



02 - 09.2
02.23.GB

CONTROL AND SHUT-OFF VALVES IN SEISMIC VERSION

300 line



300 line

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

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

RV 322 SP (Ex)
RV 332 SP (Ex)

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

Control valves **300 line** are designed for regulation and shut-off of process liquid flow, for which seismic resistance of the device is required. The valves meet the conditions of **seismic resistance** in the sense of maintaining mechanical integrity and functionality after a seismic event with a response spectrum of up to 30 m.s^{-2} in all directions, in the band 0 to 33 Hz. Thus, they meet the requirements of **seismic classification 1b of fittings for nuclear energy according to OTT 87/91** and in non-nuclear applications meet the conditions for use in earthquake-prone areas with a maximum intensity of up to 9 degrees of the international scale EMS-98, or MSK-64 (9 bal).

Version Ex meets demands of II 1/2G IIC TX Ga/Gb dle ČSN EN ISO 80079-36 (9/2016) a ČSN EN 1127-1 (4/2020). Flow characteristics, Kvs coefficients and leakage comply with international standards. The maximal permissible operating pressures in behaviour with types of material and temperature are specified in the table on page 22 of this catalogue.

Control

hand wheel
electromechanical actuators **Auma**

Application

RV / UV 3xx SP (Ex) - heating, ventilation, power gen. and chemical process. industries
RV / UV 3xx SP (Ex) - gas and chemical industries

Process media

RV / UV 3xx SP (Ex) - 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 3xx SP (Ex) - technical and fuel gases and inflammable liquids

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).

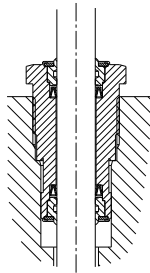
Detailed informations are given in the instruction for installation and service.

Packings

DRSpack® (PTFE)

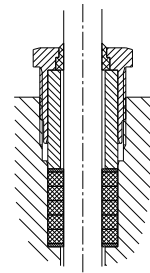
DRSpack® (Direct Radial Sealing Pack) is a packing with high tightness at both low and high operating pressure values.

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.



Principles for plug type selection

V-ported plugs should not 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 3x0_{SP}

Control and
Shut-off valves
in seismic version

DN 15 to 400
PN 16 to 63

Technical data

Series	RV / UV 320 SP (Ex)	RV / UV 330 SP (Ex)
Type of valve	Two-way, single-seated, control (shut-off) valve	
Nominal size range	DN 15 to 400	
Nominal pressure	PN 16 to 63	
Body material	Cast steel 1.0619 (GP240GH) 1.7357 (G17CrMo5-5)	Stainless steel 1.4581(GX5CrNiMoNb19-11-2)
Seat material: DN 15 - 50	1.4028 / 17 023.6	1.4571 / 17 348.4
DIN W.Nr./+ČSN DN 65 - 400	1.4027 / 42 2906.5	1.4571 / 17 348.4
Plug material: DN 15 - 65	1.4028 / 17 023.6	1.4581 / 42 2941.4
DIN W.Nr./+ČSN DN 80 - 150	1.4021 / 17 027.6	1.4581 / 42 2941.4
DN 200 - 400	1.4021 / 17 022.6	1.4581 / 42 2941.4
Operating temperature range	-10 to 550 °C	
Face to face dimensions	Section 1 for flanged version PN 16 to 40 acc. to ČSN EN 558 (9/2022), Section 2 for flanged version PN 63 acc. to ČSN EN 558 (9/2022), Section 73 for weld ends version acc. to ČSN EN 12982 (1/2011)	
Connection flanges	Acc. to ČSN EN 1092-1 (12/2019)	
Flange faces	Type B1 (raised-faced) or Type B2 (plain face) or Type F (female), or Type D (groove) acc. to ČSN EN 1092-1 (12/2019)	
Weld ends	Weld ends acc. to ČSN EN 12627-2 (9/2018)	
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 shut off valve Class IV. acc. to ČSN EN 1349 (7/2010) (<0.01% Kvs) pro uzavírací ventil	
Leakage rate for Ex version	RV 3xx class IV. acc. to ČSN EN 1349 (7/2010) (< 0.01% Kvs); UV 3xx step C acc. to ISO 5208 (6/2015)	
Rangeability r	50 : 1	
Packing	DRSpack® (PTFE) t _{max} = 260°C, Exp. graphite t _{max} = 550°C, Bellows (DN15-150) t _{max} = 550°C	
Seismic resistance	až 33 Hz, 30 m.s ⁻²	

Kvs values and differential pressures Δp_{\max} [MPa] of valves DN 15 - 200 with countoured and V-ported plugs (flow direction below plug) with electro-mechanic actuators

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

For further information on actuating, see actuators' catalogue sheets			Actuating (actuating)										Auma		Auma		Auma		Hand wheel			
			Marking in valve specification No.										EA...		EA...		EA...		Rxx			
			Linear force										5 kN		7.5 kN		10 kN					
DN	H	Ds	Kvs [m ³ /h]										Δp_{\max}		Δp_{\max}		Δp_{\max}		Δp_{\max}			
			1	2	3	4	5	6	7	8	9		packing	graphite	packing	graphite	packing	graphite	packing	graphite		
													graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE		
15	16	3	---	---	---	---	---	---	---	---	0.16 ³⁾	0.1...0.01 ³⁾		6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
		6	---	---	---	---	---	---	---	0.25 ¹⁾	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
		8	---	---	---	1.0 ¹⁾	0.63 ¹⁾	0.4 ¹⁾	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		12	---	2.5 ¹⁾	1.6 ¹⁾	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		15	4.0 ¹⁾	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
20	16	3	---	---	---	---	---	---	---	---	0.16...0.01 ³⁾		6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		6	---	---	---	---	---	---	---	0.25 ¹⁾	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
		8	---	---	---	1.0 ¹⁾	0.63 ¹⁾	0.4 ¹⁾	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		12	---	---	2.5 ¹⁾	1.6 ¹⁾	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		15	---	4.0 ¹⁾	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
25	16	20	6.3 ¹⁾	---	---	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		3	---	---	---	---	---	---	---	---	---	0.16...0.01 ³⁾		6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
		6	---	---	---	---	---	---	---	---	0.25 ¹⁾	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
		8	---	---	---	1.0 ¹⁾	0.63 ¹⁾	0.4 ¹⁾	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		12	---	---	---	2.5 ¹⁾	1.6 ¹⁾	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
32	16	15	---	---	4.0 ¹⁾	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		20	---	6.3 ²⁾	---	---	---	---	---	---	---	---	5.56	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		25	10.0	6.3 ⁴⁾	4.0 ⁴⁾	---	---	---	---	---	---	---	3.36	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		6	---	---	---	---	---	---	---	---	---	0.25 ¹⁾	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	
		8	---	---	---	---	---	1.0 ¹⁾	0.63 ¹⁾	0.4 ¹⁾	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
40	16	12	---	---	---	---	2.5 ¹⁾	1.6 ¹⁾	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		15	---	---	---	4.0 ¹⁾	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		20	---	---	6.3 ²⁾	---	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
		32	16	10	6.3 ⁴⁾	---	---	---	---	---	---	---	4.31	4.31	4.72	6.3	6.3	6.3	6.3	6.3		
		6	---	---	---	---	---	---	---	---	---	0.25 ¹⁾	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3		
40	16	8	---	---	---	---	---	---	---	1.0 ¹⁾	0.63 ¹⁾	0.4 ¹⁾	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
		12	---	---	---	---	---	2.5 ¹⁾	1.6 ¹⁾	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
		15	---	---	---	---	4.0 ²⁾	---	---	---	---	---	---	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
		20	---	---	---	6.3 ²⁾	---	---	---	---	---	---	---	5.56	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
		40	25	16	10	6.3 ⁴⁾	4.0 ⁴⁾	---	---	---	---	---	---	1.2	2.71	2.98	4.49	4.75	6.26	4.75	6.26	

the table continues on the next page

¹⁾ shaped plug

²⁾ shaped plug for linear, equal-percentage, parabolic and LDMspline* characteristic

³⁾ valve with micro-throttling trim. Execution with Kvs = 0,16; 0,1; 0,063; 0,04; 0,025; 0,016; 0,01

⁴⁾ v-ported plug with linear characteristic only

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

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

For further information on actuating, see actuators' catalogue sheets *) max. DN 300			Actuating (actuating)					Auma	Auma	Auma	Auma	Auma	Auma	Auma	Hand wheel						
			Marking in valve specification No.					EA...	EA...	EA...	EA...	EA...	EA...	EA...	Rxx						
			Linear force					Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}						
			Kvs [m³/h]					packing	packing	packing	packing	packing	packing	packing	packing						
DN	H	Ds	1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE	graphite	PTFE				
50	20	50	40	25	16	10	6.3 ¹⁾	0.68	1.58	1.74	2.65	2.8	3.71	4.93	5.89	---	---	---	---	2.8	3.71
65		65	63	40	25	16	10	0.37	0.93	1.02	1.58	1.67	2.23	3.53	2.97	---	---	---	---	1.67	2.23
80		80	100	63	40	25	16	---	---	0.45	0.9	0.9	1.35	1.8	2.25	2.70	3.15	---	---	1.98	2.43
100	40	100	160	100	63	40	25	---	---	0.27	0.56	0.56	0.85	1.14	1.43	1.73	2.02	---	---	1.26	1.55
125		125	250	160	100	63	40	---	---	0.15	0.34	0.34	0.53	0.72	0.91	1.10	1.29	---	---	0.8	0.99
150		150	360	250	160	100	63	---	---	0.1	0.23	0.23	0.36	0.49	0.63	0.76	0.89	---	---	0.55	0.68
		100	---	---	250	160	100	---	---	---	---	---	---	1.02	1.36	1.61	1.95	3.03	3.37	3.98	4.32
200	80	150	---	400	---	---	---	---	---	---	---	---	---	0.43	0.59	0.7	0.85	1.34	1.49	1.77	1.92
		200	570	---	---	---	---	---	---	---	---	---	---	0.23	0.32	0.38	0.47	0.75	0.83	0.99	1.08
		150	---	---	400	250	160	---	---	---	---	---	---	0.34	0.51	0.61	0.78	1.26	1.43	1.69	1.86
250	80	200	---	630	---	---	---	---	---	---	---	---	---	0.17	0.27	0.33	0.43	0.69	0.79	0.94	1.04
		230	800	---	---	---	---	---	---	---	---	---	---	0.13	0.20	0.24	0.32	0.52	0.60	0.71	0.78
		150	---	---	---	400	250	---	---	---	---	---	---	0.34	0.51	0.61	0.78	1.26	1.43	1.69	1.86
300	80	200	---	---	630	---	---	---	---	---	---	---	---	0.17	0.27	0.33	0.43	0.69	0.79	0.94	1.04
		230	---	800	---	---	---	---	---	---	---	---	---	0.13	0.20	0.24	0.32	0.52	0.60	0.71	0.78
		250	1000	---	---	---	---	---	---	---	---	---	---	0.10	0.17	0.20	0.26	0.44	0.50	0.59	0.66
		150	---	---	---	400	250	---	---	---	---	---	---	0.34	0.51	0.61	0.78	1.26	1.43	1.69	1.86
400	100	200	---	---	630	---	---	---	---	---	---	---	---	0.17	0.27	0.33	0.43	0.69	0.79	0.94	1.04
		250	---	1000	---	---	---	---	---	---	---	---	---	0.10	0.17	0.20	0.26	0.44	0.50	0.59	0.66
		330	1600	---	---	---	---	---	---	---	---	---	---	0.05	0.09	0.11	0.14	0.24	0.28	0.33	0.37

- ¹⁾ shaped plug
- ²⁾ shaped plug for linear, equal-percentage, parabolic and LDMspline[®] characteristic
- ³⁾ valve with micro-throttling trim. Execution with Kvs = 0,16; 0,1; 0,063; 0,04; 0,025; 0,016; 0,01
- ⁴⁾ v-ported plug with linear characteristic only

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

Kvs values and differential pressures Δp_{\max} [MPa] of valves DN 25 - 400 with perforated plugs (flow direction above plug) with electromechanic actuators

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

For further information on actuating, see actuators' catalogue sheets			Actuating (actuator)	Auma	Auma	Auma	Auma	Auma	Auma	Auma	Hand wheel										
			Marking in valve specification No.	EA...	EA...	EA...	EA...	EA...	EA...	EA...	Rxx										
			Linear force	5 kN	7.5 kN	10 kN	15 kN	20 kN	32 kN												
			Kvs [m ³ /h]	Δp_{\max} packing		Δp_{\max} packing		Δp_{\max} packing		Δp_{\max} packing		Δp_{\max} packing									
DN	H	Ds		1	2	3	4	5	graphite	PTFE	graphite	PTFE	graphite	PTFE							
25	16	25	---	6.3	4.0	2.5 ⁵⁾	1.6 ⁵⁾	3.36	6.3	6.3	6.3	6.3	---	---	---	---	6.3	6.3			
32		32	---	10	6.3	4.0	2.5 ⁵⁾	1.95	4.31	4.72	6.3	6.3	---	---	---	---	6.3	6.3			
40		40	---	16	10	---	---	1.2	2.71	2.98	4.49	4.75	6.26	---	---	---	---	4.75	6.26		
50	20	50	---	25	16	---	---	0.68	1.58	1.74	2.65	2.8	3.71	4.93	5.89	---	---	---	---	2.8	3.71
65		65	---	40	25	---	---	0.37	0.93	1.02	1.58	1.67	2.23	3.53	2.97	---	---	---	---	1.67	2.23
80	40	80	---	63	40	---	---	---	---	0.45	0.9	0.9	1.35	1.8	2.25	2.70	3.15	---	---	1.98	2.43
100		100	---	100	63	---	---	---	---	0.27	0.56	0.56	0.85	1.14	1.43	1.73	2.02	---	---	1.26	1.55
125		125	---	160	100	---	---	---	---	0.15	0.34	0.34	0.53	0.72	0.91	1.10	1.29	---	---	0.8	0.99
150		150	---	250	160	---	---	---	---	0.1	0.23	0.23	0.36	0.49	0.63	0.76	0.89	---	---	0.55	0.68
200	80	200	---	400	250	160	100	---	---	---	---	---	---	0.23	0.32	0.38	0.47	0.75	0.83	0.99	1.08
250		230	---	630	400	250	160	---	---	---	---	---	---	0.13	0.20	0.24	0.32	0.52	0.60	0.71	0.78
300		250	---	800	630	400	250	---	---	---	---	---	---	0.10	0.17	0.20	0.26	0.44	0.50	0.59	0.66
400	100	330	---	1000	630	400	250	---	---	---	---	---	---	0.05	0.09	0.11	0.14	0.24	0.28	0.33	0.37

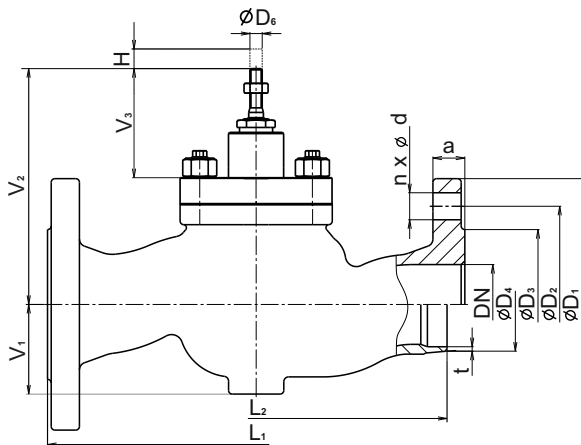
⁵⁾ linear characteristic only

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

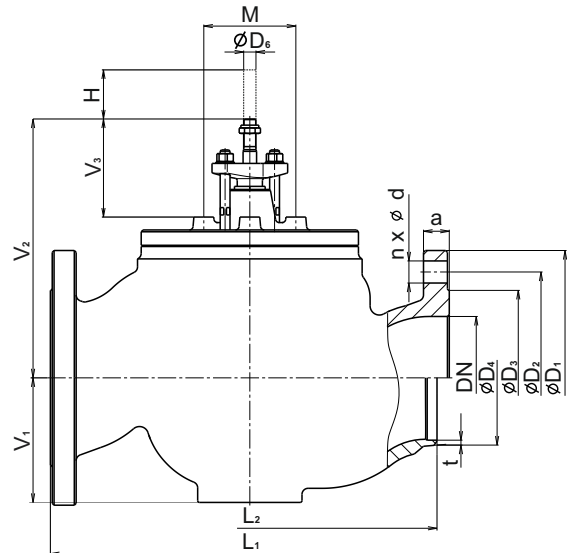
DN	PN 10-16							PN 25-40							PN 63						
	L ₁ mm	ØD ₁ mm	ØD ₂ mm	ØD ₃ mm	a mm	d mm	n	L ₁ mm	ØD ₁ mm	ØD ₂ mm	ØD ₃ mm	a mm	d mm	n	L ₁ mm	ØD ₁ mm	ØD ₂ mm	ØD ₃ mm	a mm	d mm	n
15	130	95	65	45	16	14	4	130	95	65	45	16	14	4	210	105	75	45	20	14	4
20	150	105	75	58	18	14		150	105	75	58	18	14		230	130	90	58	22	18	
25	160	115	85	68	18	14		160	115	85	68	18	14		230	140	100	68	24	18	
32	180	140	100	78	18	18		180	140	100	78	18	18		260	155	110	78	24	22	
40	200	150	110	88	18	18	8	200	150	110	88	18	18	8	260	170	125	88	26	22	8
50	230	165	125	102	20	18		230	165	125	102	20	18		300	180	135	102	26	22	
65	290	185	145	122	22	18		290	185	145	122	22	18		340	205	160	122	26	22	
80	310	200	160	138	24	18		310	200	160	138	24	18		380	215	170	138	28	22	
100	350	220	180	162	24	18	8	350	235	190	162	24	22	8	430	250	200	162	30	26	8
125	400	250	210	188	26	18		400	270	220	188	26	26		500	295	240	188	34	30	
150	480	285	240	212	28	22		480	300	250	218	28	26		550	345	280	218	36	33	
200	---	---	---	---	---	---		---	---	---	---	---	---		---	---	650	415	345	285	
250	---	---	---	---	---	---	---	---	---	---	---	---	---	---	775	470	400	345	46	36	
300	---	---	---	---	---	---	---	---	---	---	---	---	---	---	900	530	460	410	52	36	16
400	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1150	670	585	535	60	42	

DN	H mm	V ₁ mm	V ₂ mm	V ₃ mm	M mm	PN 10-63					
						ØD ₆ mm	L ₂ mm	ØD ₄ mm	m ₁ kg	m ₂ kg	m ₃ kg
15	16	47	152	89	---	M10x1	203	22	5.5	7	4.5
20		47	152				206	28	6.5	8.5	4.5
25		52	162				210	35	8	10.5	5
32		52	162				260	44	9.5	12.5	6.5
40	20	52	162	107	---	M16x1.5	251	50	11	15	7.5
50		73	193				286	62	20	20	12
65		73	193				311	77	25	25	15
80		105	245				337	91	36	36	24
100	40	105	245	160	150	M20x1.5	394	117	49	54	38
125		133	264				500	144	82	92	70
150		134	281				508	172	100	140	105
200	80	203	422	---	---	M20x1.5	610	223	---	260	210
250		253	506				752	278	---	485	370
300		296	555				819	329	---	665	520
400		382	672				1108	413	---	1305	1130

- ¹⁾ - with regard to previously valid standards used possibility of choosing the number of connecting screws, offered by the ČSN EN 1092-1 standard
- m₁** - weight of flanged connection PN 16 - 40
- m₂** - weight of flanged connection PN 63
- m₃** - weight of weld ends connection
- t** - wall thickness of weld ends: $t = [D_4 - (D - 2 * t_1)] / 2$



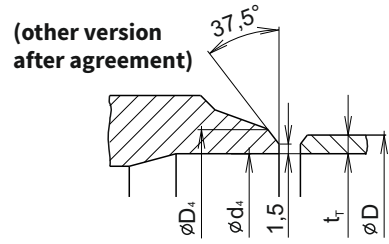
DN 15 - 150



DN 200 - 400

Dimensions of weld ends for pipes ISO 4200 line 1

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





RV 3x2 SP

Pressure balanced
control valves
in seismic version

DN 25 to 200
PN 40 to 63

Technical data

Series	RV 322 SP (Ex)	RV 332 SP (Ex)
Type of valve	Two-way, single-seated, control valve with pressure balanced plug	
Nominal size range	DN 25 to 400	
Nominal pressure	PN 63 (PN 16 to 63 weld ends version)	
Body material	Cast steel 1.0619 (GP240GH) 1.7357 (G17CrMo5-5)	Stainless steel 1.4581(GX5CrNiMoNb19-11-2)
Seat material: DN 15 - 50	1.4028 / 17 023.6	1.4571 / 17 348.4
DIN W.Nr./+ČSN DN 65 - 400	1.4027 / 42 2906.5	1.4571 / 17 348.4
Plug material: DN 15 - 65	1.4028 / 17 023.6	1.4581 / 42 2941.4
DIN W.Nr./+ČSN DN 80 - 150	1.4021 / 17 027.6	1.4581 / 42 2941.4
DN 200 - 400	1.4021 / 17 022.6	1.4581 / 42 2941.4
Operating temperature range	-10 to 550 °C	
Face to face dimensions	Section 1 for flanged version PN 16 to 40 acc. to ČSN EN 558 (9/2022), Section 2 for flanged version PN 63 acc. to ČSN EN 558 (9/2022), Section 73 for weld ends version acc. to ČSN EN 12982 (1/2011)	
Connection flanges	Acc. to ČSN EN 1092-1 (12/2019)	
Flange faces	Type B1 (raised-faced) or Type B2 (plain face) or Type F (female), or Type D (groove) acc. to ČSN EN 1092-1 (12/2019)	
Weld ends	Weld ends acc. to ČSN EN 12627-2 (9/2018)	
Type of plug	V-ported, perforated	
Flow characteristic	Linear, equal-percentage, LDMspline, parabolic	
Kvs value	1.6 - 1600 m ³ /h	
Leakage rate	Class III. acc. to ČSN EN 1349 (7/2010) (<0.1% Kvs) for control valves with metal-metal seat sealing Class IV. acc. to ČSN EN 1349 (7/2010) (<0.01% Kvs) for control valves with metal - PTFE seat sealing	
Leakage rate for Ex version	RV 3xx class IV. acc. to ČSN EN <1349 (7/2010) (0.01% Kvs)	
Rangeability r	50 : 1	
Packing	DRSpack® (PTFE) t _{max} = 260°C, Expanded graphite t _{max} = 550°C, Bellows (DN15-150) t _{max} = 550°C	
Seismic resistance	až 33 Hz, 30 m.s ⁻²	

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

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

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

⁵⁾ linear characteristic only

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

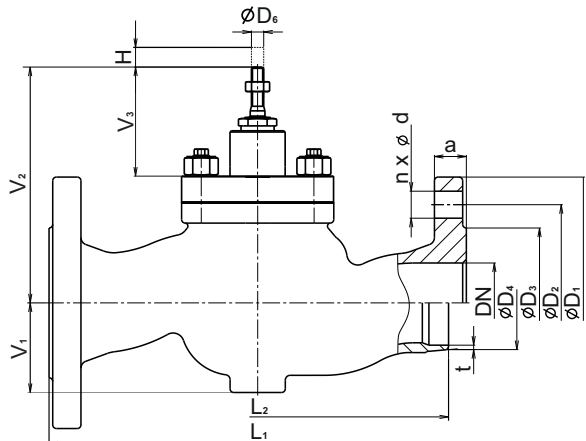
Perforated plug available only with Kvs values in shadowed frames with the following restrictions:
- perforated plug with Kvs value acc. to column No. 2 available with linear or parabolic characteristic only

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

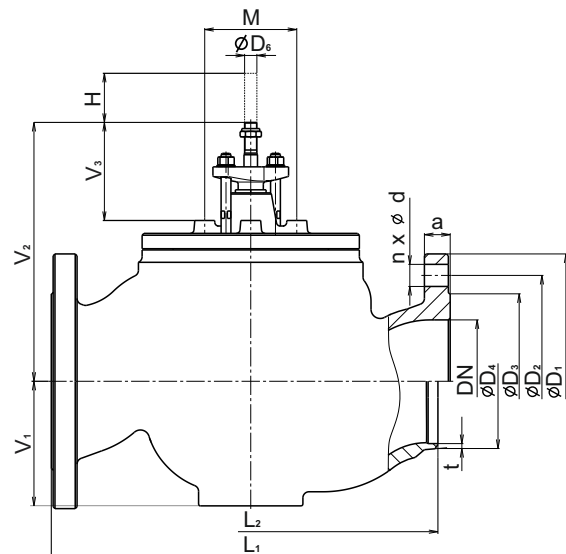
DN	PN 10-16							PN 25-40							PN 63							
	L ₁	ØD ₁	ØD ₂	ØD ₃	a	d	n	L ₁	ØD ₁	ØD ₂	ØD ₃	a	d	n	L ₁	ØD ₁	ØD ₂	ØD ₃	a	d	n	
	mm	mm	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm		mm	mm	mm	mm	mm	mm	mm	
25	160	115	85	68	18	14		160	115	85	68	18	14		230	140	100	68	24	18		
32	180	140	100	78	18	18	4	180	140	100	78	18	18	4	260	155	110	78	24	22	4	
40	200	150	110	88	18	18		200	150	110	88	18	18		260	170	125	88	26	22		
50	230	165	125	102	20	18		230	165	125	102	20	18		300	180	135	102	26	22		
65	290	185	145	122	22	18	4 ¹⁾	290	185	145	122	22	18		340	205	160	122	26	22		
80	310	200	160	138	24	18	8	310	200	160	138	24	18	8	380	215	170	138	28	22	8	
100	350	220	180	162	24	18		350	235	190	162	24	22		430	250	200	162	30	26		
125	400	250	210	188	26	18		400	270	220	188	26	26		500	295	240	188	34	30		
150	480	285	240	212	28	22		480	300	250	218	28	26		550	345	280	218	36	33		
200	---	---	---	---	---	---		---	---	---	---	---	---		650	415	345	285	42	36		
250	---	---	---	---	---	---		---	---	---	---	---	---		775	470	400	345	46	36		
300	---	---	---	---	---	---		---	---	---	---	---	---		900	530	460	410	52	36		
400	---	---	---	---	---	---		---	---	---	---	---	---		1150	670	585	535	60	42		

DN	PN 10-63										
	H	V ₁	V ₂	V ₃	M	ØD ₆	L ₂	ØD ₄	m ₁	m ₂	m ₃
	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg
25		52	162				210	35	8.5	11	5.5
32	16	52	162			M10x1	260	44	10	13	7
40		52	162	89			251	50	11.5	15.5	8
50	20	73	193				286	62	21	21	13
65		73	193				311	77	26	26	16
80		105	245			M16x1.5	337	91	38	38	26
100	40	105	245	107			394	117	51	56	40
125		133	264				500	144	84	94	72
150		134	281				508	172	103	143	108
200		203	422			M20x1.5	610	223	---	272	222
250	80	253	506	160	150		752	278	---	500	385
300		296	555				819	329	---	691	546
400	100	382	672				1108	413	---	1348	1173

- ¹⁾ - with regard to previously valid standards used possibility of choosing the number of connecting screws, offered by the ČSN EN 1092-1 standard
- m₁** - weight of flanged connection PN 16 - 40
- m₂** - weight of flanged connection PN 63
- m₃** - weight of weld ends connection
- t** - wall thickness of weld ends: $t = [D_4 - (D - 2 * t_1)] / 2$



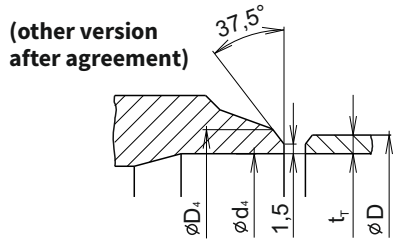
DN 15 - 150



DN 200 - 400

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

DN	$\varnothing D_4$	$\varnothing D$	t_r				$\varnothing D_{4\max}$	$\varnothing d_{4\min}$
25	35	33.7	2.3	2.6	3.2	3.6	39	23
32	44	42.4	2.6	2.9	3.6	4.0	48	28
40	50	48.3	2.6	2.9	3.6	4.0	54	37
50	62	60.3	2.9	3.2	4.0	4.5	66	48
65	77	76.1	2.9	3.2	3.6	5.0	82	62
80	91	88.9	3.2	3.6	4.0	5.6	96	74
100	117	114.3	3.6	4.0	5.0	6.3	122	98
125	144	139.7	4.5	5.0	6.3	7.1	154	118
150	172	168.3	4.5	5.0	7.1	8.0	177	144
200	223	219.1	6.3	8.0	8.8	10.0	235	193
250	278	273.0	7.1	8.0	10.0	14.2	278	229
300	329	323.9	8.0	10.0	12.5	17.5	329	281
400	413	406.4	11.0	12.5	14.2	20.0	426	345



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

		XX	XXX	XXX	XXXX	XX	XX	/	XXX	-	XXX	XXXX
1. Valve	Control valve	RV										
	Shut-off valve	UV										
2. Series	Valves made of steel		3 2									
	Valves made of stainless steel		3 3									
	Straight-throgh		0									
	Straight-throgh with pressure balanced plug		2									
3. Actuating	Electric actuator			E X X								
	Hand wheel			R X X								
4. Connecting	Raised flange (type B1)				1							
	Femeale flange (type F)				2							
	Flange with groove (type D)				3							
	Plain flange (type B2)				4							
	Weld ends				5							
5. Body material	Cast steel 1.0619 (-10 to 450 °C)				1							
	CrMo steel 1.7357 (-10 to 550 °C)				7							
	Stainless steel 1.4581 (-10 to 500 °C)				8							
	Other material on request											
6. Seat sealing	Metal - metal				1							
	Soft sealing (metal - PTFE) ²⁾				2							
	Hard metal overlay on sealilng surfaces				3							
	Balanced by graphite, metal-metal ³⁾				5							
	Balanced by graphit, hard metal overlay ⁴⁾				7							
	Hard metal overlay on sealilng surfaces of RV 3x2, a plug with metal sealing cuff				8							
7. Packing	DRSpack® (PTFE)				3							
	Expanded graphite				5							
8. Flow characteristic	Linear					L						
	Equal-percentage					R						
	LDMspline®					S						
	On-off					U						
	Parabolic					P						
	Linear - perforated plug					D						
	Equal-percentage - perforated plug					Q						
Parabolic - perforated plug					Z							
9. Kvs	Column No. acc. to Kvs value table							X				
10. Nominal pressure	PN 16								16			
	PN 25								25			
	PN 40								40			
	PN 63								63			
11. Max. operating temperature °C	DRSpack® (PTFE)									260		
	Expanded graphite									300		
	Expanded graphite									315		
	Expanded graphite									400		
	Expanded graphite									500		
	Expanded graphite									550		
12. Nominal size	DN										XXX	
13. Execution	Normal											SP
	Non - explosive											SPEX
	Oxygen											SPOX

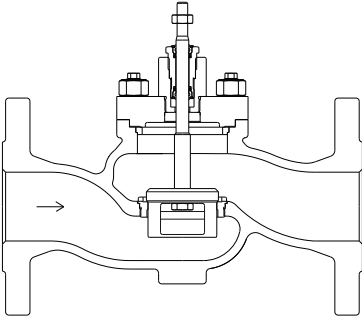
Ordering example of flanged execution:
Rv320 ENC 1135 L1 63/400-065SP

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

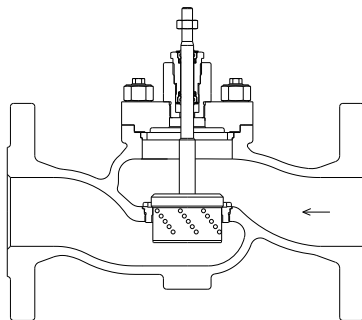
For marking of actuators in specification code, refer to table on page No. 22 of this catalogue

Ventily RV / UV 3x0 (Ex)

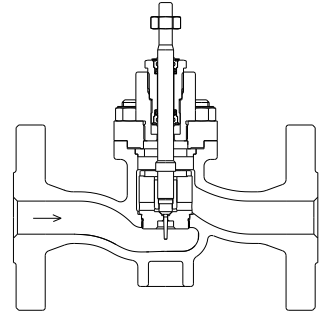
Section of valve with V-ported plug



Section of valve with perforated plug

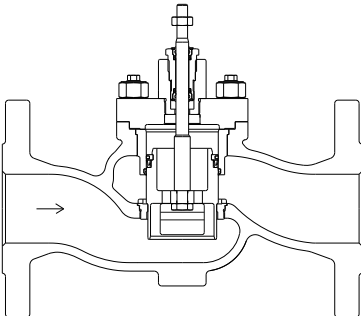


Section of valve with micro-throttling system

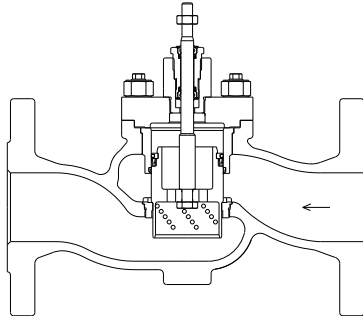


Valves RV 3x2 (Ex)

Section of pressure-balanced valve with V-ported plug



Section of pressure-balanced valve with perforated plug





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	3-phase ~ 380 or 400 V AC (1-phase ~ 230 V AC cannot be used - high weight)							
Frequency	50 Hz							
Power consumption	see specification table							
Control	3 - point 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, 20, 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 - one phase	25 - 62 kg				25 - 62 kg			
Weight - three phase	20 - 33 kg				21 - 33 kg			
Vibration resistance dle 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	07.X
Type					SA			
Duty	control ON - OFF				SA	R		
Version	standard non-explozive						Ex	
Actuator size								07.2 07.6
Output shaft type A (thread TR 16x4 LH, connection flange F07) ... for RV 3xx DN 15 to 150								
Output speed [ot/min]	Tripping 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					0,02	0,02	0,02	0,02
5,6					0,02	0,02	0,02	0,02
8					0,04	0,04	0,04	0,04
11		10-30	15-30		0,04	0,04	0,04	0,04
16		Nm	Nm		0,06	0,06	0,06	0,06
22					0,06	0,06	0,06	0,06
32					0,10	0,10	0,10	0,10
45					0,10	0,10	0,10	0,10
Output shaft type A (thread TR 20x4 LH, flange F10) ... for RV 3xx DN 80 to 400								
Output speed [ot/min]	Tripping 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					0,03	0,03	0,03	0,03
5,6					0,03	0,03	0,03	0,03
8					0,06	0,06	0,06	0,06
11		20-60	30-60		0,06	0,06	0,06	0,06
16		Nm	Nm		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

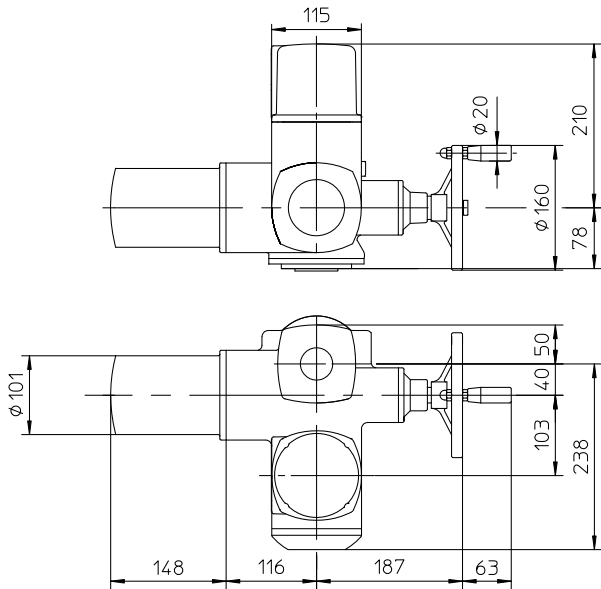
Accessories

- 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

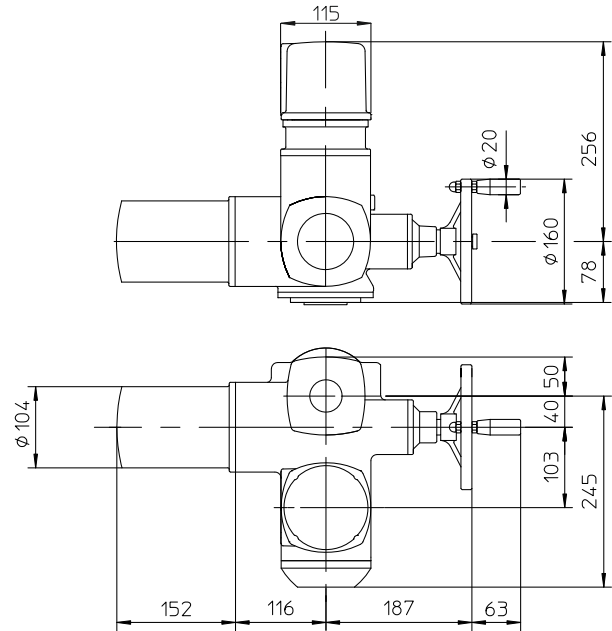
Other accessories acc. to catalogue of producer of actuators.

Dimensions of actuators Auma series 07.2 and 07.6

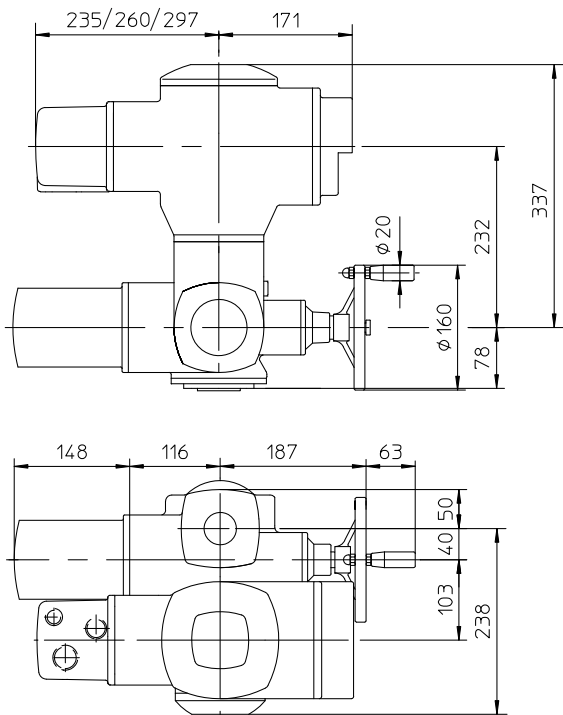
Normal version



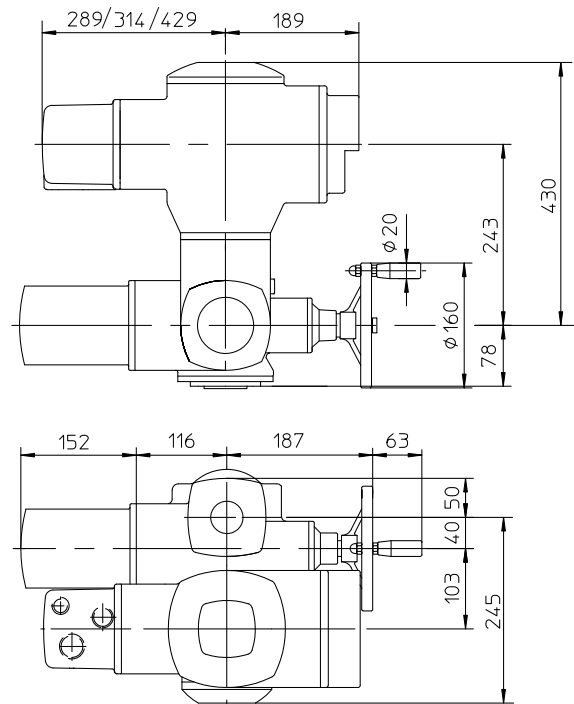
Version Ex norm



Version MATIC

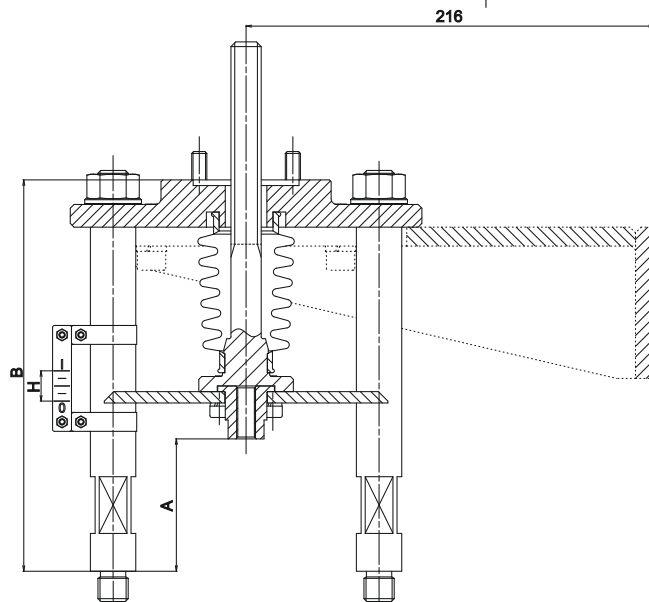
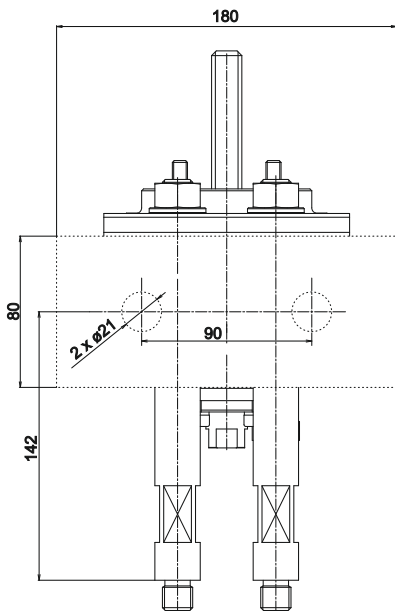
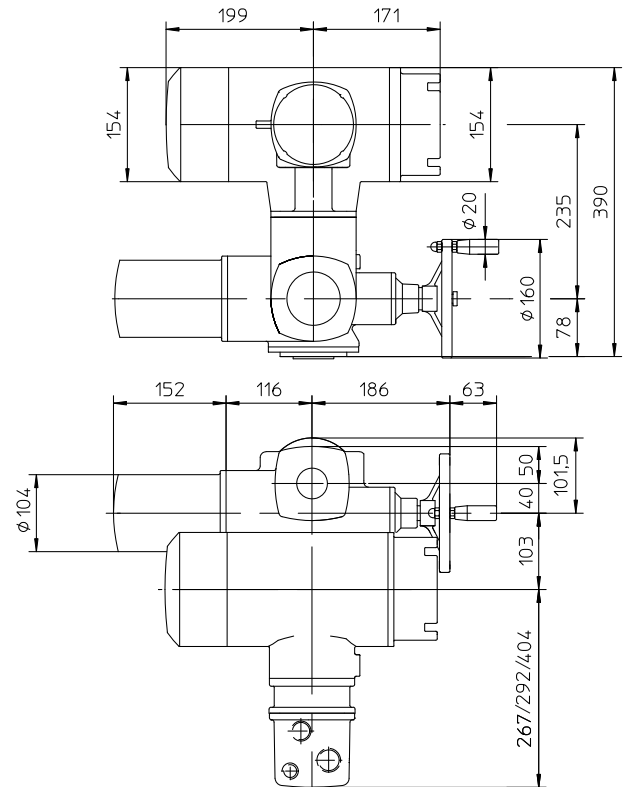
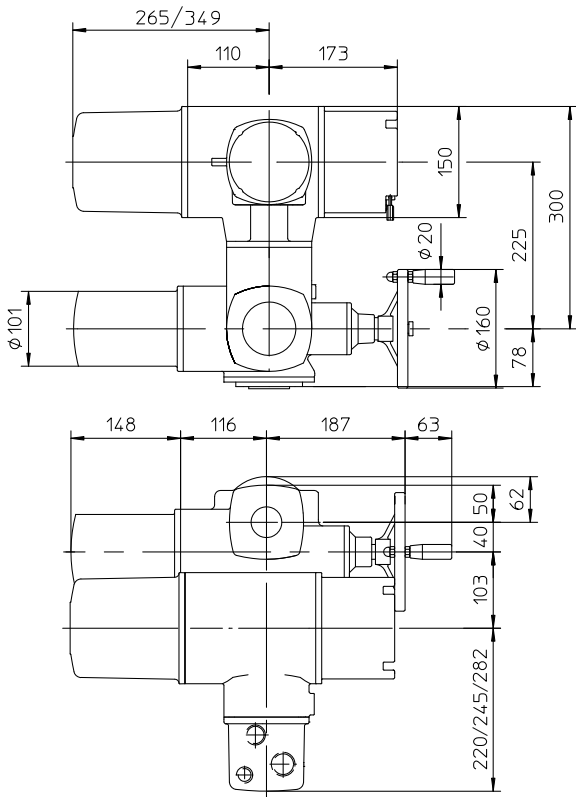


Version Ex MATIC



Version with AUMATIC

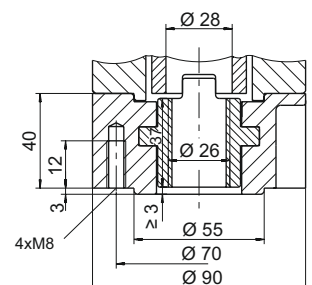
Version Ex AUMATIC



..... console required for DN15-32, all versions AUMA SAR 07.2 max. 33kg (Norm, Matic, Aumatic, Ex), with exception DN 20-25 AUMA SAR 07.2 Norm max. 24,3kg, DN 32 AUMA SAR 07.2 Norm, Matic, Aumatic max. 31kg (mimo Ex).

For valves	Number of columns	A	B	Weight
RV 3xx DN 15 to 65	4	70	207	~ 6 kg + ~ (6 kg console)
RV 3xx DN 80 to 150	4	80	245	~ 8 kg
RV 3xx DN 200 to 400	4	140	420	~ 15 kg

Output drive shaft A, F07





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

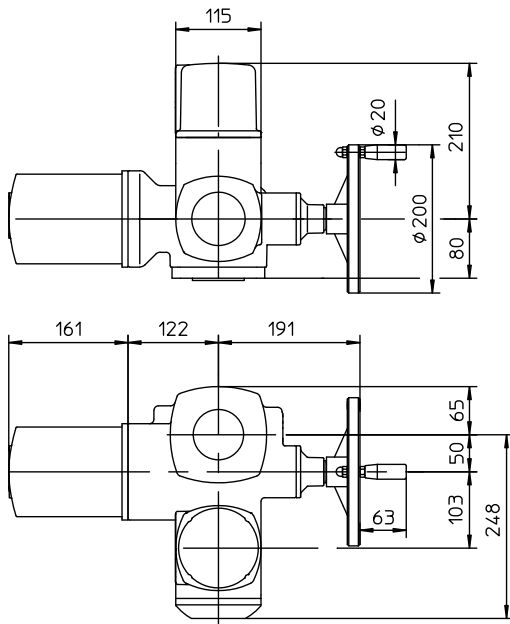
		SA	X	XX	10.2		
Type		SA					
Duty	control ON - OFF		R				
Version	standard non-explosive			Ex			
Actuator size					10.2		
Output drive shaft type A (thread TR 36x6 LH, flange F10) ... for RV 3xx DN 200 - 400							
Output speed [ot/min]	Tripping torque	SA 10.2	SAR 10.2	SA 10.2	SA Ex 10.2	SAR 10.2	SAR Ex 10.2
		SA Ex 10.2	SAR Ex 10.2	S2-15min	S2-15min	S4-25%	S4-25%
4	40-120 Nm 60-120 Nm			0,06	0,09	0,09	0,09
5,6				0,06	0,09	0,09	0,09
8				0,12	0,18	0,18	0,18
11				0,12	0,18	0,18	0,18
16				0,25	0,37	0,37	0,37
22				0,25	0,37	0,37	0,37
32				0,40	0,75	0,75	0,75
45				0,40	0,75	0,75	0,75

Accessories

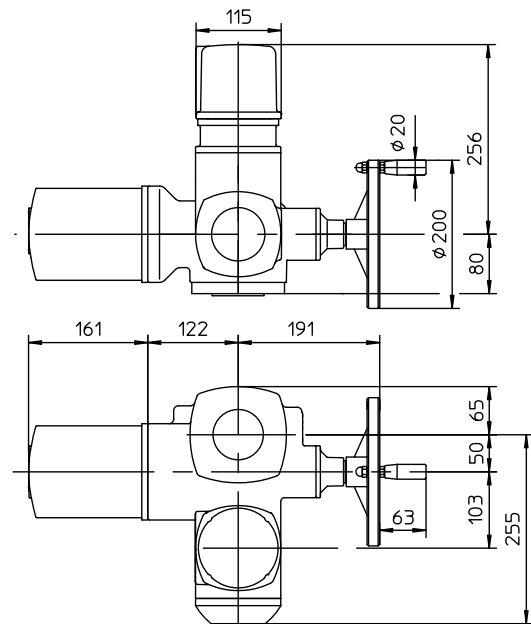
- 2 TANDEM switches
 - Gearing for signalisation of position
 - Mechanical position indicator
 - Potentiometer 1x200 Ω
 - MATIC - or continuous control (specification of accessories acc. to catalogue of producer: IP 67; -25 to +70°C; ...), weight + 7 kg
 - AUMATIC - or continuous control (specification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

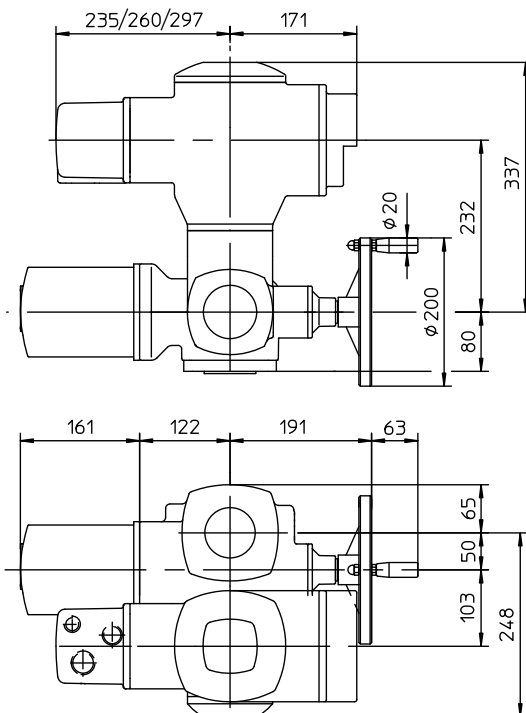
Normal version



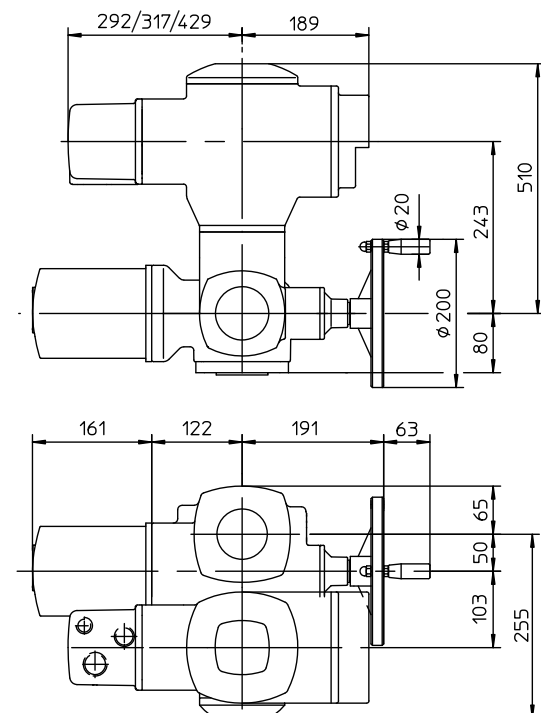
Ex norm version



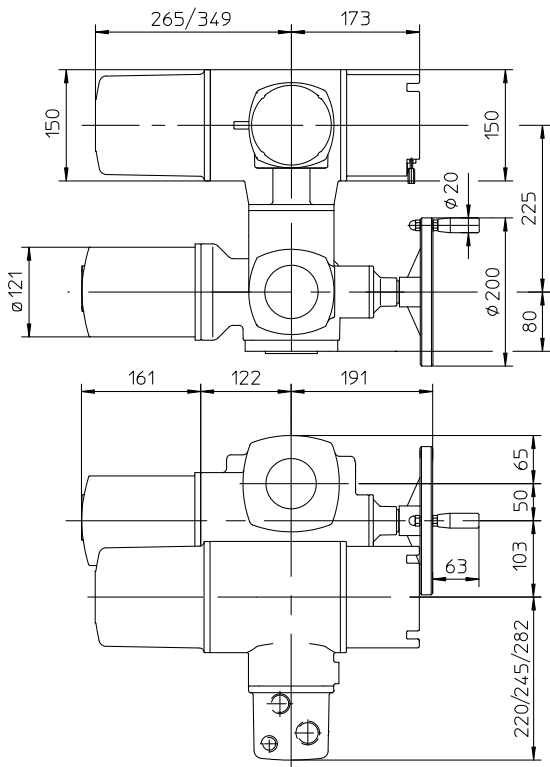
Version with MATIC



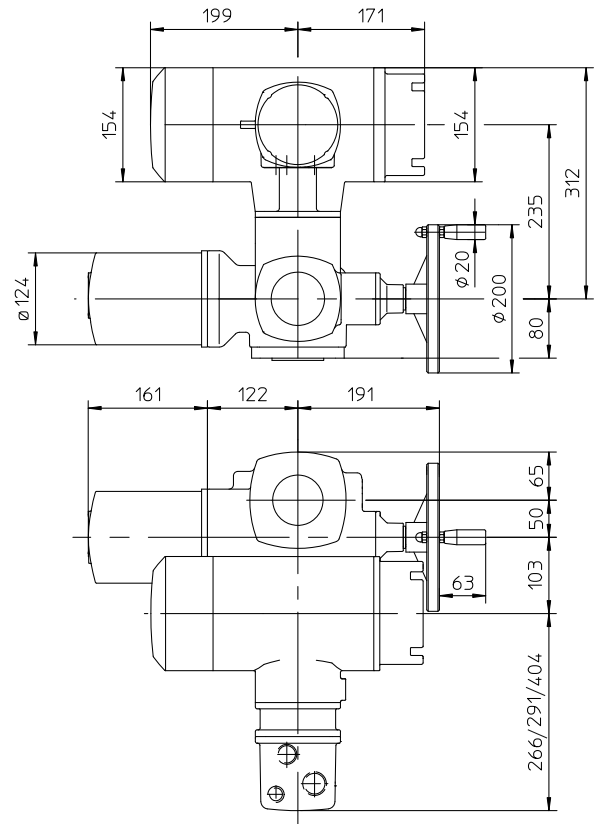
Version with Ex MATIC



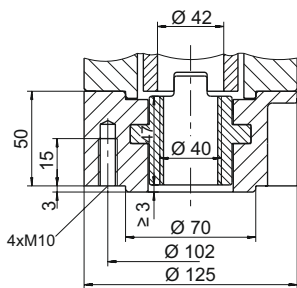
Version AUMATIC



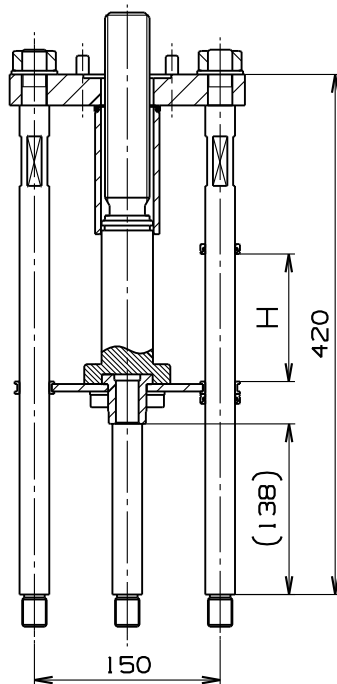
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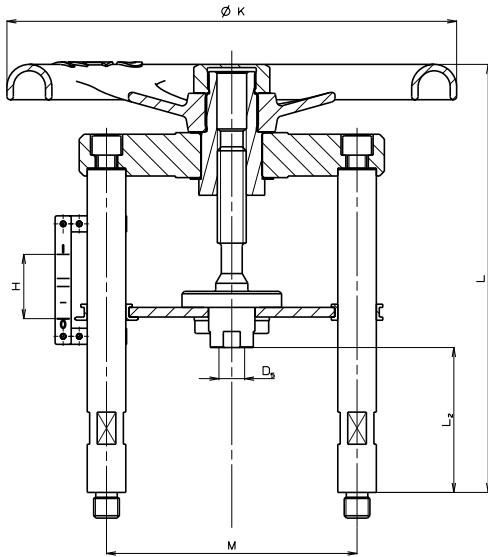
Output drive shaft A, F10



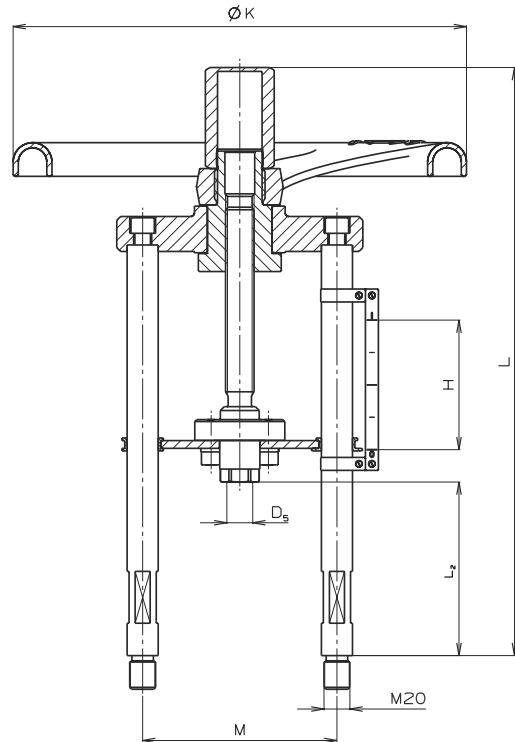
**Control DN 200-400
Connection A, F10, Tr36x6-LH**



Hand wheels for RV / UV 3x0 SP and 3x2 SP



Hand wheel DN 15 - 150



Hand wheel DN 200 - 400

Dimensions of manual control									
DN	Marking	H [mm]	L [mm]	L ₂ [mm]	ØK [mm]	M [mm]	D ₅ [mm]	m [kg]	Ordering no. (BOM number)
15	R16	16	209	70	160	140	M10x1	7	S900 0256
20					195				
25					195				
32					195				
40	R20	25	235	90	195	156	M16x1,5	12	S900 0257
50					280				
65					280				
80	R28	40	267	90	280	156	M16x1,5	14,5	S900 0258
100					323				
125	R35	80	454	134	350	150	M20x1,5	15	S900 0259
150									S900 0141
200									S900 0141
250									S900 0141
300									S900 0141
400	100	S900 0235							

Maximal permissible operating pressures ČSN EN 12516-1 + A1 (03/2019) [bar]															
Material	PN	Temperature [°C]													
		RT¹⁾	100	150	200	250	300	350	375	400	425	450	475	500	550
Cast steel 1.0619 (GP240GH)	40	40,0	37,4	35,5	33,6	30,7	27,8	25,9	25,0	24,0	20,8	14,7	---	---	---
	63	63,0	59,0	55,9	52,9	48,4	43,8	40,8	39,3	37,8	32,7	23,2	---	---	---
Alloy steel 1.7357 (G17CrMo5-5)	40	40,0	40,0	40,0	40,0	40,0	40,0	37,3	35,9	34,1	32,7	31,5	29,5	25,0	11,7
	63	63,0	63,0	63,0	63,0	63,0	63,0	58,7	56,5	53,8	51,4	49,7	46,5	39,3	18,5
Stainless steel 1.4581 (GX5CrNiMoNb19-11-2)	40	40,0	40,0	38,6	35,8	34,2	32,5	30,8	30,0	29,1	28,6	28,0	27,4	26,3	---
	63	63,0	63,0	60,9	56,4	53,8	51,2	48,5	47,2	45,9	45,0	44,1	43,2	41,5	---

¹⁾ -10°C to 50°C

Marking of actuators in type no.		
Electric actuator Auma SA 07.2	EAA	DN 15 - 65
Electric actuator Auma SA Ex 07.2	EAB	DN 15 - 65
Electric actuator Auma SAR 07.2	EAC	DN 15 - 65
Electric actuator Auma SAR Ex 07.2	EAD	DN 15 - 65
Electric actuator Auma SA 07.6	EAE	DN 80 - 150
Electric actuator Auma SA Ex 07.6	EAF	DN 80 - 150
Electric actuator Auma SAR 07.6	EAG	DN 80 - 150
Electric actuator Auma SAR Ex 07.6	EAH	DN 80 - 150
Electric actuator Auma SA 10.2	EAI	DN 200-400
Electric actuator Auma SAR 10.2	EAJ	DN 200-400
Electric actuator Auma SAR Ex 10.2	EAK	DN 200-400
Electric actuator Auma SA Ex 10.2	EAL	DN 200-400
Hand wheel for DN 15 - 40	R16	
Hand wheel for DN 50 - 65	R20	
Hand wheel for DN 80 - 100	R28	
hand wheel for DN 125 - 400	R35	



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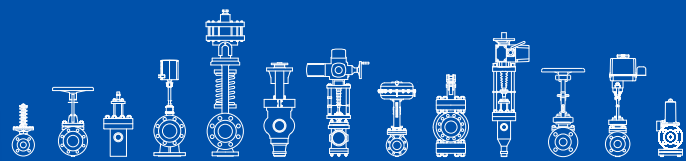
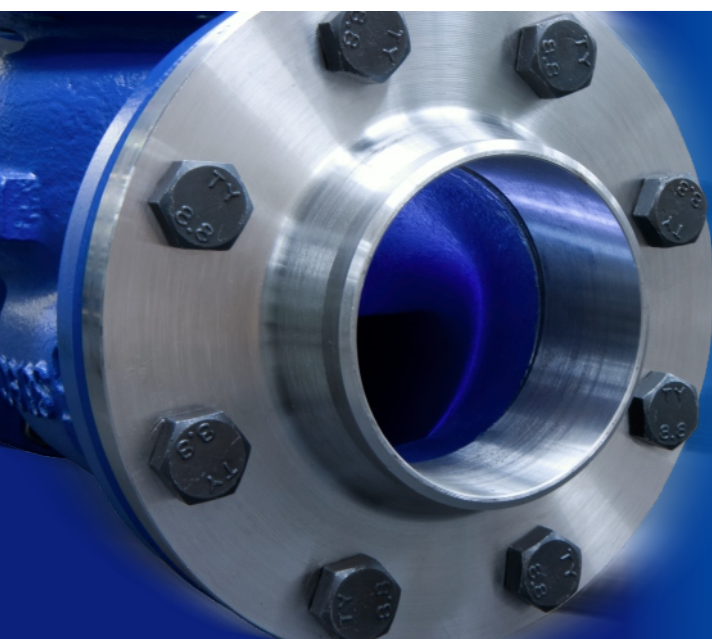
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