

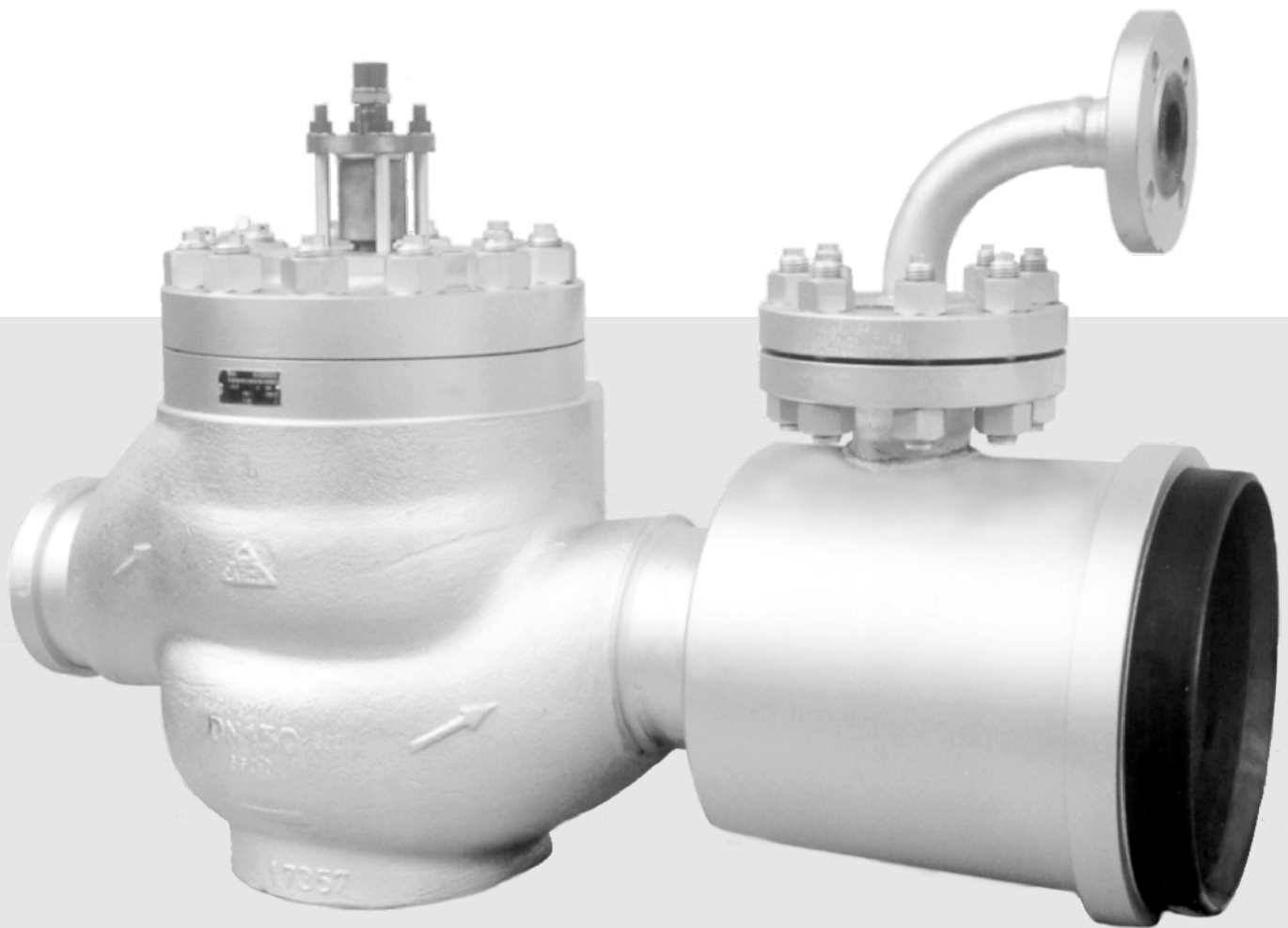


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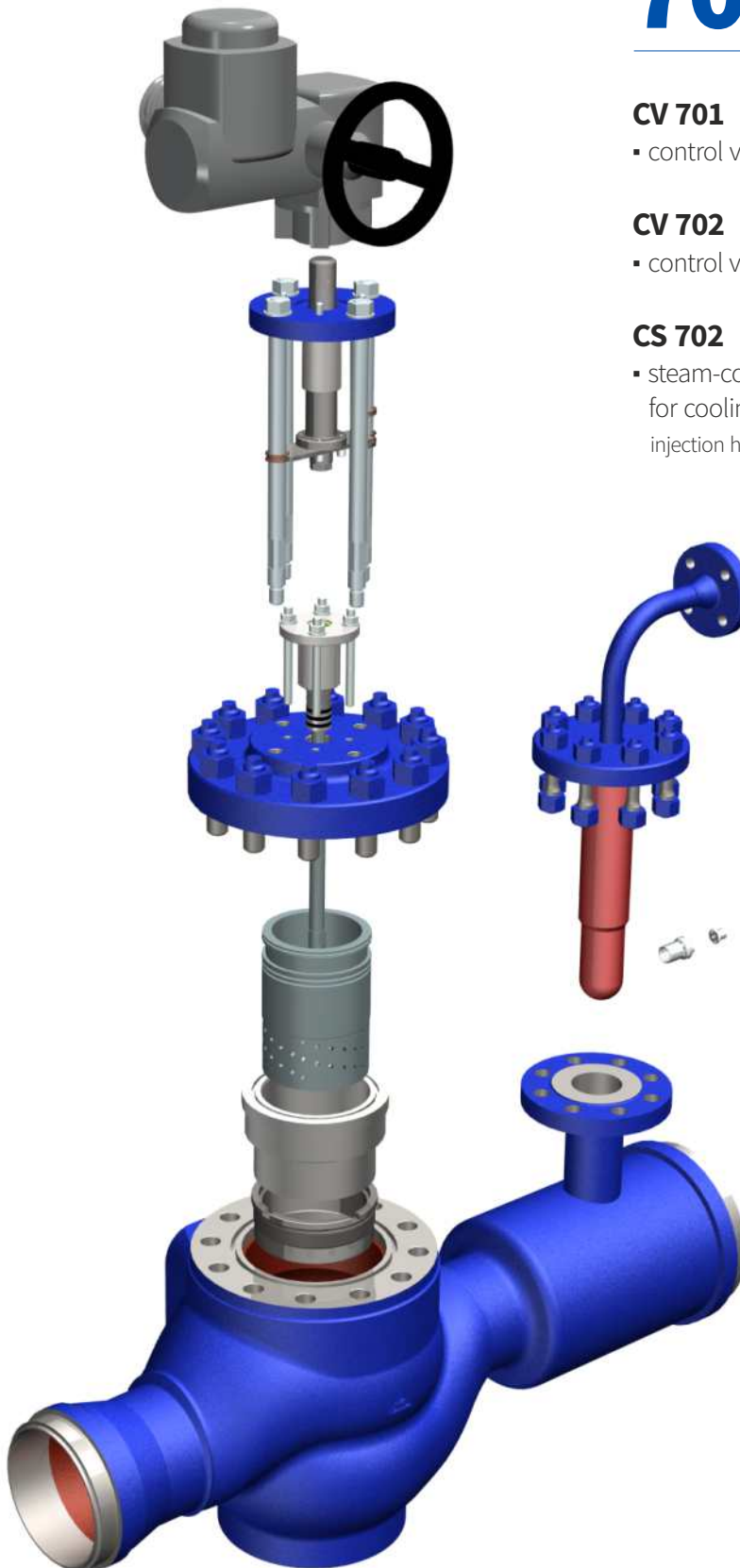
CONTROL VALVES AND STEAM-CONDITIONING STATIONS

700 line

acc. to ANSI/ASME



700 line



CV 701

- control valves for water and other liquids

CV 702

- control valves for steam and other gaseous media

CS 702

- steam-conditioning station with flange connection for cooling water
injection head is specified in catalog 02-03.8

Description

- control valves designed in accordance with ASME B16.34 (2013)
- single-seated modular design
- pressure-balanced, multi-step throttling system resistant to cavitation initiation, cavitation degradation effects and noisiness
- Live Loading stem packing
- weld-end and flange options with sealing surfaces according to customer requirements
- equipped with linear actuators; by default offered with actuators of the following manufacturers: ZPA Pečky, Regada Prešov, Auma, Schiebel and Flowserve

Process media

- water, steam and other media with no special demands on the used material of the valve
- technical and heating gases, flammable liquids (Ex version of valve)
*For more detailed information see document **01-12.2 - Permissible media for specific valve lines***
- for media without mechanical impurities (it is recommended to place a strainer into pipeline in front of the valve)

Application

- industrial applications: e.g. plants, control of technological processes
- maximum permissible operating pressures are defined in ASME B16.34 (2013); see table on page **18** and **19** of this catalog
- **700 line Ex** valves comply to specification of II 1/2G IIC 85 - 600 °C Ga/Gb of standard ČSN EN ISO 80079-36 and ČSN EN 1127-1

Installation

- flow direction of medium must correspond to the arrows on the valve body
- the actuator may not be installed directly below the valve body
- when medium temperature exceeds 150°C / 302 °F it is necessary to protect the actuator against the excessive heat transfer from the valve, for example with suitable thermal insulation of pipe and valve body and through tilting the actuator body out of the vertical axis
- detailed instructions for installation are given in document: *Instruction for Installation and Maintenance (CV 701, CV 702 - PM 232; CS 702 - PM 233; CV 701 Ex, CV 702 Ex - PM 234; CS 702 Ex - PM 235)*

Cv coefficient calculation

This calculation is provided by the calculation software LDM Valves

Live Loading

Key feature of Live Loading packing is axial compression of graphite packing by preloaded springs. This design ensures permanent compression of graphite rings during operation.

LDM developed its own proper design of Live Loading utilizing set of disc springs. This set is integrated into cover which also serves as a dirt cover and a preload indicator.



Recommended maximal differential pressures

CV, CS 70x	throttling steps	medium	Δp (operational)
Perforated plug	max. 3	water	max. 4 MPa / 580 psi *)
		steam	max. 5 MPa / 725 psi *)
Shaped plug	max. 2	water	max. 2 MPa / 290 psi *)
Labyrinth	max. 4	water, steam	max. 20 MPa / 2900 psi

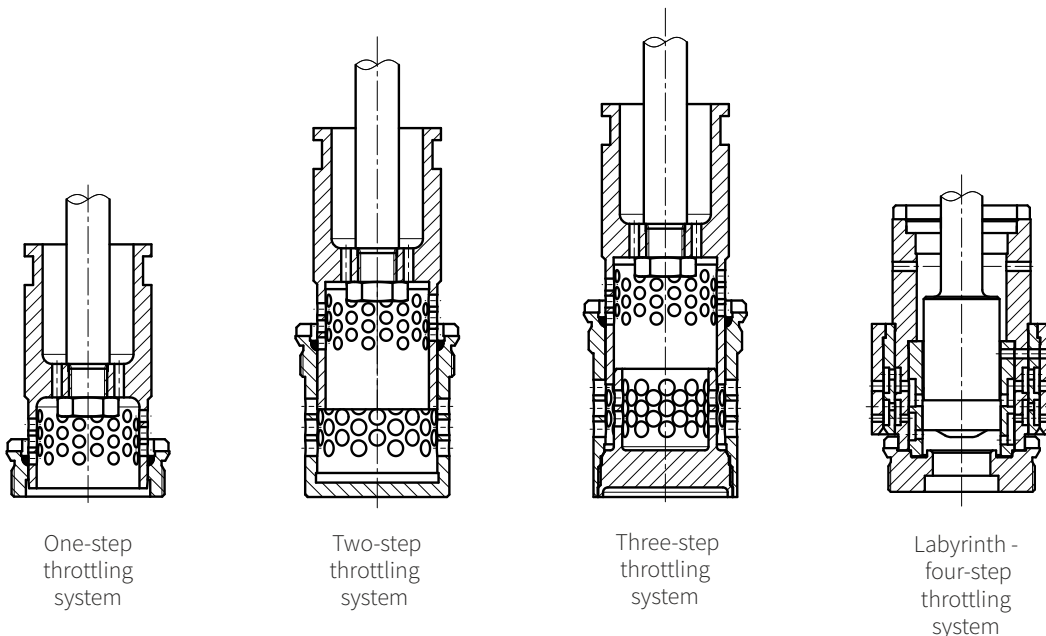
*) - value corresponds to one step of pressure reduction

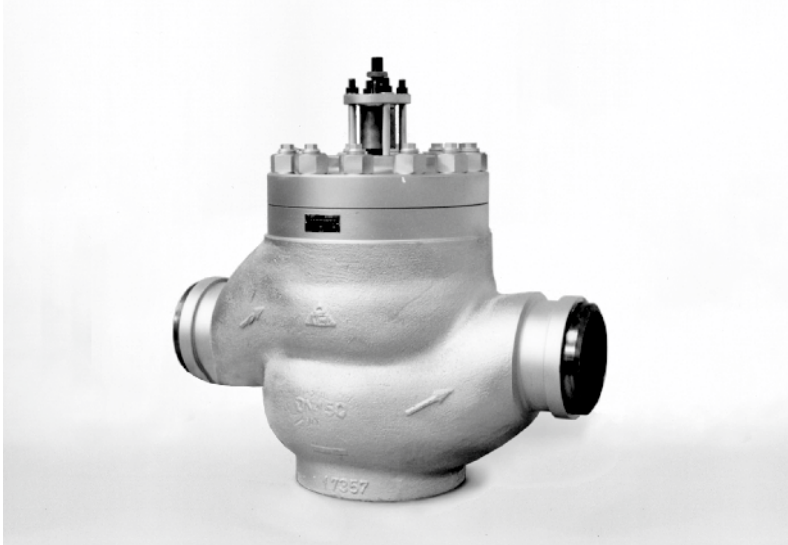
Parameters of pressure balanced system

CV, CS 70x	leakage rate	medium	Δp (in closed position)
Pressure balanced - GRAPHITE	III, IV (Δp_{max} 4 Mpa / 580 psi)	water	max. 8 MPa / 1160 psi
		steam	max. 5 MPa / 725 psi
Pressure balanced - METAL	III, IV, V	water, steam	max. 25 MPa / 3625 psi
Pressure unbalanced system	III, IV, V	water, steam	acc. to no. of steps of pressure reduction and plug type

Application of multi-step pressure reduction

For the valves that are designed for operation under above-critical differential pressure or when the differential pressure across the valve is higher than the recommended operational differential pressure, it is advisable to use two-step or higher-step throttling system to prevent the initialization of cavitation and to ensure both long service life of the valve inner parts and reduction of noise level.





CV 701

Control valve

NPS 1" - 10"
Class 150 - 2500

Technical data

Series	CV 701 (Ex)				
Type of valve	Control valve, single-seated, straight-through, with pressure-balanced plug				
Nominal size range	NPS 1" - 10"				
Nominal pressure	Class 150, 300, 600, 900, 1500, 2500 ¹⁾				
Operating temp. range (from -10 °C / +14 °F to...) ²⁾	425 °C 800 °F	500 °C 932 °F	538 °C 1000 °F	575 °C 1067 °F	600 °C 1112 °F
Body material (including weld ends)	Cast steel A216WCB ¹⁾			
		Alloy steel A217 WC6		
		Alloy steel A217 WC9			
		Stainless steel A217 C12A			
		Stainless steel A351 CF8M			
Seat material ³⁾	1.4006 + weld	1.4006 + weld	1.4903 + weld		
Plug material ³⁾	1.4028 + hardened	1.4006 + weld	1.4903 + weld		
Weld ends Class 150 - 2500	According to ASME B16.25(2012)				
Flanges Class 150 - 2500 ⁴⁾	According to ASME B16.5(2013)				
Throttling system	One- up to four-step Plug: perforated, shaped, labyrinth ⁵⁾ - seat (seat cage)				
Flow characteristic	Linear, equal-percentage				
Leakage rate	Acc. to ANSI/FCI 70-2-2013 Class III., version with higher tightness - Class IV., V.				
Packing	Graphite - Live Loading				

Notes:

- 1) material A216WCB NPS 3" - 10" max. Class 1500
material A351 CF8M NPS 2" - 10" max. Class 1500
- 2) with lower temperature requirement contact the manufacturer
- 3) material of weld - STELLIT 6
- 4) flanged-end valves temperature range terminates at 538°C / 1000°F
- 5) demand of valve with labyrinth throttling system is necessary to consult with the manufacturer

Range of Kvs values										
NPS	1" ⁵⁾	1 1/2" ⁶⁾	2" ⁶⁾	2 1/2" ⁶⁾	3"	4"	5"	6"	8"	10"
Multi-step pressure reduction	Kvs values [m ³ /h] Cv [US gallon/min] - linear characteristic									
1	0.1 - 8.0 0.11 - 9.2	2.5 - 20 2.9 - 23.1	3.2 - 32 3.7 - 37	6.3 - 50 7.3 - 57.8	8 - 80 9.2 - 92	10 - 125 11.6 - 145	16 - 360 ⁷⁾ 18.5 - 416⁷⁾	16 - 360 ⁷⁾ 18.5 - 416⁷⁾	25 - 500 28.9 - 578	40 - 630 46.2 - 728
2	0.1 - 8.0 0.11 - 9.2	2.0 - 20 2.3 - 23.1	2.5 - 32 2.9 - 37	5.0 - 50 5.8 - 57.8	8 - 80 9.2 - 92	8.0 - 100 9.2 - 116	12.5 - 250 14.5 - 289	12.5 - 250 14.5 - 289	25 - 500 28.9 - 578	40 - 500 46.2 - 578
3	1.6 - 8.0 0.18 - 9.2	2.0 - 20 2.3 - 23.1	2.5 - 32 2.9 - 37	4.0 - 40 4.6 - 46.2	8 - 80 9.2 - 92.4	8.0 - 80 9.2 - 92.4	12.5 - 200 14.5 - 231	12.5 - 200 14.5 - 231	20 - 400 23.1 - 462	40 - 400 46.2 - 462
Multi-step pressure reduction	Kvs values [m ³ /h] Cv [US gallon/min] - equal-percentage characteristic									
1	0.63 - 6.3 0.73 - 7.3	6.3 - 20 7.3 - 23.1	6.3 - 25 7.3 - 28.9	6.3 - 32 7.3 - 37	16 - 50 18.5 - 57.8	16 - 63 18.5 - 72.8	25 - 125 28.9 - 145	25 - 125 28.9 - 145	32 - 250 37 - 289	50 - 320 57.8 - 370
2	0.63 - 6.3 0.73 - 7.3	5.0 - 16 5.8 - 18.5	5.0 - 20 5.8 - 23.1	5.0 - 25 5.8 - 28.9	12.5 - 40 14.5 - 46.2	12.5 - 50 14.5 - 57.8	25 - 100 28.9 - 116	25 - 100 28.9 - 116	32 - 160 37 - 185	50 - 200 57.8 - 231
3	1.6 - 5.0 1.85 - 5.8	4.0 - 12,5 4.6 - 14.5	4.0 - 16 4.6 - 18.5	4.0 - 20 4.6 - 23.1	10 - 32 11.6 - 37	10 - 40 11.6 - 46.2	20 - 80 23.1 - 92.5	20 - 80 23.1 - 92.5	25 - 100 28.9 - 116	50 - 160 57.8 - 185

Table is valid only for perforated and shaped plugs

Notes:

- ⁵⁾ shaped plug is applicable for Cv 0,11 - 1,8
⁶⁾ in case of reduced size seat the Cv range is the same as with NPS 1"
⁷⁾ only for Class 900 and 1500; for Class 2500 Cv = 289 US gallon/min
(Kvs_{max} = 250 m³/h)



CV 702

Control valve

inlet NPS 1" - 10"
outlet NPS 1" - 40"
Class 150 - 2500

Technical data

Series		CV 702 (Ex)				
Type of valve	Control valve, single-seated, straight-through, with pressure balanced plug, with extended outlet and orifice plates in outlet					
Nominal size range	Inlet NPS 1" - 10"; outlet NPS 1" - 40"					
Nominal pressure	Inlet Class 150 - 2500; outlet Class 150 - 2500 ¹⁾					
Operating temp. range (from -10 °C / +14 °F to... ²⁾	425 °C 800 °F	500 °C 932 °F	538 °C 1000 °F	575 °C 1067 °F	600 °C 1112 °F	
Body material (including weld ends) / material of extensions	A216 WCB ¹⁾ / A105 A217 WC6 / A182 F11 Cl.2 A217 WC9 / A182 F22 Cl.3 A217 C12A / A182 F91 A351 CF8M / A182 F316					
Seat material ³⁾	1.4006 + weld	1.4006 + weld	1.4903 + weld			
Plug material ³⁾	1.4028 + hardened	1.4006 + weld	1.4903 + weld			
Weld ends Class 150 - 2500	According to ASME B16.25 (2012)					
Flanges Class 150 - 2500 ⁴⁾	According to ASME B16.5 (2013)					
Throttling system	One- up to four-step Plug: perforated, shaped, labyrinth ⁵⁾ - seat (seat cage)					
Flow characteristic	Linear, equal-percentage					
Leakage rate	According to ANSI/FCI 70-2-2013 Class III., version with higher tightness Class IV., V.					
Packing	Graphite - Live Loading					

Range of Kvs values

DN	25/XXX	40/XXX ⁶⁾	50/XXX ⁶⁾	65/XXX ⁶⁾	80/XXX	100/XXX	125/XXX	150/XXX	200/XXX	250/XXX
Multi-step pressure reduction	Kvs values [m ³ /h] Cv [US gallon/min] - linear characteristic									
1	0.4 - 8.0	2.5 - 20	2.5 - 32	6.3 - 50	8 - 80	10 - 125	12.5 - 360 ⁷⁾	12.5 - 360 ⁷⁾	25 - 500	40 - 630
2	0.25 - 8.0	2.0 - 20	2.5 - 32	5.0 - 40	8 - 80	10 - 100	12.5 - 250	12.5 - 250	25 - 500	40 - 500
Multi-step pressure reduction	Kvs values [m ³ /h] Cv [US gallon/min] - equal-percentage characteristic									
1	1.0 - 6.3	6.3 - 20	6.3 - 25	6.3 - 32	16 - 50	16 - 63	25 - 125	25 - 125	32 - 250	50 - 320
2	0.4 - 4.0	5.0 - 16	5.0 - 20	5.0 - 25	16 - 40	16 - 50	25 - 80	25 - 80	32 - 160	50 - 160

Table is valid only for perforated and shaped plugs

Notes:

- ¹⁾ material A216 WCB NPS 3" - 10" max. Class 1500
material A351 CF8/CF8M NPS 2" - 10" max. Class 1500
- ²⁾ with lower temperature requirement contact the manufacturer
- ³⁾ material of weld - STELLIT 6
- ⁴⁾ flanged-end valves temperature range terminates at 538°C / 1000°F
- ⁵⁾ demand of valve with labyrinth throttling system is necessary to consult with the manufacturer
- ⁶⁾ in case of reduced size seat the Cv range is the same as with NPS 1"
- ⁷⁾ only for Class 900 and 1500; Class 2500 Cv = 289 US gallon/min
Kvs_{max} = 250 m³/h



CS 702

Steam-conditioning station

inlet NPS 1" - 10"
outlet NPS 6" - 40"
Class 150 - 2500

Technical data

Series		CS 702 (Ex)				
Type of valve	Control valve, single-seated, straight-through, with pressure balanced plug, with extended outlet and orifice plates in outlet, with water injection into outlet pipe					
Nominal size range	Inlet NPS 1" - 10"; outlet NPS 6 - 40"					
Nominal pressure	Inlet Class 150 - 2500; outlet Class 150 - 2500 ¹⁾					
Operating temp. range	425 °C 800 °F	500 °C 932 °F	538 °C 1000 °F	575 °C 1067 °F	600 °C 1112 °F	
Body material (including weld ends) / material of extensions	A216 WCB ¹⁾ / A105 A217 WC6 / A182 F11 Cl.2 A217 WC9 / A182 F22 Cl.3 A217 C12A / A182 F91 A351 CF8M / A182 F316					
Seat material ³⁾	1.4006 + weld	1.4006 + weld	1.4903 + weld			
Plug material ³⁾	1.4028 + hardened	1.4006 + weld	1.4903 + weld			
Weld ends Class 150 - 2500	According to ASME B16.25 (2012)					
Flanges Class 150 - 2500 ⁴⁾	According to ASME B16.5 (2013)					
Throttling system	One- up to four-step Plug: perforated, shaped, labyrinth ⁵⁾ - seat (seat cage)					
Flow characteristic	Linear, equal-percentage					
Leakage rate	According to ANSI/FCI 70-2-2013) Class III., version with higher tightness Class IV., V.					
Packing	Graphite - Live Loading					

Range of Kvs values

DN	25/XXX	40/XXX ⁶⁾	50/XXX ⁶⁾	65/XXX ⁶⁾	80/XXX	100/XXX	125/XXX	150/XXX	200/XXX	250/XXX
Multi-step pressure reduction	Kvs values [m ³ /h] - linear characteristic									
1	1.6 - 8.0	2.5 - 20	2.5 - 32	6.3 - 50	8 - 80	10 - 125	12.5 - 360 ⁷⁾	12.5 - 360 ⁷⁾	25 - 500	40 - 630
2	1.25 - 8.0	2.0 - 20	2.5 - 32	5.0 - 40	8 - 80	10 - 100	12.5 - 250	12.5 - 250	25 - 500	40 - 500
Multi-step pressure reduction	Kvs values [m ³ /h] - equal-percentage characteristic									
1	2.0 - 6.3	6.3 - 20	6.3 - 25	6.3 - 32	16 - 50	16 - 63	25 - 125	25 - 125	32 - 250	50 - 320
2	1.6 - 4.0	5.0 - 16	5.0 - 20	5.0 - 25	16 - 40	16 - 50	25 - 80	25 - 80	32 - 160	50 - 160

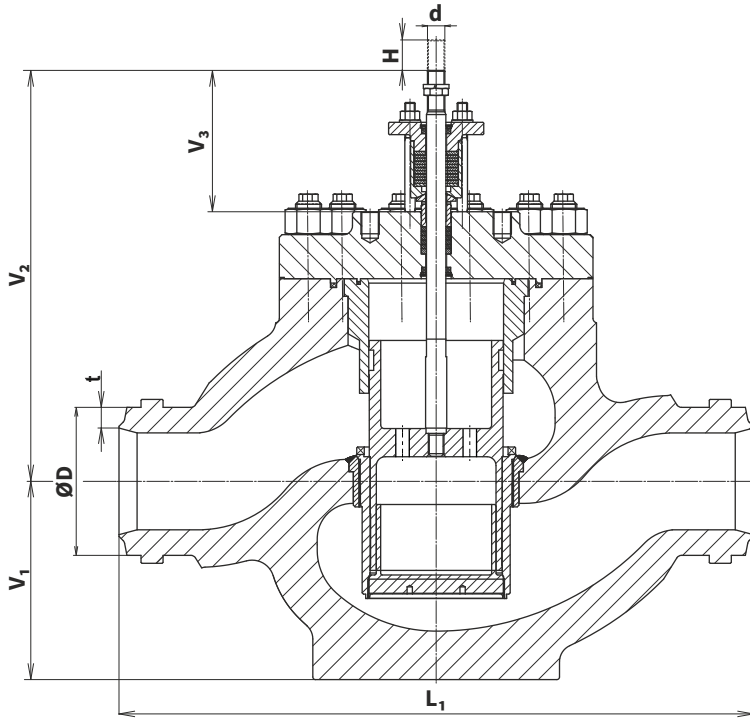
Table is valid only for perforated and shaped plugs

Notes:

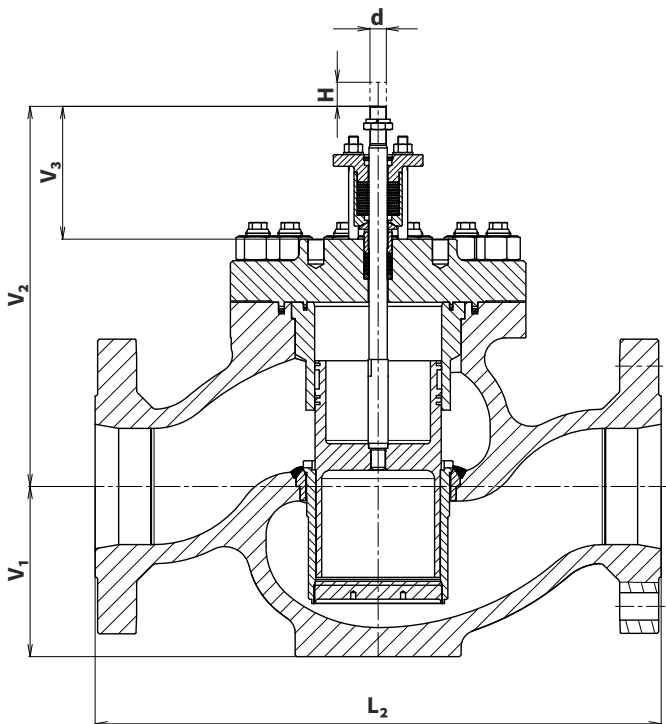
- ¹⁾ material A216 WCB NPS 3" - 10" max. Class 1500
material A351 CF8/CF8M NPS 2" - 10" max. Class 1500
- ³⁾ material of weld - STELLIT 6
- ⁴⁾ flanged-end valves temperature range terminates at 538°C / 1000°F
- ⁵⁾ demand of valve with labyrinth throttling system is necessary to consult with the manufacturer
- ⁶⁾ in case of reduced size seat the Kvs range is the same as with DN25
- ⁷⁾ only for Class 900 and 1500, for Class 2500 Cv=289 US gallon/min (Kvs_{max}=250 m³/hr)

Dimensional drawings

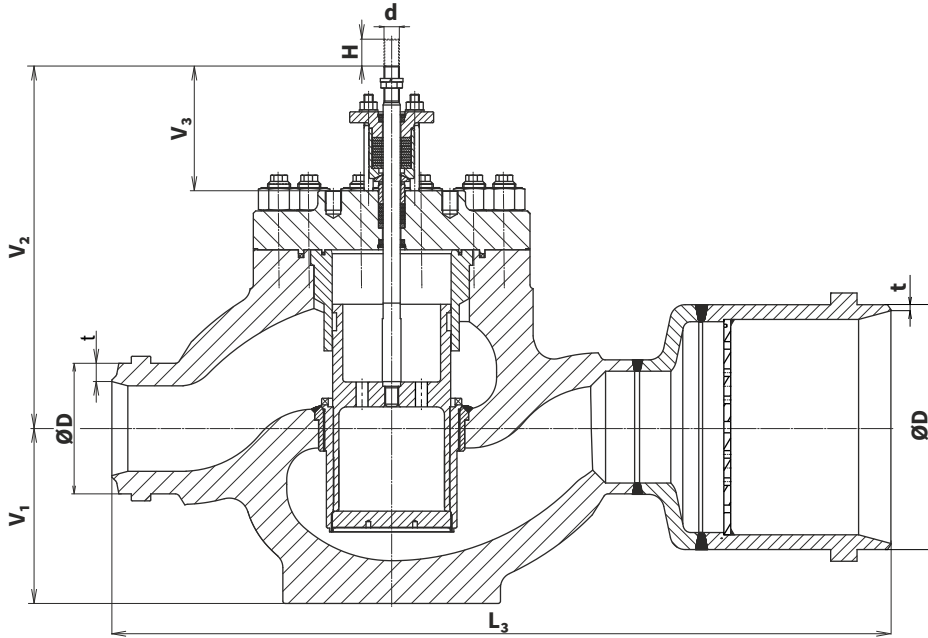
CV 701 with weld ends



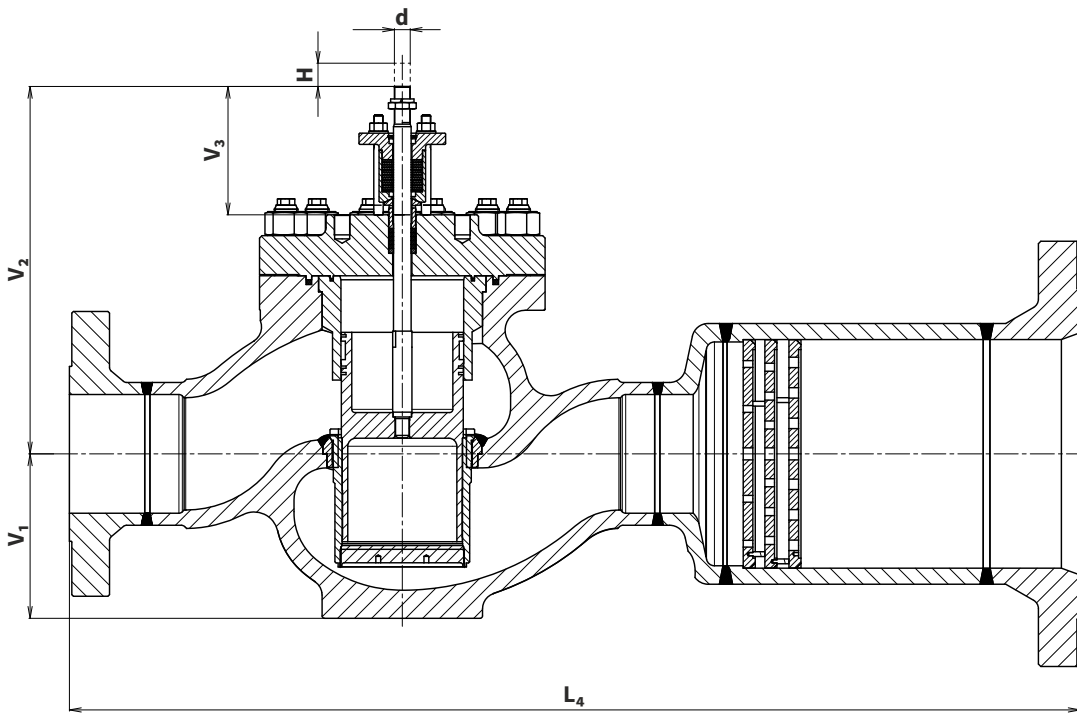
CV 701 with flanges



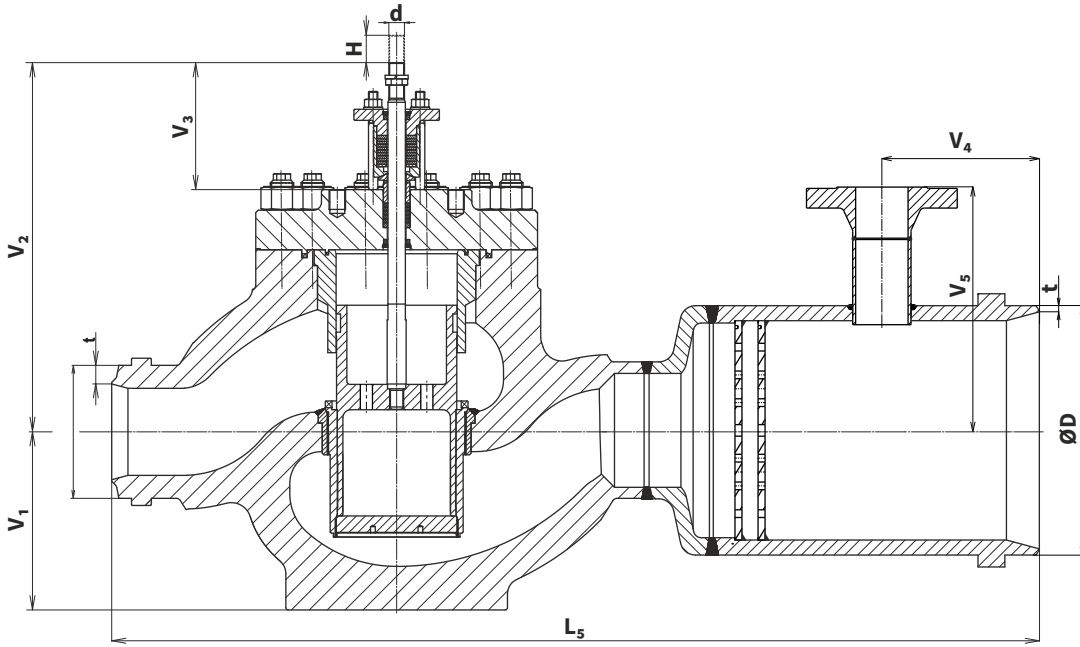
CV 702 with weld ends



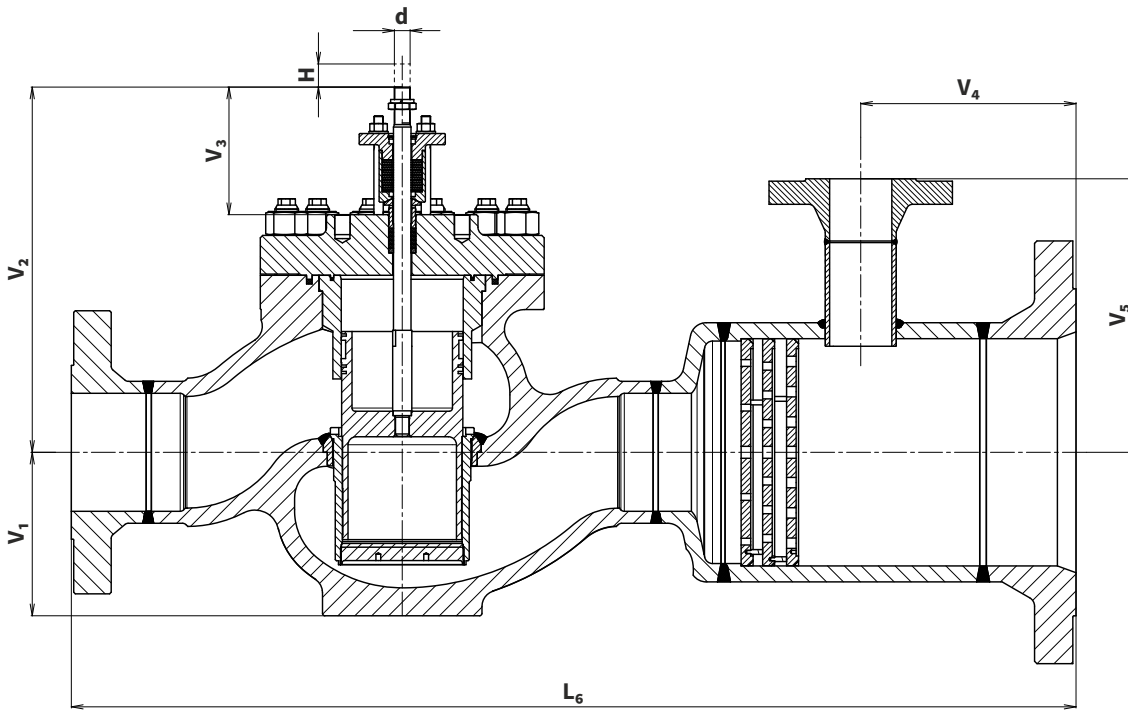
CV 702 with flanges



CS 702 with weld ends



CS 702 with flanges



Dimensions and weights for valves of series 700 (Ex)

NPS	Class 20 - 900				d	m (CV 701 weld ends) [kg]	m (CV 701 flanges) [kg]
	V ₁	V ₂	V ₃	H			
	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]			
1"	72 2.83	280 11.02	160 6.30	16 0.63		21	28
1½"	97 3.82	309 12.17	160 6.30	25 0.98		36	47
2"	100 3.94	316 12.44	160 6.30	25 0.98	M16x1,5	42	60
2½"	101 3.98	325 12.80	160 6.30	25 0.98		54	79
3"	130 5.12	354 13.94	160 6.30	40 1.57		74	93
4"	145 5.71	400 15.75	160 6.30	40 1.57		110	144
5"	205 8.07	458 18.03	160 6.30	63 2.48		M20x1,5	245
6"	205 8.07	458 18.03	160 6.30	63 2.48	245		311
8"	254 10.00	582 22.91	210 8.27	80 3.15	M24x1,5	632	758

NPS	Class 1500 - 2500				d	m (CV 701 weld ends) [kg]	m (CV 701 flanges) [kg]
	V ₁	V ₂	V ₃	H			
	[mm] [inch]	[mm] [inch]	[mm] [inch]	[mm] [inch]			
1"	70 2.76	280 11.02	160 6.30	16 0.63		28	33
1½"	103 4.06	313 12.32	160 6.30	25 0.98		56	
2"	110 4.33	320 12.60	160 6.30	25 0.98	M16x1,5	64	78
2½"	130 5.12	360 13.03	160 6.30	25 0.98		94	
3"	145 5.71	360 14.17	160 6.30	40 1.57		110	142
4"	170 6.69	404 15.91	160 6.30	40 1.57		197	298
5"	225 8.86	466 18.35	160 6.30	63 2.48		M20x1,5	380
6"	225 8.86	466 18.35	160 6.30	63 2.48	383		
8"	290 11.42	600 23.62	210 8.27	80 3.15	M24x1,5	908	
10"	345 13.58	675 26.57	210 8.27	100 3.94		1515	

→ data missing in the table on demand by manufacturer

Face to face dimensions

- **Class 150 - 900** → missing dimensional data in tables and other FTF dimensions on request from the manufacturer

Configuration with weld ends (butt weld)										
Standard	Class acc. to standard		NPS							
			1"	1½"	2"	2½"	3"	4"	5"/6"	8"
ISA-75.08.05-2016	900	L ₁ [mm] [inch]	279	330	375	375	460	530	768	832
			10.98	12.99	14.76	14.76	18.11	20.87	30.24	32.76
ASME B16.10(1992)	900	[mm] [inch]	254	305	368	419	381	457	610	737
			10.00	12.00	14.50	16.50	15.00	18.00	24.00	29.00

NPS 5" is available in the same FTF dimensions as NPS 6"

Configuration with weld ends (socket weld)										
Standard	Class acc. to standard		NPS							
			1"	1½"	2"	2½"				
ANSI/ISA-75.08.03-2001	900	L ₁ [mm] [inch]	279	330	375					
			10.98	12.99	14.76					
Outside of standard	900	[mm] [inch]				375				
						14.76				

Configuration with flanges										
Norma	Class acc. to standard		NPS							
			1"	1½"	2"	2½"	3"	4"	5"/6"	8"
ANSI/ISA-75.08.06-2002	900	L ₂ [mm] [inch]	292	333	375	410	441	511	714	914
			11.50	13.11	14.76	16.14	17.36	20.12	28.11	35.98

- **Class 1500 - 2500** → missing dimensional data in tables and other FTF dimensions on request from the manufacturer

Configuration with weld ends (butt weld)											
Type	Class		NPS								
			1"	1½"	2"	2½"	3"	4"	5"/6"	8"	10"
CV 701	1500-2500	L ₁	270	384	390	508	480	580	720	820	990
		[mm] [inch]	10.63	15.12	15.35	20.00	18.90	22.83	28.35	32.28	38.98

Type	Class		NPS									
			1 / 1½"	1½" / 3"	2" / 4"	2½" / 5"	3" / 6"	4" / 8"	5" / 10"	6" / 12"	8" / 16"	10" / 20"
CV 702	1500-2500	L ₃	360		635			880	996	1015		
		[mm] [inch]	14.17		25.00			34.65	39.21	39.96		

- only selected combinations of input and output DN are shown in the table

Configuration with weld ends (socket weld)						
Norma	Class acc. to standard		NPS			
			1"	1½"	2"	2½"
ANSI/ISA-75.08.03-2001	2500	L ₁	216	381	400	
		[mm] [inch]	8.50	15.00	15.75	
Outside of standard	2500				508	
					20.00	

Configuration with flanges												
Type	Class		NPS									
			1"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"
CV 701	1500-2500	L ₂	390	480	500	610	680	750	970	1020	1210	1430
		[mm] [inch]	15.35	18.90	19.69	24.02	26.77	29.53	38.19	40.16	47.64	56.30

Dimensions of weld ends

- according to ASME B16.25-2012
- according to customer requirements

Dimensions of flanges

- according to ASME B16.5-2013

Valve complete specification No. for orders CV 701 (Ex)

	XX	XXX	X X X	X X X X	X X	XXX	/	XXX	-	XXX	XX
1. Valve	Control valve	CV									
2. Series	Control valve, straight-through	701									
3. Type of actuator	Electric actuator		E								
	Pneumatic actuator		P								
¹⁾ Pneumatic actuators only up to NPS 6"	Electric actuator MTR ²⁾		EPD								
Larger NPS after an agreement with manufacturer	Electric actuator Modact MTN Control ²⁾		EYA								
	Electric actuator Modact MTP Control ²⁾		EYA								
	Electric actuator Modact MTNED ²⁾ , MTPED ²⁾		EYA								
²⁾ Application only up to NPS 6"	Electric actuator Modact MTN ²⁾ , MTP ²⁾		EYB								
Other NPS after an agreement with manufacturer	Electric actuator ST 2 ²⁾ , STR 2 ²⁾ , STR 2PA ²⁾		EPM								
Other actuators on request	Electric actuator Auma SA 07.6		EAE								
	Electric actuator Auma SA Ex 07.6		EAF								
	Electric actuator Auma SAR 07.6		EAG								
	Electric actuator Auma SAR Ex 07.6		EAH								
	Electric actuator Auma SA 10.2		EAI								
	Electric actuator Auma SA Ex 10.2		EAL								
	Electric actuator Auma SAR 10.2		EAJ								
	Electric actuator Auma SAR Ex 10.2		EAK								
	Electric actuator Schiebel AB5		EZE								
	Electric actuator Schiebel exAB5		EZF								
	Electric actuator Schiebel rAB5		EZG								
	Electric actuator Schiebel exrAB5		EZH								
	Pneumatic actuator Flowserve PO 700 ¹⁾		PF G								
	Pneumatic actuator Flowserve PO 1502 ¹⁾		PF D								
4. Connection	Flange RF (Raised Face)										1
	Flange RTJ (Ring Joint Face)										2
	Flange LFF (Large Female Face)										3
	Flange SFF (Small Female Face)										4
	Flange LGF (Large Groove Face)										5
	Flange SGF (Large Groove Face)										6
	Weld ends BW (Butt Weld)										7
	Weld ends SW (Socket Weld) - NPS 1" - 2½"										8
5. Body material	Cast steel A216WCB ... (-10 to 425 °C / 14 to 800 °F)										1
(operating temperature range in parentheses)	Stainless steel A217 C12A ... (-10 to 600 °C / 14 to 1112 °F)										5
	Alloy steel (-10 to 575 °C / 14 to 1067 °F)										6
	Alloy steel A217 WC6 ... (-10 to 575 °C / 14 to 1067 °F)										7
	Stainless steel A351 CF8M ... (-10 to 600 °C / 14 to 1112 °F)										8
	Other material after agreement										9
6. Type of throttling system	Pressure unbalanced (perforated plug)										1
	Pressure unbalanced (shaped plug)										2
	Pressure unbalanced (labyrinth)										3
	Pressure balanced - graphite gasket (perforated plug)										5
	Pressure balanced - metal ring seal (labyrinth)										7
	Pressure balanced - metal ring seal (perforated plug)										8
7. No. of steps of pressure reduction	One-step throttling system										1
	Two-step throttling system										2
	Three-step throttling system										3
	Four-step throttling system										4
8. Flow characteristic	Linear - Leakage class III.										L
	Linear - Leakage class IV.										N
	Linear - Leakage class V.										D
	Equal-percentage - Leakage class III.										R
	Equal-percentage - Leakage class IV.										E
	Equal-percentage - Leakage class V.										Q
9. No. of orifice plates	Without orifice plate										0
10. Nominal pressure PN	016, 025, 040, 063, 100, 160, 250, 320, 400							XXX			
11. Operating temp. °C	Acc. to process medium								XXX		
12. Nominal size DN	025 - 250										XXX
13. Environmental versions	Normal										
	Explosion-proof										Ex
	Seismic-proof										SP
	Seismic-proof and explosion-proof										SEx

Ordering example: Two-way control valve NPS 2", Class 900, with electric actuator Modact MTN Control, body material: cast steel, weld ends, pressure balanced with graphite gasket, two-step pressure reduction, linear flow characteristic is specified as follows: **CV701 EYA 7152 L0 090/400-050**

Valve complete specification No. for ordering valves CV 702 (Ex) and CS 702 (Ex)

		XX	XXX	X X X	X X X X	X X	XXX	/	XXX	-	XXX	XX
1. Valve	Control valve	CV										
	Steam-conditioning station	CS										
2. Series	Control valve with extended outlet		702									
3. Type of actuating	Electric actuator											
	Pneumatic actuator											
¹⁾ Pneumatic actuators only up to NPS 6"	Electric actuator MTR ²⁾											
Other NPS on request	Electric actuator Modact MTN Control ²⁾											
	Electric actuator Modact MTP Control ²⁾											
	Electric actuator Modact MTNED ²⁾ , MTPED ²⁾											
²⁾ Application only up to NPS 6"	Electric actuator Modact MTN ²⁾ , MTP ²⁾											
Other NPS on request	Electric actuator ST 2 ²⁾ , STR 2 ²⁾ , STR 2PA ²⁾											
	Electric actuator Auma SA 07.6											
	Electric actuator Auma SA Ex 07.6											
Other actuators on request	Electric actuator Auma SAR 07.6											
	Electric actuator Auma SAR Ex 07.6											
	Electric actuator Auma SA 10.2											
	Electric actuator Auma SA Ex 10.2											
	Electric actuator Auma SAR 10.2											
	Electric actuator Auma SAR Ex 10.2											
	Electric actuator Schiebel AB5											
	Electric actuator Schiebel exAB5											
	Electric actuator Schiebel rAB5											
	Electric actuator Schiebel exrAB5											
	Pneumatic actuator Flowserve PO 700 ¹⁾											
	Pneumatic actuator Flowserve PO 1502 ¹⁾											
4. Connection	Flange RF (Raised Face)											1
	Flange RTJ (Ring Joint Face)											2
	Flange LFF (Large Female Face)											3
	Flange SFF (Small Female Face)											4
	Flange LGF (Large Groove Face)											5
	Flange SGF (Large Groove Face)											6
	Weld ends BW (Butt Weld)											7
	Weld ends SW (Socket Weld) - NPS 1" - 2½"											8
5. Body material	Cast steel A216WCB ... (-10 to 425 °C / 14 to 800 °F)											1
	Stainless steel A217 C12A ... (-10 to 600 °C / 14 to 1112 °F)											5
(operating temperature range in parentheses)	Alloy steel (-10 to 575 °C / 14 to 1067 °F)											6
	Alloy steel A217 WC6 ... (-10 to 575 °C / 14 to 1067 °F)											7
	Stainless steel A351 CF8M ... (-10 to 600 °C / 14 to 1112 °F)											8
	Other material after agreement											9
6. Type of throttling system	Pressure unbalanced (perforated plug)											1
	Pressure unbalanced (shaped plug)											2
	Pressure unbalanced (labyrinth)											3
	Pressure balanced - graphite gasket (perforated plug)											5
	Pressure balanced - metal ring seal (labyrinth)											7
	Pressure balanced - metal ring seal (perforated plug)											8
7. No. of steps of pressure reduction	One-step throttling system											1
	Two-step throttling system											2
	Three-step throttling system											3
	Four-step throttling system - labyrinth											4
8. Flow characteristic	Linear - Leakage class III.											L
	Linear - Leakage class IV.											N
	Linear - Leakage class V.											D
	Equal-percentage - Leakage class III.											R
	Equal-percentage - Leakage class IV.											E
	Equal-percentage - Leakage class V.											Q
9. No. of orifice plates *)	Max. 3											X
10. Nominal pressure PN *)	016, 025, 040, 063, 100, 160, 250, 320, 400											XXX
11. Operating temp. °C	Acc. to process medium											XXX
12. Nominal size DN *)	025 - 250											XXX
13. Environmental versions	Normal											
	Explosion-proof											Ex
	Seismic-proof											SP
	Seismic-proof and explosion-proof											SEx

*) PN a DN of output, number of pressure reduction steps and number of orifices is chosen after an agreement with manufacturer

Ordering example: Two-way control valve NPS 2" / 4", Class 900/600, with electric actuator Modact MTN Control, body material: cast steel, weld ends, pressure balanced with graphite gasket, two-step pressure reduction, linear flow characteristic is specified as follows: **CV 702 EYA 7152 L1 090x060/400-050x100**

Additional tables for assembling the type number of 700 series valves

Table no. 1: **nominal pressure**

Class	→	type number XXX
150		015
300		030
600		060
900		090
1500		150
2500		250

Table no. 2: **nominal size**

NPS	→	DN	→	type number XXX
1"		25		025
1 1/2"		40		040
2"		50		050
2 1/2"		65		065
3"		80		080
4"		100		100
5"		125		125
6"		150		150
8"		200		200
10"		250		250

Table no. 3: **temperature**

°F	→	°C type number XXX
392		200
572		300
752		400
797		425
842		450
932		500
1000		538
1022		550
1067		575
1112		600

Maximal permissible pressures [MPa] ASME B16.34(2013)															
Material	Class	Temperature [°C]													
		100	150	200	250	300	350	400	425	450	500	538	550	575	600
Cast steel A216 WCB (group 1.1)	150	17.7	15.8	13.8	12.1	10.2	8.4	6.5	5.5	-	-	-	-	-	-
	300	46.6	45.1	43.8	41.9	39.8	37.6	34.7	28.8	-	-	-	-	-	-
	600	93.2	90.2	87.6	83.9	79.6	75.1	69.4	57.5	-	-	-	-	-	-
	900	139.8	135.2	131.4	125.8	119.5	112.7	104.2	86.3	-	-	-	-	-	-
	1500	233.0	225.4	219.0	209.7	199.1	187.8	173.6	143.8	-	-	-	-	-	-
	2500	388.3	375.6	365.0	349.5	331.8	313.0	289.3	239.7	-	-	-	-	-	-
Alloy steel A217 C12A (group 1.15)	150	17.7	15.8	13.8	12.1	10.2	8.4	6.5	5.5	4.6	2.8	1.4	1.4 ²⁾	1.4 ²⁾	1.4 ²⁾
	300	51.5	50.3	48.6	46.3	42.9	40.3	36.5	35.2	33.7	28.2	25.2	25.0	24.0	19.5
	600	103.0	100.3	97.2	92.7	85.7	80.4	73.3	70.0	67.7	56.5	50.0	49.8	47.9	39.0
	900	154.6	150.6	145.8	139.0	128.6	120.7	109.8	105.1	101.4	84.7	75.2	74.8	71.8	58.5
	1500	257.6	250.8	243.4	231.8	214.4	201.1	183.1	175.1	169.0	140.9	125.5	124.9	119.7	97.5
	2500	429.4	418.2	405.4	386.2	357.1	335.3	304.9	291.6	281.8	235.0	208.9	208.0	199.5	162.5
Alloy steel A217 WC6³⁾ (group 1.9)	150	17.7	15.8	13.8	12.1	10.2	8.4	6.5	5.5	4.6	2.8	1.4	1.4 ²⁾	1.4 ²⁾	-
	300	51.5	49.7	48	46.3	42.9	40.3	36.5	35.2	33.7	25.7	14.9	12.7	8.8	-
	600	103	99.8	95.9	92.7	85.7	80.4	73.3	70	67.7	51.5	29.8	25.4	17.6	-
	900	154.4	149.2	143.9	139	128.6	120.7	109.8	105.1	101.4	77.2	44.7	38.1	26.4	-
	1500	257.4	248.7	239.8	231.8	214.4	201.1	183.1	175.1	169	128.6	74.5	63.5	44	-
	2500	429	414.5	399.6	386.2	357.1	335.3	304.9	291.6	281.8	214.4	124.1	105.9	73.4	-
Alloy steel A217 WC9³⁾ (group 1.10)	150	17.7	15.8	13.8	12.1	10.2	8.4	6.5	5.5	4.6	2.8	1.4	1.4 ²⁾	1.4 ²⁾	-
	300	51.5	50.3	48.6	46.3	42.9	40.3	36.5	35.2	33.7	28.2	18.4	15.6	10.5	-
	600	103.0	100.3	97.2	92.7	85.7	80.4	73.3	70.0	67.7	56.5	36.9	31.3	21.1	-
	900	154.6	150.6	145.8	139.0	128.6	120.7	109.8	105.1	101.4	84.7	55.3	46.9	31.6	-
	1500	257.6	250.8	243.4	231.8	214.4	201.1	183.1	175.1	169.0	140.9	92.2	78.2	52.6	-
	2500	429.4	418.2	405.4	386.2	357.1	335.3	304.9	291.6	281.8	235.0	153.7	130.3	87.7	-
Stainless steel A351 CF8M¹⁾ (group 2.2)	150	16.2	14.8	13.7	12.1	10.2	8.4	6.5	5.5	4.6	2.8	1.4	1.4 ²⁾	1.4 ²⁾	1.4 ²⁾
	300	42.2	38.5	35.7	33.4	31.6	30.3	29.4	29.1	28.8	28.2	25.2	25.0	24.0	19.9
	600	84.4	77.0	71.3	66.8	63.2	60.7	58.9	58.3	57.7	56.5	50.0	49.8	47.9	39.8
	900	126.6	115.5	107.0	100.1	94.9	91.0	88.3	87.4	86.5	84.7	75.2	74.8	71.8	59.7
	1500	211.0	192.5	178.3	166.9	158.1	151.6	147.2	145.7	144.2	140.9	125.5	124.9	119.7	99.5
	2500	351.6	320.8	297.2	278.1	263.5	252.7	245.3	242.9	240.4	235.0	208.9	208.0	199.5	165.9

Notes:

¹⁾ At temperatures above 538 °C, use only when the carbon content is 0.04% or higher

²⁾ Only configuration with weld ends

³⁾ Use normalized and tempered material only

Table cells of pressure-temperature combinations not recommended by manufacturer are left blank.

Maximal permissible pressures [psig] ASME B16.34(2013)															
Material	Class	Temperature [°F]													
		300	400	500	600	650	750	800	850	900	932	1000	1050	1067	1112
Cast steel A216 WCB (group 1.1)	150	230	200	170	140	125	95	80	-	-	-	-	-	-	-
	300	655	635	605	570	550	505	410	-	-	-	-	-	-	-
	600	1310	1265	1205	1135	1100	1015	825	-	-	-	-	-	-	-
	900	1965	1900	1810	1705	1650	1520	1235	-	-	-	-	-	-	-
	1500	3270	3170	3015	2840	2745	2535	2055	-	-	-	-	-	-	-
	2500	5450	5280	5025	4730	4575	4230	3430	-	-	-	-	-	-	-
Alloy steel A217 C12A (group 1.15)	150	230	200	170	140	125	95	80	65	50	40	20	20 ²⁾	20 ²⁾	20 ²⁾
	300	730	705	665	605	590	530	510	485	450	408	365	360	340	282
	600	1455	1410	1330	1210	1175	1065	1015	975	900	820	725	720	681	567
	900	2185	2115	1995	1815	1765	1595	1525	1460	1350	1228	1090	1080	1021	849
	1500	3640	3530	3325	3025	2940	2660	2540	2435	2245	2043	1820	1800	1701	1415
	2500	6070	5880	5540	5040	4905	4430	4230	4060	3745	3409	3030	3000	2835	2357
Alloy steel A217 WC6³⁾ (group 1.9)	150	230	200	170	140	125	95	80	65	50	40.4	20	20 ²⁾	20 ²⁾	-
	300	720	695	665	605	590	530	510	485	450	366.8	215	145	128	-
	600	1445	1385	1330	1210	1175	1065	1015	975	900	733.6	430	290	256	-
	900	2165	2080	1995	1815	1765	1595	1525	1460	1350	1097.2	650	430	382.4	-
	1500	3610	3465	3325	3025	2940	2660	2540	2435	2245	1829	1080	720	638.4	-
	2500	6015	5775	5540	5040	4905	4430	4230	4060	3745	3047.4	1800	1200	1064	-
Alloy steel A217 WC9³⁾ (group 1.10)	150	230	200	170	140	125	95	80	65	50	40	20	20 ²⁾	20 ²⁾	-
	300	730	705	665	605	590	530	510	485	450	408	265	175	153	-
	600	1455	1410	1330	1210	1175	1065	1015	975	900	807	535	350	306	-
	900	2185	2115	1995	1815	1765	1595	1525	1460	1350	1228	800	525	459	-
	1500	3640	3530	3325	3025	2940	2660	2540	2435	2245	2043	1335	875	765	-
	2500	6070	5880	5540	5040	4905	4430	4230	4060	3745	3409	2230	1455	1271	-
Stainless steel A351 CF8M¹⁾ (group 2.2)	150	215	195	170	140	125	95	80	65	50	40	20	20	20 ²⁾	20 ²⁾
	300	560	515	480	450	440	425	420	420	415	396	365	360	341	288
	600	1120	1025	955	900	885	855	845	835	830	795	725	720	683	578
	900	1680	1540	1435	1355	1325	1280	1265	1255	1245	1191	1090	1080	1024	866
	1500	2795	2570	2390	2255	2210	2135	2110	2090	2075	1982	1820	1800	1707	1443
	2500	4660	4280	3980	3760	3680	3560	3520	3480	3460	3306	3030	3000	2845	2407

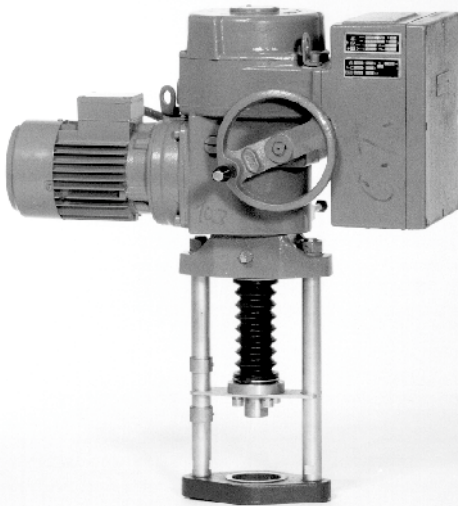
Notes:

¹⁾ At temperatures above 1000 °F, use only when the carbon content is 0.04% or higher

²⁾ Only configuration with weld ends

³⁾ Use normalized and tempered material only

Table cells of pressure-temperature combinations not recommended by manufacturer are left blank.



Electric actuators **ZPA Pečky**

Modact MTN
Modact MTP
Modact MTN Control
Modact MTP Control

type 52 442

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			
Stroke	10 to 100 mm			
Enclosure	IP 55		IP 67	
Process medium max. temp.	acc. to used valve			
Ambient temperature range	-25 to 70°C		-25 to 60°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 manufacturer'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 x limit and signalisation switches SO, SZ

Basic technical parameters

Type	Switching-off thrust [kN]	Max. load thrust [kN]	Operating speed [mm.min ⁻¹]	Stroke [mm]	Power [W]	Electromotor			Weight [kg]	Specification No.	
						RPM 1/min	In (400V) [A]	$\frac{l_z}{l_n}$		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
MTN 25 MTP 25	15 - 25	32,5	50	10 - 100	180	835	0.74	2.3			XX4XXM
			80		180	835	0.74	2.3			XX5XXM
			125		250	1350	0.77	3.0			XX6XXM
			36		120	645	0.51	2.2			XX7XXM
			27		120	645	0.51	2.2			XX8XXM

Version, electric connection

With 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 w/o source	Current transmitter DCPT with source	
Position transmitter		current 4 - 20 mA	XXX0XM	XXXRXM	
		current 4 - 20 mA with BMO	XXX1XM	XXXSXM	
		resistance 2x 100 Ω	XXX2XM		
		resistance 2x 100 Ω with BMO	XXX3XM		
		without transmitter, with BMO	XXXPM		
		without transmitter, without BMO	XXXZXM		
Additional electric equipment ¹⁾			Resist. transmitter 2x 100 Ω	Current transmitter CPT w/o source	Current transmitter DCPT with source
Control (with built-in contactor combination)	w/o 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⁾	

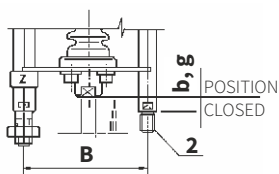
Notes:

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

²⁾ Design without force locking after reversion have at the end position capital letter M (for example: 52442.6211NM)

³⁾ For actuators **MODACT MTN Control** with position controllers **ZP2.RE5** specify number 5 on place 11 (e.g.: 52442.6M5FN5M)

Connection dimensions - details of additional specification No. 52 442



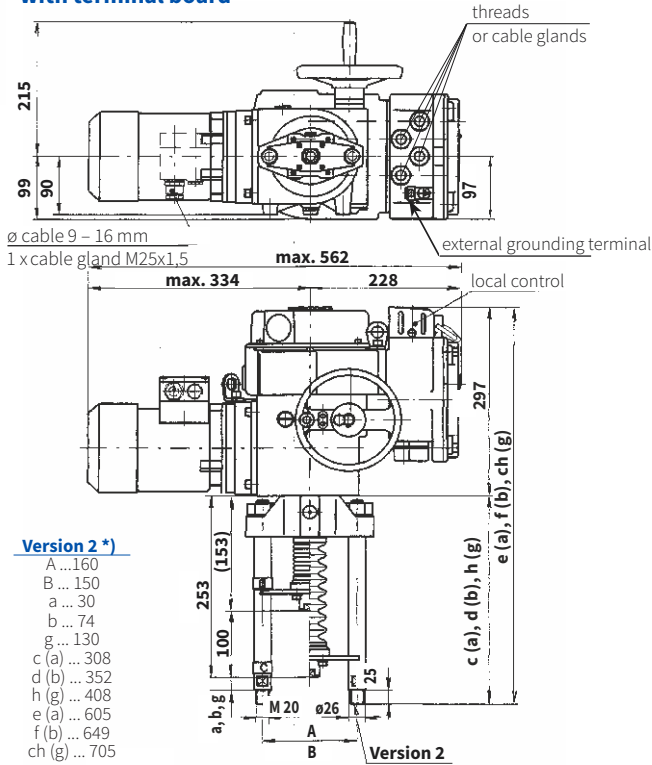
Columns pitch	B	150
Position "closed"	b	74
	g	130
Coupling thread	I	M 20x1,5
	II	M 16x1,5

Execution	Specification No.		For valves
	basic	additional	
Bg2II	52 442	XYXXXM	RV, RS 70x DN 25 - 80
Bg2I	52 442	XRXXXM	RV, RS 70x DN 100 - 150 *)

*) split coupling

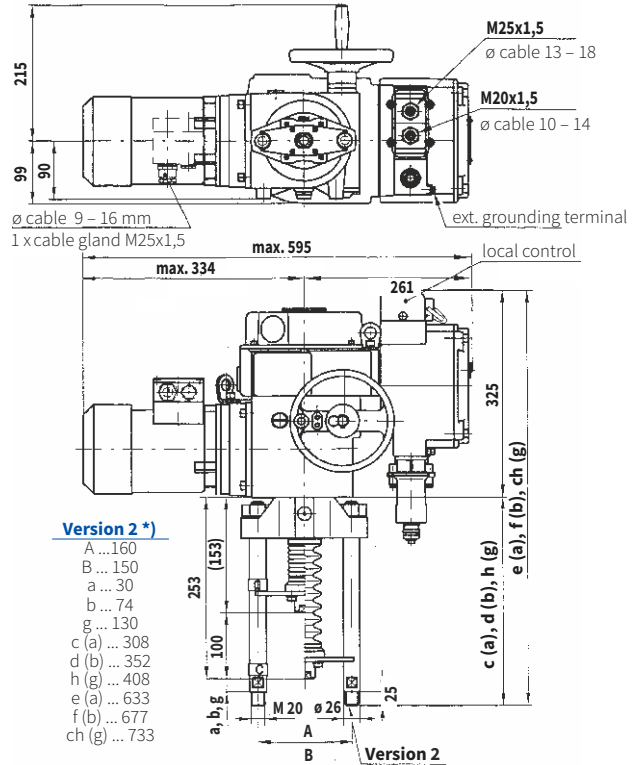
Dimensions of actuator Modact MTN, MTP

- with terminal board



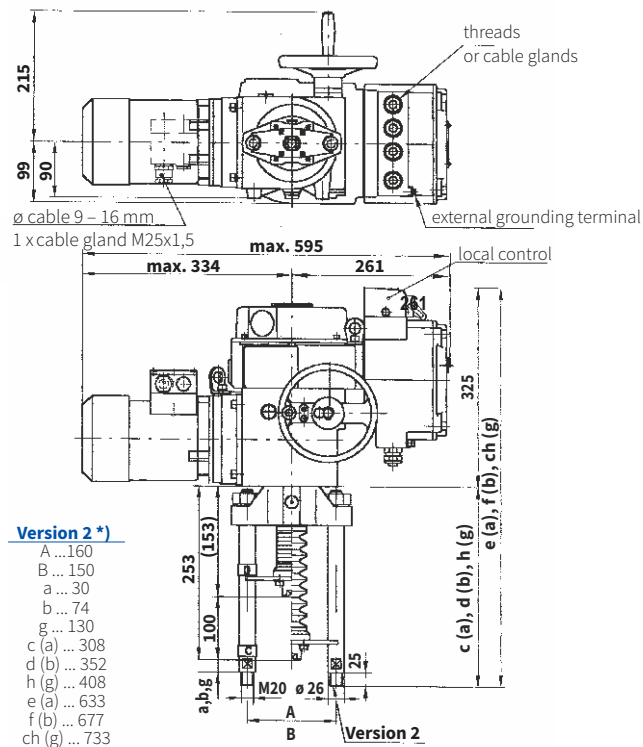
Dimensions of actuator MTN, MTP and Modact MTN, MTP Control

- with connector



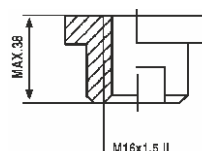
Dimensions of actuator Modact MTN, MTP Control

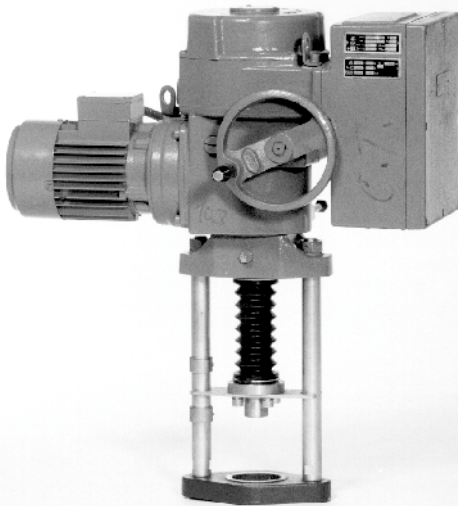
- with terminal board



*) values in parentheses are valid for DN 100, 150

Detail of coupling (DN 25 - 80)





Electric actuators **ZPA Pečky**

Modact MTNED
Modact MTPED

type 52 442

Technical data		
Type	Modact MTNED	Modact MTPED
Marking in valve spec. No.	EYA	
Execution	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	
Stroke	10 to 100 mm	
Enclosure	IP 55	IP 67
Process medium max. temp.	acc. to used valve	
Ambient temperature range	-25 to 70 °C	-25 to 60 °C
Ambient humidity range	10 - 100 % with condensation	
Weight	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.zpa-pecky.cz

Electric equipment

System DMS2 ED

The simpler 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. 4 push-buttons and 3 LEDs for setting and checking the actuator.
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 LEDs
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 (contactors or contactless switching) An electronic brake can be connected to the unit
Unit of display	Two-row display, 2 x 12 alpha-numeric characters
Unit of push-buttons	Push-buttons "open", "close", "stop", Selector switch "Local, Remote, Stop"
Recommended equipment	
Electronic brake	After switching-off the motor reduces running down and increases precision of 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	Switching-off thrust range [kN]	Max. load thrust [kN]	Operating speed [mm.min ⁻¹]	Stroke [mm]	Power [W]	Electromotor			Weight (Aluminium) [kg]	Specification no.	
						RPM [1/min]	In (400V) [A]	Iz In		Basic	Additional
MTNED 25 MTPED 25	15 - 25	32,5	50	10 - 100	180	875	0.85	2	33	52 442	XX4XXED
			80		180	875	0.85	2			XX5XXED
			125		250	1365	0.80	3			XX6XXED
			36		120	625	0.82	2			XX7XXED
			27		120	625	0.82	2			XX8XXED
Version Modact MTNED ... enclosure IP55										XXXNED	
Version Modact MTPED ... enclosure IP67										XXXPED	

Version, electric connection, electric equipment				
	Terminal board	Connector	Terminal board, brake	Connector, brake
Electronic DMS2 ED	EXXXXED	FXXXXED	HXXXXED	KXXXXED
Electronic DMS2 ED, contactless switches	AXXXXED	BXXXXED	CXXXXED	DXXXXED
Electronic DMS2, Profibus electronics	PXXOXED	TXXOXED	UXXOXED	YXXOXED
Electronic DMS2, Profibus electronics, contactless switches	IXXOXED	JXXOXED	LXXOXED	MXXOXED
Electronic DMS2, 2-position or 3-position control *)	RXXOXED	VXXOXED	WXXOXED	1XXOXED
Electronic DMS2, 2-position or 3-position control *), contactless switches	NXXOXED	SXXOXED	2XXOXED	ZXXOXED

*) Manufacturer of actuator presets 2- or 3- position control during production.

If not specified in the order, the actuator is set to 3-position control by default (control signal 4-20 mA).

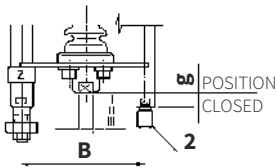
Electronic equipment of DMS2 ED		Character at the 9th place (52442 xxxXxED)																							
Equipment DMS2 ED		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	H	J	K	L	M	N	V	W
Local control			x		x		x		x		x		x		x		x		x		x		x		x
Display				x	x			x	x			x	x			x	x			x	x			x	x
Relay						x	x	x	x					x	x	x	x					x	x	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	NO	---
-40 to +60	YES	YES	YES	YES	F1
-25 to +60	---	---	YES	YES	---

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

Connection dimensions - details of additional specification No. 52 442



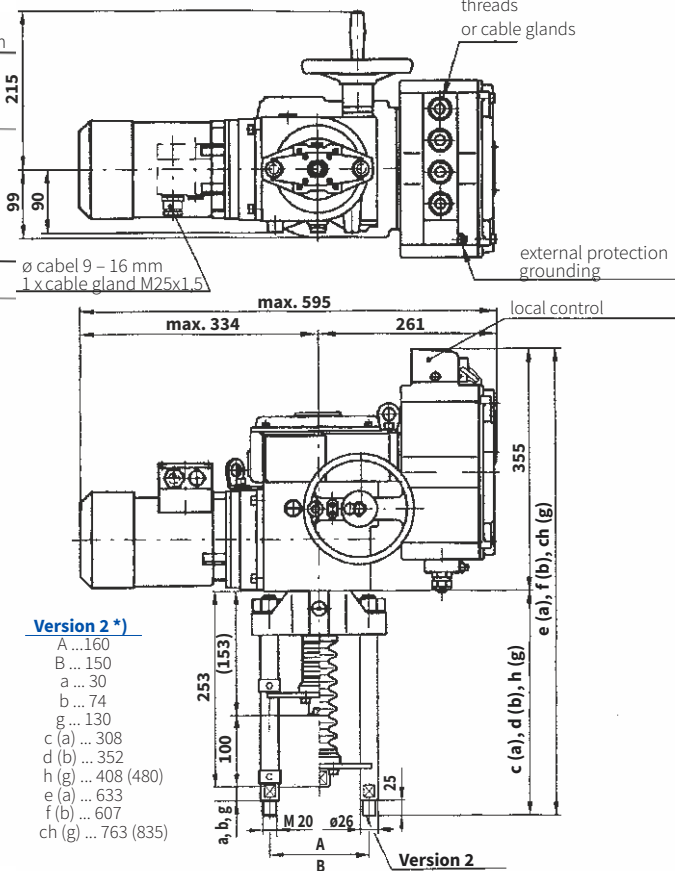
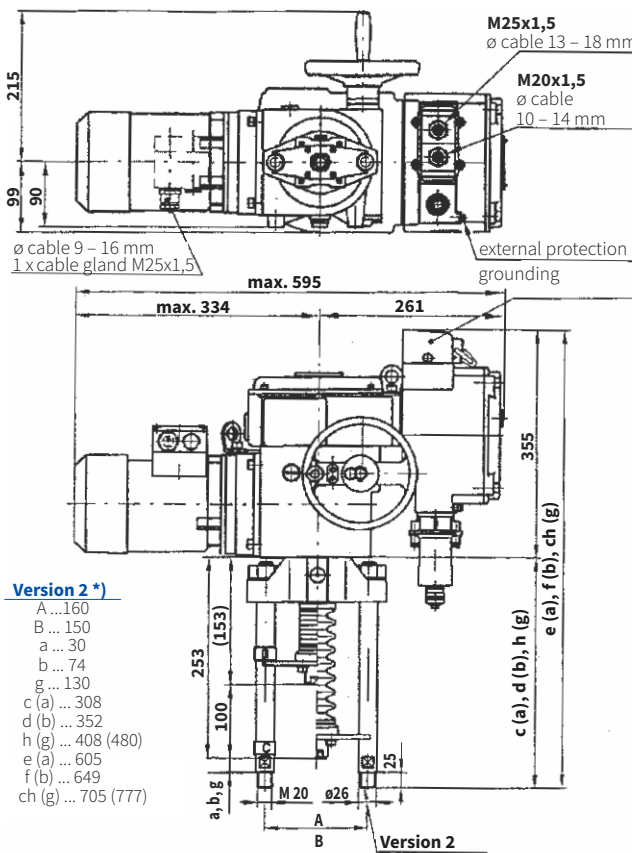
Columns pitch	B	150
Position „closed”	B ₀	130
Coupling thread	I	M 20x1,5
	II	M 16x1,5

Execution	Specification No.		For valves
	basic	additional	
Bg2II	52 442	YXXXXED	CV, CS 70x NPS 1" - 3"
Bg2I	52 442	XRXXXXED	CV, CS 70x NPS 4" - 6"

Dimensions of actuator Modact MTNED/MTPED

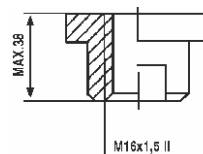
- with connector

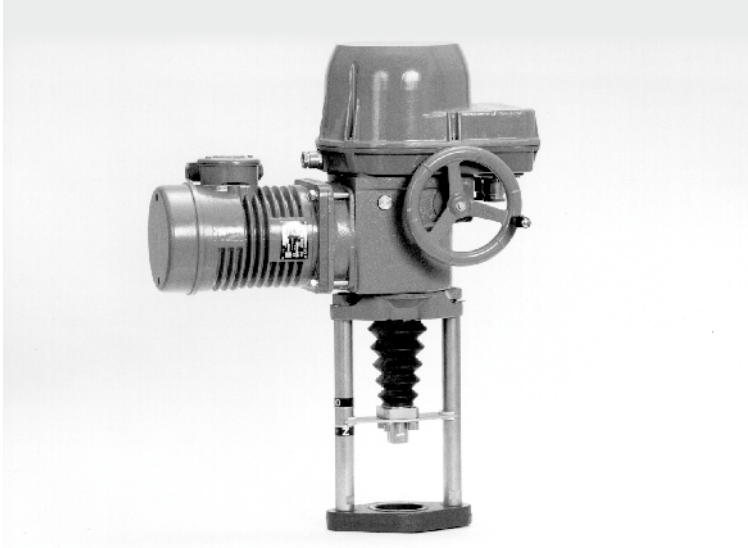
- with terminal board



*) values in parentheses are valid for DN 100, 150

Detail of coupling (NPS 1" - 3")





Electric actuator Regada

MTR

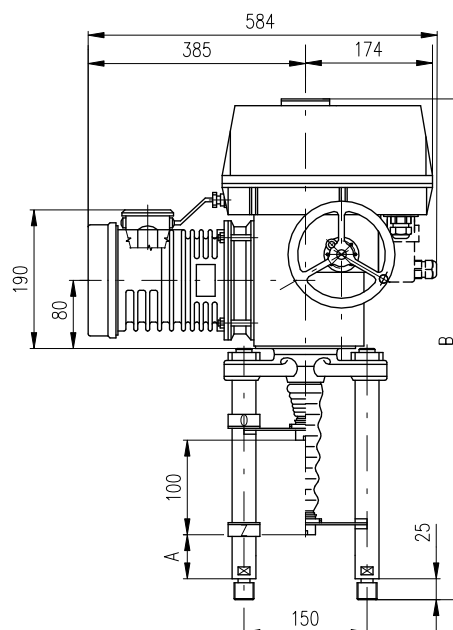
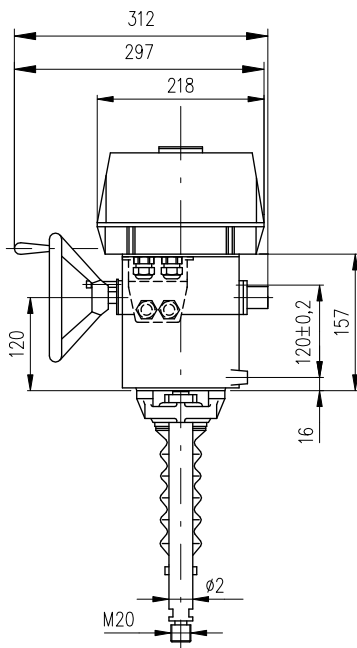
marking in type number:

EPD

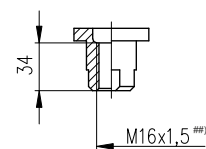
Technical data	
Type	MTR
Marking in valve spec. No.	EPD
Voltage	230 V AC
Frequency	50 Hz
Power consumption	16 or 25 W
Control	3-position (or continuous with regulator NOTREP)
Nominal force	16, 25 kN
Stroke	12,5 to 100 mm
Enclosure	IP 55 / IP 67
Process medium max. temp.	acc. to used valve
Ambient temperature 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



**Detail of coupling
(NPS 1" - 3")**



columns version	with ball screw	
	A	B
P-1045b/H	130	702
for CV, CS 70x NPS 1" - 3"		
P-1045b/H	130	800
for CV, CS 70x NPS 4", 6" (split coupling)		

Specification of actuators MTR

Electric actuator linear MTR					52 420.			X	-	X	X	X	X	X	X	/	X	X				
Temperatures mild and hot (-25 °C to +50 °C)					Enclosure IP 55			0														
					Enclosure IP 67			1														
Electronic connection				Voltage																		
To terminal board				230 V AC							9											
To connector											8											
Screw version	Switching-off thrust ¹⁾²⁾	Rated operating speed	Operating speed	Electromotor																		
				Power	Speed	Current																
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			
	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	
Control board version				Operation stroke																		
Electromechanical control board - without local control				16 mm																	B	
				25 mm																		C
				40 mm																		E
				63 mm																		F
Position transmitter				Connection		Output																
Without transmitter				—		—														A		
Resistive	Single			—		1x100 Ω														B		
	Double					2x100 Ω															C	
	Single					1x2000 Ω															F	
	Double					2x2000 Ω															P	
Current output	W/o source			2-wire		4 - 20 mA														S		
	With source					0 - 20 mA															Q	
	W/o source					3-wire		4 - 20 mA														V
	With source							0 - 5 mA														
	W/o source			4 - 20 mA																	W	
	With source			0 - 5 mA																	Y	
	Capacitive CPT	W/o source			2-wire		4 - 20 mA														I	
		With source																				J
Mechanical connection		Connection height		Columns pitch		Thread of stem ³⁾		Dimensional drawing														
Columns		130		150		M20x1.5 M16x1.5		P-1045a/H												C		
Additional equipment																						
Without additional equipment; adjusted max. switching-off thrust from range																			0	1		
A 2 additional position switches S5,S6																			0	2		
B Setting the stroke position to the desired value																			0	3		

Possible combinations and version: A+B = 07

Notes:

- 1) State the switching-off thrust in your order by words. If not stated it will be adjusted to the maximum value of the corresponding range. Cannot be modified by customer.
- 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 of the coupling is to be specified in the order by words.



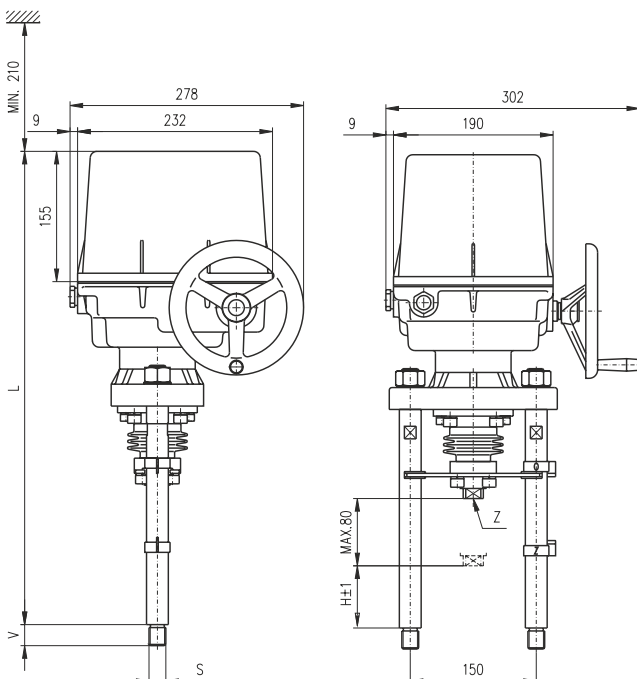
Electric actuators **Regada**

ST 2
STR 2
STR 2PA

Technical data	
Type	ST 2, STR 2, STR 2PA
Marking in valve spec. No.	EPM
Voltage	1 ~ 230 V AC, 3 ~ 400 V AC
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
Stroke	16, 25, 40 and 64 mm
Enclosure	IP 65 / IP 67 (ST 2, STR 2), IP 67 (STR2PA)
Process medium max. temp.	acc. to used valve
Ambient temperature range	-25 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



Version	H	L	S	V	Z
P-1247/D for CV, CS 70x NPS 1" - 3"	126	622	M20	25	M16 x 1,5
P-1247/D for CV, CS 70x NPS 4", 6" (split coupling)	130	760	M20	25	M20 x 1,5

Specification of actuator ST 2 and STR 2

Electric servomotor ST 2, STR 2				492.	X	-	X	X	X	X	X	X	/	X	X																																																																																																											
Climatic resistance	Standard	IP 65	Without regulator (ST 2)	0																																																																																																																						
		IP 67		1																																																																																																																						
	Tropical	IP 67		6																																																																																																																						
		Standard		IP 65	With regulator (STR 2)	A																																																																																																																				
	IP 65			C																																																																																																																						
	Tropical	IP 67		G																																																																																																																						
IP 67		J																																																																																																																								
Electric connection	To terminal board		Voltage	24 V DC		A																																																																																																																				
				230 V AC		0																																																																																																																				
				3x400 V AC ¹⁾	2																																																																																																																					
				24 V AC	3																																																																																																																					
				3x400 V AC	9																																																																																																																					
	To connector			24 V DC	C																																																																																																																					
				230 V AC	5																																																																																																																					
				24 V AC	8																																																																																																																					
				3x400 V AC ¹⁾	6																																																																																																																					
				3x400 V AC	7																																																																																																																					
230 V AC		3x400 V AC																																																																																																																								
Nominal force [N]	20 W	Nominal force [N]	90 W	Operating speed	10 mm/min	A																																																																																																																				
						J																																																																																																																				
						B																																																																																																																				
						K																																																																																																																				
						L																																																																																																																				
						C																																																																																																																				
	60 W				20 mm/min	Q																																																																																																																				
						R																																																																																																																				
						D																																																																																																																				
						V																																																																																																																				
						W																																																																																																																				
						E																																																																																																																				
90 W	40 mm/min	25 000	20 000	16 000	25 000	16 000	25 000	20 000	16 000	25 000	20 000	16 000	25 000	20 000	16 000																																																																																																											
																60 mm/min ⁵⁾	16 000	---	16 000	---	16 000	---	16 000	---	16 000	---	16 000	---	16 000	---																																																																																												
																															80 mm/min ⁵⁾	16 000	---	16 000	---	16 000	---	16 000	---	16 000	---	16 000	---	16 000	---																																																																													
																																														100 mm/min	16 000	---	16 000	---	16 000	---	16 000	---	16 000	---	16 000	---	16 000	---																																																														
																																																													16 mm	25 mm	40 mm	64 mm	D	F	H	J	D	F	H	J	D	F	H	J																																														
																																																																													Max. (without transmitter) ²⁾ ... 80 mm	With transmitter	16 mm	25 mm	40 mm	64 mm	D	F	H	J	D	F	H	J	D	F	H	J																												
Without transmitter	Resistance	Single	Connection	Output	1 x 100 Ω	1 x 2000 Ω	2 x 100 Ω	2 x 2000 Ω	4 - 20 mA	0 - 20 mA	4 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	4 - 20 mA																																																																																A	B	F	K	P	S	T	V	Q	U	W	I	J															
																Double	2-wire	3-wire	2-wire	3-wire	4 - 20 mA	0 - 20 mA	4 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	A	B																																																																														F	K	P	S	T	V	Q	U	W	I	J				
		without its source																													2-wire	3-wire	2-wire	3-wire	4 - 20 mA	0 - 20 mA	4 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	A	B	F																																																																										K	P	S	T
																with its source ³⁾																														2-wire	3-wire	2-wire	3-wire	4 - 20 mA	0 - 20 mA	4 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	A	B	F																																																														
																																																													w/o its source	2-wire	3-wire	2-wire	3-wire	4 - 20 mA	0 - 20 mA	4 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	A	B	F																																														
																with its source ³⁾																														2-wire	3-wire	2-wire	3-wire	4 - 20 mA	0 - 20 mA	4 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	0 - 20 mA	4 - 20 mA	A	B	F																	K	P	S	T	V	Q	U	W	I	J																																				
Mechanic connection ⁴⁾	NPS 1" - 3", coupling M16x1,5 NPS 4" - 6", coupling M20x1,5	M	A	E	C	D	G	0	0	2	7	5	5	0	2																7	5	5	0	2	7	5	5	0	2	7	5																																																																																
																Accessories	A	E	C	D	G	0	0	2	7	5	5	0	2	7													5	5	0	2	7	5	5	0	2	7	5																																																																					

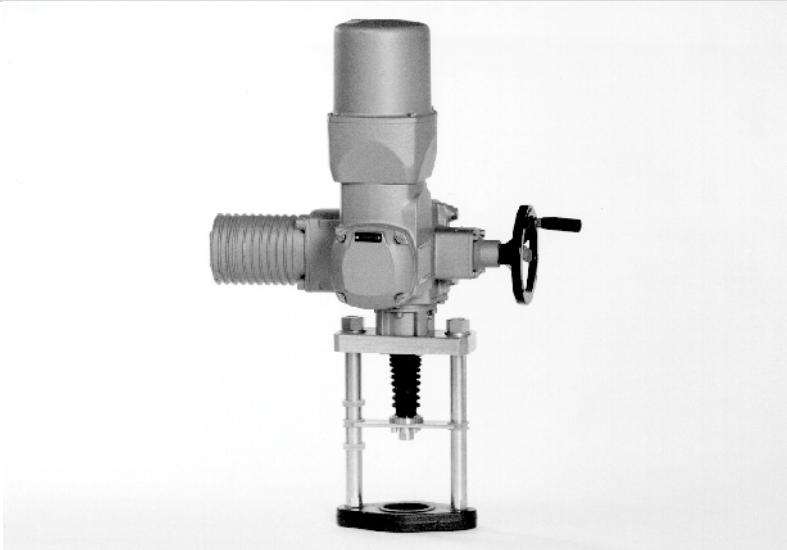
Permissible combinations of accessories and codes:

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

1) version with reverse contactors; **2)** version without transmitter - it is possible to set up stroke 0 - 80 mm; **3)** position transmitter with its source for voltage 24 V DC only after agreement with the manufacturer; **4)** Thread of the coupling is to be stated by word in the order; **5)** applies for version without regulator

Specification of actuator STR 2PA

Electric servomotor STR 2PA				432.		X	-	X	X	X	X	X	X	/	X	X			
Climatic resistance		IP 67		1															
Electric connection to terminal board		To terminal board		Voltage		230 V AC		0											
						3 ~ 400 V AC		2											
230 V AC				3 ~ 400 V AC															
Nominal force [N]		Nominal force [N]		Operating speed															
	25 000		---		10 mm/min		A												
	16 000						J												
	25 000		25 000		20 mm/min		B												
	16 000		16 000				L												
	25 000		25 000		40 mm/min		C												
	16 000		16 000				R												
	---		25 000		60 mm/min		D												
	16 000		---				V												
	---		16 000		80 mm/min		W												
16 000	---			E															
---	16 000	100 mm/min		Y															
Stroke: 20 - 80 mm																K			
Control board	DMS3 ED	Control	ON - OFF controlled by voltage 230 V AC				Output	4 - 20 mA passive										N	
			ON - OFF and pulse		24 V DC			---										F	
	DMS3	Control	Modulating	0/4 - 20 mA	ON - OFF and pulse	24 V DC	4 - 20 mA passive											G	
				0/2 - 10 V														H	
Mechanical connection		NPS 1" - 3", coupling M16x1,5 NPS 4" - 6", coupling M20x1,5																M	
Accessories		Without accessories																	
		A Setting the operating stroke to the desired value																0 1	
		B Setting the switching-off force to the desired value																0 3	
		D Auxiliary relay module R3, R4, R5																0 5	
		F Local control for actuators with system DMS3 and LCD																0 7	
G Local control for actuators with system DMS3 and ED																0 8			



Electric actuators

Auma

SA (Ex) 07.6, SAR (Ex) 07.6
SA (Ex) 10.2, SAR (Ex) 10.2
SAR 14.2

Technical data									
Type	SA 07.6	SA Ex 07.6	SAR 07.6	SAR Ex 07.6	SA 10.2	SA Ex 10.2	SAR 10.2	SAR Ex 10.2	SAR 14.2
Marking in valve spec. No.	EAE	EAF	EAG	EAH	EAI	EAL	EAJ	EAK	EAM
Voltage	1 ~ 230 V AC; 3 ~ 380 nebo 400 V AC								
Frequency	50 Hz								
Power consumption	see specification table								
Control	3-position control or with signal 4 - 20 mA								
Nominal torque	60 Nm ~ 30 kN; 30 Nm ~ 15 kN; 40 Nm ~ 20 kN					60 Nm ~ 16 kN; 80 Nm ~ 21 kN 100 Nm ~ 27 kN; 120 Nm ~ 32 kN			
Stroke	16, 25, 40, 63, 80, 100 mm								
Enclosure	IP 67								
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	-40 to 60°C
Ambient humidity range	100 %								
Weight	1-phase motor 45 kg; 3-phase motor 21 kg					1-phase motor 49 kg; 3-phase motor 25 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 actuators Auma

				SA	X	XX	XX.X
Type				SA			
Duty	control				R		
Version	standard						
	non-explosive					Ex	
Actuator size	07.6						07.6
	10.2						10.2
	14.2						14.2
Output shaft type A (thread TR 36x6 LH, flange F10)							
Output RPM	Switching-off torque	SA (Ex) 10.2 SAR (Ex) 10.2		SA 10.2, SA Ex 10.2, SAR 10.2, SAR Ex 10.2			
		60-120 Nm	Motor power [kW]	4	0,06		
				5,6	0,06		
				8	0,12		
				11	0,12		
				16	0,25		
				22	0,25		
				32	0,4		
				45	0,4		
Output shaft type A (thread TR 20x4 LH, flange F10)							
Output RPM	Switching-off torque	SA 07.6 SAR (Ex) 07.6		SA 7.6, SA Ex 7.6, SAR 7.6, SAR Ex 7.6			
		30-60 Nm	Motor power [kW]	4	0,03		
				5,6	0,03		
				8	0,06		
				11	0,06		
				16	0,12		
				22	0,12		
				32	0,2		
				45	0,2		

Accessories

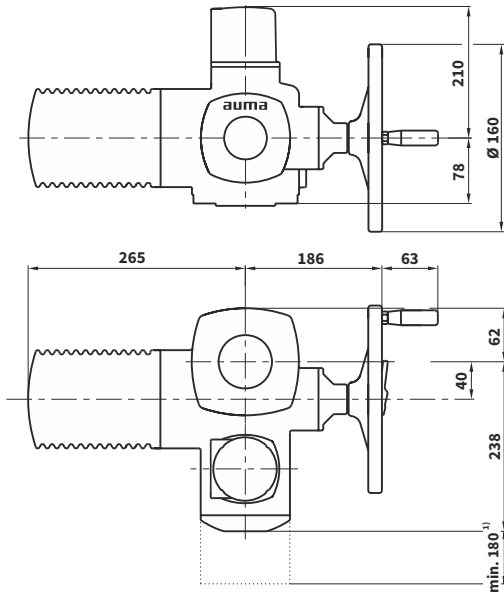
- 2 TANDEM micro-switches
- Gearbox for signalization of position
- Mechanical position indicator
- Potentiometer 1x200 Ω
- Electronic position transmitter RWG (potentiometer included), 4 - 20 mA, 2-wire
- Electronic position transmitter RWG (potentiometer included), 4 - 20 mA, 3/4-wire
- Inductive position transmitter IWG, 4 - 20 mA
- MATIC - for continuous control (specification of accessories acc. to manufacturer's catalog) : weight + 7 kg
- AUMATIC - for continuous control (specification of accessories acc. to manufacturer's catalog) : weight + 7kg

Other accessories acc. to catalog of manufacturer of actuators.

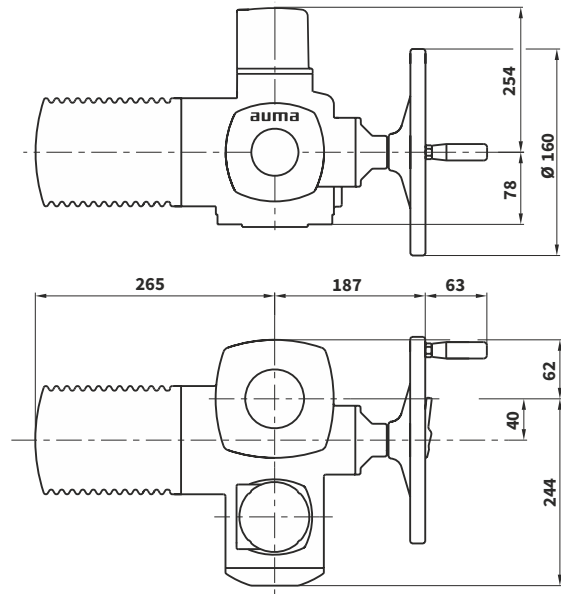
Dimensions of Auma actuators series 07.6

(only for 3-phase execution, dimension of 1-phase execution acc. to manufacturer's data sheets)

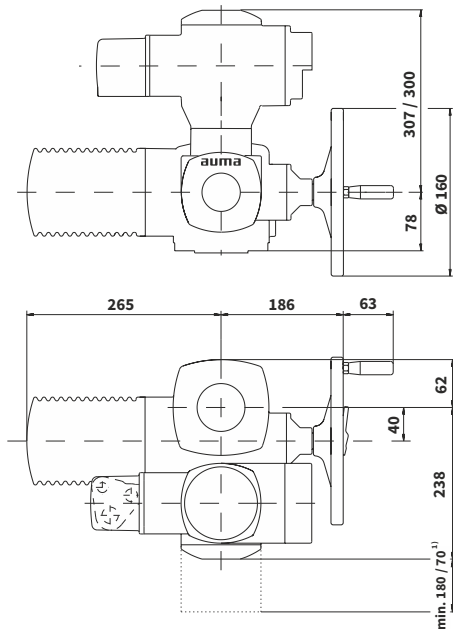
Normal version



Ex version



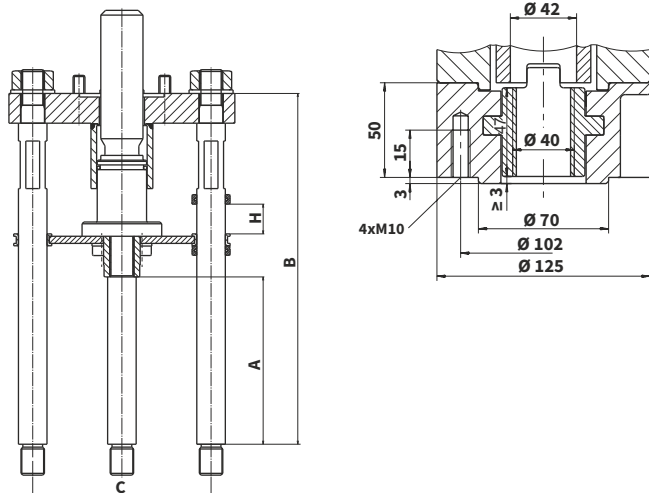
Version MATIC / AUMATIC



1) Space required for opening of the cover

Connection acc. to ISO 5210 Output drive shaft A, F10, Tr36x6-LH

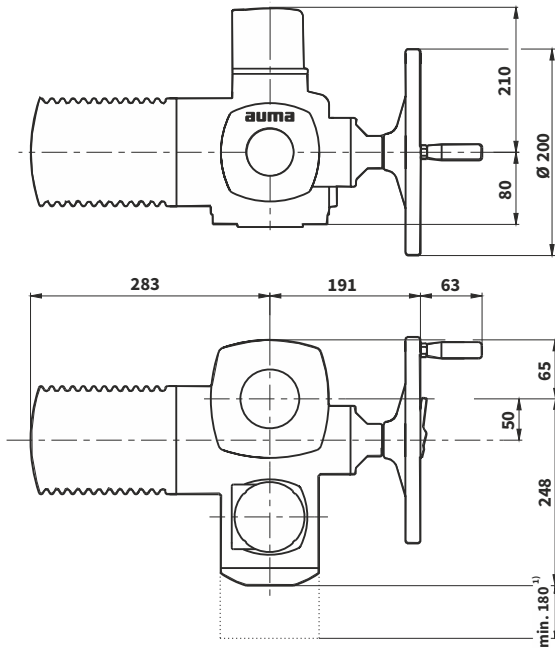
Output drive shaft A, F10



For valves	No. of columns	A	B	H	C	Weight [kg]
CV, CS 70x NPS 1"	4	149	295	16	150	12
CV, CS 70x NPS 1 1/2" - 2 1/2"	4	141	295	25	150	12
CV, CS 70x NPS 3"	4	141	310	40	150	13

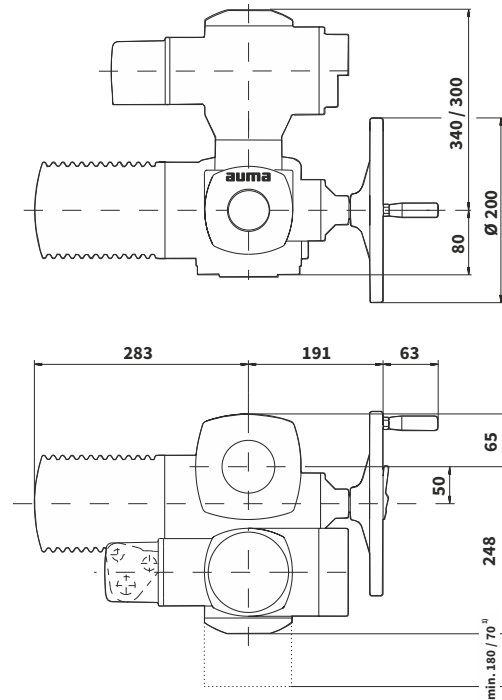
Dimensions of Auma actuators series 10.2

Normal version



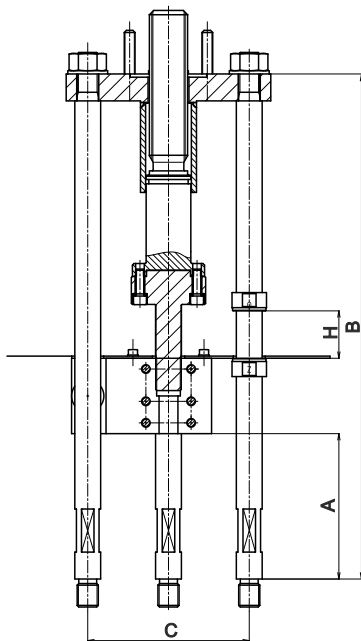
¹⁾ Space required to open the bonnet

Version MATIC / AUMATIC

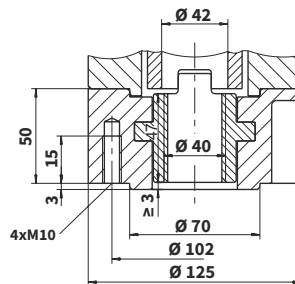


Connection acc. to ISO 5210

Output drive shaft A, F10, Tr36x6-LH
DN 100 - 250



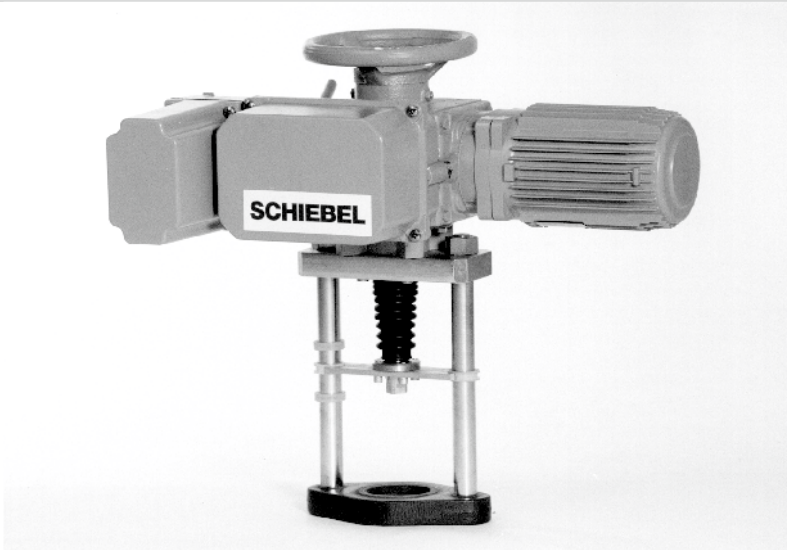
Output drive shaft A, F10



For valves	No. of columns	A	H	C	T ≤ 400°C		T > 400°C	
					B	weight [kg]	B	weight [kg]
CV, CS 70x NPS 4"	4	135	40	150	410	18	420	20
CV, CS 70x NPS 5", 6"	4	135	63	150	420	19	469	21
CV, CS 70x NPS 8"	4	179	80	200	507	30	560	32
CV, CS 70x NPS 10"	4	182	100	200	530	31	580	33

Dimensions of Auma actuators series 14.2

including connection according to ISO 5210, output drive shaft A, F14 on request from manufacturer



Electric actuators **Schiebel**

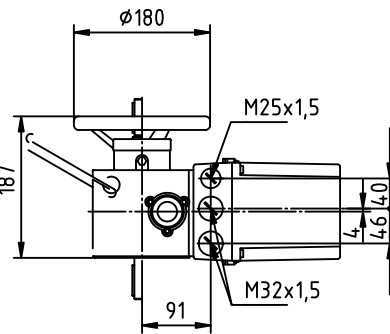
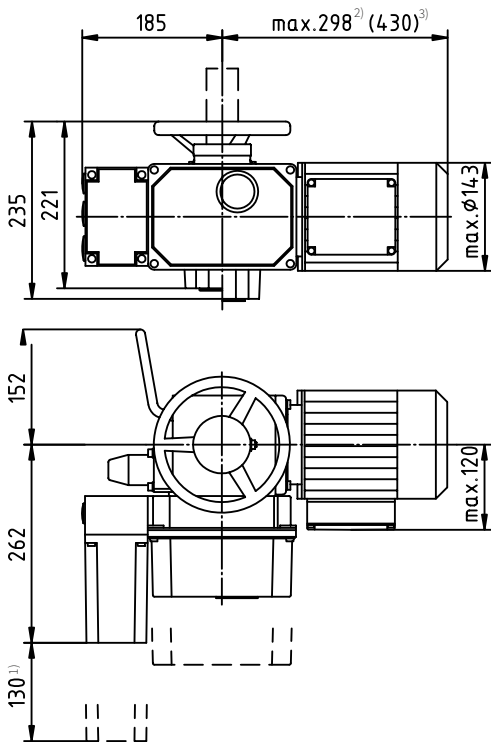
AB5

Technical data				
Type	AB5	exAB5	rAB5	exrAB5
Marking in valve spec. No.	EZE	EZF	EZG	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	30 Nm ~ 15 kN; 40 Nm ~ 20 kN; 60 Nm ~ 30 kN			
Stroke	acc. to stroke of the valve 16, 25, 40 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			

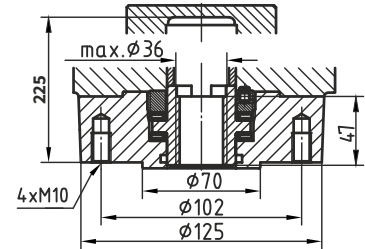
-> **Note:** Specifications and technical data are for information only. Detailed technical informations can be found in producer's data sheet or on the website www.schiebel.com

Specification of actuators																		
							xx	x	XXX	X	XX	+	XXXXX					
Version		non-explosive					Ex											
		normal																
Function		control						r										
		ON - OFF																
Actuator size									AB5									
Output shaft type A		(thread TR 20x4 LH, flange F10 ... NPS 1" - 3")											A					
Output RPM	Torgue	AB5 exAB5	rAB5 exrAB5	Motor power [kW]	AB5		rAB5		exAB5	exrAB5	2,5	5	7,5	10	15	20	30	40
					400/230V	230V	400/230V	230V	400/230V	400/230V								
					0,09	0,09	0,09	0,09	0,09	0,09								
					0,06	0,12	0,06	0,12	0,12	0,12								
					0,09	0,09	0,09	0,18	0,09	0,09								
					0,09	0,18	0,09	0,37	0,09	0,09								
					0,18	0,18	0,18	0,37	0,18	0,18								
					0,18	0,55	0,18	0,75	0,18	0,18								
					0,37	0,55	0,37	1,10	0,37	0,37								
0,37	0,55	0,37	1,10	0,37	0,37													
Accessories		Potentiometer 1 x 1000 Ω												F				
		Double potentiometer 2 x 1000 Ω												FF				
		Electronic transmitter 4 - 20 mA												ESM21				
		Position regulator ACTUMATIC R												CMR				
		Control unit SMARTCON												CSC				

Dimensions of actuator ...AB5



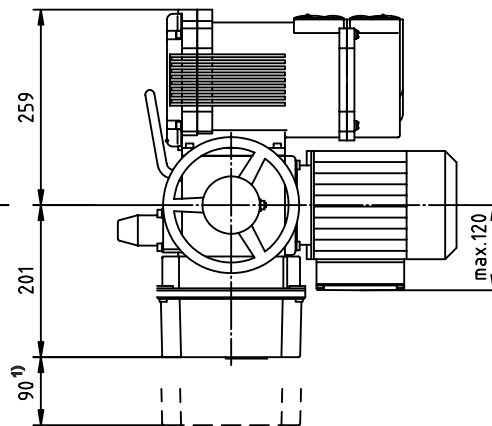
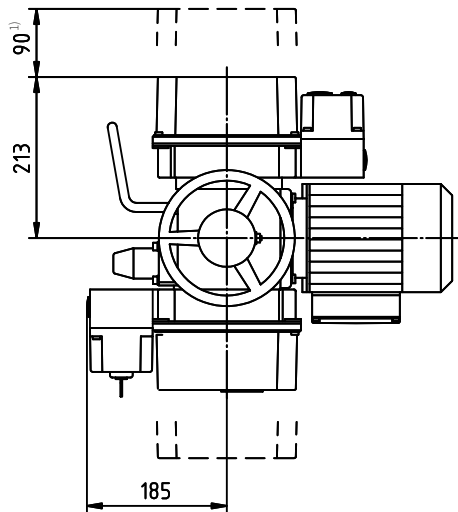
Connection acc. to ISO 5210,
Output drive shaft A, F10



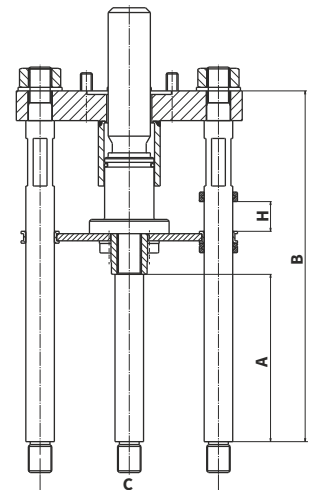
- 1) space needed to open the bonnet
- 2) configuration without the brake
- 3) configuration with the brake

With position regulator ACTUMATIC R

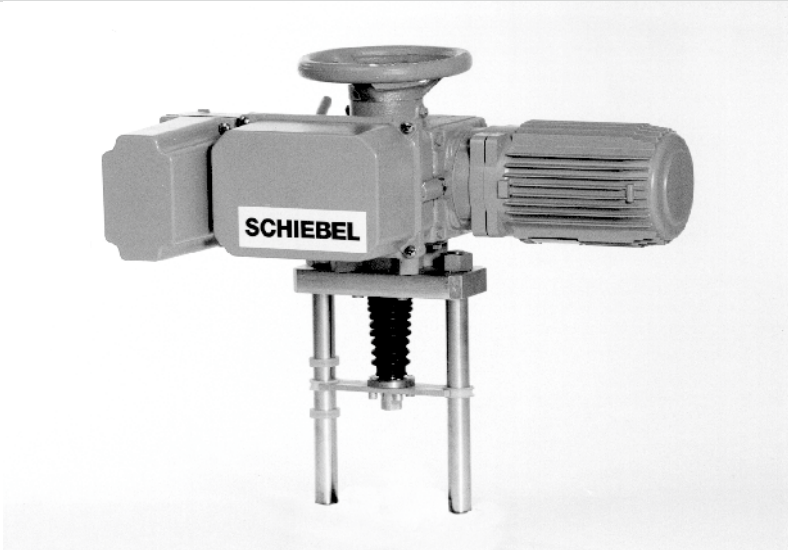
With SMARTCON control unit



Connection acc. to ISO 5210
Output drive shaft A,
F10, Tr20x4-LH NPS 1" - 3"



For valves	No. of columns	A	B	H	C	Weight [kg]
CV, CS 70x NPS 1"	4	149	295	16	150	12
CV, CS 70x NPS 1 1/2" - 2 1/2"	4	141	295	25	150	12
CV, CS 70x NPS 3"	4	141	310	40	150	13



Electric actuators **Schiebel**

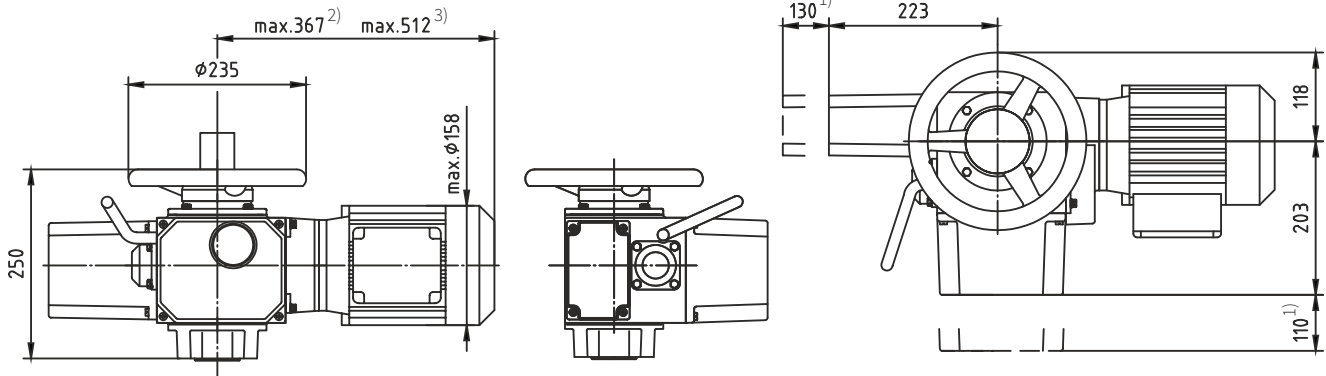
rAB8

Technical data	
Type	rAB8
Marking in valve spec. No.	EZK
Voltage	400 / 230 V; 230 V
Frequency	50 Hz
Power consumption	see specification table
Control	3-position or with signal 4 - 20 mA
Nominal force	100 Nm ~ 27 kN; 120 Nm ~ 32 kN
Stroke	40, 63, 80, 100 mm
Enclosure	IP 66
Process medium max. temp.	acc. to used valve
Ambient temperature range	-25 to 60°C
Ambient humidity range	90 % (tropical execution: 100 % with condensation)
Weight	24 - 35 kg

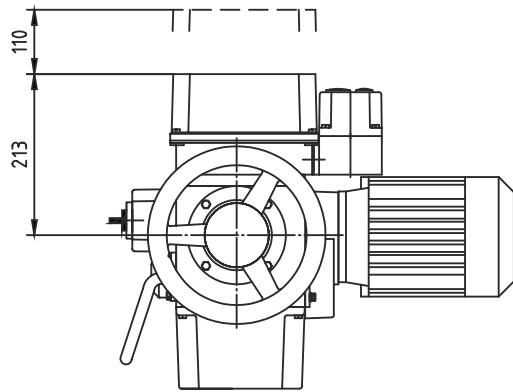
→ **Note:** Specifications and technical data are for information only.
Detailed technical informations can be found in producer's data sheet or on the website www.schiebel.com

Specification of actuators				xx	x	XXX	X	X	+	XXXXX			
Version	normal												
Function	control			r									
Actuator size					AB8								
Output shaft type A	(thread TR 36x6 LH, flange F10)							A					
Output RPM	Torgue	rAB8	Switching-off 50 - 120 Nm	Motor power [kW]	rAB8								
					400/230V	230V							
					2,5	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	0,37	0,75	15								
		20	0,37	1,10	20								
30	0,75	1,10	30										
40	0,75	1,10	40										
Accessories			Potentiometer 1 x 1000 Ω							F			
			Double potentiometer 2 x 1000 Ω							FF			
			Electronic transmitter 4 - 20 mA								ESM21		
			Position regulator ACTUMATIC R								CMR		
			Control unit SMARTCON								CSC		

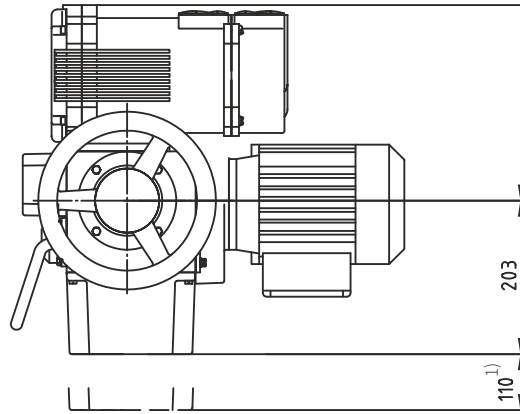
Dimensions of actuators ...AB8



With position regulator ACTUMATIC R

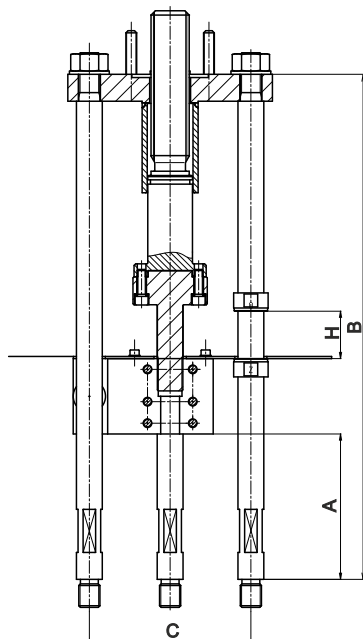


With SMARTCON control unit

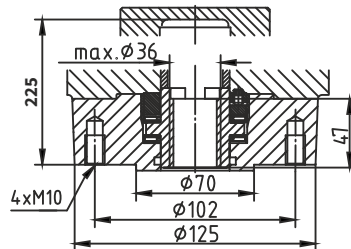


- 1) space needed to open the bonnet
- 2) version without the brake
- 3) version with the brake

Connection acc. to ISO 5210 Output drive shaft A, F10, Tr36x6-LH DN 100 - 250



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



For valves	No. of columns	A	H	C	T ≤ 400°C		T > 400°C	
					B	weight [kg]	B	weight [kg]
CV, CS 70x NPS 4"	4	135	40	150	410	18	420	20
CV, CS 70x NPS 5", 6"	4	135	63	150	420	19	469	21
CV, CS 70x NPS 8"	4	179	80	200	507	30	560	32
CV, CS 70x NPS 10"	4	182	100	200	530	31	580	33

Dimensions of Schiebel actuators series AB 18

including connection according to ISO 5210, output drive shaft A, F14 on request from manufacturer



Pneumatic actuators

Flowserve

PO 701
PB 1502
PB 1502

Technical data

Type	PO 701		PO 1502 / PB 1502	
Marking in valve spec. No.	PFG		PFD	
Feeding pressure	p _{max} = 0,6 Mpa, p _{min} - see table			
Function	direct	indirect	direct	indirect
Control	pneumatic signal 20 - 100 kPa current signal 0(4) - 20 mA			
Nominal force	according to table of nominal forces			
Stroke	20, 40, 60 mm		60, 80 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

Pneumatic positioner type SRP 981	Device with pneumatic input of 20 - 100 kPa for control with pneumatic control signal
Electropneumatic positioner type SRI 986	Analog positioner with input signal 4(0) - 20 mA
Electropneumatic positioner (analog) type SRI 990	Device with electric input of 4(0) - 20 mA and direct output of controlling air into actuator. Adjusted by switches and potentiometers
Electropneumatic positioner (intelligent) type SRD 991	Device with electric input of 4(0) - 20 mA and direct output of controlling air into actuator. Adjusted by PC and special software
Electropneumatic positioner (intelligent) type SRD 998	Device with electric input of 4(0) - 20 mA and direct output of controlling air into actuator. Standard equipment: HART, LED display, setting using the multi selector
Electropneumatic positioner SIPART PS2	Digital positioner with electric input of 4(0) - 20 mA
Electropneumatic positioner ABB TZIDC	Digital positioner with electric input of 4(0) - 20 mA
Signalisation switches type SGE985	Adjustable end position switches
Air set type G651 (-20 to 50°C)	Reduces the supply air pressure to required value
Air set type typ FRS 923 (-40 to 80°C)	Reduces the supply air pressure to required value
Solenoid valve standard type SC G551A005	Direct operated electromagnetic valve, design 3/2, function U (universal), G 1/4"
Solenoid valve standard type SC G327B001	Direct operated electromagnetic valve, design 3/2, function U (universal), G 1/4", modification with the increased safety/ epoxy encapsulation operator
Solenoid valve explosion-proof EEx em type EM G327B001	Direct operated electromagnetic valve, design 3/2, function U (universal), G 1/4", flameproof enclosure
Solenoid valve explosion-proof EEx d type NF G327B001	Direct operated electromagnetic valve, design 3/2, function U (universal), G 1/4", flameproof enclosure
Solenoid valve 5/2-way type SC G551B417	Direct operated electromagnetic valve, execution 5/2, function U (universal), G 1/4", (used 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 in resistance against vibrations and have reached 10⁸ of cycles in operation. It is possible to deliver the actuator with both fail to open and fail to close function, eventually with a position blocking (air lock) upon failure of feeding pressure air supply. 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).

Specification No. of Flowserve actuators		PX XXXX	X	XX	X	X	X
Type of actuator		PO 701					
		PO 1502					
		PB 1502					
Color	white		B				
Spring range [bar]	2,0 - 3,5			FS			
	1,8 - 2,7			JC			
	1,5 - 2,7			VC			
	1,5 - 3,8			VI			
Hand wheel <small>¹⁾ only for actuator PO 701 ²⁾ only for actuator PB 1502, spring 1,5-2,7 bar (max. 50 kN, stroke max. 80 mm)</small>	without wheel					O	
	heavy wheel ¹⁾					H	
	side wheel ²⁾					S	
Function	direct						A
	indirect						Z
Stroke H [mm]	20						A
	40						B
	60						C
	80						D

NPS	Type of actuator	Function	Stroke		Spring range [bar]	Spring setting [bar]	Feeding pressure min. [bar]
			actuator [mm]	valve [mm]			
1"	PO 700 BJCxZA	closing NC	20	16	1,8 - 2,7	1,98 - 2,7	4,8
	PO 700 BJCxAA	opening NO	20	16	1,8 - 2,7	1,8 - 2,55	4,5
1 ½"	PO 700 BVixZB	closing NC	40	25	1,5 - 3,8	2,36 - 3,8	5,3
2, 2 ½"	PO 700 BVixAB	opening NO	40	25	1,5 - 3,8	1,5 - 2,93	5,3
3"	PO 1502 BVCxZB	closing NC	40	40	1,5 - 2,7	1,5 - 2,7	4,2
	PO 1502 BVCxAB	opening NO	40	40	1,5 - 2,7	1,5 - 2,7	4,2
4"	PO 1502 BFSOZC	closing NC	60	40	2 - 3,5	2,5 - 3,5	5
	PB 1502 BVCSZC	closing NC	60	40	1,5 - 2,7	1,9 - 2,7	5
	PO 1502 BFSOAC	opening NO	60	40	2 - 3,5	2 - 3	5
	PB 1502 BVCSAC	opening NO	60	40	1,5 - 2,7	1,5 - 2,3	5
5"	PO 1502 BFSOZD	closing NC	80	63	2 - 3,5	2,3 - 3,5	5
	PB 1502 BVCSZD	closing NC	80	63	1,5 - 2,7	1,75 - 2,7	5
6"	PO 1502 BFSOAD	opening NO	80	63	2 - 3,5	2 - 3,18	5
	PB 1502 BVCSAD	opening NO	80	63	1,5 - 2,7	1,5 - 2,45	5

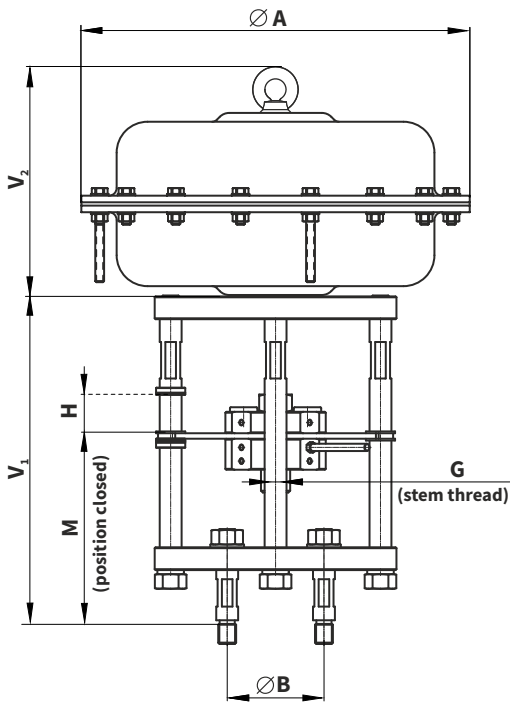
Note: → after "X" can be substituted: **O** - without hand wheel, **H** - with hand wheel, **S** - with side wheel
→ valves **NPS 8"** and **NPS 10"** with pneumatic actuators are available after consultation with the manufacturer

Dimensions of actuators Flowserve

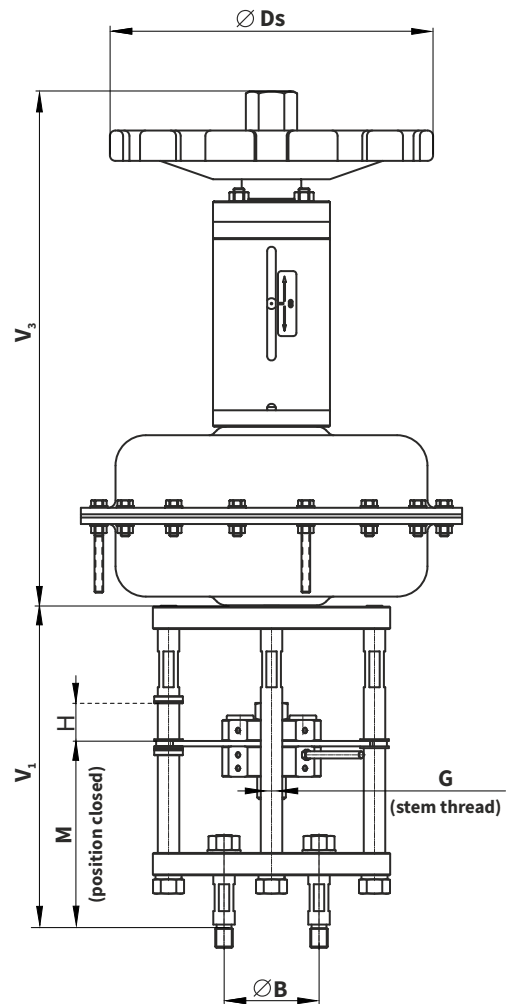
DN	Actuator	H (of valve)	A	B	G	M	V1	V2	V3	ØDs	m [kg]	m [kg] (with hw)
1"	PO 701	16	390		M16x1,5		310	285	710	350	58 (58)	80 (80)
1 1/2", 2", 2 1/2"	PO 701	25	390	150	M16x1,5	160	310	285	710	350	58 (58)	80 (80)
3"	PO 1502	40	550		M16x1,5		326	409	---	---	128 (128)	183 (183)
5"	PO 1502	40	550		M20x1,5		345 (545)	409	---	---	130 (132)	183 (183)
6", 8"	PO 1502	40	550		M20x1,5		345 (565)	409	---	---	130 (132)	183 (183)

Note: → length dimensions [mm]
 → values in brackets for valve control T>400°C

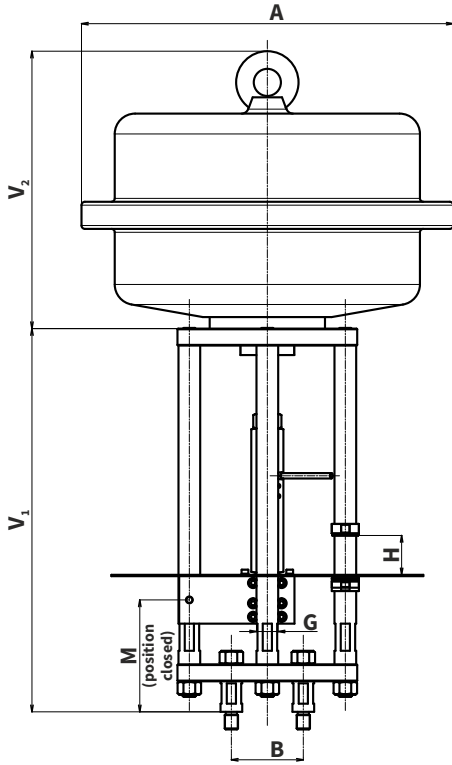
PO 701



PO 701 with hand wheel (heavy)

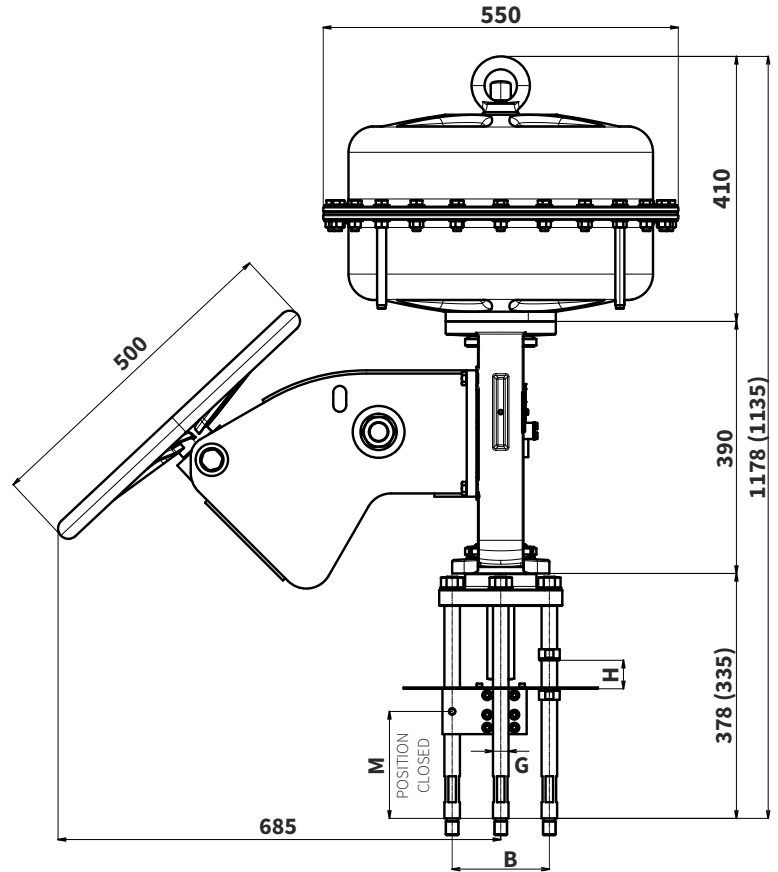


PO 1502



PB 1502 with hand wheel (side)

NPS 3", 4", 5", 6"



*) values in parentheses apply for NPS 3"



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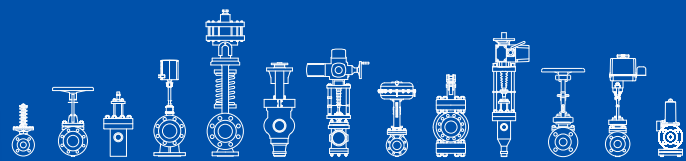
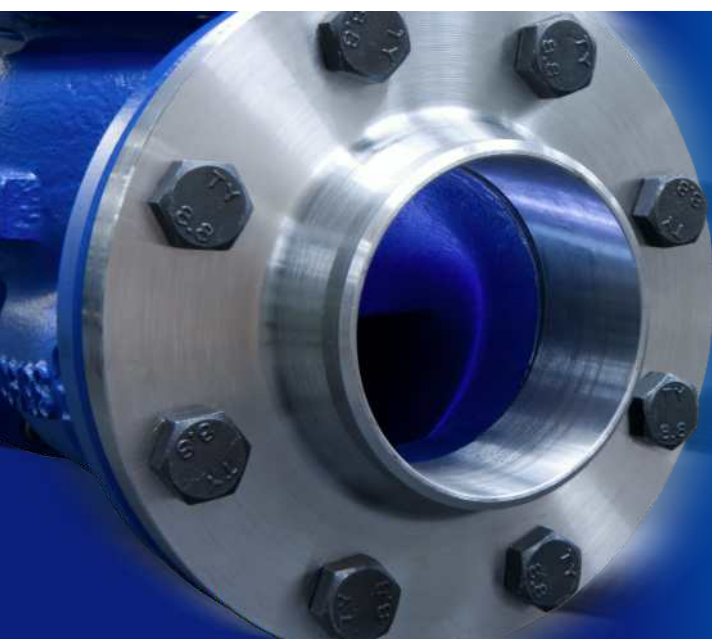
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