	400.0	---	---	0.11	---	0.23	---	0.25	---	0.35	---	0.46	---	0.62	---	0.75	
300		1000.0	800.0	630.0	---	---	0.09	---	0.19	---	0.21	---	0.29	---	0.39	---	0.53	---	0.60	

- 1) parabolic plug in straight way, V-ported plug in angle way
- 2) V-ported plug in angle way, in straight way V-ported plug for linear characteristic and for equal-percentage characteristic parabolic plug

Bellows packing can be used for DN15 and 20.

Max. differential pressure Δp for valves PN 16 must be 1,6 MPa.

metal - version with metal - metal seat sealing

PTFE - version with metal - PTFE seat sealing (is not applicable to contoured plugs)

Max. differential pressures specified in table apply to PTFE and O-ring. Δp_{\max} for bellows must be consulted with the producer. It applies to graphite packing as well especially when required p value is close to max. values specified in table.

Kvs values and differential pressures Δp_{\max} [MPa] of valves DN 15 to 150 for pneumatic valves - mixing function of the valve (flow direction below plug)

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

		Pneumatic actuator			Flowserve PA 253				A. Hock 2109				
		Spec. No. of actuator			BVCxAA		BVCxZA		P2-0K-VL1		P2-0K-VL2		
		Actuator function			direct		indirect		direct		indirect		
		Spring range [bar]			1,5 - 2,7		1,5 - 2,7		1,2 - 3,0		1,2 - 3,0		
		Spring setting [bar]			1,5 - 2,46		1,75 - 2,7		1,2 - 2,64		1,56 - 3,0		
		Feeding pressure [bar]			4		4,5		3,9		4,6		
		Mark. in valve spec. No.			PFA				PHF				
		Linear force			3,7 kN		4,3 kN		3,5 kN		4,6 kN		
		Kvs [m ³ /h]			Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		
DN	H	1	2	3	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	
15	16	---	2.5 ¹⁾	1.6 ¹⁾	4.00	---	4.00	---	4.00	---	4.00	---	
15		4.0 ¹⁾	---	---	4.00	---	4.00	---	4.00	---	4.00	---	
20		---	---	2.5 ¹⁾	4.00	---	4.00	---	4.00	---	4.00	---	
20		---	4.0 ¹⁾	---	4.00	---	4.00	---	4.00	---	4.00	---	
20		6.3 ¹⁾	---	---	4.00	---	4.00	---	4.00	---	4.00	---	
25		10	6.3 ²⁾	4.0 ²⁾	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
32		16.0	10.0	6.3 ²⁾	3.16	3.48	3.82	4.00	2.94	3.26	4.00	4.00	
40		25.0	16.0	10.0	1.97	2.23	2.40	2.66	1.83	2.09	2.61	2.87	

		Pneumatic actuator			Flowserve PB 503				Flowserve PB 701							
		Spec. No. of actuator			BVCxAB		BVCxZB		BVCxAB		BVCxZB		BVCxAB		BVCxZB	
		Actuator function			direct		indirect		direct		indirect		direct		indirect	
		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 - 2,25		1,95 - 2,7		1,5 - 2,7		1,5 - 2,7		1,5 - 2,7		1,5 - 2,7	
		Feeding pressure [bar]			3,8		4,7		4,2		4,2		4,2		4,2	
		Mark. in valve spec. No.			PFB				PFC							
		Linear force			7,5 kN		9,7 kN		7,5 kN		7,5 kN		10,5 kN		10,5 kN	
		Kvs [m ³ /h]			Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}	
DN	H	1	2	3	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	kov	PTFE		
50	25	40	25	16	2.76	2.95	3.69	3.88	---	---	---	---	---	---		
65		63	40	25	1.65	1.80	2.22	2.37	---	---	---	---	---	---		
80	40	100	63	40	---	---	---	---	1.01	1.13	1.01	1.13	1.55	1.67		
100		160	100	63	---	---	---	---	0.63	0.73	0.63	0.73	0.98	1.08		
125		250	160	100	---	---	---	---	0.39	0.47	0.39	0.47	0.61	0.70		
150		360	250	160	---	---	---	---	0.26	0.33	0.26	0.33	0.42	0.49		

For further information on actuating, see actuators' catalogue sheets		Pneumatic actuator			A. Hock 2112-30				A. Hock 2112-50				A. Hock 2112T-50			
		Spec. No. of actuator			P2-0K-WM1		P2-0K-WM2		P2-0K-SI1		P2-0K-SI2		P2-0K-DT1		P2-0K-UT2	
		Actuator function			direct		indirect		direct		indirect		direct		indirect	
		Spring range [bar]			1,4 - 2,8		1,4 - 2,8		0,8 - 2,8		0,8 - 2,8		0,5 - 1,7		0,75 - 2,7	
		Spring setting [bar]			1,4 - 2,57		1,63 - 2,8		0,8 - 2,4		1,2 - 2,8		0,5 - 1,46		1,14 - 2,7	
		Feeding pressure [bar]			4,0		4,5		3,3		4,0		2,0		3,9	
		Mark. in valve spec. No.			PHA				PHA				PHB			
		Linear force			8,0 kN		9,3 kN		4,6 kN		6,9 kN		5,7 kN		13 kN	
		Kvs [m³/h]			Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}	
		DN	H	1	2	3	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE
50	25	40	25	16	2.97	3.16	3.52	3.71	---	---	---	---	---	---		
65		63	40	25	1.78	1.93	2.11	2.27	---	---	---	---	---	---		
80	40	100	63	40	---	---	---	---	0.48	0.61	0.90	1.03	0.68	0.81	2.00	2.12
100		160	100	63	---	---	---	---	0.29	0.39	0.56	0.66	0.42	0.52	1.27	1.37
125		250	160	100	---	---	---	---	0.17	0.25	0.34	0.43	0.25	0.34	0.80	0.89
150		360	250	160	---	---	---	---	0.11	0.18	0.23	0.30	0.16	0.24	0.55	0.62

- 1) parabolic plug in straight way, V-ported plug in angle way
- 2) V-ported plug in angle way, in straight way V-ported plug for linear characteristic and for equal-percentage characteristic parabolic plug

Bellows packing can be used for DN15 and 20.

Max. differential pressure Δp for valves PN 16 must be 1,6 MPa.

metal - version with metal - metal seat sealing

PTFE - version with metal - PTFE seat sealing (is not applicable to contoured plugs)

Max. differential pressures specified in table apply to PTFE and O-ring. Δp_{max} for bellows must be consulted with the producer. It applies to graphite packing as well especially when required p value is close to max. values specified in table.

Kvs values and differential pressures Δp_{\max} [MPa] of valves DN 15 to 150 for pneumatic actuators - splitting function of valve (flow direction above plug)

Δp_{\max} value is the valve max. differential pressure when open - close function is always guaranteed.

		Pneumatic actuator			Flowserve PA 253		A. Hock 2109	
		Spec. No. of actuator	BVCxAA	BVCxZA	P2-0K-VL1	P2-0K-VL2		
For further information on actuating see actuators' catalogue sheets		Actuator function	direct	indirect	direct	indirect		
		Spring range [bar]	1,5 - 2,7	1,5 - 2,7	1,2 - 3,0	1,2 - 3,0		
		Spring setting [bar]	1,5 - 2,46	1,75 - 2,7	1,2 - 2,64	1,56 - 3,0		
		Feeding pressure [bar]	4	4,5	3,9	4,6		
		Mark. in valve spec. No.	PFA		PHF			
		Linear force	3,7 kN	4,35 kN	3,5 kN	4,6 kN		
		Kvs [m ³ /h]	packing	packing	packing	packing		
DN	H	1	2	3	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE
15	16	---	2.5 ¹⁾	1.6 ¹⁾	1.76 4.00	2.52 4.00	1.53 4.00	2.82 4.00
15		4.0 ¹⁾	---	---	1.76 4.00	2.52 4.00	1.53 4.00	2.82 4.00
20		---	---	4.0 ¹⁾	0.88 2.14	1.27 2.52	0.77 2.02	1.41 2.67
20		---	4.0 ¹⁾	---	0.88 2.14	1.27 2.52	0.77 2.02	1.41 2.67
20		6.3 ¹⁾	---	---	0.88 2.14	1.27 2.52	0.77 2.02	1.41 2.67
25		10	6.3 ²⁾	4.0 ²⁾	0.55 1.33	0.79 1.56	0.47 1.25	0.88 1.66
32		16	10	6.3 ²⁾	0.33 0.80	0.48 0.95	0.29 0.76	0.53 1.00
40		25	16	10	0.21 0.52	0.31 0.61	0.18 0.49	0.34 0.64

		Pneumatic actuator			Flowserve PB 503				Flowserve PB 701	
		Spec. No. of actuator	BVCxAB	BVCxZB	BVCxAB	BVCxZB	BVCxAB	BVCxZB		
For further information on actuating see actuators' catalogue sheets		Actuator function	direct	indirect	direct	indirect	direct	indirect		
		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 - 2,25	1,95 - 2,7	1,5 - 2,7	1,5 - 2,7	1,5 - 2,7	1,5 - 2,7		
		Feeding pressure [bar]	3,8	4,7	4,2	4,2	4,2	4,2		
		Mark. in valve spec. No.	PFB				PFC			
		Linear force	7,5 kN	9,75 kN	7,5 kN	7,5 kN	10,5 kN	10,5 kN		
		Kvs [m ³ /h]	packing	packing	packing	packing	packing	packing		
DN	H	1	2	3	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE
50	25	40	25	16	0.45 0.63	0.64 0.82	---	---	---	---
65		63	40	25	0.28 0.39	0.39 0.50	---	---	---	---
80	40	100	63	40	---	---	0.18 0.27	0.18 0.27	0.28 0.37	0.28 0.37
100		160	100	63	---	---	0.11 0.17	0.11 0.17	0.18 0.24	0.18 0.24
125		250	160	100	---	---	0.07 0.11	0.07 0.11	0.12 0.16	0.12 0.16
150		360	250	160	---	---	0.05 0.08	0.05 0.08	0.08 0.11	0.08 0.11

The table continues on next page

For further information on actuating, see actuators' catalogue sheets		Pneumatic actuator			A. Hock 2112-30				A. Hock 2112-50				A. Hock 2112T-50			
		Spec. No. of actuator			P2-0K-WM1		P2-0K-WM2		P2-0K-SI1		P2-0K-SI2		P2-0K-DT1		P2-0K-UT2	
		Actuator function			direct		indirect		direct		indirect		direct		indirect	
		Spring range [bar]			1,4 - 2,8		1,4 - 2,8		0,8 - 2,8		0,8 - 2,8		0,5 - 1,7		0,75 - 2,7	
		Spring setting [bar]			1,4 - 2,57		1,63 - 2,8		0,8 - 2,4		1,2 - 2,8		0,5 - 1,46		1,14 - 2,7	
		Feeding pressure [bar]			4,0		4,5		3,3		4,0		2,0		3,9	
		Mark. in valve spec. No.			PHA				PHA				PHB			
		Linear force			8,0 kN		9,3 kN		4,6 kN		6,9 kN		5,7 kN		13 kN	
		$K_{vs} [m^3/h]$			Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}		Δp_{max}			
DN	H	1	2	3	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE	metal	PTFE		
50	25	40	25	16	0.49	0.67	0.60	0.79	---	---	---	---	---	---		
65		63	40	25	0.30	0.41	0.37	0.48	---	---	---	---	---	---		
80	40	100	63	40	---	---	---	---	0.07	0.16	0.15	0.24	0.11	0.20	0.37	0.46
100		160	100	63	---	---	---	---	0.05	0.11	0.10	0.16	0.07	0.13	0.24	0.30
125		250	160	100	---	---	---	---	0.03	0.07	0.07	0.10	0.05	0.08	0.16	0.20
150		360	250	160	---	---	---	---	0.02	0.05	0.05	0.07	0.03	0.06	0.11	0.14

- 1) parabolic plug in straight way, V-ported plug in angle way
- 2) V-ported plug in angle way, in straight way for linear characteristic V-ported plug and for equal-percentage characteristic parabolic plug.

Bellows packing can be used for DN 15 and 20 and for DN above 200.

Max. differential pressure D_p for valves PN 16 must be 1.6 MPa.

metal - version with metal - metal seat sealing

PTFE - version with metal - PTFE seat sealing (is not applicable to contoured plugs)

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

Values are valid for all versions of seat sealings.

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 200 to 300 with Flowserve actuators - mixing function of the valve (flow direction below plug)

Δp_{max} value is the valve max. differential pressure when open - close function is always guaranteed.

For further information on actuating see actuators' catalogue sheets			Pneumatic actuator		PO 1502				PO 3002				
			Spec. No. of actuator	BVCxAD	BVCxZD	BGFxAD	BFSxZD	BEPxAD	BEPxZD				
			Actuator function		direct	indirect	direct	indirect	direct	indirect			
			Spring range [bar]		1,5 - 2,7	1,5 - 2,7	2,0 - 3,5	2,0 - 3,5	1,3 - 2,1	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	1,3 - 2,1			
			Feeding pressure [bar]		4,2	4,2	5,5	5,5	3,4	3,4			
			Mark. in valve spec. No.		PFD				PFE				
			Linear force		22,5 kN	22,5 kN	30 kN	30 kN	39 kN	39 kN			
			Kvs [m³/h]		packing	packing	packing	packing	packing	packing			
DN	Ds	H	1	2	3	4	5	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE
200	200	80	570	400	250	160	100	0.48 0.57	0.48 0.57	0.71 0.80	0.71 0.80	0.99 1.07	0.99 1.07
250	230		800	630	400	250	160	0.33 0.41	0.33 0.41	0.51 0.58	0.51 0.58	0.72 0.79	0.72 0.79
300	250		1000	800	630	400	250	0.28 0.34	0.28 0.34	0.43 0.49	0.43 0.49	0.60 0.67	0.60 0.67

Max. differential pressures are valid for metal-metal seat sealing and for hardmetal overlay on sealing surfaces.

Kvs values and differential pressures Δp_{max} [MPa] of valves DN 200 to 300 with Flowserve actuators - splitting function of valve (flow direction above plug)

Δp_{max} value is the valve max. differential pressure when open - close function is always guaranteed.

For further information on actuating see actuators' catalogue sheets			Pneumatic actuator		PO 1502				PO 3002				
			Spec. No. of actuator	BVCxAD	BVCxZD	BGFxAD	BFSxZD	BEPxAD	BEPxZD				
			Actuator function		direct	indirect	direct	indirect	direct	indirect			
			Spring range [bar]		1,5 - 2,7	1,5 - 2,7	2,0 - 3,5	2,0 - 3,5	1,3 - 2,1	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	1,3 - 2,1			
			Feeding pressure [bar]		4,2	4,2	5,5	5,5	3,4	3,4			
			Mark. in valve spec. No.		PFD				PFE				
			Linear force		22,5 kN	22,5 kN	30 kN	30 kN	39 kN	39 kN			
			Kvs [m³/h]		packing	packing	packing	packing	packing	packing			
DN	Ds	H	1	2	3	4	5	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE	graph. PTFE
200	200	80	570	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
250	230		800	630	400	250	160	0.09 0.10	0.09 0.10	0.12 0.14	0.12 0.14	0.17 0.18	0.17 0.18
300	250		1000	800	630	400	250	0.08 0.09	0.08 0.09	0.10 0.12	0.10 0.12	0.14 0.15	0.14 0.15

Max. differential pressures are valid for metal-metal seat sealing and for hardmetal overlay on sealing surfaces.

Dimensions and weights of valves made of spheroidal cast iron for the types RV 214 (Ex), DN 15 - 150

DN	PN 16					PN 40					PN 16, PN 40											
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D mm	D ₄ mm	D ₅ mm	L mm	V ₁ mm	V ₂ mm	*V ₂ mm	V ₃ mm	*V ₃ mm	a mm	m kg	*m _v kg
15	95	65	46	14	4	95	65	46	14	4	15	65	M10x1	130	110	67	---	197	---	14	5.5	3.5
20	105	75	56			105	75	56			20			150	115	67	---	197	---	16	6.5	3.5
25	115	85	65			115	85	65			25			160	130	72	239	202	369	16	8.3	3.5
32	140	100	76			140	100	76			32			180	135	72	239	202	369	18	10.5	3.5
40	150	110	84	150	110	84	40	200	140	72	239			202	369	19	12	3.5				
50	165	125	99	165	125	99	50	230	175	92	299			222	429	19	17	4				
65	185	145	118	185	145	118	65	290	180	92	299			222	429	19	22	4				
80	200	160	132	200	160	132	80	310	220	123	441			253	571	19	31	4.5				
100	220	180	156	235	190	156	100	350	230	123	441			253	571	19	44	4.5				
125	250	210	184	270	220	184	125	400	260	151	469			281	599	23.5	65	5				
150	285	240	211	300	250	211	150	480	290	151	469			281	599	26	94	5				

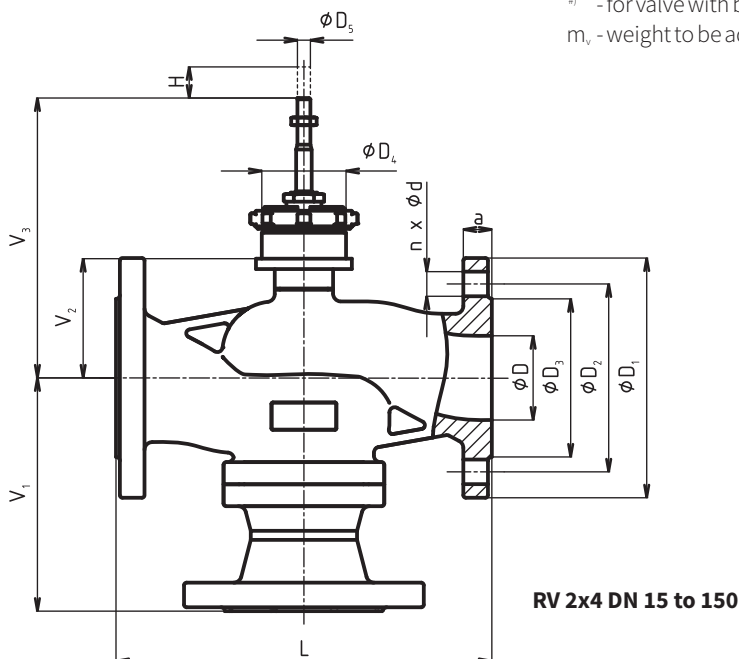
Dimensions and weights of valves made of cast steel and stainless steel for the types RV 224 (Ex), RV 234 (Ex) DN 15 - 150

DN	PN 10-16					PN 25-40					PN 10-40											
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	D mm	D ₄ mm	D ₅ mm	L mm	V ₁ mm	V ₂ mm	*V ₂ mm	V ₃ mm	*V ₃ mm	a mm	m kg	*m _v kg
15	95	65	45	14	4	95	65	45	14	4	15	65	M10x1	130	110	67	---	197	---	16	6	3.5
20	105	75	58			105	75	58			20			150	115	67	---	197	---	18	7	3.5
25	115	85	68			115	85	68			25			160	130	72	239	202	369	18	9.5	3.5
32	140	100	78			140	100	78			32			180	135	72	239	202	369	18	12	3.5
40	150	110	88	150	110	88	40	200	140	72	239			202	369	18	13.5	3.5				
50	165	125	102	165	125	102	50	230	175	92	299			222	429	20	24	4				
65	185	145	122	185	145	122	65	290	180	92	299			222	429	22	31	4				
80	200	160	138	200	160	138	80	310	220	123	441			253	571	24	43	4.5				
100	220	180	158	235	190	162	100	350	230	123	441			253	571	24	55	4.5				
125	250	210	188	270	220	188	125	400	260	151	469			281	599	26	90	5				
150	285	240	212	300	250	218	150	480	290	151	469			281	599	28	120	5				

¹⁾ with regard of the standard previously in force, there is an option to have the number of connection bolts as stipulated in ČSN-EN 1092-1

²⁾ - for valve with bellows packing

m_v - weight to be added to weight of valve equipped with bellows packing



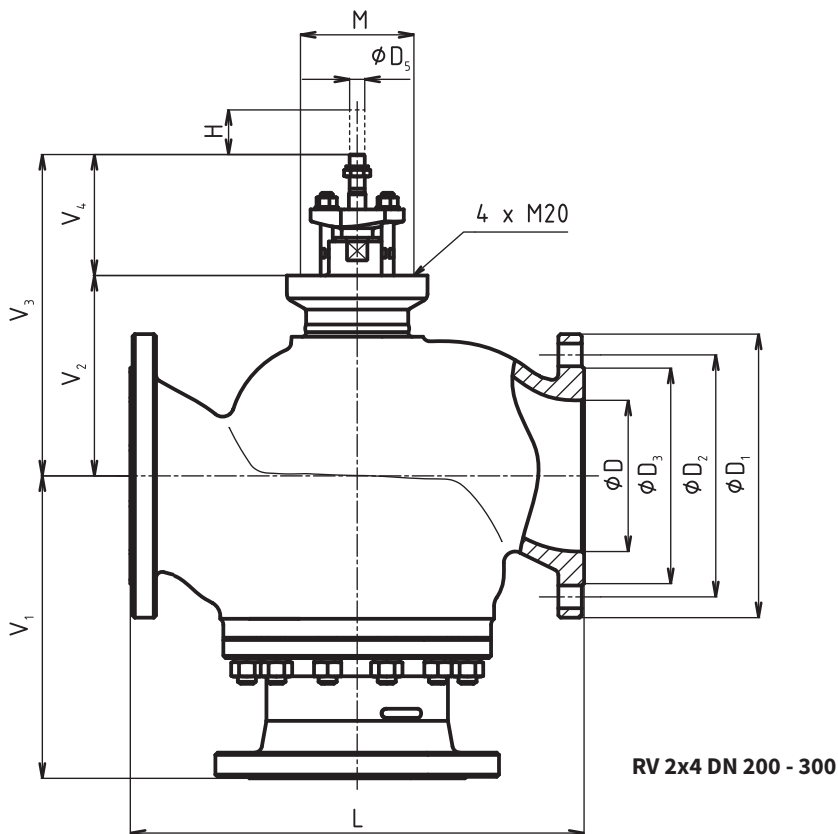
Dimens. and weights of valves made of spheroidal cast iron RV 214 (Ex), DN 200 - 300

DN	PN 16															
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D mm	D ₅ mm	M mm	L mm	V ₁ mm	V ₂ mm	V ₃ mm	V ₄ mm	H mm	m kg
200	340	295	266	23		20	200	M20x1.5	150	600	400	265	425	160	80	162
250	400	355	319	28	12	22	250			730	480	360	520			280
300	455	410	370	28		24.5	300			850	560	402	562			410

Dimensions and weights of valves made of cast steel and stainless steel RV 224, 234 (Ex), DN 200 - 300

DN	PN 10						PN 16						PN 25					
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm
200	340	295	268		8	24	340	295	268	22		24	360	310	278	26	12	30
250	395	350	320	22	12	26	405	355	320	26	12	26	425	370	335	30	12	32
300	445	400	370		12	26	460	410	378	26		28	485	430	395	30	16	34

DN	PN 40						PN 10-40									
	D ₁ mm	D ₂ mm	D ₃ mm	d mm	n	a mm	D mm	D ₅ mm	M mm	L mm	V ₁ mm	V ₂ mm	V ₃ mm	V ₄ mm	H mm	m kg
200	375	320	285	30	12	34	200	M20x1.5	150	600	400	265	425	160	80	250
250	450	385	345	33	12	38	250			730	480	360	520			425
300	515	450	410	33	16	42	300			850	560	402	562			640



Valve complete specification No. for ordering RV / UV 2x0 (Ex), RV 2x2 (Ex), RV 2x4 (Ex)

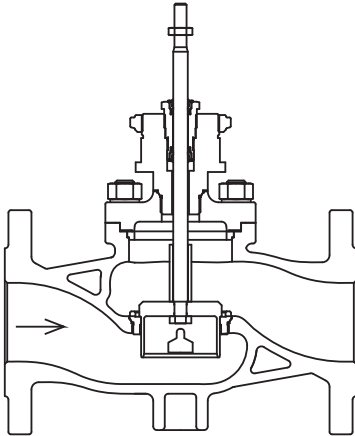
		XX	XXX	XXX	XXXX	XX	-XX	/XXX	-XXX	XX
1. Valve	Control valve	RV								
	Shut-off valve	UV								
2. Series	Valves made of spher. cast iron EN-JS 1025 ²⁾		2 1							
²⁾ For DN 200 to 400 only PN 16	Valves made of cast steel 1.0619, 1.7357		2 2							
	Valves made of stainless steel 1.4581		2 3							
	Direct valve		0							
	Pressure -balanced valve		2							
	Mixing (diverting) valve		4							
3. Actuating	Electric actuator				E X X					
	Pneumatic actuator				P X X					
	Hand wheel				R X X					
4. Connection	Raised flange									1
	Female flange									2
	Flange with groove									3
5. Body material	Cast steel 1.0619 (-10 to 400 °C)									1
<i>(Operating temp. ranges are specified in parentheses)</i>	Sphr. cast iron EN-JS 1025 (-10 to 300 °C)									4
	CrMo steel 1.7357 (-10 to 500 °C)									7
	Stainless steel 1.4581 (-10 to 500 °C)									8
	Other material on request									9
6. Seat sealing	Metal - metal									1
³⁾ DN 25 to 400; t _{max} = 260 °C	Soft sealing (metal - PTFE) ⁴⁾									2
	Hard metal overlay on sealing surfaces									3
	Balanced by graphite, metal - metal									5
	Balanced by graphite, hard metal overlay									7
	Balanced with metal sealing cuff, hard metal overlay									8
7. Packing	O - ring EPDM ³⁾									1
³⁾ Not appl. to Ex version	DRSpack® (PTFE)									3
⁶⁾ DN 15 to 150 only	Exp. graphite ³⁾									5
	Bellows ⁶⁾									7
	Bellows with safety PTFE packing ⁶⁾									8
	Bellows with safety Graphite packing ⁶⁾									9
8. Flow characteristic	Linear									L
⁴⁾ Only for UV 2x0	Equal-percentage in straight way									R
	LDMspline ⁵⁾									S
⁵⁾ Not applicable for RV 2x4 (Ex)	On-off ⁴⁾									U
	Parabolic ⁵⁾									P
	Linear - perforated plug ⁵⁾									D
	Equal-percentage - perforated plug ⁵⁾									Q
	Parabolic - perforated plug ⁵⁾									Z
9. Kvs	Column No. acc. to Kvs value table									X
10. Nominal pressure PN	PN 10 ⁷⁾									10
⁷⁾ DN 200 - 600	PN 16									16
	PN 25 ⁷⁾									25
	PN 40									40
11. Max. operat. temp °C	Acc. to version 140 - 500°C								XXX	
12. Nominal size DN	DN									XXX
13. Version	Normal									
	Non - explosive									Ex
	Oxygen									Ox
	Food industry version									Px

Ordering example: RV210 ENC 1423 L1 40/220-065

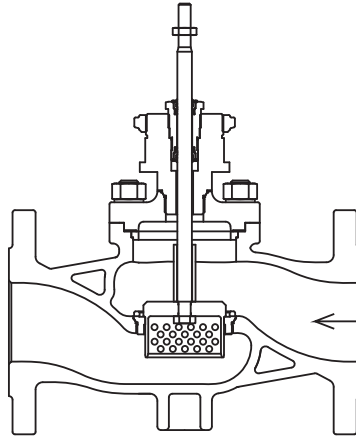
For marking of actuators in specification code, refer to table on page 103 of this catalogue

Valves RV / UV 2x0 (Ex)

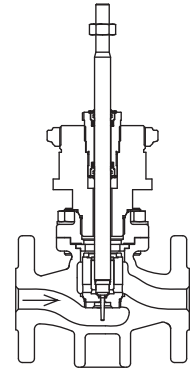
Section of valve with V-ported plug



Section of valve with perforated plug

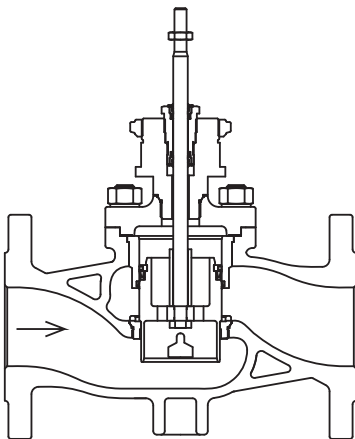


Section of valve with micro-throttling system

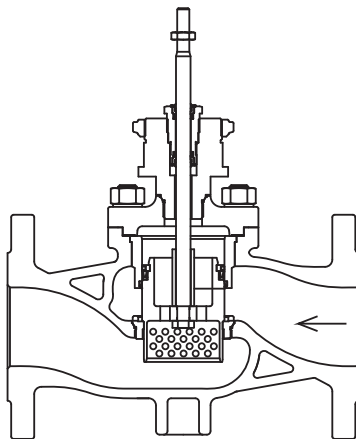


Valves RV 2x2 (Ex)

Section of pressure-balanced valve with V-ported plug

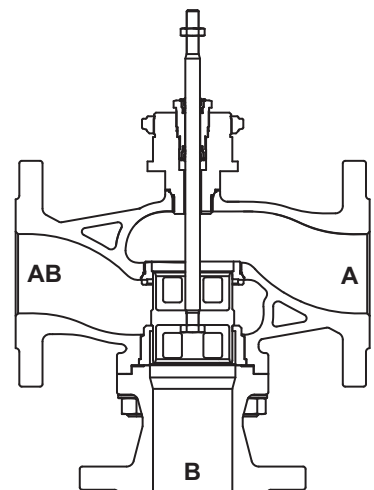


Section of pressure-balanced valve with perforated plug



Valves RV 2x4 (Ex)

Section of three-way valve with V-ported plug





Electric 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 temperature 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

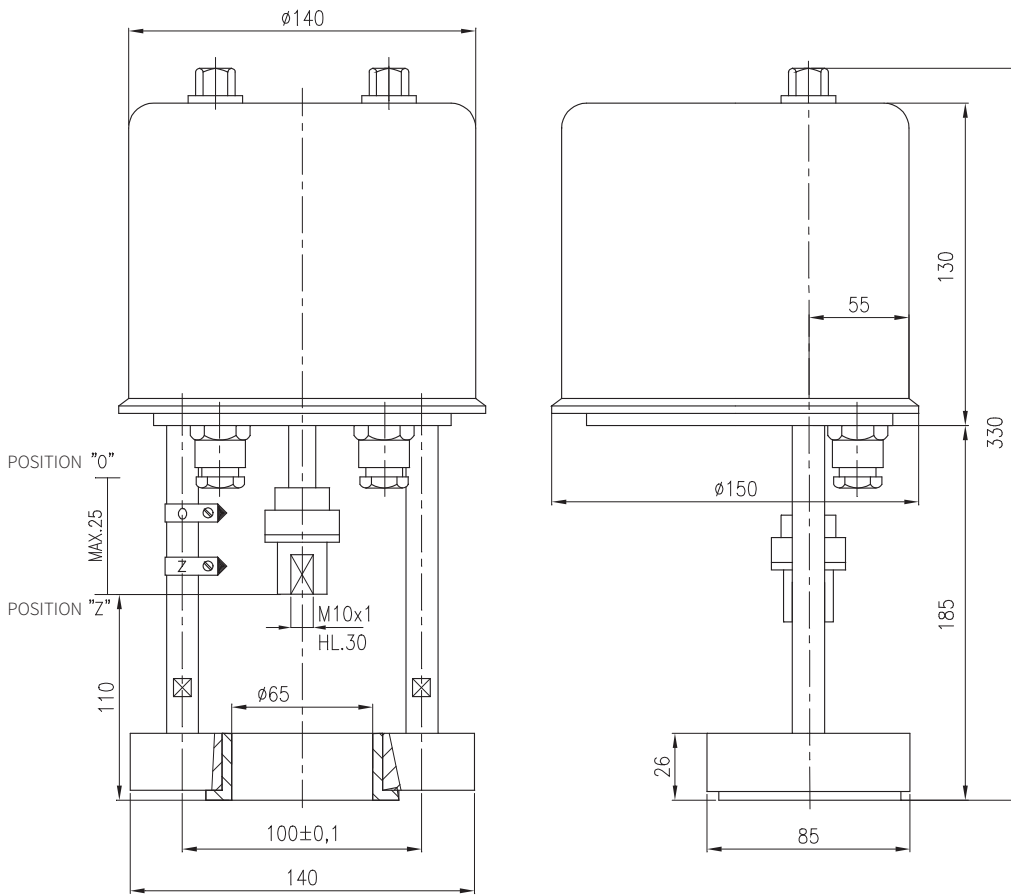
Specification of actuators MIDI 660

		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 Č 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 actuator MIDI 660





Electric actuator

Ekorex**PTN 2**

marking in type number:

ERB, ERC**Technical data**

Type	PTN 2.20	PTN 2.32	PTN 2.40
Marking in valve spec. No.	ERB	ERC	ERC
Voltage	230 V + 6 %, -12 % or 24 V + 10 %, -15 % AC		
Frequency	50 Hz		
Power consumption	max. 19 VA		
Control	3 - position, (0) 4 - 20 mA, 0 - 10 V		
Nominal force	2000 N	3200 N	4000 N
Travel	max. 25 mm		
Enclosure	IP 65		
Process medium max. temp.	acc. to used valve		
Ambient temperature range	-20 to 60°C, -45 to 60°C (weather-resistant design)		
Ambient humidity range	5 to 100 % with condensation		
Weight	4 kg		

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

Detailed technical informations can be found in producer's data sheet or on the website www.ekorex.cz

Specification of actuator PTN 2

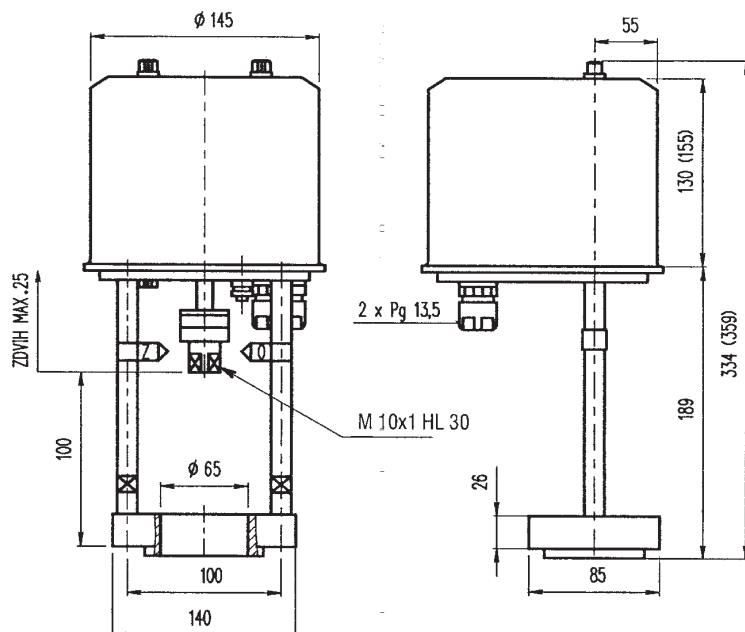
PTN 2	X	X	X	X	X	X	X	X	Nominal force [kN]	Resetting speed [mm.min ⁻¹]
	2	0							2	10, 16, 25, 32
	3	2							3,2	10, 16, 25
	4	0							4	10, 16, 25
	0								230 V, 50 Hz	Motor supply voltage (AC)
	2								24 V, 50 Hz	
	1								10	Resetting speed [mm.min⁻¹]
	2								16	
	3								25	
	4								32	
	0								Without equipment	Independent feeding 24 V
	1								Output 0 - 10 V	
	2								Output 0 - 20 mA	
	3								Output 4 - 20 mA	
	4								Output 4 - 20 mA	2-wire connection
	5								Output 0 - 100 Ω 1x	Resistance output signal
	6								Output 0 - 100 Ω 2x	
	7								Output 4 - 20 mA	Capacity transmitter
	1								Flange with columns, pitch 70 mm, clutch M 8x1	
	3								Flanges with columns, pitch 100 mm, clutch M 10x1	
	0								MO; MZ	Number of microswitches
	2								MO; MZ; SO; SZ	
	4								MO; MZ; KPO	
	6								MO; MZ; SO; SZ; KPO	
	9								Acc. to agreement	
	2								10	Draw bar stroke [mm]
	3								16	
	5								25	

Note:

Table applies to actuator with 3-position control. It is possible to supply actuator with control signal of 0 - 10 V, 0 - 20 mA (code /DMS 3), 4 - 20 mA s ruční ovládní vně skříně (/RO) nebo verzi se zvýšenou klimatickou odolností -45°C to 60°C (/KO)

Example of marking: **PTN 2 - XX.XX.XX.XX / control signal 4 - 20 mA**

Dimensions of actuator PTN 2





Electric actuators

Ekorex

PTN 6

marking in type number:

ERD

Technical data

Type	PTN 6 XX.XX.XX.XX
Marking in valve spec. No.	ERD
Voltage	230 V + 6 %, -12 % nebo 24 V + 10 %, -15 % AC
Frequency	50 Hz
Power consumption	max. 39 VA
Control	3 - position, continuous with positioner
Nominal force	6300 nebo 10000 N
Travel	16, 25 a 40 mm
Enclosure	IP 65
Process medium max. temp.	acc. to used valve
Ambient temperature range	-20 to 60 °C
Ambient humidity range	5 to 100 % with condensation
Weight	7 kg
Hand wheel	as standard equipment of actuator

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

Detailed technical informations can be found in producer's data sheet or on the website www.ekorex.cz

Specification of actuator PTN 6

PTN 6		X	X	X	X	X	X	X		
6	3								6,3	Nominal force [kN]
1	0								10	
0									230 V, 50 Hz	Motor supply voltage (AC)
2									24 V, 50 Hz	
1									10	Resetting force [mm.min⁻¹]
2									16	
3									20	
4									25	
5									32	
6									50	
0									Without equipment	Independent feeding 24 V
1									Output 0 - 10 V	
2									Output 0 - 20 mA	
3									Output 4 - 20 mA	
4									Output 4 - 20 mA	2-wire connection
5									Output 0 - 100 Ω 1x	Resistance output signal
6									Output 0 - 100 Ω 2x	
7									Output 4 - 20 mA	Capacity transmitter
1									Flange with columns M20, pitch 132 mm, clutch M 10x1	Number of microswitches
2									Flange with columns M20, pitch 132 mm, clutch M 16x1,5	
0									MO; MZ; KPZ	Draw bar stroke [mm]
2									MO; MZ; KPO	
5									MO; MZ; SO; SZ; KPZ	
6									MO; MZ; SO; SZ; KPO	
4									16	
5									25	
7									40	

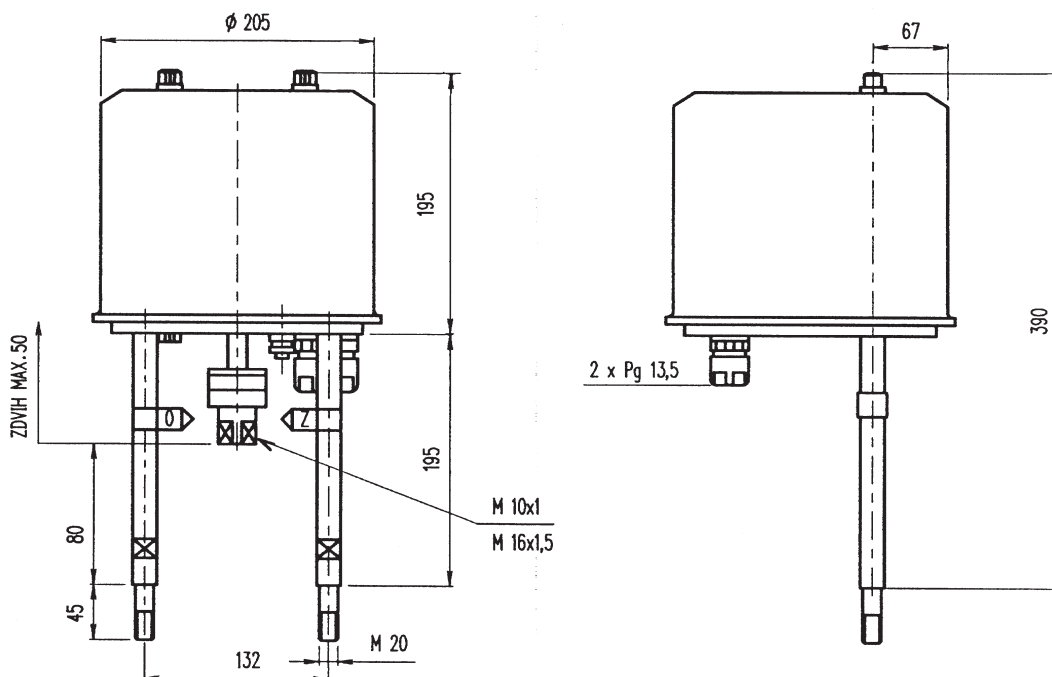
Note:

Table applies to actuator with 3-position control.

It is possible to supply actuator with control signal of 0 - 10 V, 0 - 20 mA, 4 - 20 mA

Example of marking: **PTN 6 - XX.XX.XX.XX / control signal 4 - 20 mA**

Dimensions of actuator PTN 6





Electric actuators

Ekorex

PTN 7

marking in type number:

ERG

Technical data

Type	PTN 7 XX.XX.XX.XX
Marking in valve spec. No.	ERG
Voltage	230 V AC or 24 V AC \pm 10 %
Frequency	50 Hz
Power consumption	max. 120 VA, heat resistor max. 9 VA
Control	3 - position control, continuous with positioner
Nominal force	16000 or 20000 N
Travel	40, 80 mm
Enclosure	IP 65
Process medium max. temp.	acc. to used valve
Ambient temperature range	-20 to 60 °C
Ambient humidity range	10 to 100 % with condensation
Weight	10 kg
Hand wheel	as standard equipment of actuator

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

Detailed technical informations can be found in producer's data sheet or on the website www.ekorex.cz

Specification of actuator PTN 7

PTN 7	X	X	X	X	X	X	X	X		
1									16	Nominal force [kN]
2									20	
9									Acc. to contract	
1									20	Resetting force [mm.min⁻¹]
2									25	
3									32	
4									50	
5									80 (jen 16 kN)	
0									230 V, 50 Hz, 60 Hz	Motor supply voltage At 60 hz is the speed increased for 20%
2									24 V, 50 Hz, 60 Hz	
2									MO; MZ; KPO	Number of microswitches
6									MO; MZ; SO; SZ; KPO	
9									Acc. to contract	
0									Without equipment	Independent feeding 24 V AC
1									Output 0 - 10 V	
2									Output 0 - 20 mA	
3									Output 4 - 20 mA	
4									Output 4 - 20 mA	
5									Output 0 - 100 Ω 1x	Resistance output signal
6									Output 0 - 100 Ω 2x	
7									Output 4 - 20 mA	Capacity transmitter
9									Acc. to contract	
2									40	Draw bar stroke [mm]
6									80	
1 0										Columns M20, clutch M16x1,5 (for valves DN 80 - 150, H = 40 mm)
3 0										Columns M20, clutch M20x1,5 (for valves DN 200 - 300, H = 80 mm)

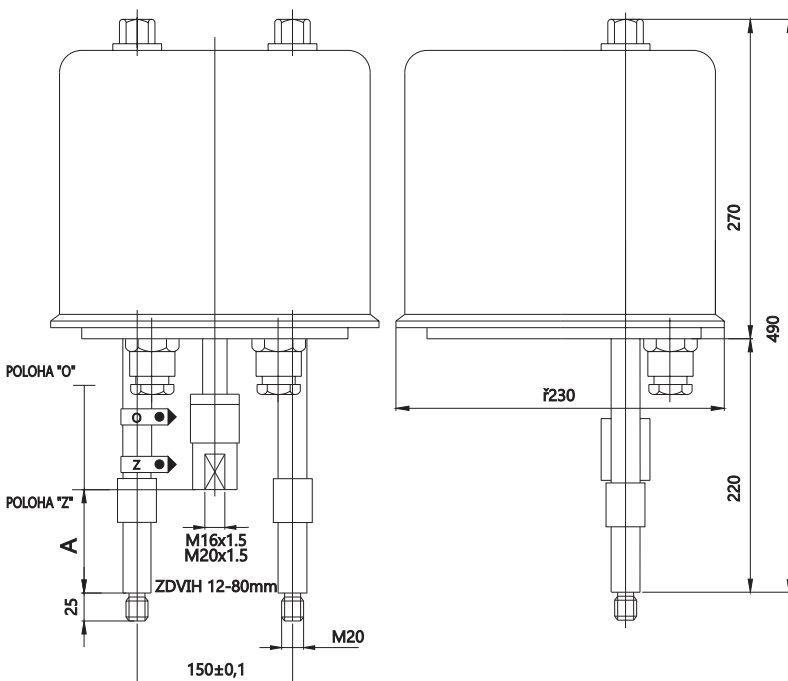
Note:

Table applies to actuator with 3-position control.

It is possible to supply actuator with control signal of 0 - 10 V, 0 - 20 mA, 4 - 20 mA and manual operation outside the cover

Example of marking: **PTN 7 - XX.XX.XX.XX / control signal 4 - 20 mA / RO**

Dimensions of actuator PTN 7



Připojení	A
1	74
3	140



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 temperature range	-25 to 55 °C
Ambient humidity range	10 - 100 % with condensation
Weight	11 kg

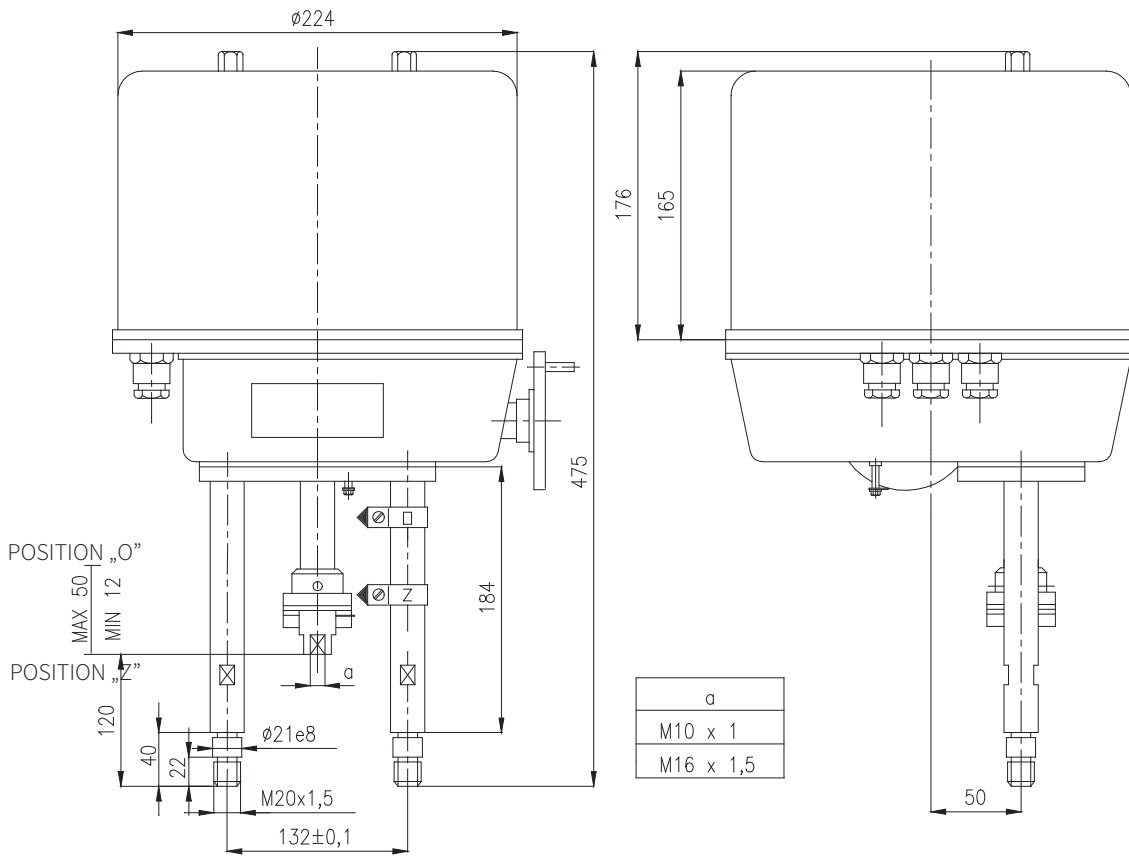
→ **Note:** Specifications and technical data are for information only.

Detailed technical informations can be found in producer's data sheet or on the website 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, 25, 32, 40, 52 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 temperature range	-25 to 55 °C
Ambient humidity range	10 - 100 % with condensation
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 website 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.

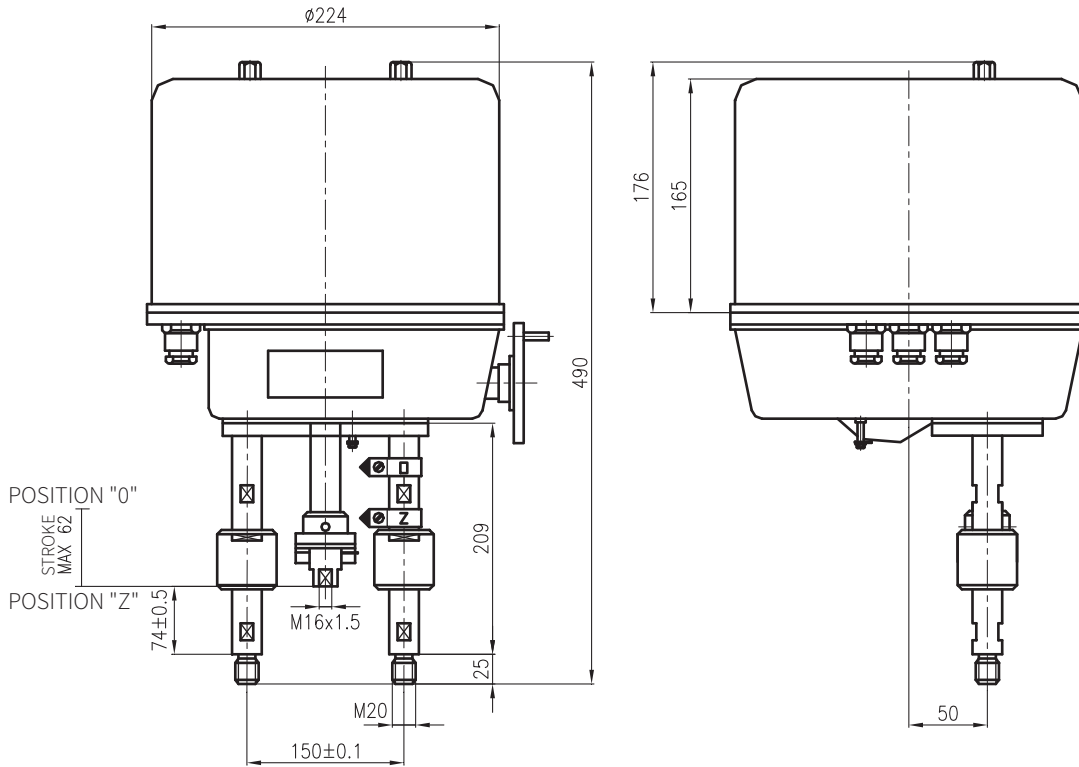
* Connections for LDM valves

P3 ... RV 2xx NPS 80 - 150

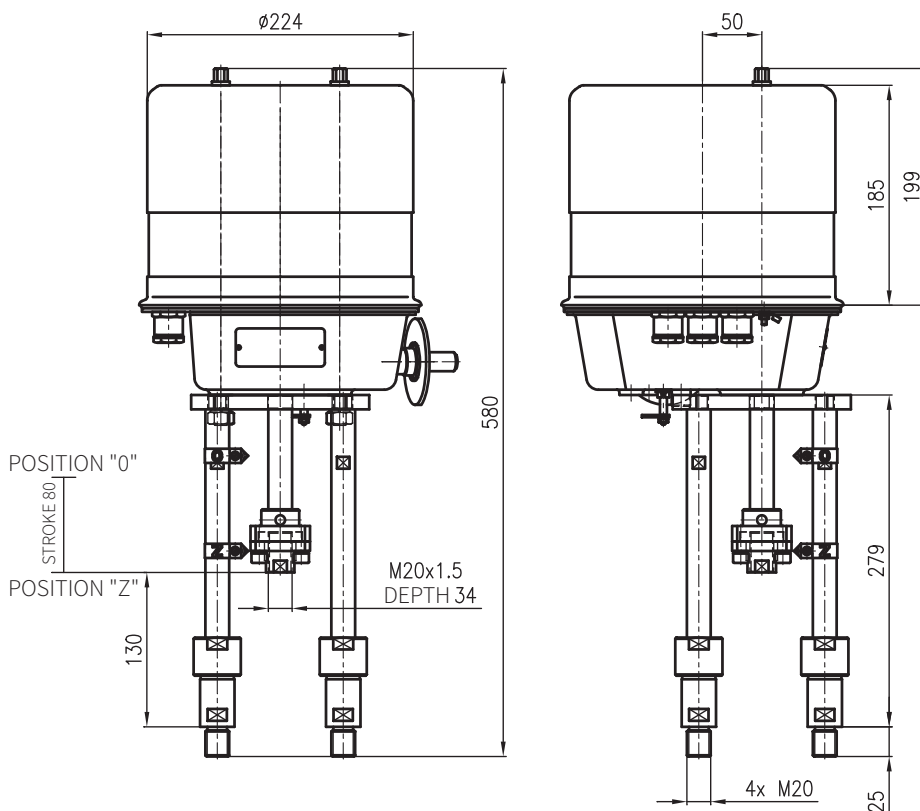
P5 ... RV 2xx NPS 200 - 300

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 temperature 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 website www.zpa-pecky.cz

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

Basic equipment

2 x power switches MO, MZ	1 x position transmitter - resist 2x100 Ω or current
2 x limit switches PO, PZ	1 x heating element
2 x limit and signalisation switches SO, SZ	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			Weight Aluminium [kg]	Specification No.	
						rpm 1/min	In (400V) [A]	Iz / In		Basic	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
			50		180	835	0.74	2.3			XX4XXM
MTN 25 MTP 25	15 - 25	32,5	80	10 - 100	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 transmitter 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⁾	

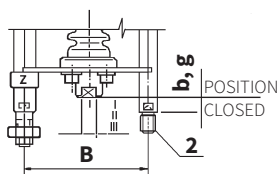
Notes:

¹⁾ When version with flasher is requested, specify this requirement in writing: **version with flasher**

²⁾ Design without force locking after reversion 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

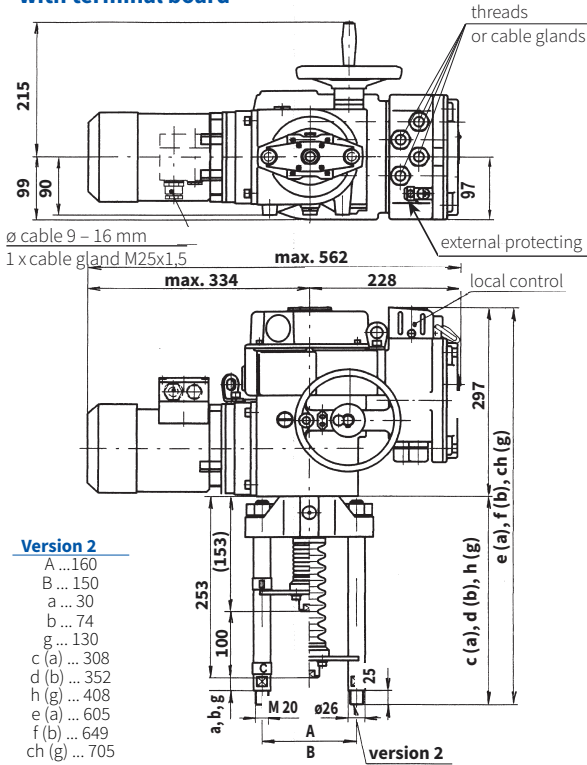


Columns pitch	B	150
Position "closed"	b	74
	g	130
Cluth thread	I	M 20x1,5
	II	M 16x1,5
	III	M 10x1

Version	Specification No.		For valves
	basic	additional	
Bb2I	52 442	XLXXXM	---
Bb2II	52 442	XMXXXM	DN80-150
Bb2III	52 442	XPXXXM	DN15-65
Bg2I	52 442	XRXXXM	DN200-400

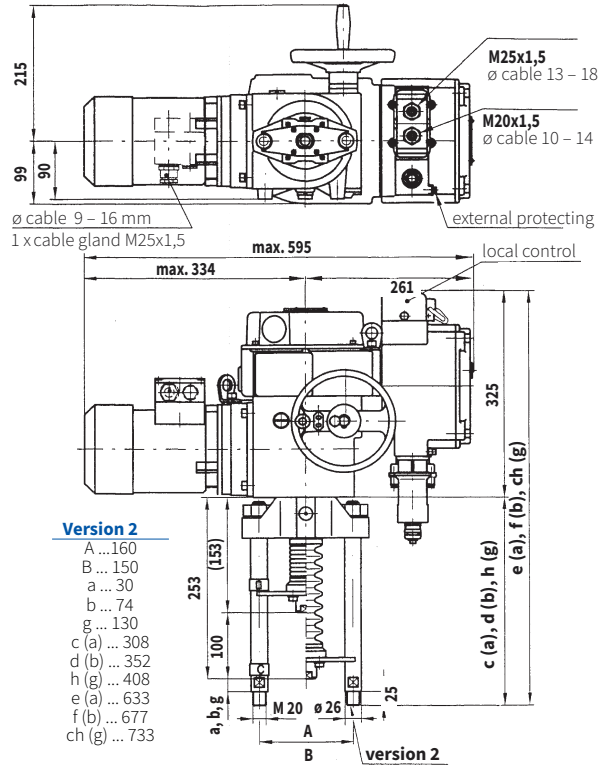
Dimensions of actuator Modact MTN, MTP

- with terminal board



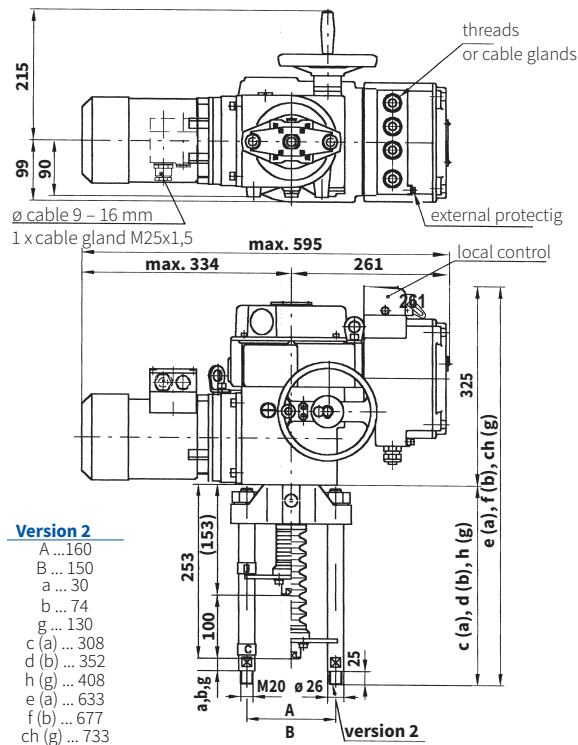
Dimensions of actuator MTN, MTP and Modact MTN, MTP Control

- with connector

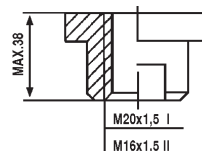


Dimensions of actuator Modact MTN, MTP Control

- with terminal board



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 equipped 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 temperature 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 website 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 signaled 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	Push-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			Weight Aluminium [kg]	Specification No.	
						RPM [1/min]	In (400V) [A]	Iz In		Basic	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, circuitry, electric equipment				
	Terminal board	Connector	Term. board, brake	Connector, brake
DMS2 ED electronics	EXXXXED	FXXXXED	HXXXXED	KXXXXED
DMS2, Profibus electronics	PXXOXED	TXXOXED	UXXOXED	YXXOXED
DMS2, 2-position or 3-position control *)	RXXOXED	VXXOXED	WXXOXED	1XXOXED

*) 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).

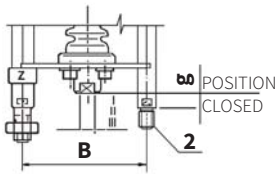
Equipment of DMS2 ED electronics		Character at the 9th place (52442 xxxXxED)																							
Equipment DMS2 ED		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	H	J	K	L	M	N	V	W
Local control			x		x		x		x		x		x		x		x		x		x		x		x
Display				x	x			x	x			x	x			x	x			x	x			x	x
Relay						x	x	x	x					x	x	x	x					x	x	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 (°C)	Type of actuator				Marking
	MTNED		MTPED		
	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



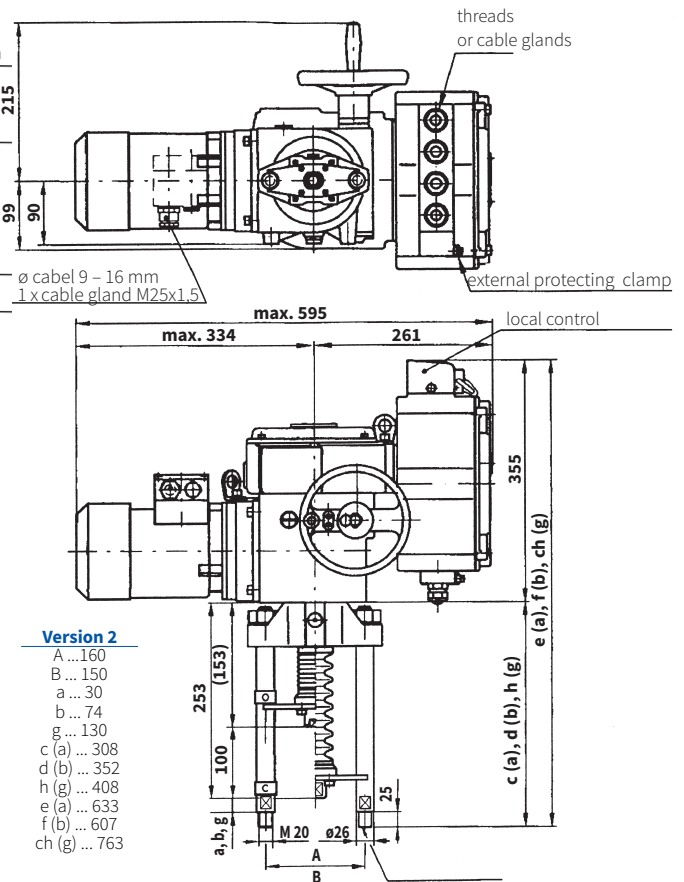
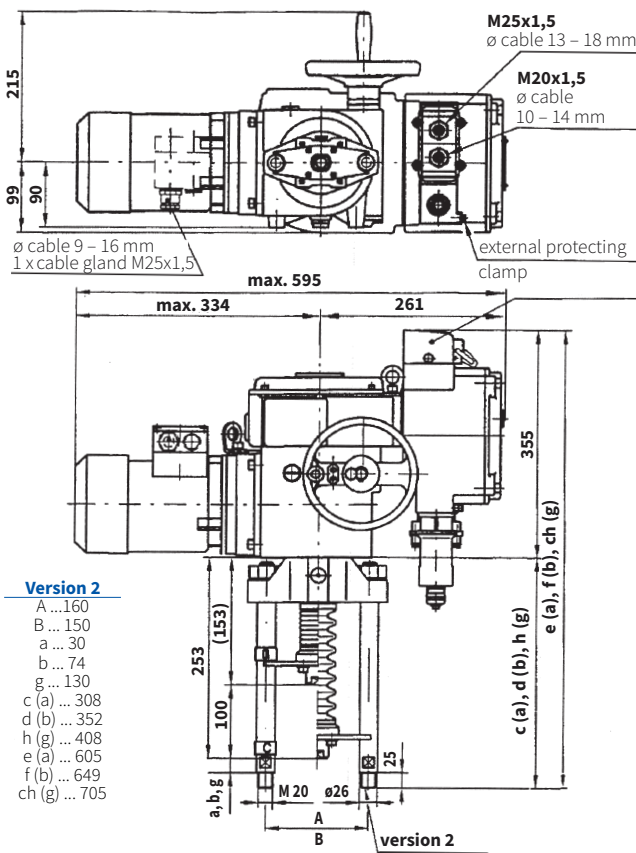
Columns pitch	B	150
Position "closed"	b	74
	g	130
	Clutch thread	
I	M 20x1,5	
II	M 16x1,5	
III	M 10x1	

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

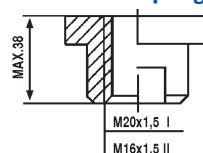
Dimensions of actuator Modact MTNED/MTPED

- with connector

- with terminal board



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 temperature 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 website www.auma.com

Specification of Auma actuators					SA	X	XX	07.X
Type					SA			
Duty					SA	R		
Version							Ex	
Actuator size								07.2 07.6
Output shaft type A (thread TR 16x4 LH, connection flange F07) ... for RV 2xx DN 15 to 150								
Output speed [ot/min]	Tripping torque	SA 07.2	SAR 07.2	Motor power [kW]	SA 07.2	SA Ex 07.2	SAR 07.2	SAR Ex 07.2
		SA Ex 07.2	SAREx 07.2		S2-15min	S2-15min	S4-25%	S4-25%
4		10-30 Nm	15-30 Nm		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				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 2xx DN 80 to 400								
Output speed [ot/min]	Tripping torque	SA 07.6	SAR 07.6	Motor power [kW]	SA 07.6	SA Ex 07.6	SAR 07.6	SAR Ex 07.6
		SA Ex 07.6	SAREx 07.6		S2-15min	S2-15min	S4-25%	S4-25%
4		20-60 Nm	30-60 Nm		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				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	

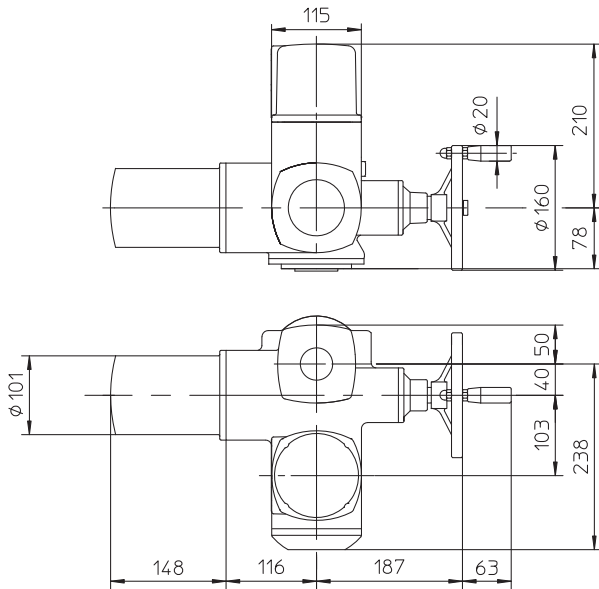
Accessories

- 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

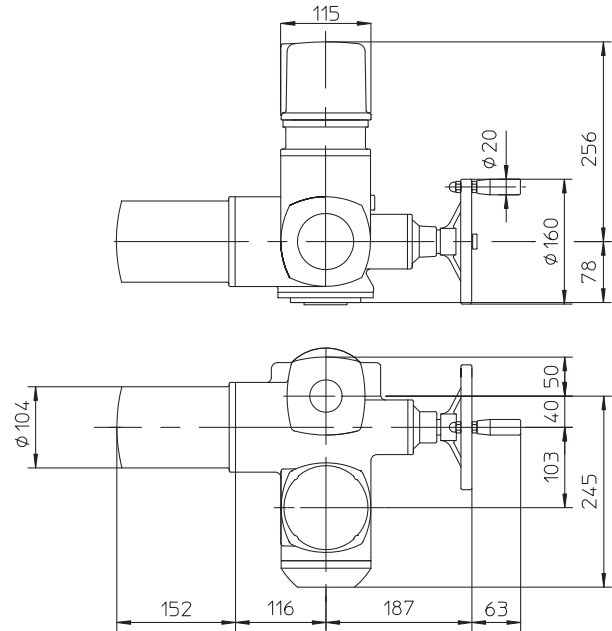
Other accessories acc. to catalogue of producer of actuators.

Dimensions of actuators Auma series 07.2 and 07.6

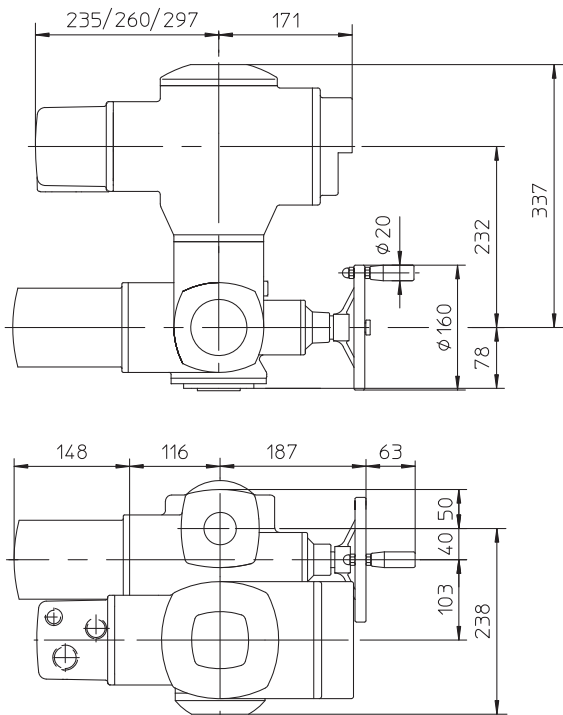
Normal version



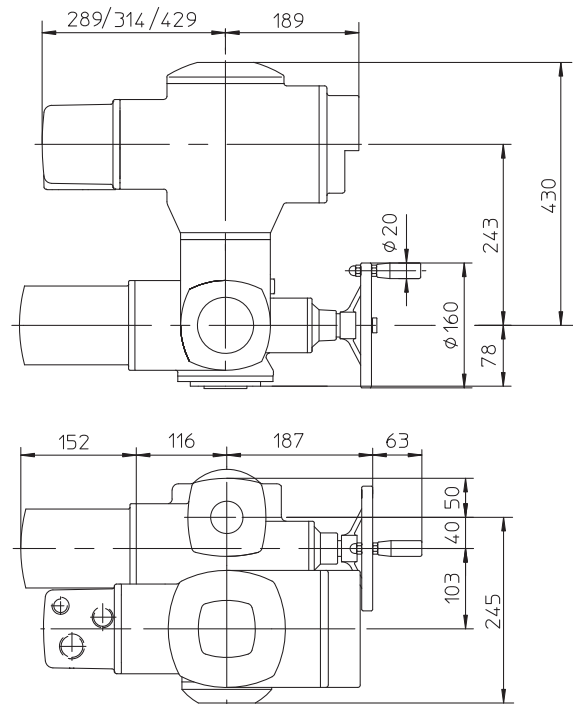
Version Ex norm



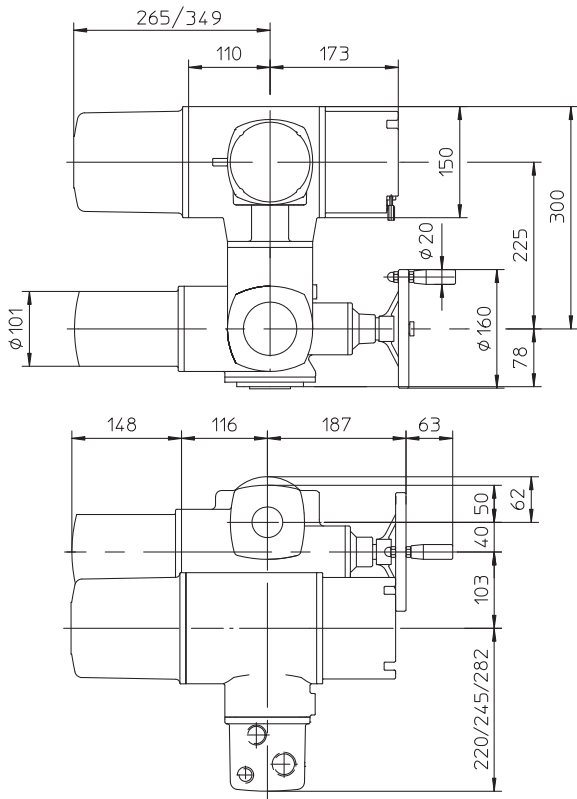
Version MATIC



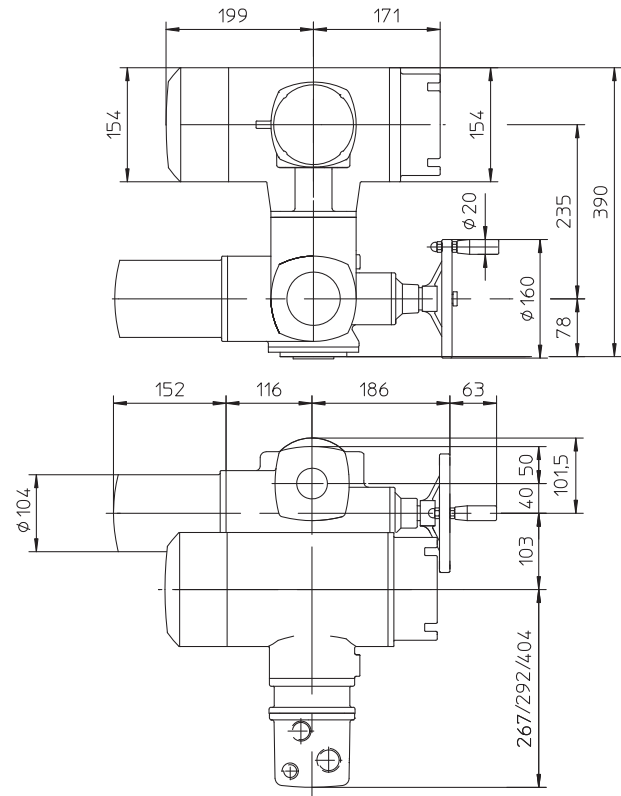
Version Ex MATIC



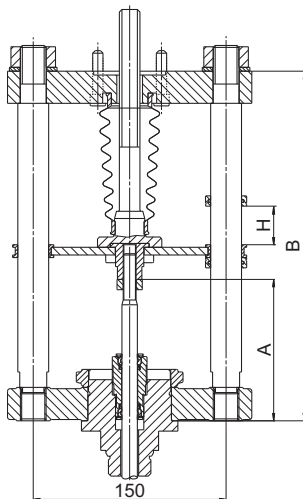
Version with AUMATIC



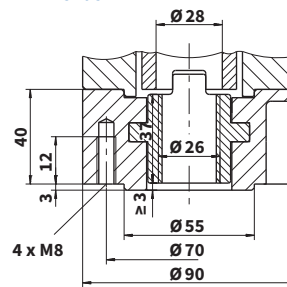
Version Ex AUMATIC



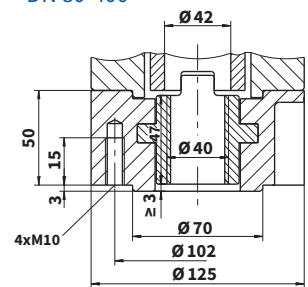
Attachment yoke (2 or 4 columns)



**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 temperature 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 website www.auma.com

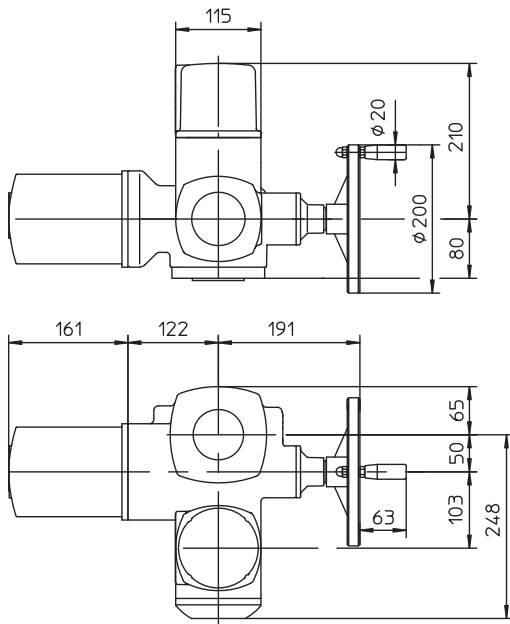
Specification of Auma actuators					SA	X	XX	10.2	
Type					SA				
Duty	control ON - OFF					R			
Version	standard non-explosive						Ex		
Actuator size								10.2	
Output drive shaft type A (thread TR 36x6 LH, flange F10) ... for RV 2xx DN 200 - 400									
Output speed [ot/min]	Tripping torque	SA 10.2	SAR 10.2	SA 10.2	SA Ex 10.2	SAR 10.2	SAR Ex 10.2	Motor power [kW]	
		SAEx10.2	SAREx10.2	S2-15min	S2-15min	S4-25%	S4-25%		
		40-120 Nm	60-120 Nm	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	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

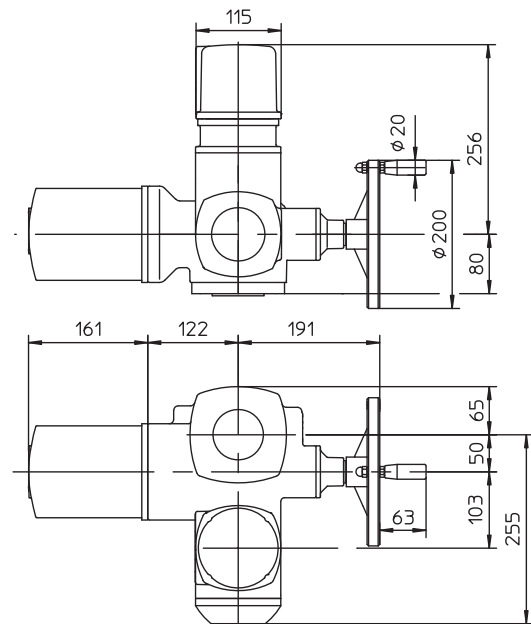
- 2 TANDEM switches
 - Gearing for signalisation of position
 - Mechanical position indicator
 - Potentiometer 1x200 Ω
 - MATIC - or continuous control (specification of accessories acc. to catalogue of producer: IP 67; -25 to +70°C; ...), weight + 7 kg
 - AUMATIC - or continuous control (specification of accessories acc. to catalogue of producer: IP 68; -25 to +70°C; ...), weight + 7kg
 - Other accessories acc. to catalogue of producer of actuators.
- 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

Dimensions of actuators Auma series 10

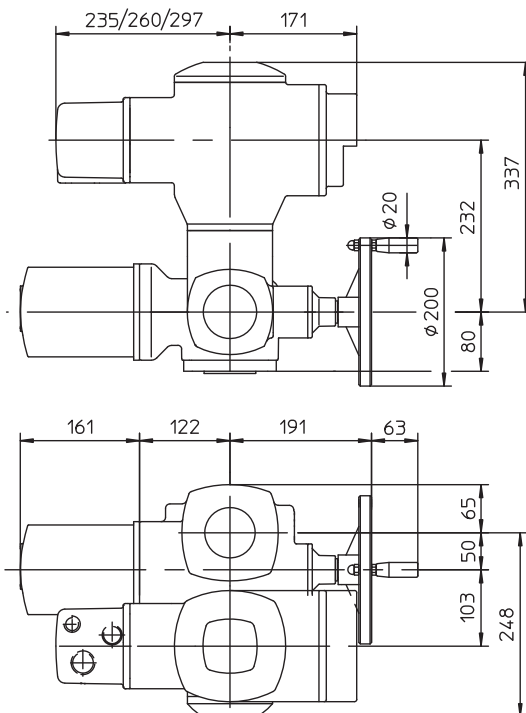
Normal version



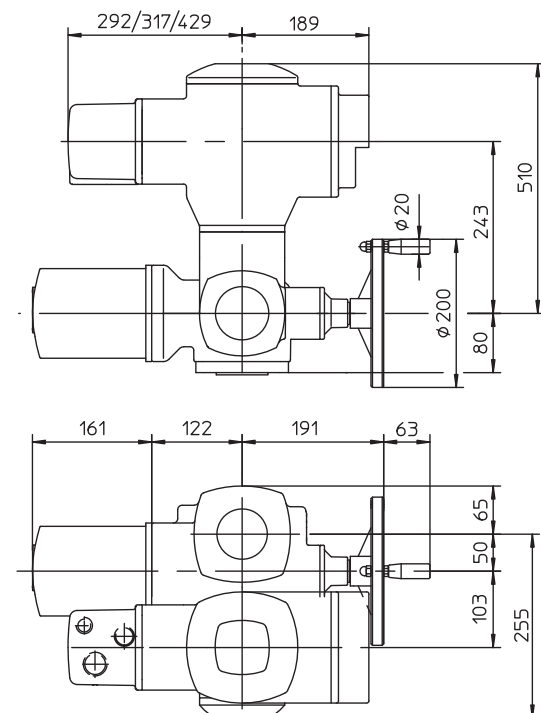
Ex norm version



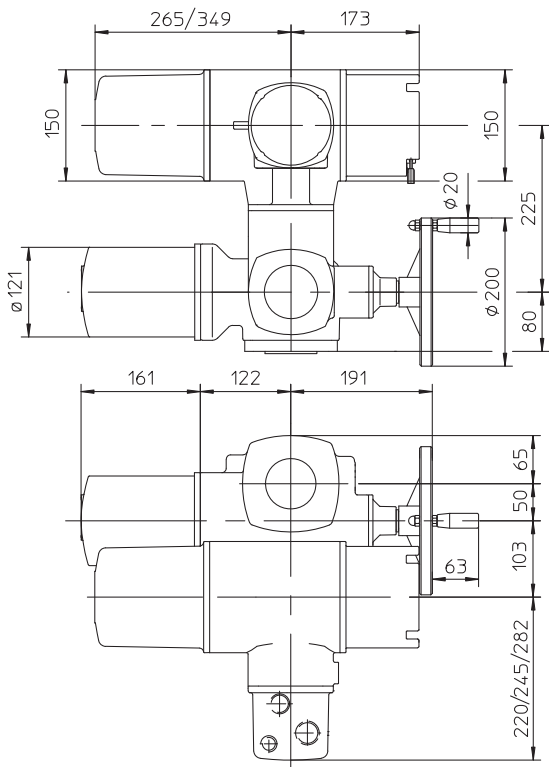
Version with MATIC



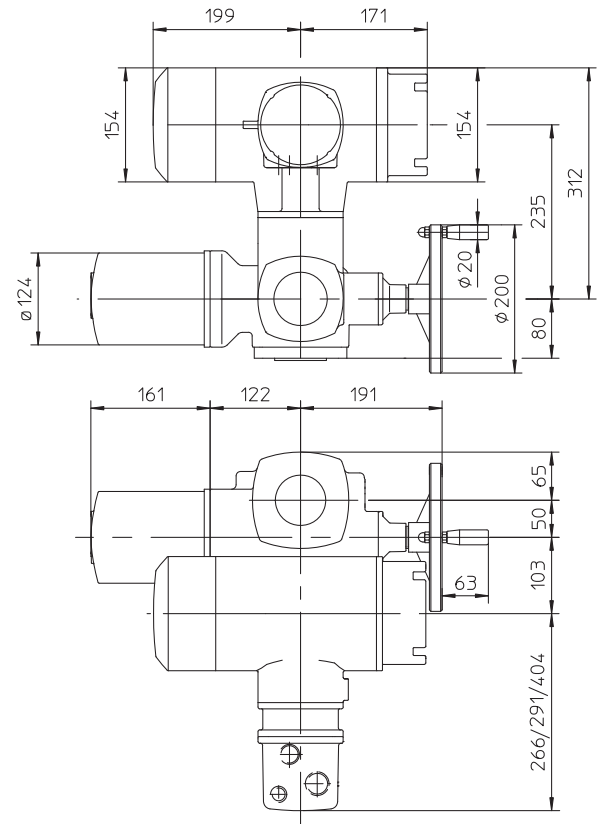
Version with Ex MATIC



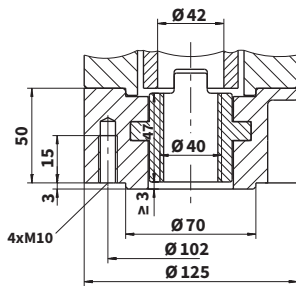
Version AUMATIC



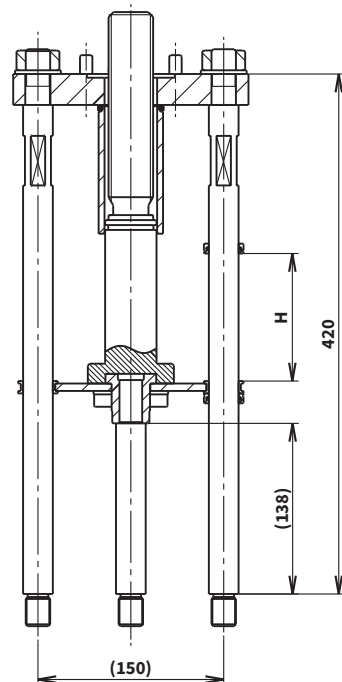
Version Ex AUMATIC



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**

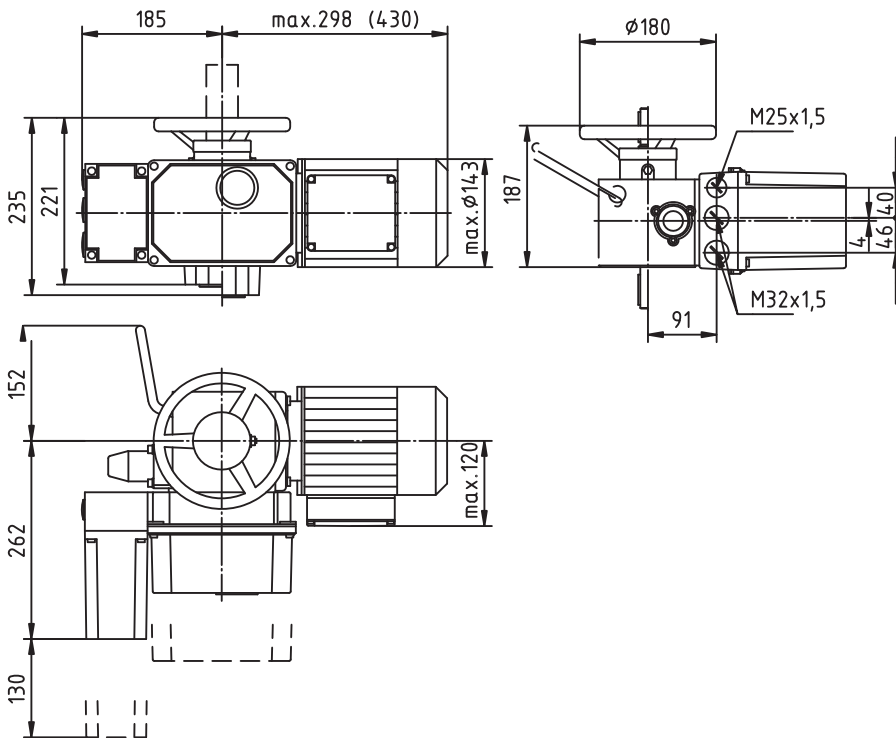
Technical data								
Type	AB3	AB5	exAB3	exAB5	rAB3	rAB5	exrAB3	exrAB5
Marking in valve spec. No.	EZA	EZE	EZB	EZF	Ezc	EzG	EzD	EzH
Voltage	400 / 230 V; 230 V		400 / 230 V		400 / 230 V; 230 V		400 / 230 V	
Frequency	50 Hz							
Power consumption	see specification table							
Control	3-position or with 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 temperature 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.

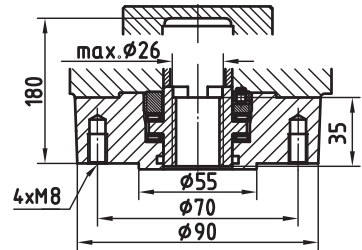
Detailed technical informations can be found in producer's data sheet or on the website www.schiebel.com

Specification of actuators											XX	X	AB3	A	X	+	XXXXX	
Version		non-explosive standard									ex							
Function		control ON - OFF										r						
Actuator size													AB3					
Output shaft type A (thread TR 16x4 LH, connection flange F07 ... DN 15 to 65)													AB5					
Output speed [ot/min]	Tripping torque	AB3 exAB3	rAB3 exrAB3	7 - 30 Nm	Motor power [kW]	AB3		rAB3		exAB3	exrAB3							
						400/230V	230V	400/230V	230V	400/230V	400/230V							
						0,09	0,09	0,09	0,09	0,09	0,09					2,5		
						0,03	0,12	0,03	0,12	0,12	0,12					5		
						0,09	0,09	0,09	0,09	0,09	0,09					7,5		
						0,09	0,09	0,09	0,09	0,09	0,09					10		
						0,18	0,09	0,09	0,18	0,09	0,09					15		
						0,18	0,18	0,09	0,37	0,09	0,09					20		
						0,18	0,25	0,18	0,25	0,37	0,18					30		
0,18	0,25	0,18	0,55	0,37	0,18	40												
Output speed [ot/min]	Tripping torque	AB5 exAB5	rAB5 exrAB5	7-60 Nm	Motor power [kW]	AB5		rAB5		exAB5	exrAB5							
						400/230V	230V	400/230V	230V	400/230V	400/230V							
						0,09	0,09	0,09	0,09	0,09	0,09					2,5		
						0,06	0,12	0,06	0,12	0,12	0,12					5		
						0,09	0,09	0,09	0,18	0,09	0,09					7,5		
						0,09	0,18	0,09	0,37	0,09	0,09					10		
						0,18	0,18	0,18	0,37	0,18	0,18					15		
						0,18	0,55	0,18	0,75	0,18	0,18					20		
						0,37	0,55	0,37	1,10	0,37	0,37					30		
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

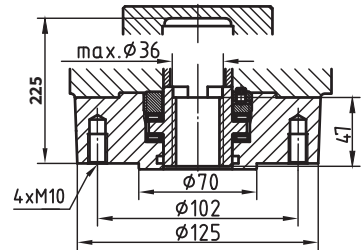
Dimensions of actuators ...AB5



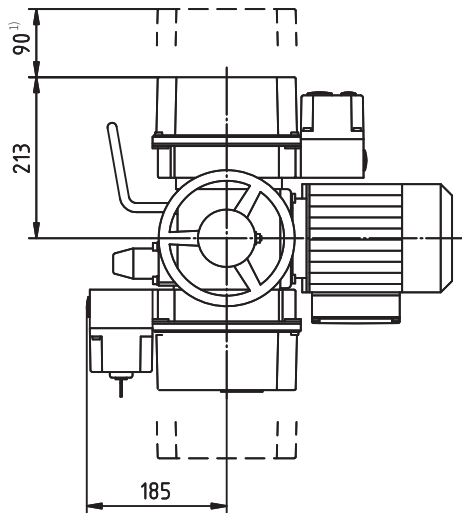
Output drive shaft A, flange F07



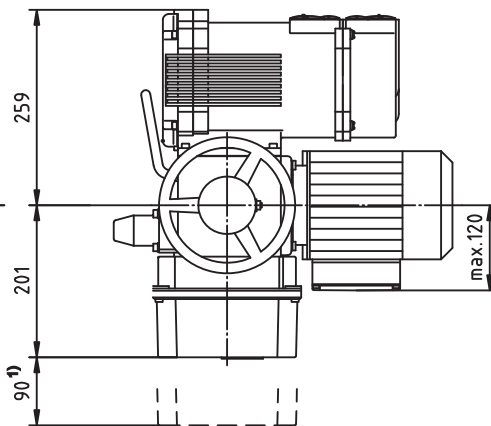
Connection acc. to ISO 5210, output drive shaft A, F10



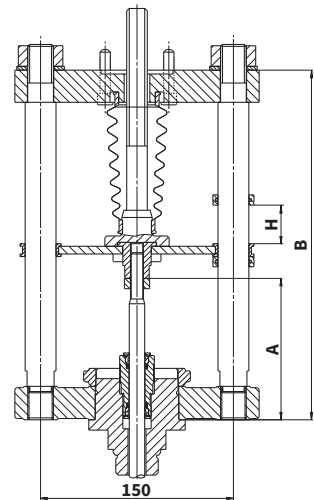
With ACTUMATIC R position regulator



With SMARTCON control unit



Attachment (2 or 4 columns)



For valves	Number of columns	A	B	Weight
DN 15 - 150	2	110	272	~ 8 kg
DN 200 - 400	4	140	420	~ 15 kg



Electric actuators **Schiebel**

AB8

marking in type number:

EZK, EZL

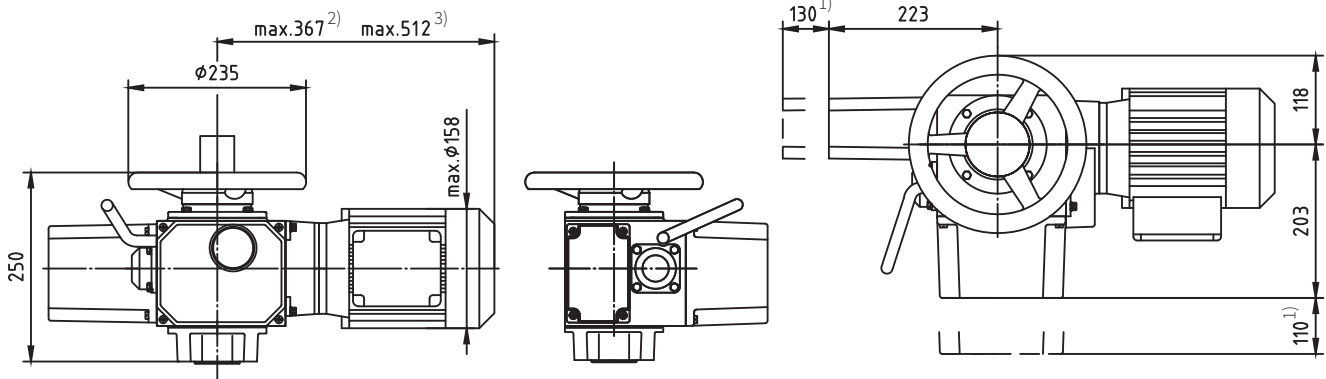
Technical data		
Type	rAB8	exrAB8
Marking in valve spec. No.	EZK	EZL
Voltage	400 / 230 V; 230 V	400 / 230 V
Frequency	50 Hz	
Power consumption	see specification table	
Control	3-position or with signal 4 - 20 mA	
Nominal force	(Tr 36x6 LH) 80 Nm ~ 21,6 kN; 100 Nm ~ 27 kN; 120 Nm ~ 32 kN	
Travel	80, 100 mm	
Enclosure	IP 66	IP 65
Process medium max. temp.	acc. to used valve	
Ambient temperature 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.

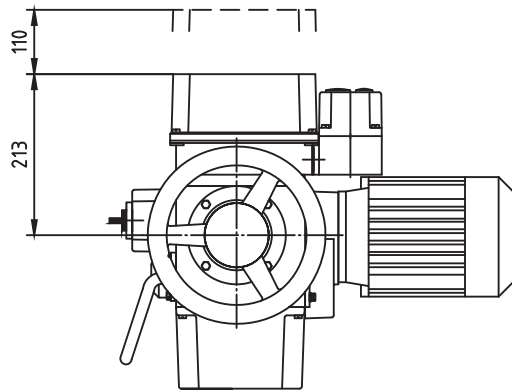
Detailed technical informations can be found in producer's data sheet or on the website www.schiebel.com

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 torque	rAB8		rAB8		Motor power [kW]				
				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 Double potentiometer 2 x 1000 Ω Electronic transmitter 4 - 20 mA, 2-wire Electronic transmitter 4 - 20 mA, 2-wire, opto-electronic SMARTCON control unit Additional torque switches Additional signalisation switches									F FF ESM21 CMR CSC 2DER 2DEL 2WER 2WEL

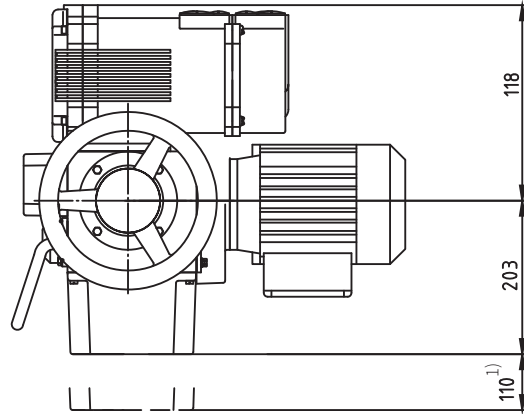
Dimensions of actuators ...AB8



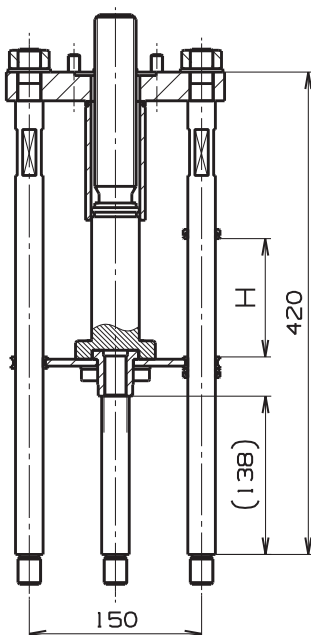
With ACTUMATIC R position regulator



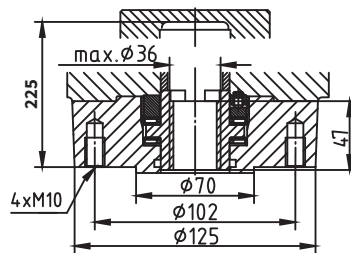
With SMARTCON control unit

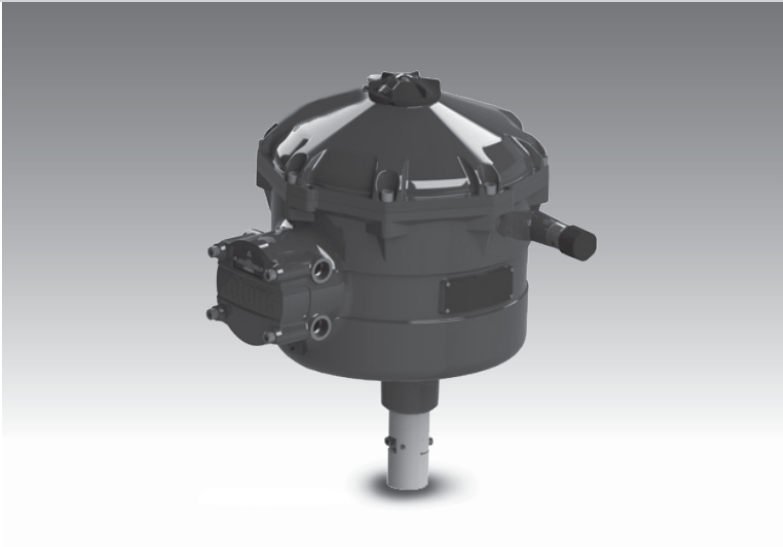


Attachment yoke DN200-400 Connection A, F10, Tr36x6-LH



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





Electric actuators

Rotork

CVL

marking in type number:

EQL

Technical data				
Type	CVL-500 (Ex)	CVL-1000 (Ex)	CVL-1500 (Ex)	CVL-5000 (Ex)
Marking in valve spec. No.	EQL			
Voltage	Electric actuator (optionally with safety function)			
Frequency	230V AC, 24V DC			
Power consumption	50 Hz			
Control	4 - 20 mA			
Nominal force	4 - 20 mA			
Travel	6,35 mm/s	2,54 mm/s	2,54 mm/s	2,54 mm/s
Enclosure	max. 6 s	max. 20 s	max. 20 s	max. 45 s
Process medium max. temp.	30 s	100 s	100 s	300 s
Ambient temperature range	Adjustable function direct (NO) / indirect (NC)			
Ambient humidity range	2 kN	4 kN	6,3 kN	16 and 20 kN
Stroke	16, 25 mm	16, 25 mm	16, 25, 40 mm	40, 80, 100 mm
Enclosure	IP 68			
Process medium max. temp.	acc. to used valve			
Ambient temperature range	-30 to 70°C (for low temperatures -40 to 60°C) version Ex -20 to 60°C (for low temperatures -40 to 60°C)			
Handle	optional accessories			
Weight	16 kg	24 kg	24 kg	53 kg

Optional accessories	
Safety function	configurable fail-to-position option using supercapacitor technology
HART	digital communication protocol
Foundation Fieldbus	digital communication options
Profibus DP	digital communication options
Pakscan P3	digital communication options / 2-wire system
Modbus	digital communication options
RIRO	digital communication options

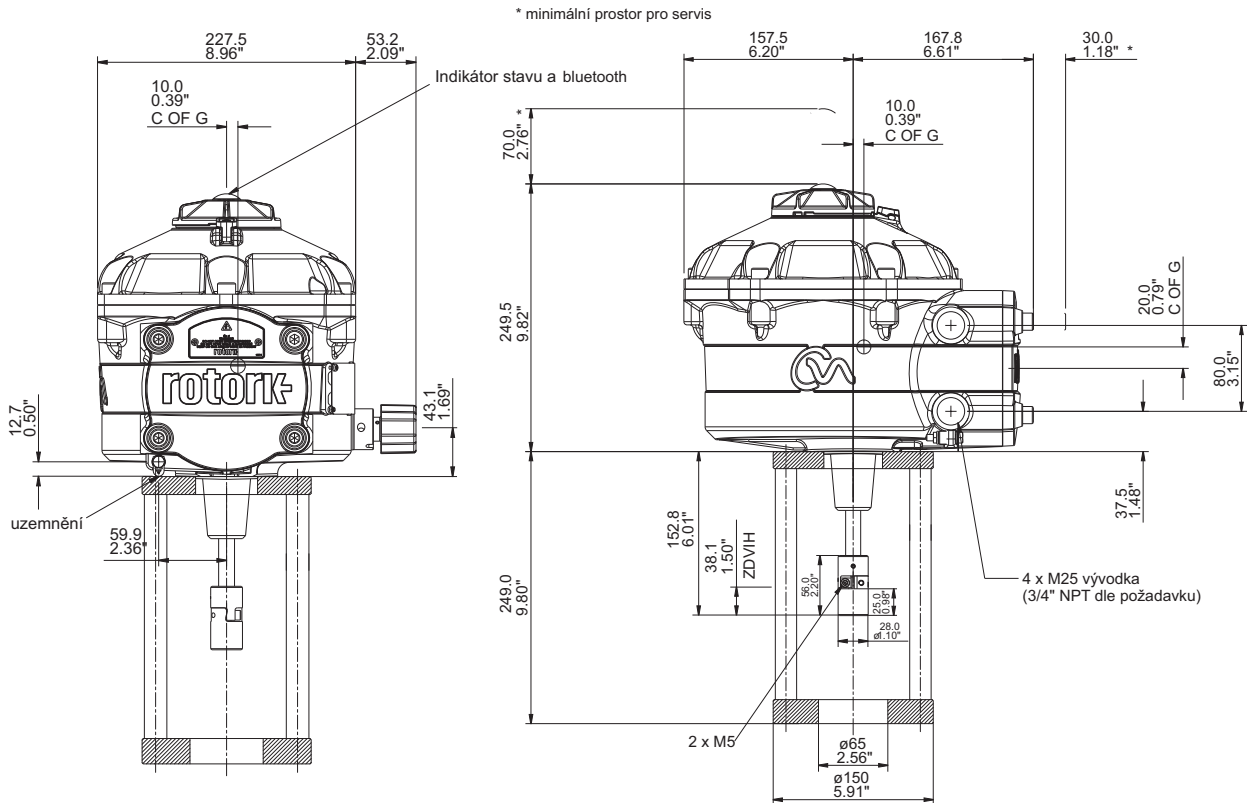
I/O parametersation

CVA direction to open / close and action on loss signal can be user configured
independent open/close settings for thrust/torgue force applied and valves seating action are available

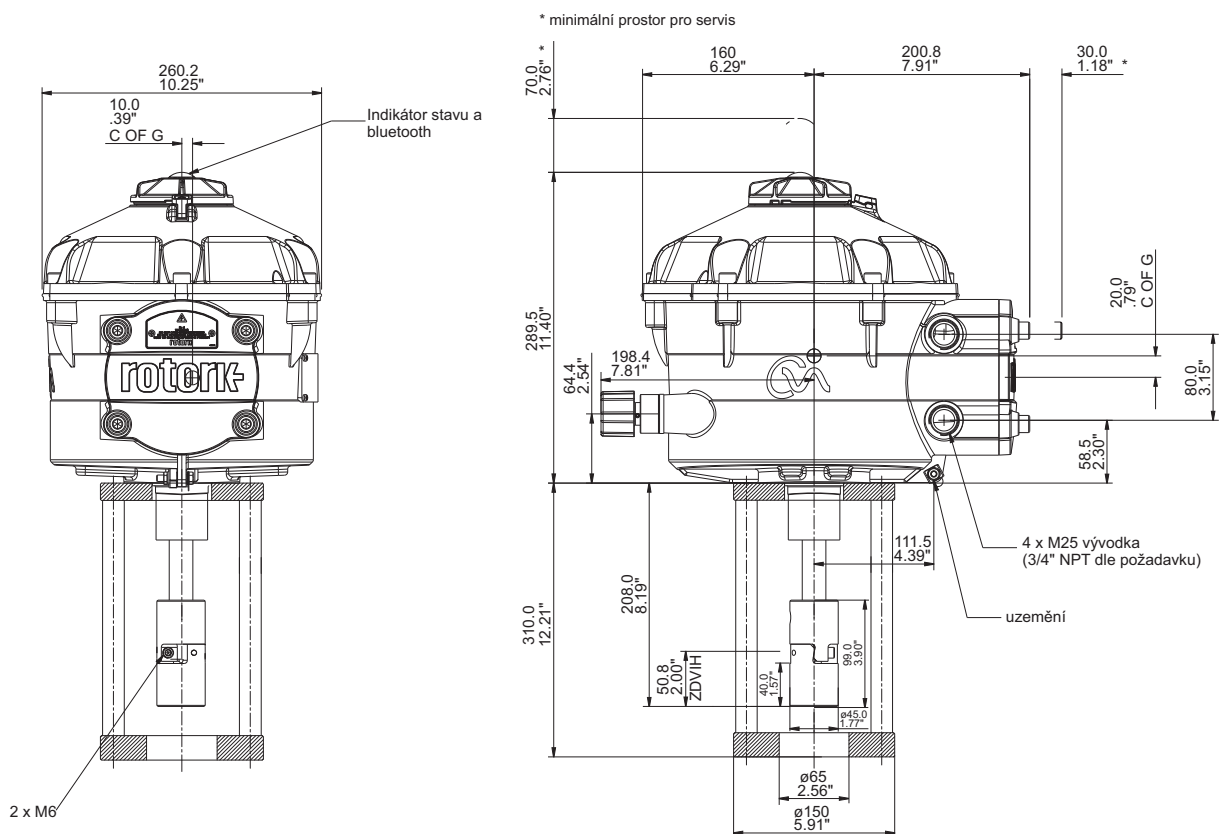
→ **Note:** Specifications and technical data are for information only.
Detailed technical informations can be found in producer's data sheet or on the website www.rotork.com

Dimensions of actuators

CVL-500 (Ex)

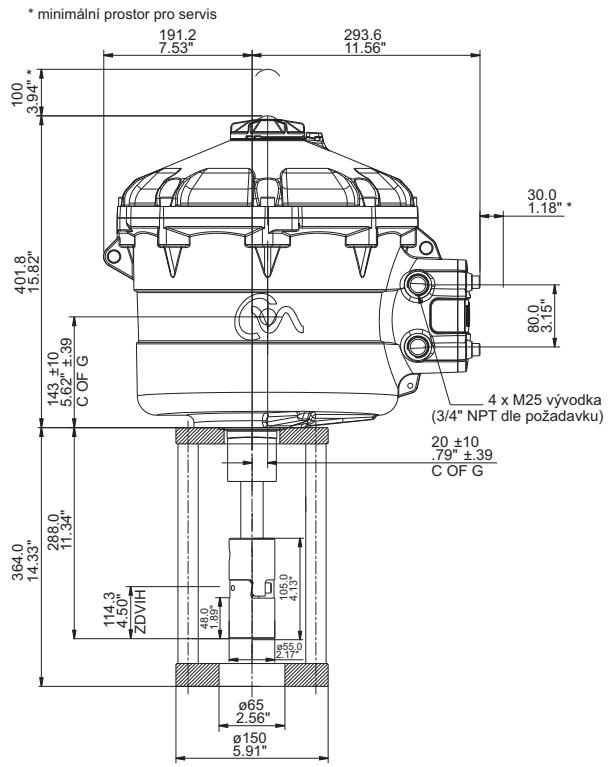
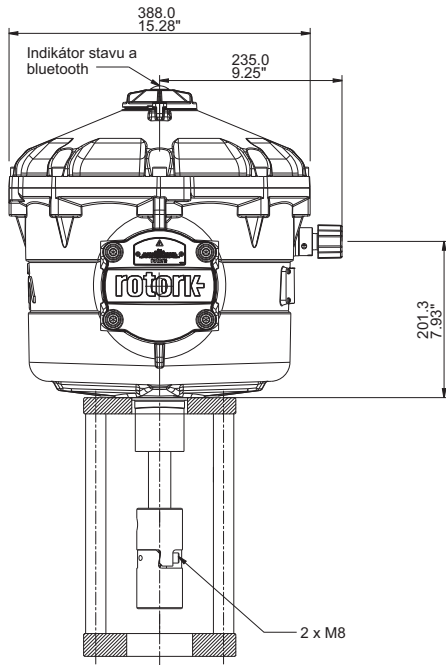


CVL-1000 (Ex), CVL-1500 (Ex)

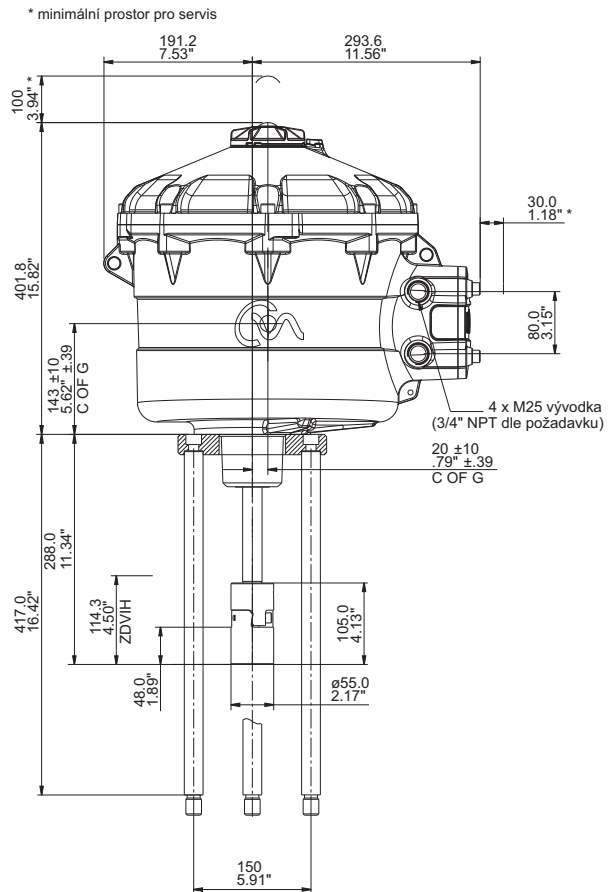
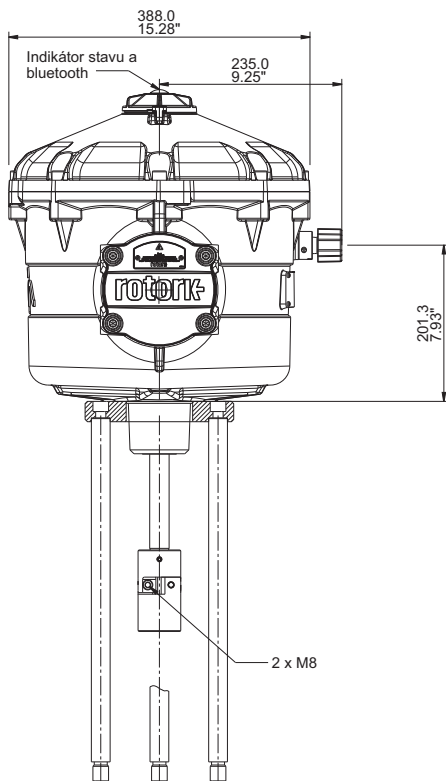


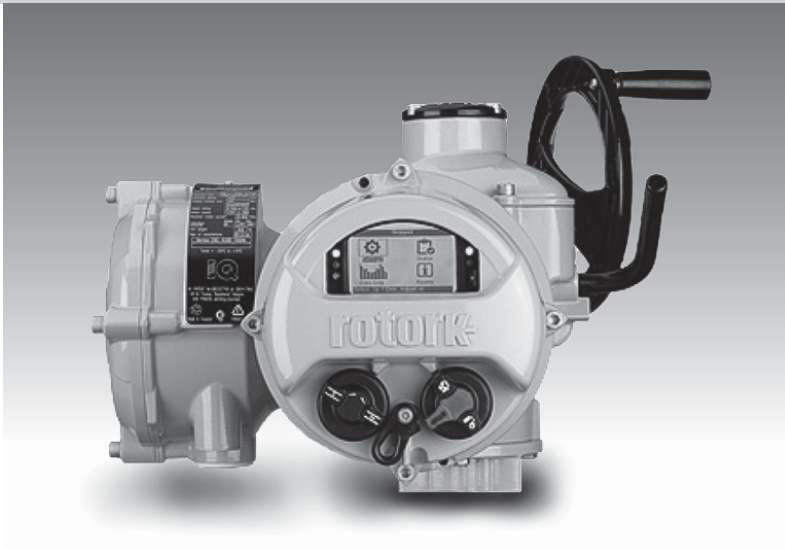
Dimensions of actuator

CVL-5000 (Ex), DN 80 - 150



CVL-5000 (Ex), DN 200 - 400





Electric actuators

Rotork

IQM 10
IQM 12
Ex IQM 10
Ex IQM 12

marking in type number:

EQA, EQB

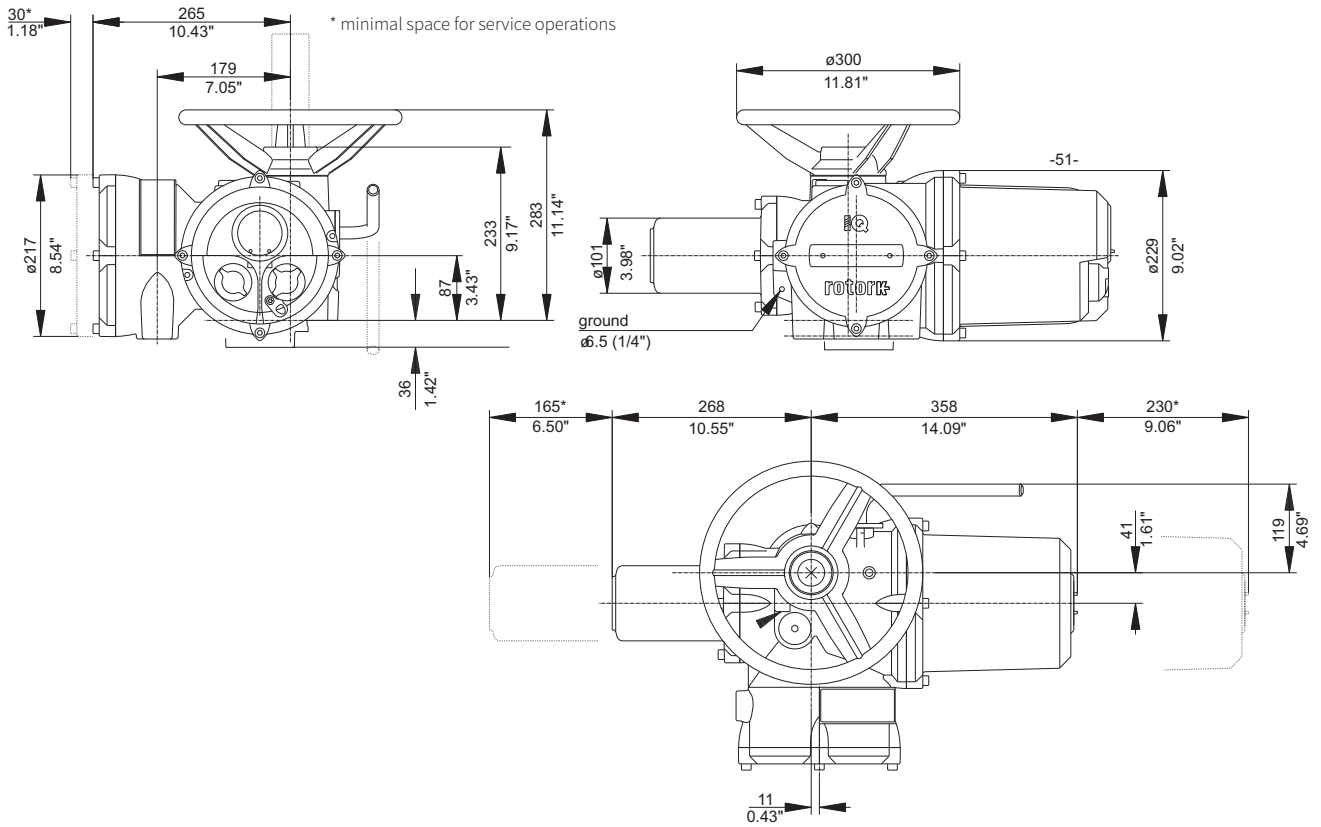
Technical data				
Type	IQM 10	IQM 12	Ex IQM 10	Ex IQM 12
Marking in valve spec. No.	EQA		EQB	
Voltage	Electric multi-turn actuator (3.d generation)			
Frequency	3-phase, 380 or 400V AC			
Power consumption	50 Hz			
Control	4 - 20 mA			
Nominal force	10 Nm~5 kN, 15 Nm~7.5 kN, 20 Nm~10 kN, 30 Nm~15 kN, 40 Nm~20 kN			
Travel	acc. to valve stroke 16, 25, 40 mm			
Enclosure	IP 68			
Process medium max. temp.	acc. to used valve			
Ambient temperature range	-30 to 70°C		-20 to 70°C	
Ambient humidity range	(optional -40 to 70°C, -50 to 40°C)		(optional -40 to 70°C, -50 to 40°C)	
Weight	31 kg			

Optional accessories
4x configurable volt free latching contacts - S1 to S4.
Selectable volatage of these contactts between 24 V DC and 120 V AC
Analogue control of Folomatic module 0 - 5 / 10 / 20 mA
Current position transmmitter CPT 4-20 mA
Interrupter timer (pulsed operation indep. adjustable on and of time periods in range 1 - 99 s (opening / closing valve stroke)
HART - digital communication protocol
Foundation Fieldbus - digital communication protocol
Profibus DP - digital communication protocol
Pakscan P3 - digital communication protocol / 2-wire system
Modbus - digital communication protocol

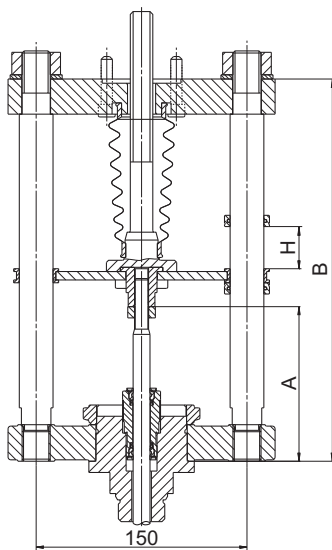
→ **Note:** Specifications and technical data are for information only.
 Detailed technical informations can be found in producer's data sheet or on the webside www.rotork.com

Dimensions of actuator

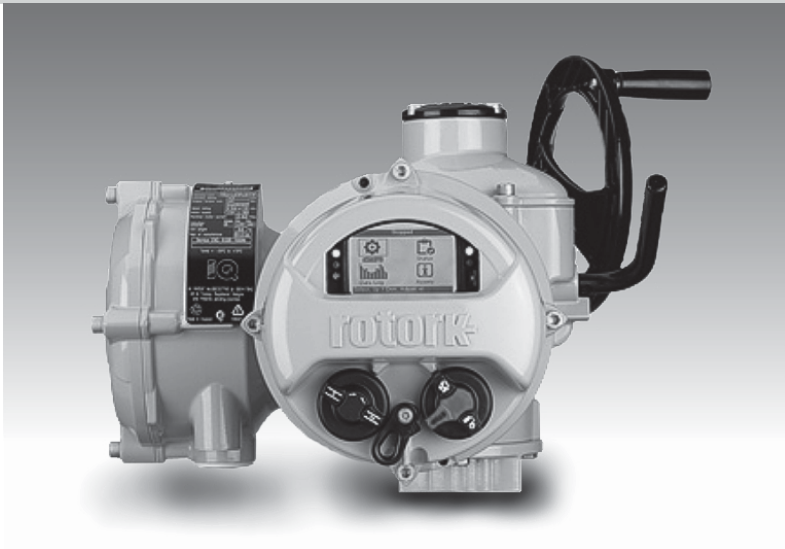
IQM 10, IQM 12, Ex IQM 10, Ex IQM 12



Attachment yoke (2 or 4 columns)



For valves	No. of columns	A	B	Weight
DN 15 - 150	2	110	272	~ 8 kg
DN 200 - 400	4	140	420	~ 15 kg



Electric actuators

Rotork

IQM 20
Ex IQM 20

marking in type number:

EQD, EQE

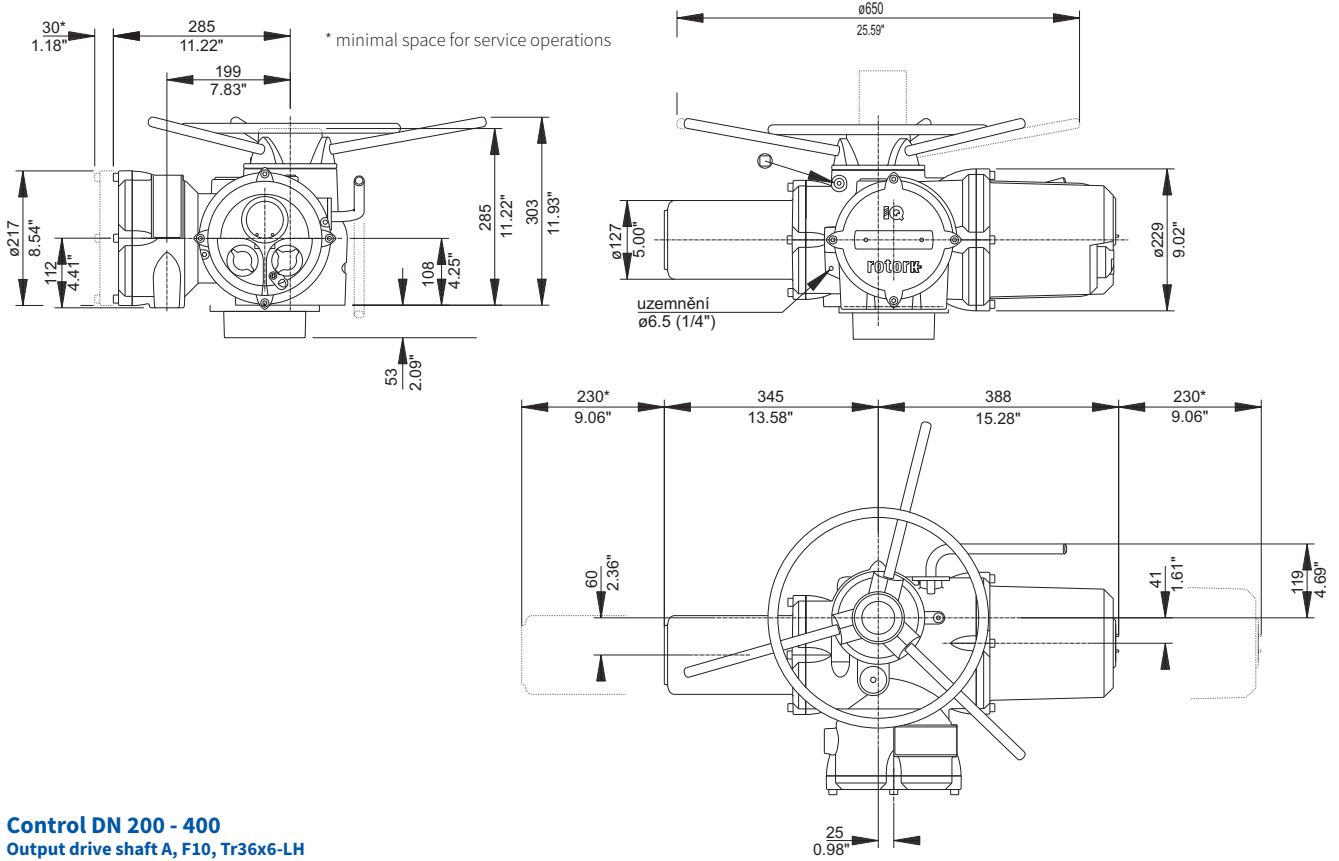
Technical data		
Type	IQM 20	Ex IQM 20
Marking in valve spec. No.	EQD	EQE
Voltage	Electric multi-turn actuator (3.d generation)	
Frequency	3-phase, 380 or 400V AC	
Power consumption	50 Hz	
Control	4 - 20 mA	
Nominal force	80 Nm~21,6 kN, 100 Nm~27 kN, 120 Nm~32 kN	
Travel	acc. to valve stroke 80, 100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

Optional accessories
4x configurable volt free latching contacts - S1 to S4.
Selectable volatage of these contactts between 24 V DC and 120 V AC
Analogue control of Folomatic module 0 - 5 / 10 / 20 mA
Current position transmmitter CPT 4-20 mA
Interrupter timer (pulsed operation indep. adjustable on and of time periods in range 1 - 99 s (opening / closing valve stroke)
HART - digital communication protocol
Foundation Fieldbus - digital communication protocol
Profibus DP - digital communication protocol
Pakscan P3 - digital communication protocol / 2-wire system
Modbus - digital communication protocol

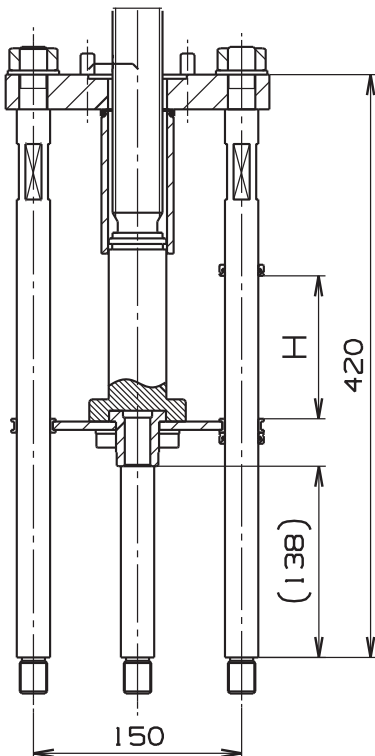
→ **Note:** Specifications and technical data are for information only.
Detailed technical informations can be found in producer's data sheet or on the webside www.rotork.com

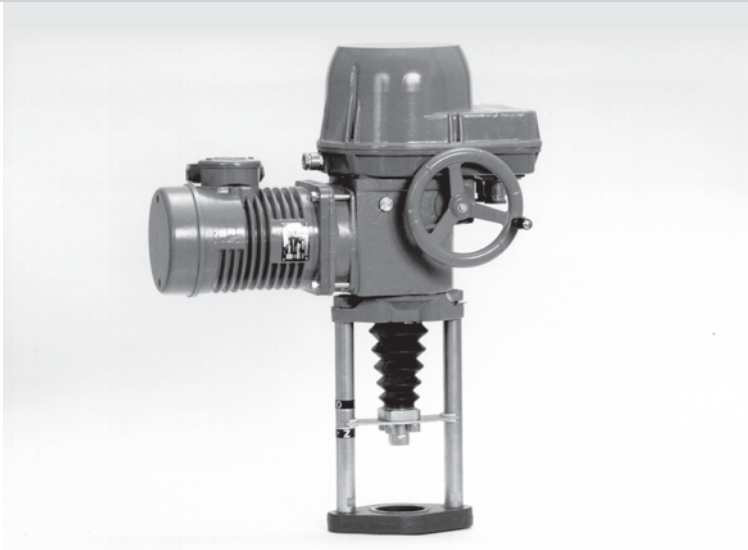
Dimensions of actuator

IQM 20, Ex IQM 20



Control DN 200 - 400 Output drive shaft A, F10, Tr36x6-LH





Electric actuator **Regada**

Modact MTR

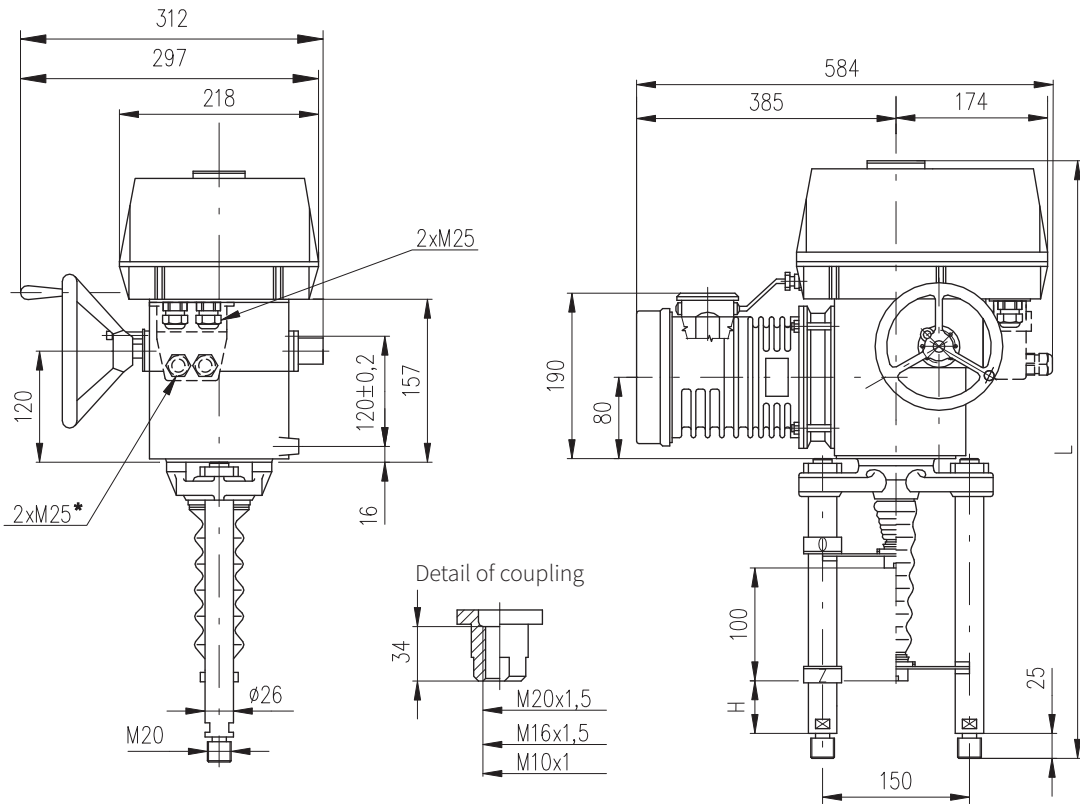
marking in type number:

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 temperature 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 website www.regada.sk

Dimensions of actuator Modact MTR



*only execution with connector

Columns version	with acme thread		Columns version	with ball bolt		For valves
	H	L		H	L	
P-1045b/B	74	622	P-1045b/E	74	646	DN15-150
P-1045b/C	130	680	P-1045b/H	130	702	DN200-400

Specification of Modact MTR

Electric motor linear MTR				52 420.			X	-	X	X	X	X	X	X	/	X	X							
Climatic resistance	Standard	-25°C to +55°C	Enclosure IP 55	0																				
	Tropical	-25°C to +55°C	Enclosure IP 67	1																				
			Enclosure IP 67	6																				
Electric connection				Voltage																				
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	Speed	Current																		
trapézové	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																				
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																		
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						0 - 20 mA														Q			
	Without power supply						4 - 20 mA															T		
	With power supply						0 - 20 mA															U		
	Without power supply	3-wire	—	—	—	—	—	4 - 20 mA											V					
	With power supply							0 - 5 mA															W	
	Without power supply							4 - 20 mA																Y
	With power supply							0 - 5 mA																Z
Capacitive CPT	Without power supply	2-wire	—	—	—	—	4 - 20 mA											I						
	With power supply																					J		
Mechanical connection	Connection height / stroke	Pillar spacing / Bore of flange	Thread of stem ³⁾	Dimensional drawing																				
Columns	130	150 / —	M20x1.5 M16x1.5	P-1045b/B; P-1045b/E P-1045b/C; P-1045b/H														B C						
Additional equipment																								
	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 torque 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:

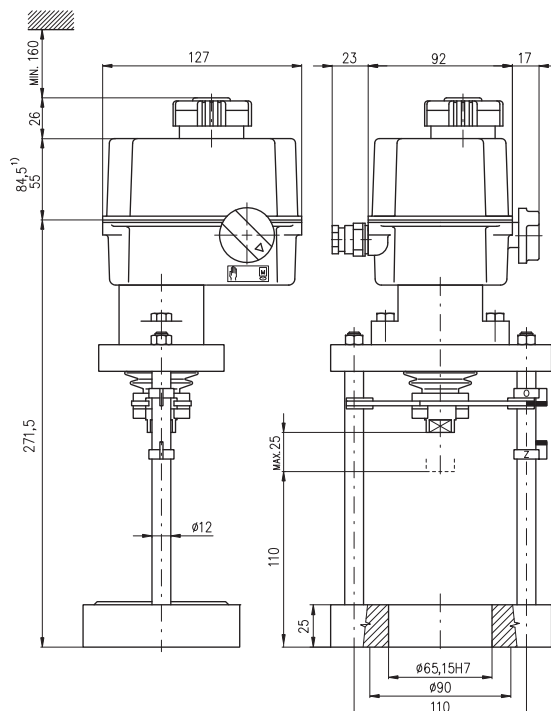
EPK

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 temperature range	-25 to 55 °C
Ambient humidity range	5 - 100% s kondenzací
Weight	2,5 to 4,5 kg

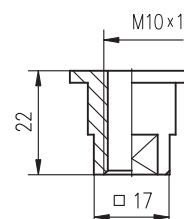
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the website www.regada.sk

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	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																			
					20 mm																			
Remote position transmitter	Without transmitter														A									
	Resistance		Single		1 x 100 Ω										B									
					1 x 2000 Ω								F											
	Electronic - current (without generator)		Wiring	Output	2-wire	4 - 20 mA										S								
					2-wire ⁶⁾	0 - 20 mA								Q										
3-wire ⁶⁾					4 - 20 mA								T											
															U									
																V								
																W								
Mechanic connection - flange, connection height 110 mm, thread on con. stem M10x1																	L							
Accessories		2 auxiliary position switches ⁷⁶⁾																					0	0

Notes:

⁶⁾ applies for version without regulator

¹⁶⁾ the feedback to the regulator is realized by a resistance transmitter (without specifying a code when selecting a transmitter)

³⁷⁾ applies for temperature range -15 to +55°C and voltage $U_n -5\%$ to $U_n +10\%$

⁷⁶⁾ it is not possible to specify 2 auxiliary position switches (S5, S6) in the version with regulator and transmitter



Electric actuators **Regada**

STR OPA

marking in type number:

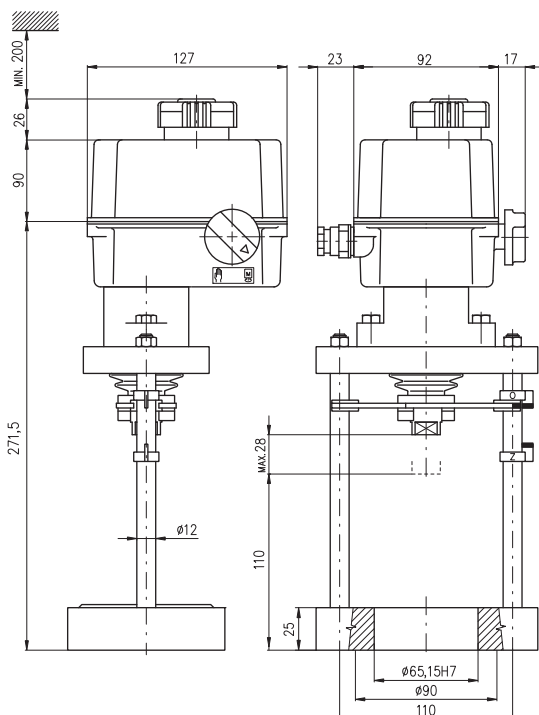
EPK

Technical data

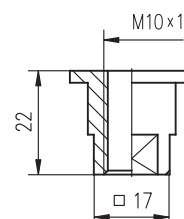
Type	STR OPA
Marking in valve spec. No.	EPK
Voltage	230 V AC, 24 V AC
Frequency	50 Hz
Power consumption	1 W
Control	3-position (0 - 10 V, (0)4 - 20 mA)
Nominal force	2,4 kN and 4,5 kN
Travel	10 to 28 mm
Enclosure	IP 67
Process medium max. temp.	acc. to used valve
Ambient temperature range	-25 to 55 °C
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 website www.regada.sk

Dimensions of actuator



Detail of coupling



Specifikace pohonu STR OPA

Electric servomotor STR OPA						430.	X	-	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	ON - OFF and pulse	24 V DC	Output	4 - 20 mA passive									G									
				0/2 - 10 V												H										
Mechanic connection - flange, connection height 110 mm, thread of stem M10x1																							L			
Accessories		Without accessories																								
		Setting the stroke position to the desired value																							0	1

Electric servomotor ST 0, STR 0						490.	X	-	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			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

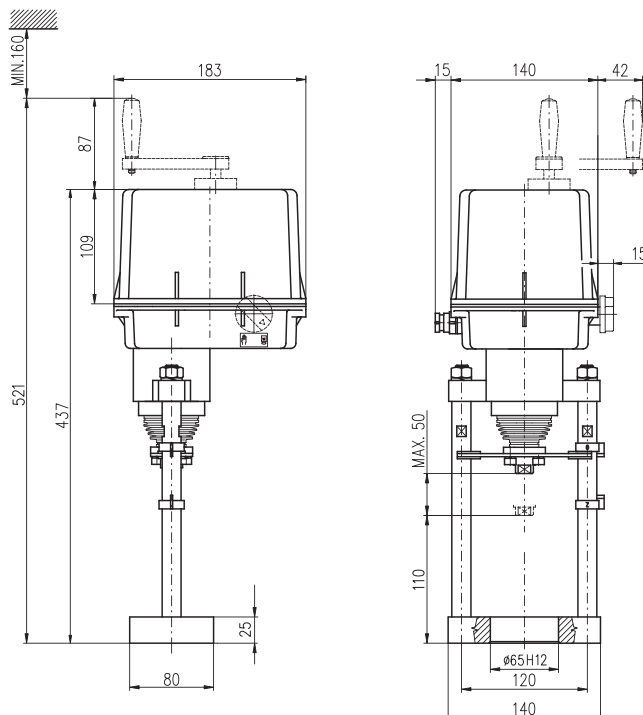
marking in type number:

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 temperature 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 website 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	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	With regulator (STR 0.1)		6																
	Standard	-25°C to +55°C	IP 65		Resistance feedback	A																
		IP 65	Resistance feedback		C																	
			IP 67	Resistance feedback	G																	
	Tropicak	-25°C to +55°C	IP 67	Resistance feedback	J																	
Electric connection		To terminal board			Voltage	24 V DC											A					
		To connector				230 V AC	0															
						24 V AC											3					
						3x400 V AC ⁶⁾											9					
						3x380 V AC ⁶⁾											M					
						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	
	7200		40 mm/min																			K
			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				
	Double ⁶⁾		---		1 x 2000 Ω														F			
Electronic - current	without its source	3-wire ⁶⁾	2-wire	4 - 20 mA	2 x 100 Ω													K				
			2-wire ⁶⁾		2 x 2000 Ω													P				
	with its source		0 - 20 mA																	S		
			4 - 20 mA																	Q		
Capacity	wo its source	2-wire ⁶⁾	2-wire	4 - 20 mA														T				
	with its source																		U			
																		V				
																		W				
																		I				
																		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				
	B Without space heater																	0				
	C Space heater without terminal switch																	3				
	D Manual control without permanent readiness																	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 transmitter for version with 2 auxiliary position switches



Electric actuators **Regada**

STR 0.1PA

marking in type number:

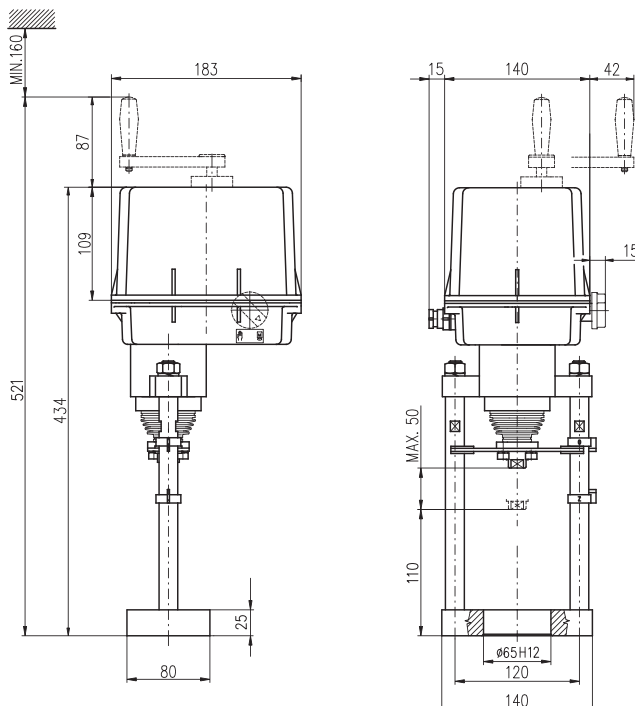
EPL

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 temperature 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 website 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	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														
		7200		Running speed		10 mm/min										K												
						16 mm/min								T														
						25 mm/min								U														
						32 mm/min								V														
Stroke		10-50 mm												W														
				40 mm/min								Y																
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, 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:

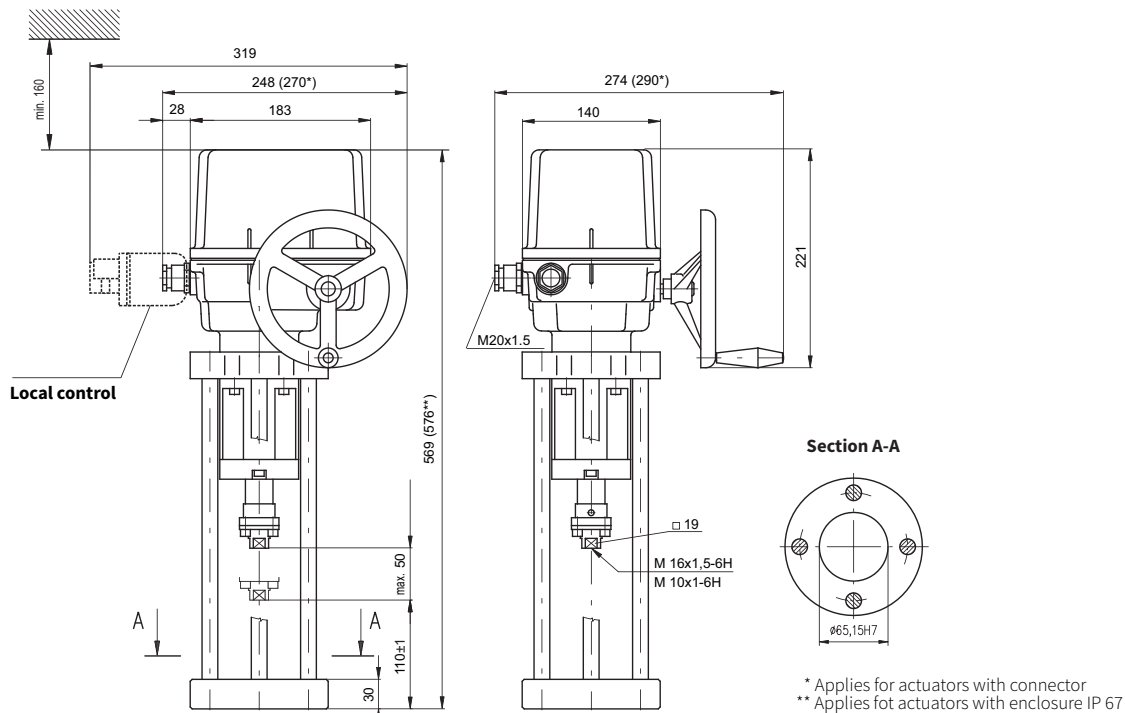
EPI

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 temperature 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 website www.regada.sk

Dimensions of actuator



Specification of actuators ST 1, STR 1

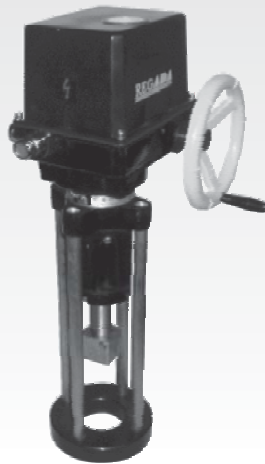
Electric servomotor ST 1, STR 1						491.	X	-	X	X	X	X	X	X	/	X	X							
Climatic resistance	Standard	-25°C to +55°C	IP 65	Without regulator (ST 0.1)		0																		
			IP 67				1																	
	Tropical	-25°C to +55°C	IP 67				6																	
	Universal	-50°C to +40°C	IP 67			8												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

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 transmitter for version with 2 auxiliary position switches



Electric actuators **Regada**

STR 1PA

marking in type number:

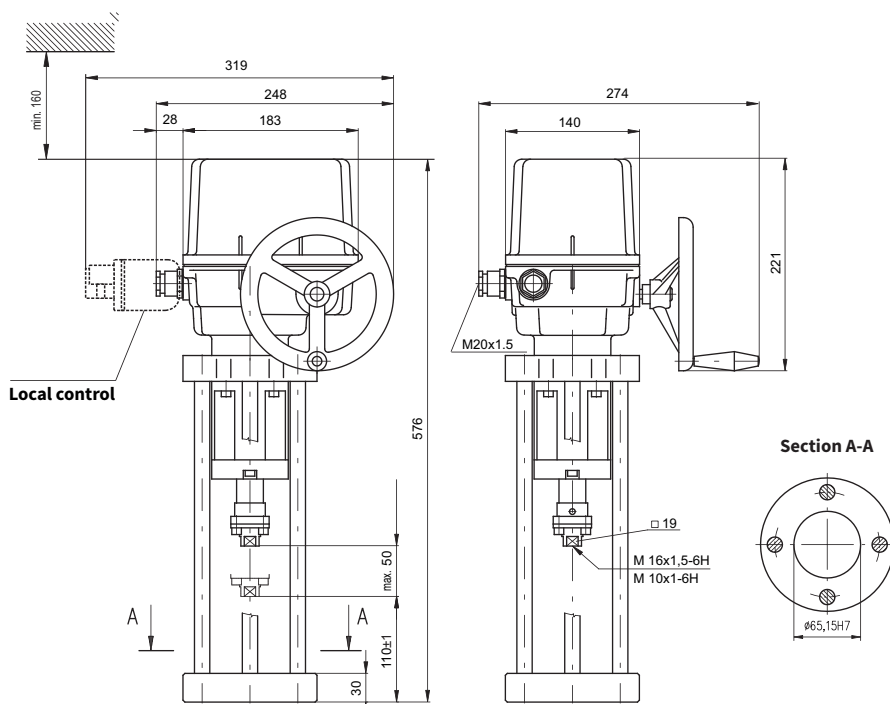
EPI

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 temperature 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 website 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														
	7500		32 mm/min				2														
			20 mm/min				6														
Stroke		10-50 mm																			
Control board	DMS3	Control	Modulating	0/4 - 20 mA	ON - OFF	24 V DC	Output	4 - 20 mA pasive													
				0/2 - 10 V	and pulse																
Mechanical connection - flange, connection height 110 mm, thread on con. stem M10x1 or M16x1,5																					
Accessories		Without accessories																			
		A Setting the stroke position to the desired value																			0 1
		D Auxiliary relay module R3, R4, R5 (module DMS3 RE3)																			0 5
		E Auxiliary relay module R1, R2, R3, R4, R5, READY (module DMS3 RE6)																			0 6
		F Local control for actuators with system DMS3 and LCD																			0 7

Permissible combinations of accessories and codes:

A+D=22, A+E=23, A+F=24, D+F=40, E+F=44, A+D+F=63, A+E+F=67



Electric actuators **Regada**

ST 1-Ex

marking in type number:

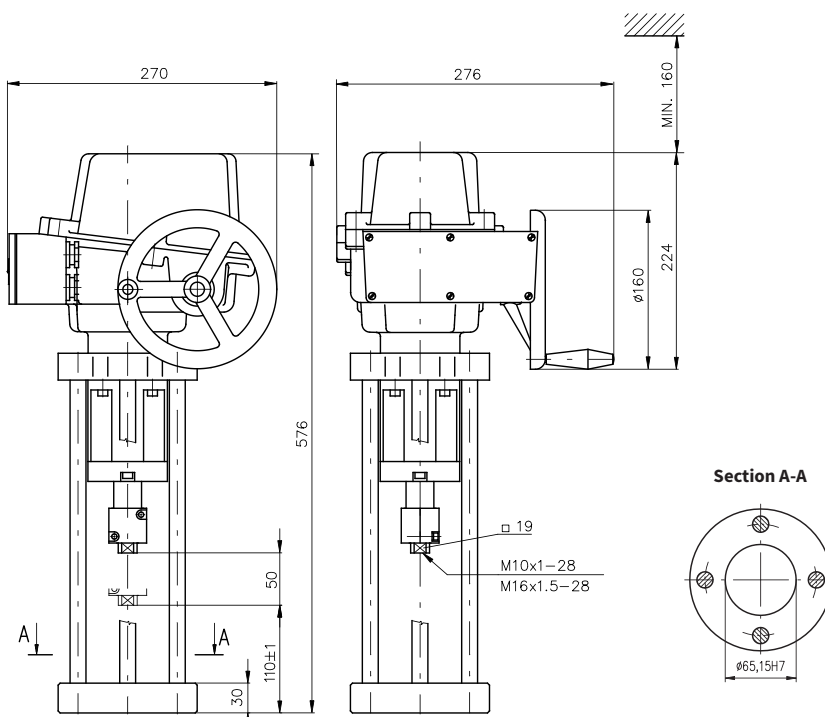
EPJ

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 temperature 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 website 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						
	Universal	-50°C to +40°C				Current feedback	IP 67	D						
						Resistance feedback	IP 67	K						
						Current feedback	IP 67	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						
	8600 N			20 mm/min				6						
	5800 N			40 mm/min				7						
Maximal stroke (without transmitter) acc. to mechanical connection				50 mm	Stroke	16 mm						D		
For actuators without transmitter is possible to set up the stroke in between 0 to max.						20 mm						E		
						40 mm						H		
Remote position transmitter	Without transmitter												A	
	Resistance	Single	Wiring	---	Output	1 x 100 Ω							B	
		Dvojity ^{6) 58)}				1 x 2000 Ω						F		
	Electronic - current	Wo its source		2 - wire		2 x 100 Ω								K
				3 - wire ⁶⁾		2 x 2000 Ω							P	
				4 - 20 mA								S		
		With its source ⁵⁹⁾		0 - 20 mA								T		
				4 - 20 mA								V		
				4 - 20 mA								Q		
	Capacity	Wo its source		3 - wire ⁶⁾		0 - 20 mA								U
Wi its source ⁵⁹⁾		4 - 20 mA											W	
Wi its source ⁵¹⁾		4 - 20 mA									I			
		2 - wire ⁶⁾	4 - 20 mA								J			
		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

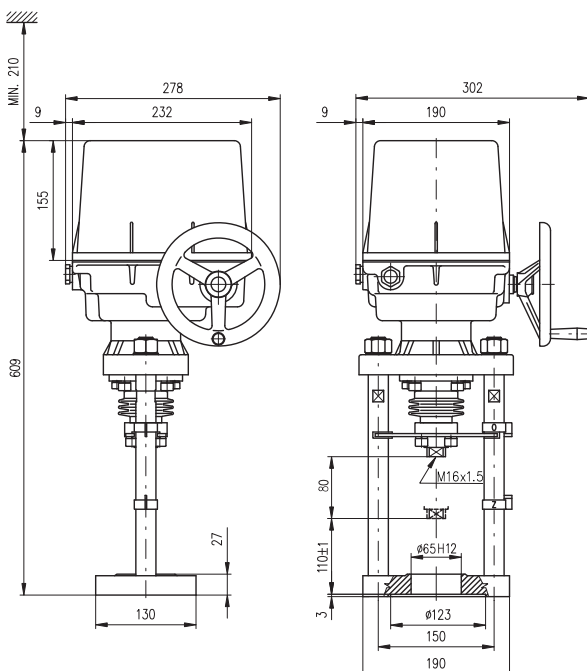
Technical data

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 temperature range	-50 to 55 °C
Ambient humidity range	5 - 100% with condensation
Weight	17 to 21,5 kg

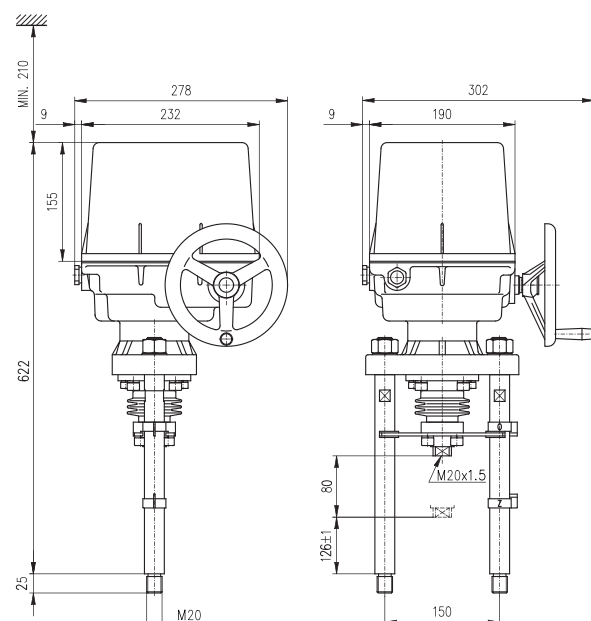
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the website www.regada.sk

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	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																	
						Current feedback	D																	
Resistance feedback				G																				
Tropical	-25°C to +55°C	IP 67	Current feedback	J																				
		IP 67																						
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]	25 000	20 W	---							10 mm/min	A													
											H													
											J													
											B													
	20 000	60 W	25 000							---	20 mm/min	K												
												L												
												M												
												N												
	16 000	90 W	25 000							---	32 mm/min	P												
												C												
												Q												
												R												
	25 000	---	20 000							---	40 mm/min	S												
												T												
												U												
												D												
	20 000	50 mm/min ⁶⁾	16 000							---	60 mm/min ⁶⁾	V												
												W												
												E												
												Y												
16 000	80 mm/min ⁶⁾	20 000	---	100 mm/min ⁶⁾	F																			
					Z																			
					H																			
					K																			
Stroke	Max. (without transmitter) ⁴¹⁾ ... 100 mm	Wi transmitter		40 mm																				
				80 mm																				

Continued on next page

Remote position transmitter		Wiring		Output		Mechanical connection		Accessories							
Remote position transmitter	Without transmitter														
	Resistance	single	Wiring	2-wire	Output	1 x 100 Ω	A	B	F	K					
		double				1 x 2000 Ω					P				
	Electronic - current	wo its source				3-wire ⁶⁾						4 - 20 mA	S	Q	
		with its source									0 - 20 mA	T			
		wo its source		4 - 20 mA											U
		with its source									V				
	Capacity	wo its source		2-wire ⁶⁾		4 - 20 mA						W	I		
		with its source ⁵¹⁾									2-wire			J	
	Mechanical connection			Flange, connection height 110 mm, stem thread M16x1,5							D	M			
		Columns, connection height 126 mm, stem thread M20x1,5													
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 torque 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

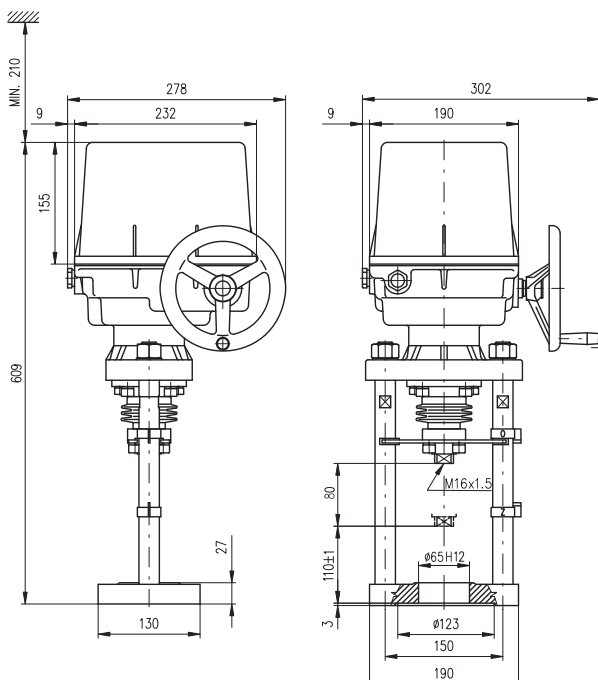
Technical data

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 temperature range	-40 to 55 °C
Ambient humidity range	5 - 100% with condensation
Weight	17 and 21,5 kg

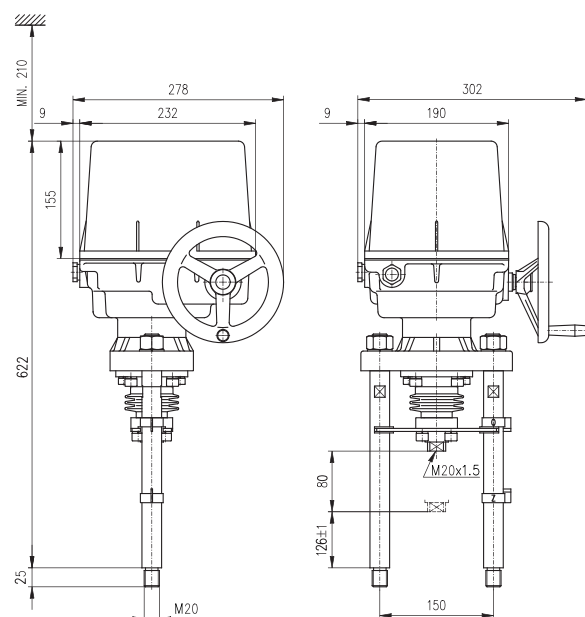
→ **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the website www.regada.sk

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												
		Through reverse contactors			3x400 V AC												
	Contactless switching		3x380 V AC														
			3x400 V AC														
				3x380 V AC													
Nominal force [N]	Running speed		230 V		3x400 V, 3x380 V												
25 000	10 mm/min		●		-												
	20 mm/min		●		●												
	32 mm/min		●		●												
	40 mm/min		●		●												
	50 mm/min		-		●												
	60 mm/min		-		●												
20 000	10 mm/min		●		-												
	20 mm/min		●		●												
	32 mm/min		●		●												
	40 mm/min		●		●												
	50 mm/min		●		-												
	50 mm/min		-		-												
	60 mm/min		●		●												
	60 mm/min		-		●												
16 000	10 mm/min		●		-												
	20 mm/min		●		●												
	32 mm/min		●		●												
	40 mm/min		●		●												
	50 mm/min		●		-												
	50 mm/min		-		●												
	60 mm/min		●		-												
	60 mm/min		-		●												
	80 mm/min		●		-												
	80 mm/min		-		●												
100 mm/min		-		●													
Stroke				20-80 mm													
Control board	DMS3	Control	Modulating	0/4 - 20 mA	ON - OFF and pulse	24 V DC	Output	4 - 20 mA pasive									
				0/2 - 10 V													
Mechanical connection		Flange, connection height 110 mm, stem thread M16x1,5															
		Columns, connection height 126 mm, stem thread M20x1,5															
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 temperature 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 website 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 controlling air into actuator. It is adjusted by PC and special software
Electropneumatic positioner (intelligent) type SRD 991	Device with electric input of 4 (0) - 20 mA and outlet of controlling air into actuator. It is adjusted by PC and special software
Electropneumatic positioner (intelligent) type SRD 998	Device with electric input of 4 (0) - 20 mA and outlet of controlling air into actuator. Standard equipment: HART, LED display, setting using the multi selector
Electropneumatic positioner SIPART PS2	Digital positioner with input 4(0) - 20 mA
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)	Reduces the supply pressure to a value required
Air set type typ FRS 923 (-40 to 80°C)	Reduces the supply pressure to a value required
Solenoid valve standard type SC G551A005	Direct operated electromagnetic valve, version 3/2, function U (universal), G 1/4"
Solenoid valve standard type SC 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 em type EM G327B001	Direct operated electromagnetic valve, version 3/2, function U (universal), G 1/4", solid conclusion
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 10⁷ 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.

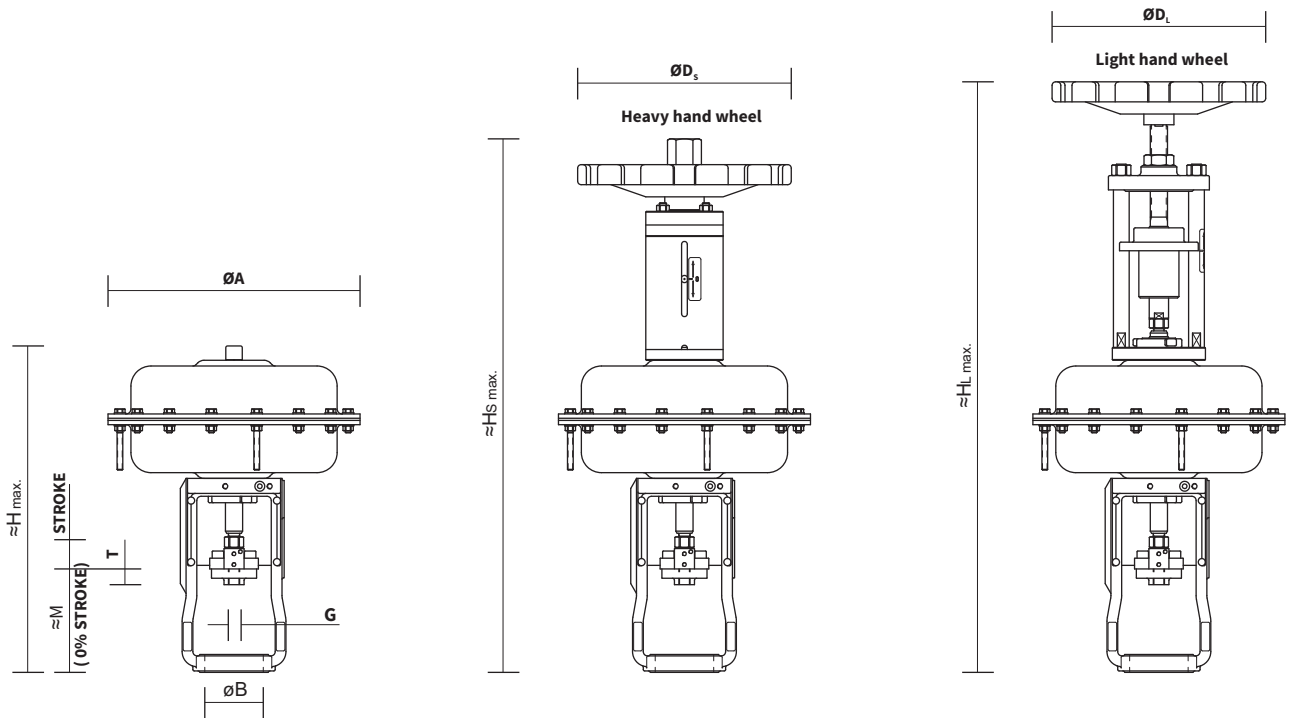
Direct and indirect functions

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 _t [mm]	D _s [mm]	D _t [mm]	Stroke [mm]	B [mm]	M [mm]	G [mm]	T [mm]	[kg]	with RK _s [kg]	with RK _t [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

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



Pneumatic actuators

Flowserve

PO 1502

marking in type number:

PFD

Technical data

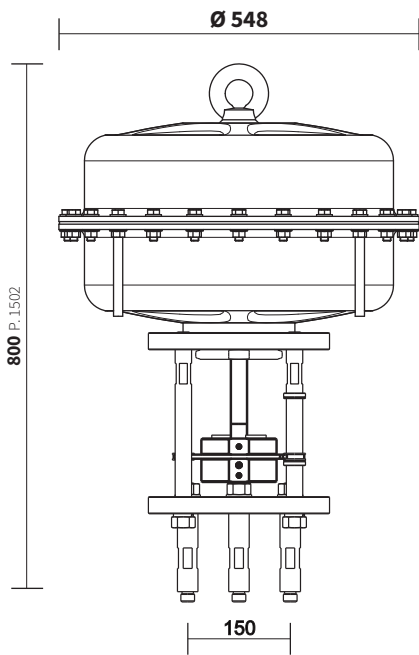
Type	PO 1502		
Marking in valve spec. No.	PFD		
Feeding pressure	6,0 bar max		
Function	direct	indirect	
Control	pneumatic signal 0,2 - 1,0 bar current signal 0(4) - 20 mA		
Nominal force	according to table of nominal force values		
Travel	80, 100 mm		
Enclosure	IP 54		
Process medium max. temp.	acc. to used valves		
Ambient temperature 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 website www.flowserve.com

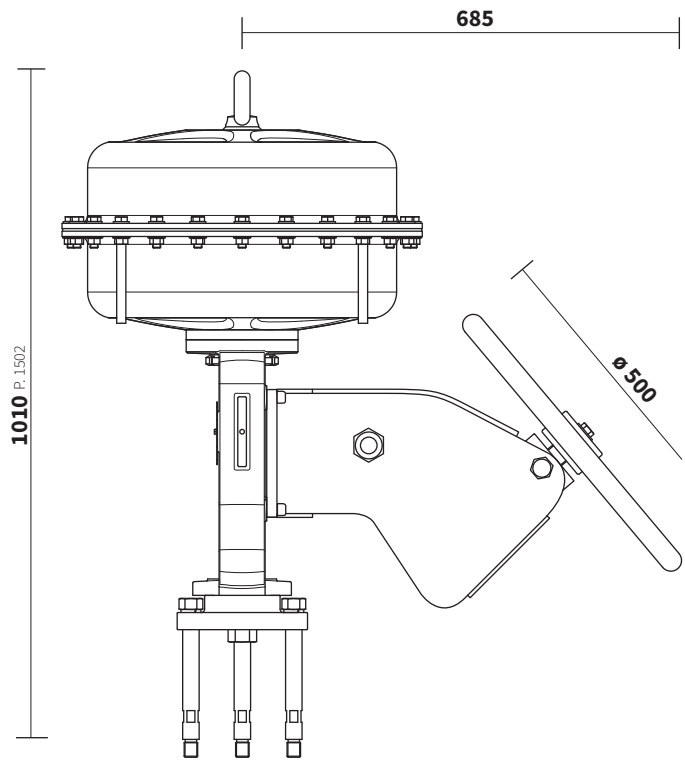
Accessories

Elektropneumatic positioner type SRI 981	Device with electric input of 20 - 100 kPa to control the pneumatic actuators with pneumatic control signal
Elektropneumatic positioner type SRI 986	Analog positioner with input signal 4(0) - 20 mA
Elektropneumatic positioner (analog) type SRD 990	Device with electric input of 4 (0) - 20 mA and outlet of controlling air into actuator. It is adjusted by PC and special software
Elektropneumatic positioner (intelligent) type SRD 991	Device with electric input of 4 (0) - 20 mA and outlet of controlling air into actuator. It is adjusted by PC and special software
Elektropneumatic positioner (intelligent) type SRD 998	Device with electric input of 4 (0) - 20 mA and outlet of controlling air into actuator. Standard equipment: HART, LED display, setting using the multi selector
Elektropneumatic positioner SIPART PS2	Digital positioner with input 4(0) - 20 mA
Elektropneumatic 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)	Reduces the supply pressure to a value required
Air set type typ FRS 923 (-40 to 80°C)	Reduces the supply pressure to a value required
Solenoid valve standard type SC G551A005	Direct operated electromagnetic valve, version 3/2, function U (universal), G 1/4"
Solenoid valve standard type SC 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 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

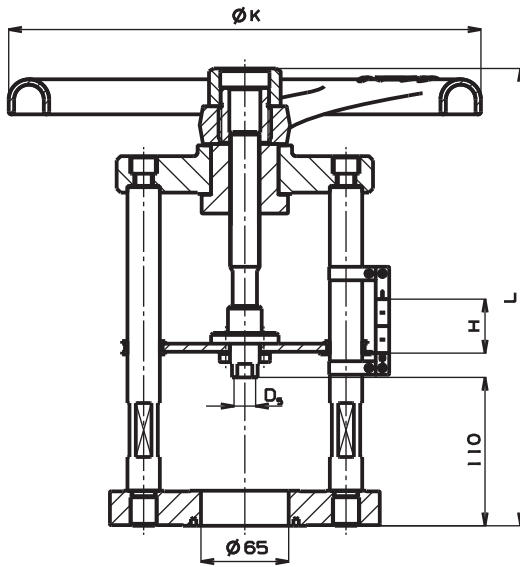


PB 1502

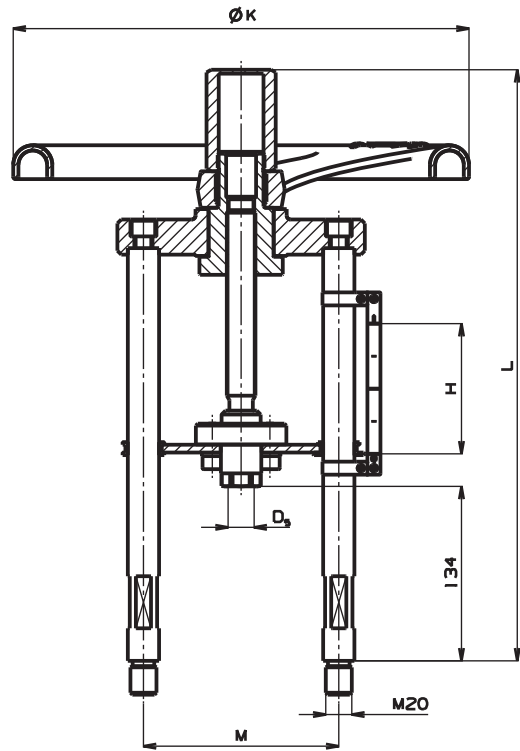
Specification No. of Flowserve actuators 1502

			PX XXXX	X	X	X	X	X
Type of actuator		1500 cm ²	PO 1502					
		1500 cm ²	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		HL			
			1,8 - 3,8		J I			
2,0 - 4,3				FL				
Hand wheel			without wheel				O	
			side light wheel				S	
Function			direct				A	
			indirect				Z	
Stroke H			80				D	

Hand wheels RV / UV 2x0, 2x2 and 2x4



Hand wheel for DN 15 - 150



Hand wheel for DN 200 - 400

Dimensions of manual control

DN	Marking	H [mm]	L [mm]	ØK [mm]	M [mm]	D ₅ [mm]	D ₆ [mm]	m [kg]	Ordering no. (BOM number)
15	R16	16	247	160	---	65	M10x1	5	S900 0231
20									
25									
32									
40	R20	20	275	195	---	65	M10x1	11	S900 0115
50									
65	R28	40	317	280	---	65	M16x1,5	13	S900 0116
80									
100									
125	R35	80	454	350	150	---	M20x1,5	15	S900 0141
150									
200									
250									
300									
400	100								S900 0235



Pneumatic actuators

A. Hock

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

marking in type number:

PHF, PHA, PHB, PHC

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

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

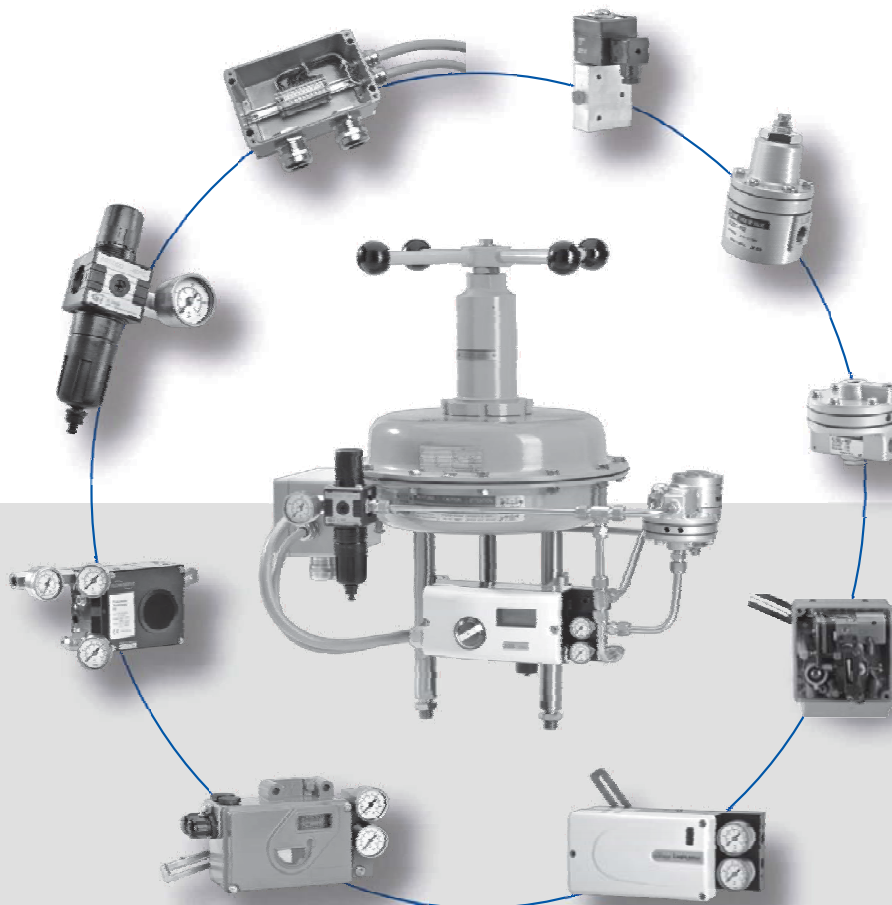
Direct and reverse functions

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

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

Accessories

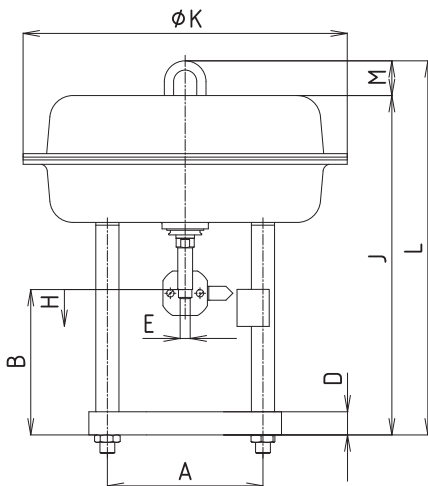
Pneumatic positioner type SRI 981	Device with pneumatic input of 20 - 100 kPa
Electropneumatic positioner type SRI 986	Analog positioner with input signal 4(0) - 20 mA
Electropneumatic positioner (analog) type SRD 990	Device with electric input of 4 (0) - 20 mA and direct pneumatic output into actuator.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



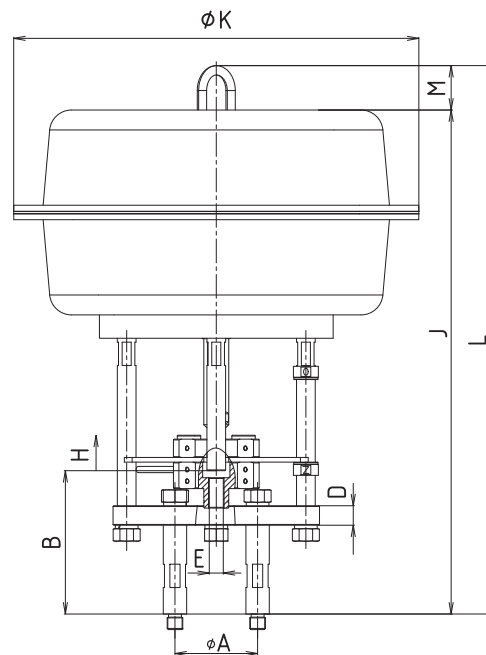
Dimensions and weight of actuators A. Hock series 2000

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

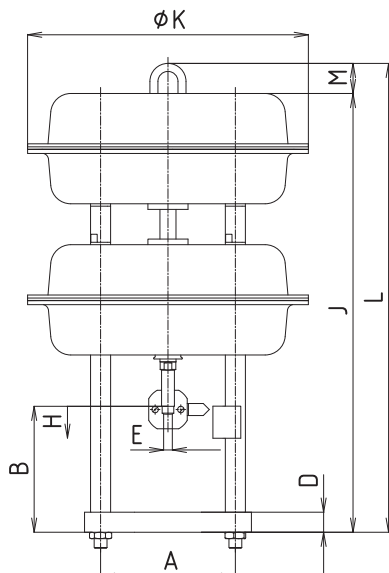
Standard actuator

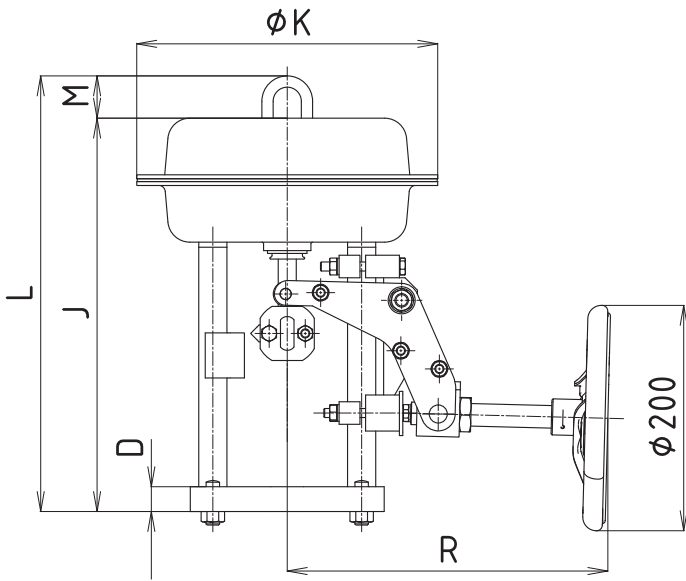


Standard actuator with linear unit 2116(S)

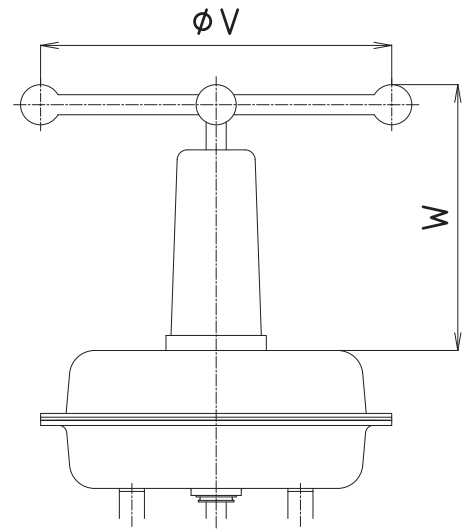


Tandem-type actuator 2112T

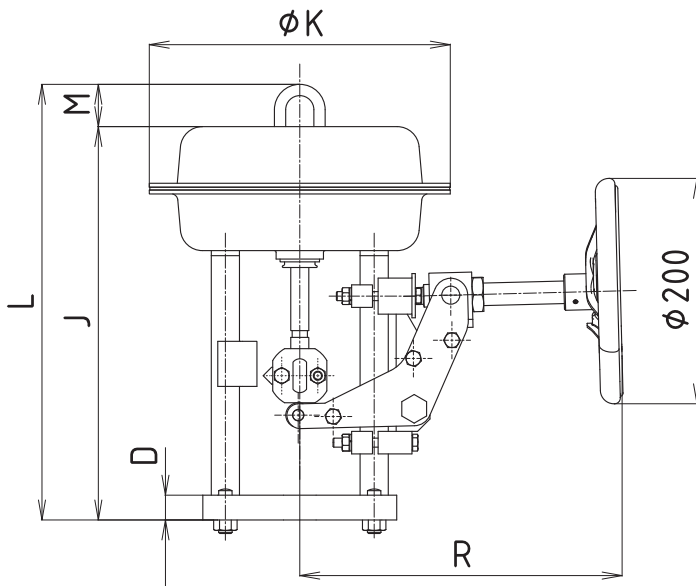




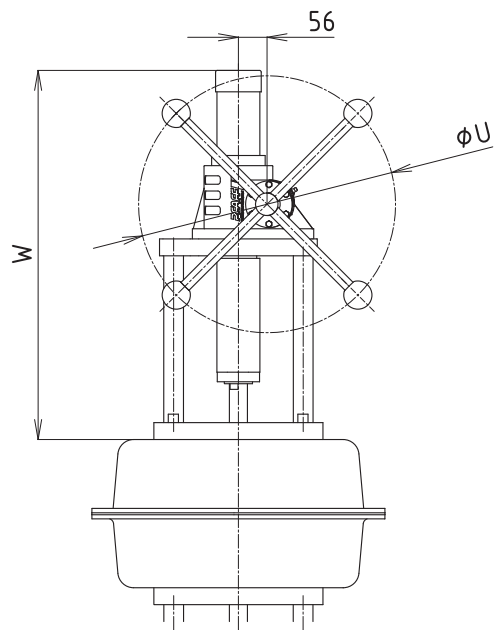
Standard actuator with side wheel (NO)



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



Standard actuator with side wheel (NC)



Upper wheel for actuators
2116(S)

Specification No. of actuators A. Hock series 2000

				P2-0K-	X	X	X	(AXXX)
Spring range [bar]	Without hand wheel	0,2 - 1,0	all actuators	A				
		0,8 - 2,2	all actuators, except 2112-50 / 2112T-50	B				
		1,2 - 3,0	2109	V				
		1,5 - 3,8	2109 (NC only)	H				
		1,6 - 3,2	2112-30 (NC only)	M				
		1,4 - 2,8	only 2112-30 / 2112T-30	W				
		1,5 - 3,0	2112T-30 (NC only)	R				
		0,5 - 1,7	2112-50 / 2112T-50	D				
		0,8 - 2,8	2112-50	S				
		0,7 - 2,5	only 2112-50	X				
		0,75 - 2,7	2112T-50 (NC only)	U				
		1,2 - 3,0	only 2112S-50	Y				
		1,4 - 3,4	only 2112S-50	Z				
		1,3 - 3,0	only 2116S-100	Y				
	1,5 - 3,5	only 2116S-100	Z					
	With upper wheel	0,2 - 1,0	all actuators	E				
		0,8 - 2,2	2109 / 2112-30 / 2112T-30	F				
		0,8 - 2,2	2116 / 2116T	F				
		1,2 - 3,0	2109 / 2112S-50	L				
		0,5 - 1,7	2112-50 / 2112T-50	G				
		0,7 - 2,5	2112-50 / 2112T-50	T				
1,4 - 2,8		2112-30	N					
With side wheel	0,2 - 1,0	except 2116 / 2116T	I					
	0,8 - 2,2	2109 / 2112-30	K					
	0,5 - 1,7	2112-50	P					
	0,7 - 2,5	2112-50 (NO only)	Q					
Without hand wheel	Double-acting version		C					
Actuator size / nominal travel	2109-20			L				
	2112-30			M				
	2112-50 / 2112S-50			I				
	2112T-30			P				
	2112T-50			T				
	2116-40, 2116-100, 2116S-100			N				
Function	Direct (NO)						1	
	Reverse (NC)						2	
	Double-acting						3	
Connection version	2109		RV 2XX, DN 15 - 65				A252	
	2112-30 (NC) / 2112T-30 (NC)		RV 2XX, DN 15 - 65				A253	
	2112-30 (NO)		RV 2XX, DN 15 - 40				A255	
	2112-30 (NO) / 2112T-30 (NO)		RV 2XX, DN 50 - 65				A256	
	2112-50 (NC) / 2112S-50 (NC) 2112T-50 (NC)		RV 2XX, DN 80 - 150				A254	
	2112-50 (NO) / 2112S-50 (NO) 2112T-50 (NO)		RV 2XX, DN 80 - 150				A257	
	2116-40 (only NC & NO)		RV 2XX, DN 80 - 150				A258	
	2116-100 / 2116S-100 (only NC & NO)		RV 2XX, DN 200 - 400				A302	

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

Specification No. of actuators A. Hock (stainless steel version) series 2000				P5-0K-	X	X	X	(AXXX)
Spring range [bar]	Without hand wheel	0,2 - 1,0	all actuators		A			
		0,8 - 2,2	all actuators, except 2112-50 / 2112T-50		B			
		1,6 - 3,2	2112-30 (NC only)		M			
		1,4 - 2,8	only 2112-30 / 2112T-30		W			
		1,5 - 3,0	2112T-30 (NC only)		R			
		0,5 - 1,7	2112-50 / 2112T-50		D			
		0,8 - 2,8	2112-50		S			
		0,7 - 2,5	only 2112-50		X			
		0,75 - 2,7	2112T-50 (NC only)		U			
		1,2 - 3,0	only 2112S-50		Y			
	1,4 - 3,4	only 2112S-50		Z				
	With upper wheel	0,8 - 2,2	2109 / 2112-30 / 2112T-30		F			
		1,2 - 3,0	2109 / 2112S-50		L			
		0,5 - 1,7	2112-50 / 2112T-50		G			
		0,7 - 2,5	2112-50 / 2112T-50		T			
1,4 - 2,8		2112-30		N				
Without hand wheel		double -acting		C				
Actuator size / nominal travel	2109-20				L			
	2112-30				M			
	2112-50, 2112S-50				I			
	2112T-30				P			
	2112T-50				T			
Function	Direct (NO)						1	
	Indirect (NC)						2	
	Double-acting						3	
Connection version	2109		RV 2XX, DN 15 - 65				A252	
	2112-30 (NC) / 2112T-30 (NC)		RV 2XX, DN 15 - 65				A253	
	2112-30 (NO)		RV 2XX, DN 15 - 40				A255	
	2112-30 (NO) / 2112T-30 (NO)		RV 2XX, DN 50 - 65				A256	
	2112-50 (NC) / 2112S-50 (NC)		RV 2XX, DN 80 - 150				A254	
	2112T-50 (NC)							
	2112-50 (NO) / 2112S-50 (NO)		RV 2XX, DN 80 - 150				A257	
2112T-50 (NO)								

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

Maximal permissible operating pressures ČSN EN 12516-1, resp. ČSN EN 1092-2 [bar]

Material	PN	Temperature [°C]															
		RT ¹⁾²⁾	50	100	150	200	250	300	350	375	400	425	450	475	500	525	550
Spheroidal cast iron EN-JS 1025	10	10.0	10.0	10.0	9.7	9.2	8.7	8.0	---	---	---	---	---	---	---	---	---
	16	16.0	16.0	16.0	15.5	14.7	13.9	12.8	---	---	---	---	---	---	---	---	---
	25	25.0	25.0	25.0	24.3	23.0	21.8	20.0	---	---	---	---	---	---	---	---	---
	40	40.0	40.0	40.0	38.8	36.8	34.8	32.0	---	---	---	---	---	---	---	---	---
Cast steel 1.0619	10	10.0	10.0	9.4	8.9	8.4	7.7	7.0	6.5	6.2	6.0	5.2	3.7	---	---	---	---
	16	16.0	16.0	15.0	14.2	13.4	12.3	11.1	10.4	10.0	9.6	8.3	5.9	---	---	---	---
	25	25.0	25.0	23.4	22.2	21.0	19.2	17.4	16.2	15.6	15.0	13.0	9.2	---	---	---	---
	40	40.0	40.0	37.4	35.5	33.6	30.7	27.8	25.9	25.0	24.0	20.8	14.7	---	---	---	---
Alloyed steel 1.7357	10	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.3	9.0	8.5	8.2	7.9	7.4	6.2	4.6	2.9
	16	16.0	16.0	16.0	16.0	16.0	16.0	16.0	14.9	14.4	13.57	13.1	12.6	11.8	10.0	7.3	4.7
	25	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.3	22.4	21.3	20.4	19.7	18.5	15.6	11.5	7.3
	40	40.0	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	18.3	11.7
Manganese steel 1.6220	10	10.0	10.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	16	16.0	16.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	25	25.0	25.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	40	40.0	40.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Stainless steel 1.4581	10	10.0	10.0	10.0	9.7	9.0	8.5	8.1	7.7	7.5	7.3	7.1	7.0	6.9	6.6	---	---
	16	16.0	16.0	16.0	15.5	14.3	13.7	13.0	12.3	12.0	11.7	11.4	11.2	11.0	10.5	---	---
	25	25.0	25.0	25.0	24.2	22.4	21.4	20.3	19.3	18.7	18.2	17.9	17.5	17.2	16.5	---	---
	40	40.0	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	---	---
Stainless steel 1.4308	10	10.0	10.0	9.2	8.1	7.0	6.6	6.2	5.7	5.6	5.4	5.3	5.2	5.0	4.9	4.6	4.4
	16	16.0	16.0	14.8	13.0	11.2	10.5	9.9	9.1	8.9	8.7	8.5	8.2	8.1	7.9	7.3	7.1
	25	25.0	25.0	23.1	20.3	17.5	16.5	15.4	14.3	13.9	13.6	13.2	12.9	12.6	12.3	11.4	11.1
	40	40.0	40.0	37.0	32.5	28.0	26.3	24.6	22.8	22.3	21.7	21.2	20.6	20.2	19.7	18.2	17.7
Stainless steel 1.4309	10	10.0	10.0	9.2	8.3	7.3	6.7	6.2	5.6	---	---	---	---	---	---	---	---
	16	16.0	16.0	14.8	13.2	11.7	10.8	9.9	9.0	---	---	---	---	---	---	---	---
	25	25.0	25.0	23.1	20.7	18.2	16.8	15.4	14.0	---	---	---	---	---	---	---	---
	40	40.0	40.0	37.0	33.0	29.1	26.2	24.6	22.4	---	---	---	---	---	---	---	---

¹⁾ -10°C to 120°C - for EN-JS 1025

²⁾ -10°C to 50°C - for the others

Marking of actuators in type no.			
Electric actuator 660 MIDl	ENB	Electric actuator Schiebel AB3	EZA
Electric actuator Zepadyn 670	ENC	Electric actuator Schiebel exAB3	EZB
Electric actuator Zepadyn 671	ENE	Electric actuator Schiebel rAB3	EZC
Electric actuator PTN 2.20	ERB	Electric actuator Schiebel exrAB3	EZD
Electric actuator PTN 2.32 ; PTN 2.40	ERC	Electric actuator Schiebel AB5	EZE
Electric actuator PTN 6	ERD	Electric actuator Schiebel exAB5	EZF
Electric actuator PTN 7	ERG	Electric actuator Schiebel rAB5	EZG
Electric actuator Modact MTR	EPD	Electric actuator Schiebel exrAB5	EZH
Electric actuator ST 0, STR 0 PA	EPK	Electric actuator Schiebel rAB8	EZK
Electric actuator ST 0.1, STR 0.1 PA	EPL	Electric actuator Schiebel exrAB8	EZL
Electric actuator ST 1, STR 1 PA	EPI	Electric actuator Rotork IQM10 a IQM12	EQA
Electric actuator ST 1 Ex	EPJ	Electric actuator Rotork Ex IQM10 a Ex IQM12	EQB
Electric actuator ST 2, STR 2 PA	EPM	Electric actuator IQM20	EQD
Electric actuator Modact MTN Control, MTP Control	EYA	Electric actuator Ex IQM20	EQE
Electric actuator Modact MTN, MTP	EYB	Electric actuator Rotork CVL-500 to CVL-5000	EQL
Electric actuator Modact MTNED, MTPED	EYA	Pneumatic actuator Flowserve PA 253	PFA
Electric actuator Auma SA 07.2	EAA	Pneumatic actuator Flowserve PB 503	PFB
Electric actuator Auma SA Ex 07.2	EAB	Pneumatic actuator Flowserve PB 701	PFC
Electric actuator Auma SAR 07.2	EAC	Pneumatic actuator Flowserve PO 1502	PFD
Electric actuator Auma SAR Ex 07.2	EAD	Pneumatic actuator Flowserve PO 3002	PFE
Electric actuator Auma SA 07.6	EAE	Pneumatic actuator A.Hock 2109-20	PHF
Electric actuator Auma SA Ex 07.6	EAF	Pneumatic actuator A.Hock 2112-30, A.Hock 2112-50	PHA
Electric actuator Auma SAR 07.6	EAG	Pneumatic actuator A.Hock 2112T-30, A.Hock 2112T-50	PHB
Electric actuator Auma SAR Ex 07.6	EAH	Pneumatic actuator A.Hock 2116-40	PHC
Electric actuator Auma SA 10.2	EAI	Hand wheel pro DN 15 - 40	R16
Electric actuator Auma SAR 10.2	EAJ	Hand wheel pro DN 50 - 65	R20
Electric actuator Auma SAR Ex 10.2	EAK	Hand wheel pro DN 80 - 100	R28
Electric actuator Auma SA Ex 10.2	EAL	Hand wheel pro DN 125 - 400	R35



LDM, spol. s r.o.
Litomyšlská 1378
560 02 Česká Třebová
Czech Republic

tel.: +420 465 502 511
fax: +420 465 533 101
e-mail: sale@ldm.cz

LDM, spol. s r.o.
Office Praha
Podolská 50
147 01 Praha 4
Czech Republic

tel.: +420 241 087 360
fax: +420 241 087 192
e-mail: sale@ldm.cz

LDM, spol. s r.o.
Office Ústí nad Labem
Ladova 2548/38
400 11 Ústí nad Labem
- Severní Terasa
Czech Republic

tel.: +420 602 708 257
e-mail: tomas.kriz@ldm.cz

LDM servis, spol. s r.o.
Litomyšlská 1378
560 02 Česká Třebová
Česká Republika

tel.: +420 465 502 411-3
fax: +420 465 531 010
e-mail: servis@ldm.cz

LDM Bratislava s.r.o.
Mierová 151
821 05 Bratislava
Slovakia

tel.: +421 2 43415027-8
fax: +421 2 43415029
e-mail: ldm@ldm.sk

LDM, Polska Sp. z o.o.
ul. Bednorza 1
40 384 Katowice
Poland

tel.: +48 32 730 56 33
fax: +48 32 730 52 33
mobile: +48 601 354 999
e-mail: ldmpolska@ldm.cz

LDM - Bulgaria - OOD
z. k. Mladost 1
bl. 42, floor 12, app. 57
1784 Sofia
Bulgaria

tel.: +359 2 9746311
fax: +359 2 9746311
mobile: +359 888 925 766
e-mail: ldm.bg@ldmvalves.com

OOO "LDM Promarmatura"
Jubilejnyj prospekt,
dom.6a, of. 601
141400 Khimki Moscow Region
Russia

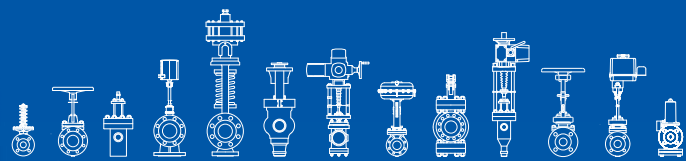
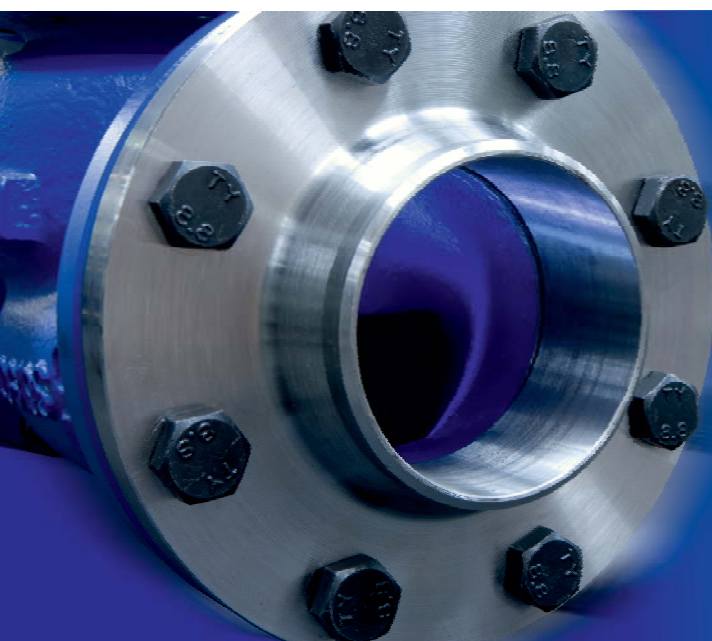
tel.: +7 4957772238
fax: +7 4956662212
mobile: +7 9032254333
e-mail: inforus@ldmvalves.com

TOO "LDM"
Vodokanalnaya 21
101200 Sarañ
Kazakhstan

tel.: +7 7212 566 936
fax: +7 7212 566 936
mobile: +7 701 738 36 79
e-mail: sale@ldm.kz

www.ldmvalves.com

LDM, reserves the right to modify or improve the designs or specifications of such products at any time without notice



POWER THROUGH IDEAS