FLOWSERVE®

FlowTop

General Service Valves

FlowTop Control Valves

Body and Actuator Assembly

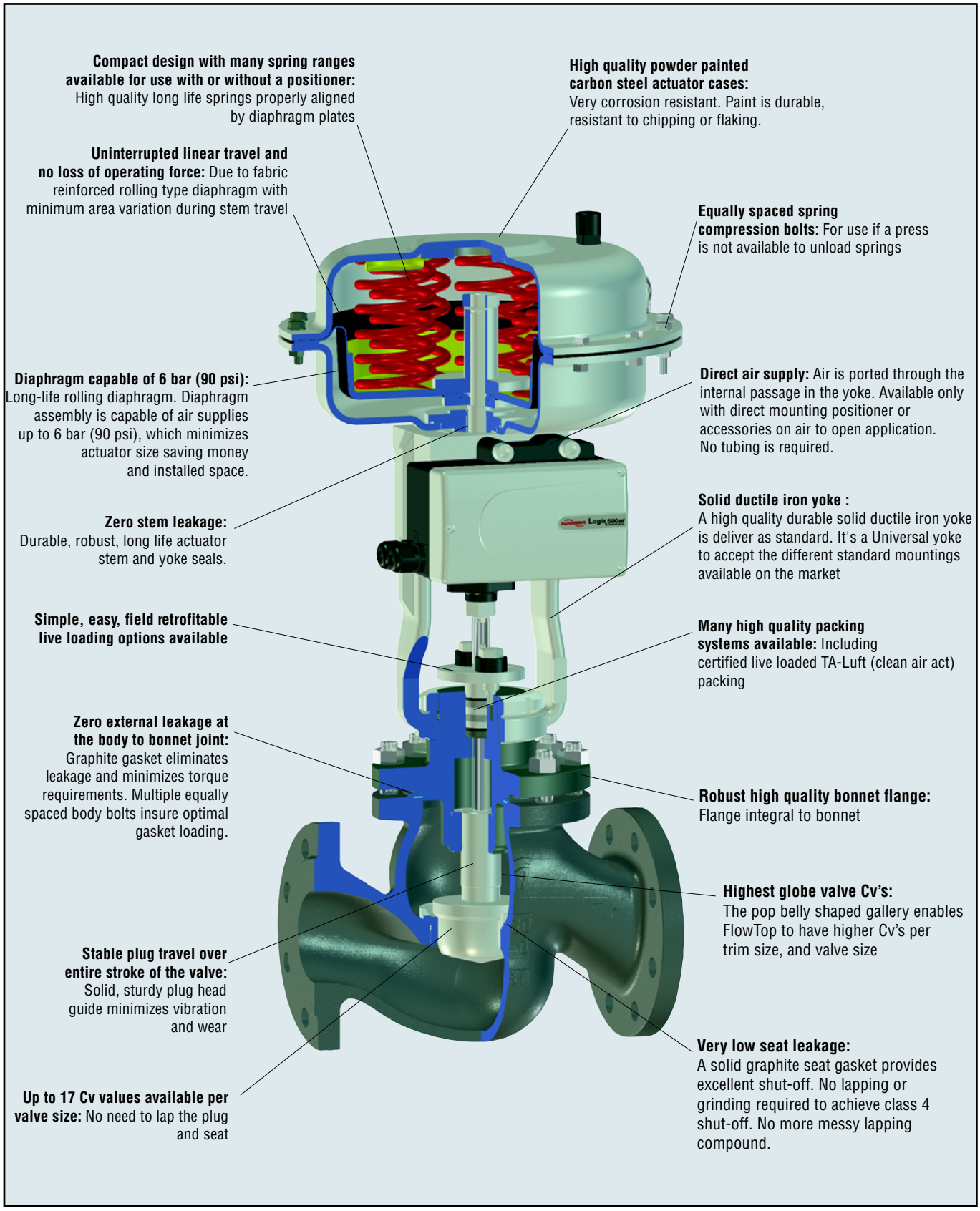


Figure 1: FlowTop body and actuator assembly

FlowTop Control Valves

Body

The FlowTop control valve is a high-performance, general-service valve coupled with a high-thrust FlowAct pneumatic diaphragm actuator.

The Pop-belly shaped gallery gives the FlowTop more Cv per trim size and valve size.

Designed for use in DIN from PN 10 to PN 40 and in ANSI Class 150 or 300 service applications, the FlowTop control valve is capable of operating within temperatures ranging from -200 to +538 °C (-328 to 1000 °F) according to the material selected.

The FlowTop control valve is available in sizes DN 15 to DN 300 (0.5 to 12-inch) with a carbon steel or stainless steel body.

It features a flow-under, single-seated trim with plug head guiding to eliminate vibration and wear and to give the FlowTop an unprecedented sturdiness. For larger sizes, the FlowTop has a double guiding (top and bottom) to prevent instability.

Heavy-duty parts constructed of corrosion-resistant materials provide extended valve life.

Actuator

The FlowAct is compact, reversible and capable of accepting air supply pressures up to 6.0 bar (90 psi) allowing the valve to shutoff against high pressure drops.

The FlowTop comes standard with a universal yoke (available up to 4˝). In all “air to open” applications, no external tubing is required. The direct mount positioner ports air through passages within the yoke as illustrated in Figure 1. When the direct mounted positioner is used, the external supply port is plugged. “Air to close” applications require external tubing to the top of the actuator. NAMUR positioner mounting is also very simple and easy with FlowAct (IEC 534.6). When this mounting standard is used the internal passageway in the yoke is plugged and external tubing is used.

The pneumatic diaphragm actuator can operate in temperatures ranging from -40° to 80° C (-40° to 176° F).

The FlowTop control valve with the FlowAct pneumatic diaphragm actuator is your solution for most typical general service valve applications.

FlowTop Control Valves
Body and Actuator Assembly

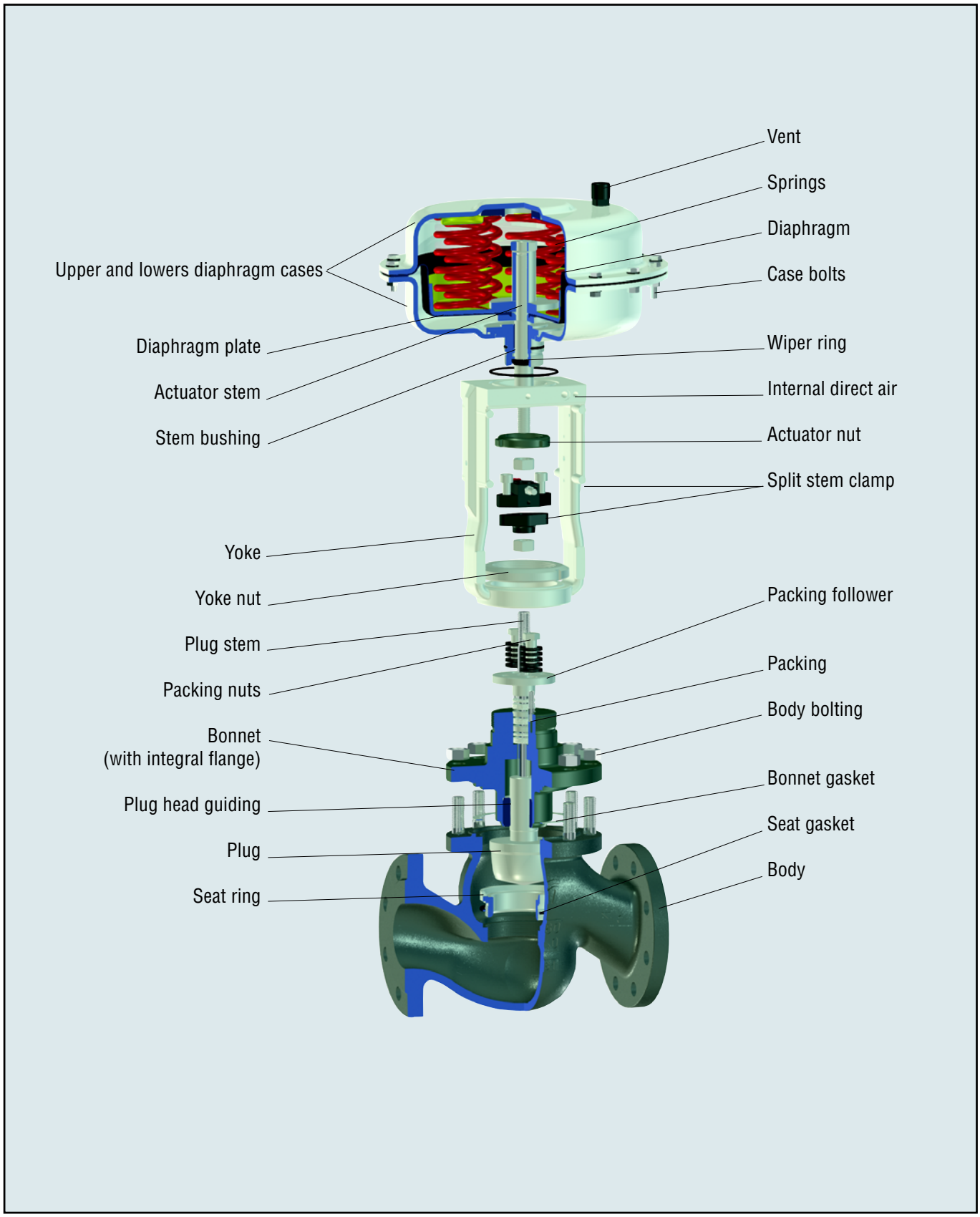


Figure 2: FlowTop control valve assembly - exploded view

FlowTop Control Valves
Features and advantages

Features	Advantages
Modular Design	By using the same body with different types of bonnet, trim, actuators, the concept of a modular valve design allows the reduction of spare parts and offers an interchangeable valve for different applications
Delivery	2 weeks is the standard delivery time for the FlowTop with body up to 6 inch in standard materials.
Good Shut-Off	FlowTop control valves offer class 4 shut-off without the need to lap the seating surfaces. By using a seat ring gasket between the body and the seat, the FlowTop allows faster maintenance without the necessity to rematching the body seat surface. Class VI shutoff is also available for FlowTop.
Post Guiding	One solid sturdy guide stabilizes the stem and plug during entire travel and minimizes vibration and wear. A double plug guiding is also available according to the service application and the trim selection.
Compact	Engineered for applications with limited installation clearance
Low Noise and Anti-Cavitation Trim	Silent Pac, Multi-hole plug, XSTREAM, reduce noise levels generated by vapours and gases and eliminate cavitation.
Versatile Packing Configuration	Available sets include PTFE braid and graphite. Live loading kits are retrofittable without modification.
Fugitive Emission Packing	Environmental packing design is available in PTFE according to „TA-Luft“.
Easy Maintenance	No machining of the body seat area necessary when changing the seat. The valve body can remain in line while trim is changed or replaced.
Wide Variety of Trim Sizes	Up to 17 Cv values are available per valve size
Multifunction Yoke	The standard multifunction yoke is designed to accept all of the standard mountings available on the market such as Namur (IEC 534.6) or the direct VDI/VDE 3847 mounting. Its also the standard design for the Logix 500 si semi-integrated positioner
High-Thrust Diaphragm	The actuator is compact, light weight, capable of 6.0 bar (90 psi) air supply; multiple spring combinations reduces installation size and initial expense.
Dynamic Stability	Solid, sturdy plug head guide minimises vibration and wear
Reversible Actuator	Failure mode is easily reversed, using common tools
Certifications and licences	Quality assurance system certificated according to EN ISO 9001 : 2000 including product development. EC-Type-Examination according to PED 97/23/EC Module B + D AK 7 Design according to DIN V19250/51 for valves DVGW EC type examination according to EC Gas Appliance Directive 90/396/EEC EN 161, DIN 3394 EN 264 DIN 32725
Multiple Applications Usage	High-performance, general-service control valve used in many process industries including chemical, refinery, power, food and beverage, HVAC.

FlowTop Control Valves
Body design

Figure 3: Standard valve - plug head guiding

Figure 4: Standard valve - top and bottom guiding

Figure 5: 3-Way valve - mixing and distributing

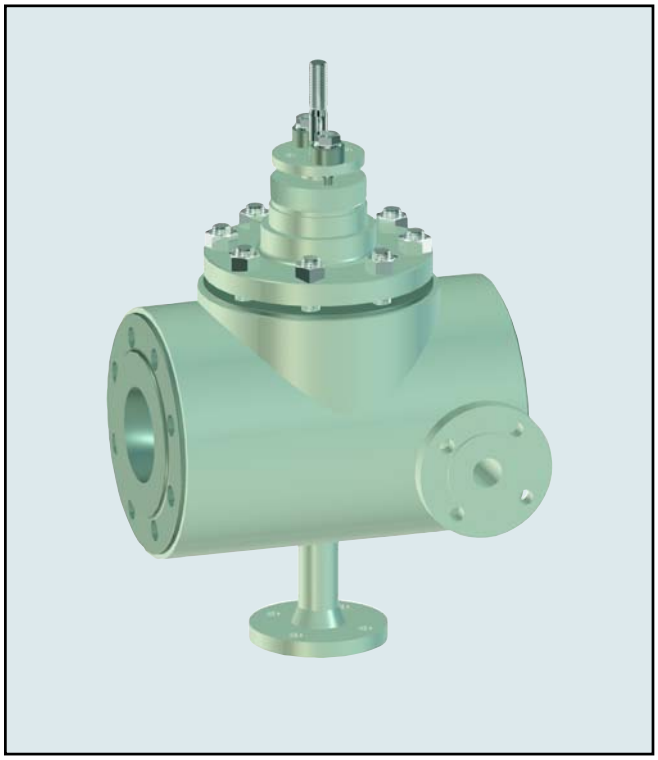


Figure 6: FlowTop body with steam jacket

FlowTop Control Valves
Body Connections for DIN

Body size depending on body type and material - DIN																
Valve Size	Form of Connection	Body Material for Three Flange				Four Flange				Three Way			Three Flange Heating Jacket		Four Flange Heating Jacket	
		1.0619	1.4581	1.5419	1.4308	1.0619	1.4581	1.5419	1.4308	1.0619	1.4581	1.5419	1.0619	1.4581	1.0619	1.4581
15	Flanged acc.to EN 1092-1 Form B1 Form D Form F	●	●	●	●											
20		●	●	●												
25		●	●	●	●	●	●	●	●	●	●	●	●	●		
32		●	●	●	●	●	●	●	●	●	●	●				
40		●	●	●	●	●	●	●	●	●	●	●	●	●		
50		●	●	●	●	●	●	●	●	●	●	●	●	●		
65		●	●	●	●	●	●	●	●	●	●	●				
80		●	●	●	●	●	●	●	●	●	●	●	●	●		
100		●	●	●	●	●	●	●	●	●	●	●	●	●		
125		●	●	●	●											
150		●	●	●	●	●	●	●	●	●	●	●	●	●		
200		●	●	●	●	●	●	●	●				●	●	●	●
250						●	●	●	●						●	●
300						●	●	●	●						●	●

Body size depending on body type and material - DIN								
Valve Size	Form of Connection	Body Material for Three Flange			Four Flange		
		1.0619	1.4581	1.5419	1.0619	1.4581	1.5419
15	Welded acc.to DIN 3239	●	●	●			
25		●	●	●			
40		●	●	●			
65		●	●	●			
80		●	●	●			
100		●	●	●			
150		●	●	●			
200		●	●	●	●	●	●
250					●	●	●
300					●	●	●

FlowTop Control Valves

Body Connections for DIN

Body with flange connections
Form of connection, nominal pressure range

Form of connection		
Flange facings acc. to EN 1092-1	Form B1	Yes
	Form F	Yes
	Form D	Yes

	Nominal Size													
PN	**15**	**20**	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**
10	●	●	●	●	●	●	●	●	●	●	●	●	●	●
16												●	●	●
25							●	●	●	●	●	●	●	●
40												●	●	●

Body with welded end connections
Form of connection, nominal pressure range

			Nominal Size									
Form of connection	**PN**	**Dimension**	**15**	**25**	**40**	**50**	**80**	**100**	**150**	**200**	**250**	**300**
Standard weld ends based on DIN 3239 section 1, table 1	16 to 40	Ød 3	21,3	33,7	48,3	60,3	88,9	114,3	168,3	219,1	273	323,9
		S	2,0	2,6	2,6	3,2	4,0	5,0	5,6	7,1	8,0	8,0

FlowTop Control Valves
Body Connections for ANSI

Body size depending on body type and material - ANSI											
Valve Size	Form of Connection	Body Material for Three Flange			Four Flange			Three Flange Heating Jacket		Four Flange Heating Jacket	
		A216 WCB	A315 CF8M	A217 WC6	A216 WCB	A315 CF8M	A217 WC6	A216 WCB	A315 CF8M	A216 WCB	A315 CF8M
1/2"	Flanged acc.to ANSI B16.5 Form RF Form RTJ Form RFS	●	●	●				●	●		
1"		●	●	●				●	●		
1 1/2"		●	●	●				●	●		
2"		●	●	●				●	●		
3"		●	●	●				●	●		
4"		●	●	●				●	●		
6"		●	●	●				●	●		
8"		●	●	●	●	●	●	●	●	●	●
10"		●	●	●	●	●	●			●	●
12"		●	●	●	●	●	●			●	●

Flanged body size depending on body type and material - ANSI				
Size	Form of Connection	Body Material for Three Flange		
		A216 WCB	A315 CF8M	A217 WC6
1/2"	Welded acc.to ANSI B36.10 M ASME B16.25	●	●	●
1"		●	●	●
1 1/2"		●	●	●
2"		●	●	●
3"		●	●	●
4"		●	●	●
6"		●	●	●

FlowTop Control Valves

Body Connections for ANSI

Body with flange connections
Form of connection, nominal pressure range

Form of connection		
Flanges acc. to ANSI B16.5	Form RF	Yes
	Form RTJ	Yes
Smoothfinish	Form RFS	Yes

ANSI Class	Nominal Size 1/2″	1″	11/2″	2″	3″	4″	6″	8″	10″	12″
150	●	●	●	●	●	●	●	●	●	●
300	●	●	●	●	●	●	●	●	●	●

Body with welded end connections
Form of connection, nominal pressure range

Form of connection	PN	Dimension	Nominal Size 1/2″	1″	11/2″	2″	3″	4″	6″
Standard welded based on ANSI/ASME B36.10 M-1985	150	Outside Ø in.	0,840	1,315	1,900	2,375	3,500	4,500	6,625
		Wall thickness in.	0,109	0,133	0,145	0,154	0,216	0,237	0,280
Butt welding ends acc. to ASME B16.25 - 1997	to	Outside Ø mm	21,3	33,4	48,3	60,3	88,9	114,3	168,3
	300	Wall thickness mm	2,8	3,4	3,7	3,9	5,5	6,0	7,1

FlowTop Control Valves

Service Temperature Range for Bonnet and Packing

Service temperature range for bonnet and packing Type - DIN Valves*							
Type	**Material**	**Unit**	**Bonnet Type**				
			Standard	**Bellows Seal**	**HT Extension**	**LT Extension**	**Insulating**
Standard General Service BAM	Teflon	°C	-10 to 250	-60 to 250	-	-60 to 250	-196 to 250
		°F	14 to 482	-76 to 482	-	-76 to 482	-320 to 482
	Pure Graphite	°C	-	-60 to 400	>250 to 450	-	-
		°F	-	-76 to 742	>482 to 842	-	-
Live Loaded General Service BAM	Teflon	°C	-10 to 250	-60 to 250	-	-60 to 250	-196 to 250
		°F	14 to 482	-76 to 482	-	-76 to 482	-320 to 482
	Pure Graphite	°C	-	-60 to 400	>250 to 450	-	-
		°F	-	-76 to 752	>482 to 842	-	-
Live Loaded „TA-Luft“ Service	Teflon with Graphite Core	°C	-10 to 250	-	-	-60 to 250	-196 to 250
		°F	14 to 482	-	-	-76 to 482	-320 to 482
	Teflon Impregnated	°C	-10 to 250	-	-	-60 to 250	-196 to 250
		°F	14 to 482	-	-	-76 to 482	-320 to 482
Live Loaded General Service	V-Ring	°C	-10 to 250	-	-	-60 to 250	-196 to 250
		°F	14 to 482	-	-	-76 to 482	-320 to 482

Service Temperature Range for Bonnet and Packing Type - ANSI Valves*							
Type	**Material**	**Unit**	**Bonnet Type**				
			Standard	**Bellows Seal**	**HT Extension**	**LT Extension**	**Insulating**
Standard General Service BAM	Teflon	°C	-29 to 250	-60 to 250	-	-60 to 250	-
		°F	-20 to 482	-76 to 482	-	-76 to 482	-
	Pure Graphite	°C	-	-60 to 400	>250 to 538	-	-
		°F	-	-76 to 752	>482 to 1000	-	-
Live Loaded General Service BAM	Teflon	°C	-29 to 250	-60 to 250	-	-60 to 250	-
		°F	-20 to 482	-76 to 482	-	-76 to 482	-
	Pure Graphite	°C	-	-60 to 400	>250 to 538	-	-
		°F	-	-76 to 752	>482 to 1000	-	-
Live Loaded „TA-Luft“ Service	Teflon with Graphite Core	°C	-29 to 250	-	-	-60 to 250	-
		°F	-20 to 482	-	-	-76 to 482	-
	Teflon Impregnated	°C	-29 to 250	-	-	-60 to 250	-
		°F	-20 to 482	-	-	-76 to 482	-
Live Loaded General Service	V-Ring	°C	-29 to 250	-	-	-60 to 250	-
		°F	-20 to 482	-	-	-76 to 482	

* Depending on body material

Leakage-class acc. to DIN/IEC 534 Part 4 resp. ANSI/FCI 70-2 - 1991

Plug with pressure balancing	**Plug design**	**Leakage class acc. to DIN/IEC 534**	**Test medium**	**test pressure (bar)**	**max. seat leakage in % of Cv**
Unbalanced	metal-to-metal seated (mtm)	IV	Water	Working pressure max. 4	0,01
	metal-to-metal seated, reseated	IV-S1	Water	Working pressure max. 4	0,0005
	mtm-seated, reseated, heightened seal force	V-S2	Air	Working pressure max. 4	0,0001
	mtm-seated, reseated, heightened seal	V	Water	Working pressure	0,000001
	Soft seated	VI	Air	Working pressure max. 4	0,0 - bubble-tight
V-ring balanced	Metal-to-metal seated	IV	Water	Working pressure max. 4	0,01
Piston ring balanced	Metal-to-metal seated	III	Water	Working pressure max. 4	0,1

FlowTop Control Valves
Bonnet Design

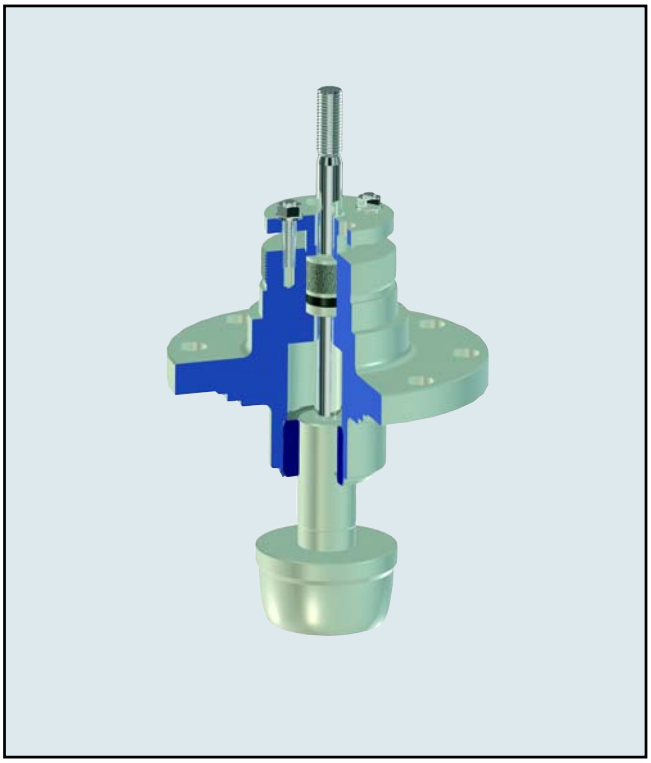


Figure 7: Standard bonnet

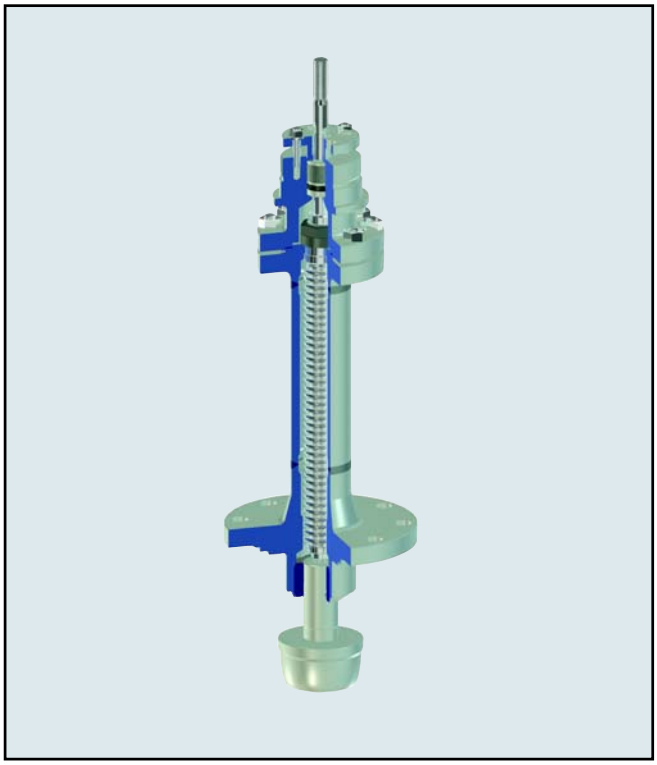


Figure 8: Bellows seal bonnet

Figure 9: HT or LT extension bonnet

Figure 10: Insulating bonnet

FlowTop Control Valves
Packing Design

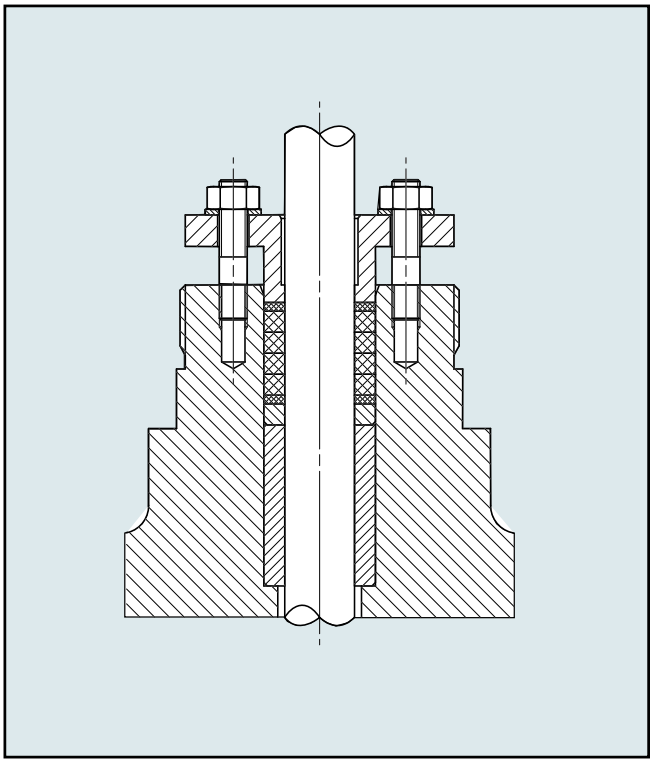


Figure 11: PTFE Ring

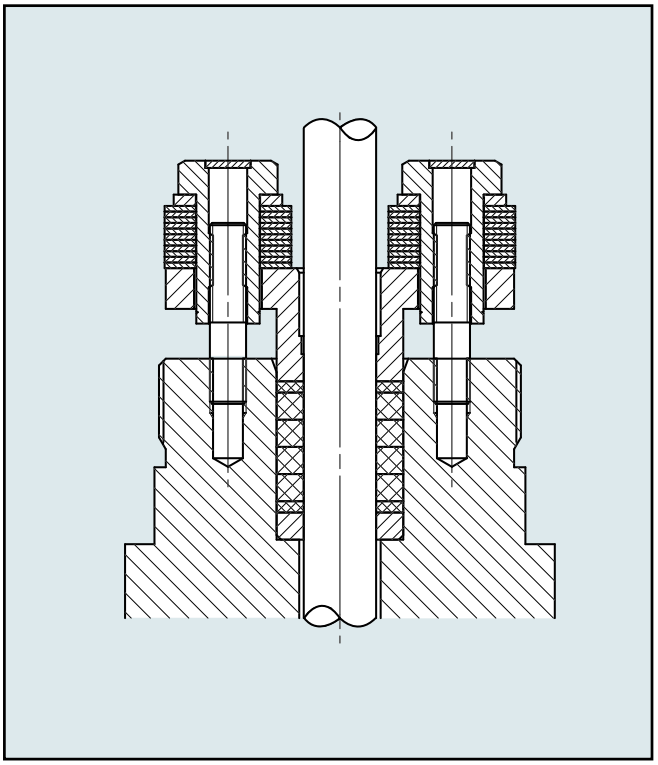


Figure 12: PTFE Ring TA-Luft (externally live-loaded)

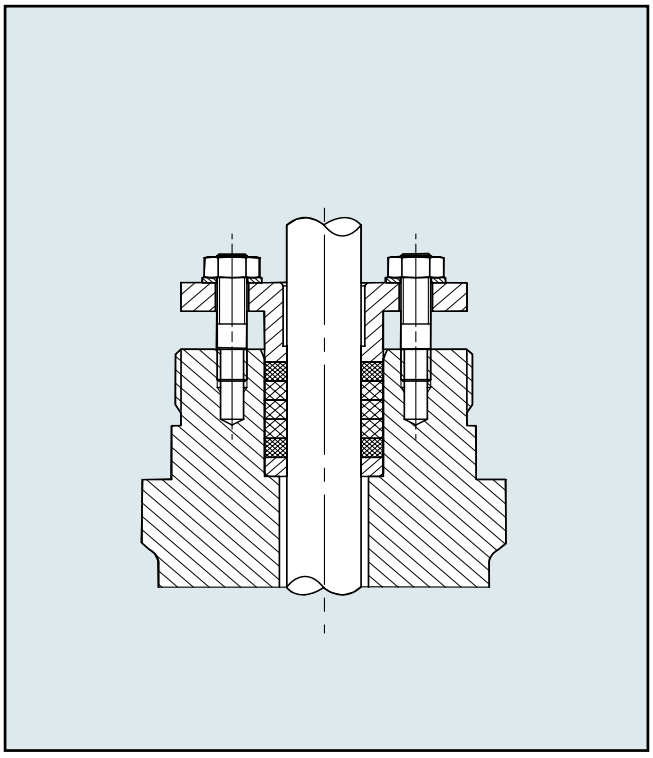


Figure 13: Graphite Ring

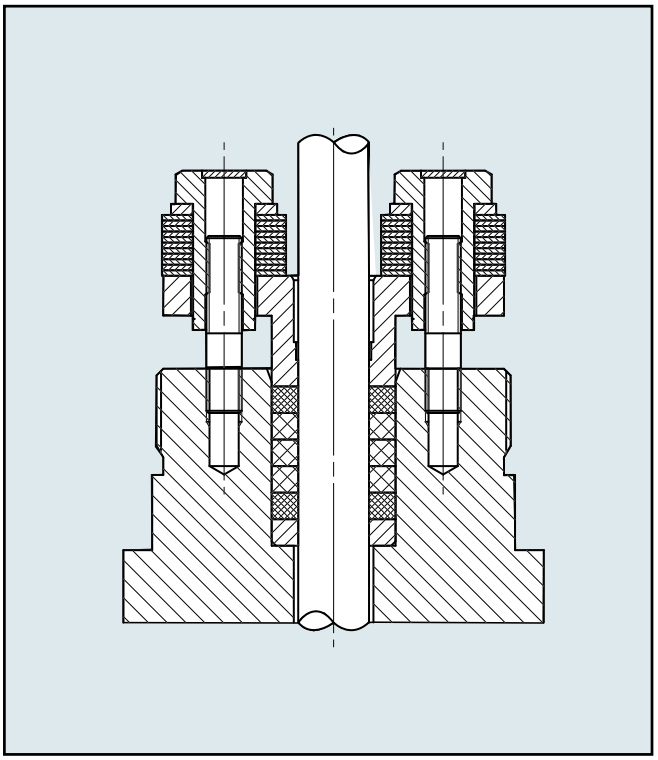


Figure 14: Graphite Ring (externally live-loaded)

FlowTop Control Valves
Trim Arrangements

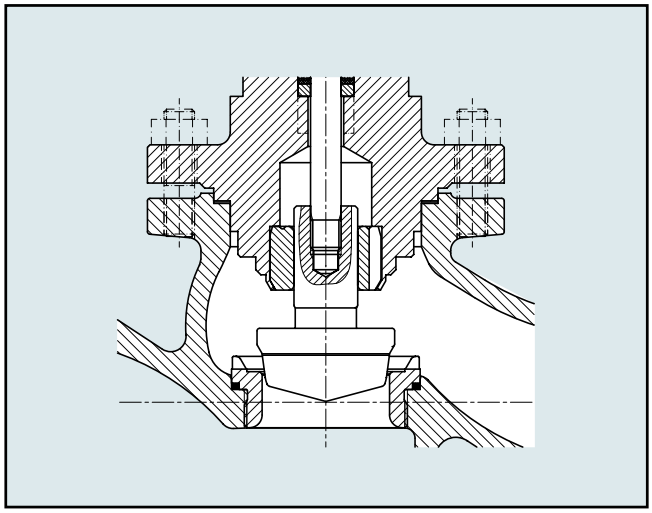


Figure 15: Standard trim

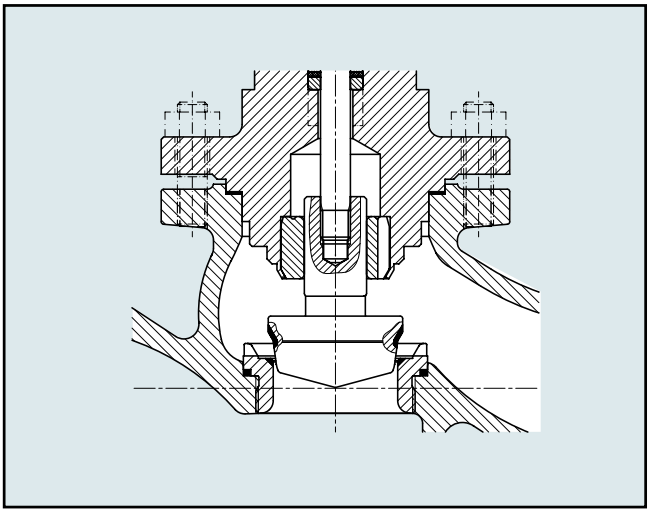


Figure 16: Standard trim with Alloy 6 seat surface overlay

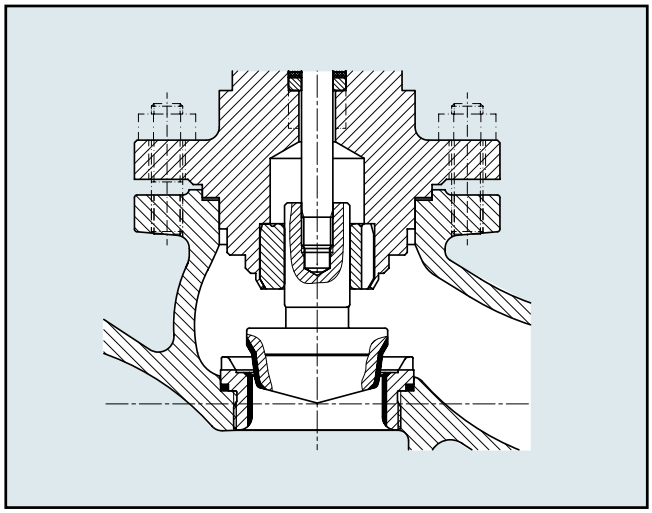


Figure 17: Trim with Alloy 6 full-contour overlay

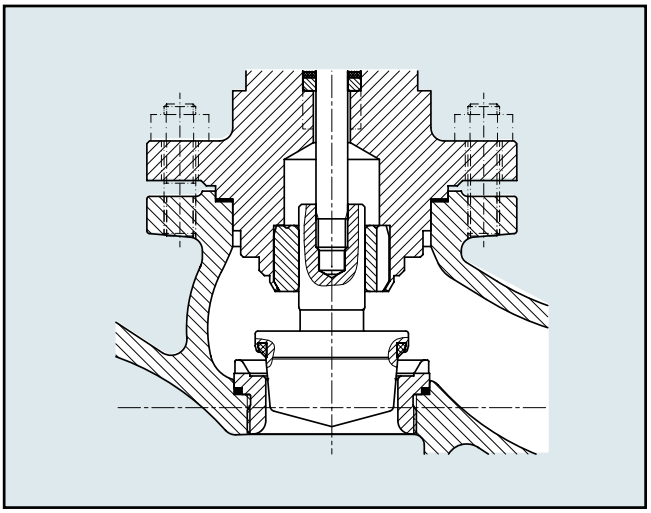


Figure 18: PTFE soft seat

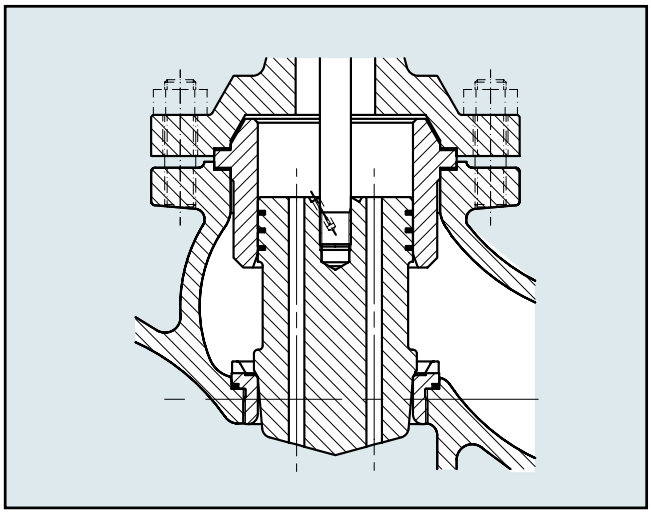


Figure 19: Balanced plug with piston ring

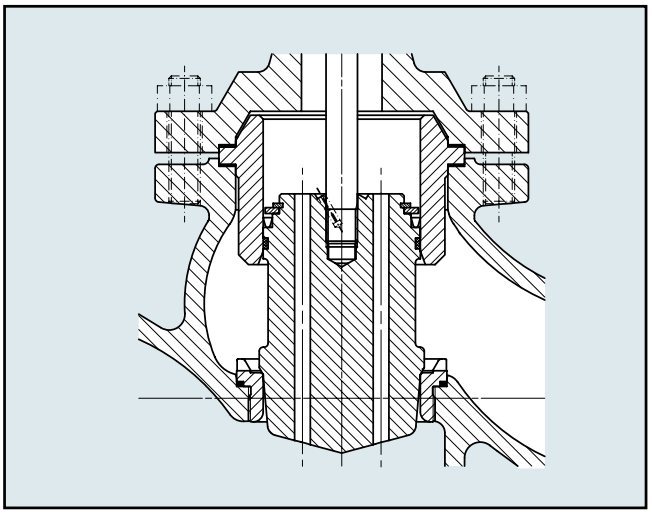


Figure 20: Balanced plug with V-ring

FlowTop Control Valves
Trim Arrangements

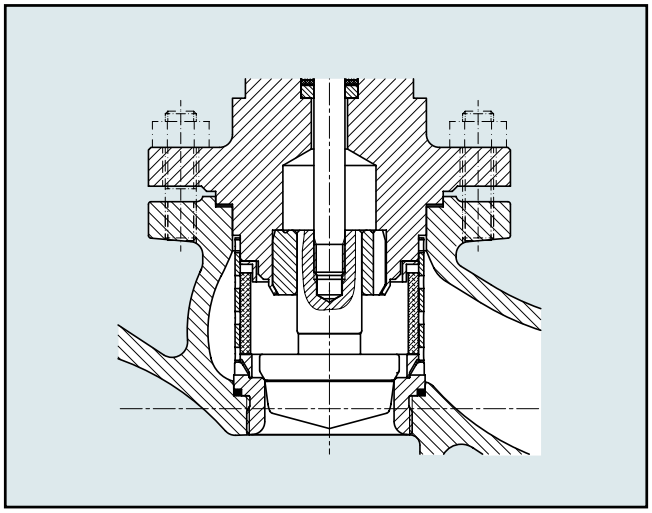


Figure 21: Contoured plug with Silentpack

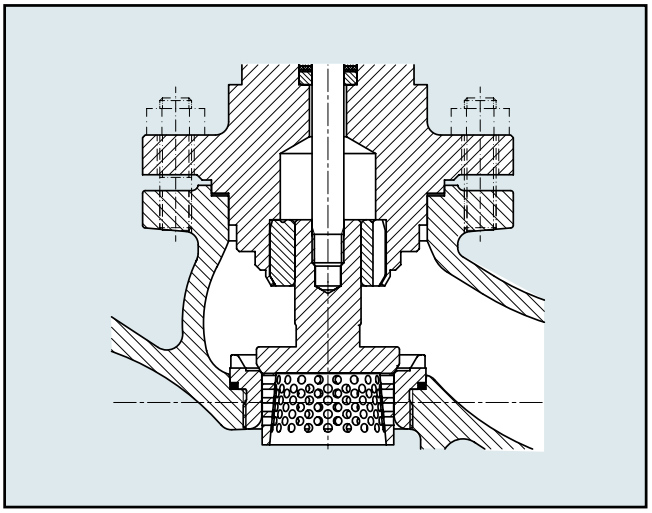


Figure 22: Perforated plug

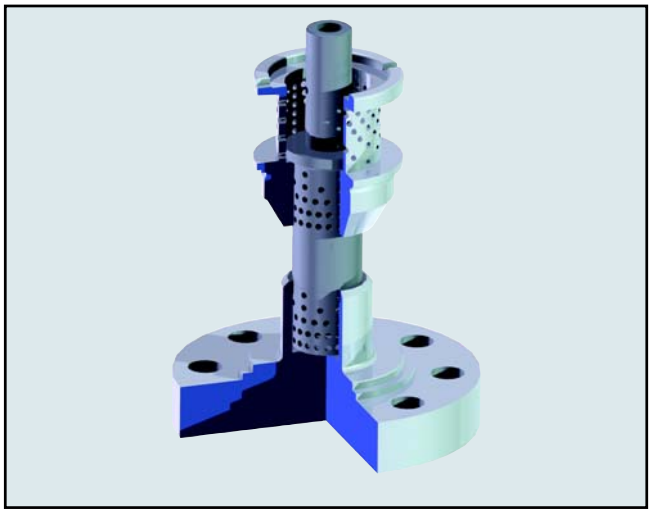


Figure 23: RLS design

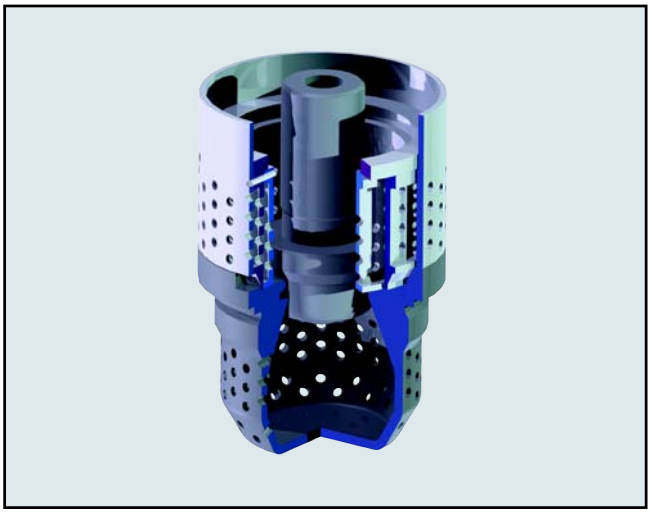


Figure 24: Contoured plug with XSTREAM arrangement

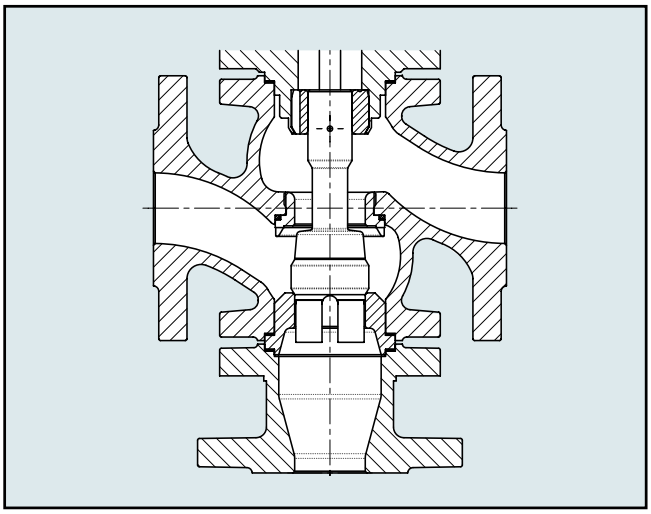


Figure 25: 3-way mixing plug design

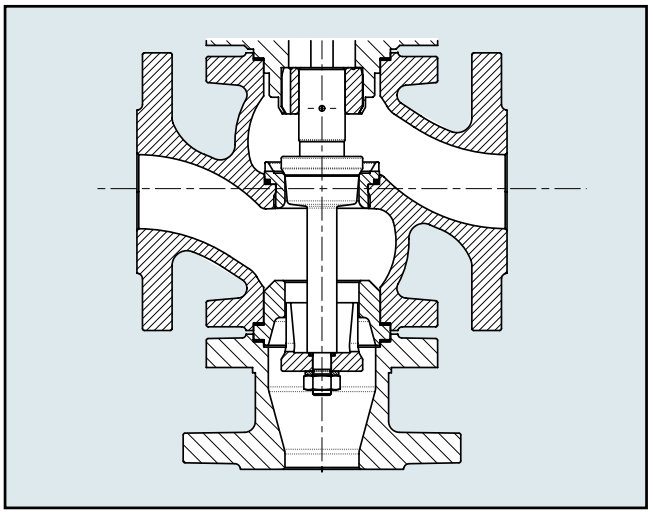


Figure 26: 3-way distributing plug design

FLOWSERVE

FlowTop Control Valves

Kvs / Cv Values for On/Off and Linear Trims

Valve size	Port Size	Stroke mm	Kv Cv	Trim Type			
					Contoured Plug		
				On-Off Design	Standard Design	Silentpack Design	Perforated Plug
15 1/2"	12	20	Kv	-	4,0	4,0	-
	0,5		Cv	-	4,6	4,6	-
	16		Kv	6,3	5,6	5,6	-
	0,6		Cv	7,3	6,5	6,5	-
	20		Kv	-	-	-	2,5
	0,8		Cv	-	-	-	2,9
			Kv	-	-	-	4,0
			Cv	-	-	-	4,6
20	12	20	Kv	-	4,0	4,0	-
			Cv	-	4,6	4,6	-
	16		Kv	-	6,3	6,3	-
			Cv	-	7,3	7,3	-
	20		Kv	-	-	-	2,5
			Cv	-	-	-	2,9
			Kv	-	-	-	4,0
			Cv	-	-	-	4,6
			Kv	9,0	8,0	8,0	6,3
			Cv	10,4	9,2	9,2	7,3
25 1"	12	20	Kv	-	4,0	4,0	-
	0,5		Cv	-	4,6	4,6	-
	16		Kv	-	6,3	6,3	-
	0,6		Cv	-	7,3	7,3	-
	20		Kv	-	-	-	2,5
			Cv	-	-	-	2,9
	0,8		Kv	-	-	-	4,0
			Cv	-	-	-	4,6
			Kv	-	10,0	10,0	6,3
			Cv	-	11,6	11,6	7,3
	25		Kv	16,0	14,0	12,5	10,0
	1,0		Cv	18,5	16,2	14,5	11,6
32	16	20	Kv	-	6,3	6,3	-
			Cv	-	7,3	7,3	-
	20		Kv	-	-	-	4,0
			Cv	-	-	-	4,6
			Kv	-	10,0	10,0	6,3
			Cv	-	11,6	11,6	7,3
	25		Kv	-	16,0	16,0	10,0
			Cv	-	18,5	18,5	11,6
	34		Kv	25	22,4	18,0	16,0
			Cv	29	26	20,8	18,5
40 1 1/2"	16	20	Kv	-	6,3	6,3	-
	0,6		Cv	-	7,3	7,3	-
	20		Kv	-	10,0	10,0	6,3
	0,8		Cv	-	11,6	11,6	7,3
	25		Kv	-	16,0	16,0	10,0
	1,0		Cv	-	18,5	18,5	11,6
	34		Kv	-	25	20	16,0
	1,3		Cv	-	29	23	18,5
	40		Kv	35,5	31,5	22,4	25
	1,6		Cv	41,0	36,4	25,9	29

Valve Size	Port Size	Stroke mm	Kv Cv	Trim Type			
					Contoured Plug		
				On-Off Design	Standard Design	Silentpack Design	Perforated Plug
50 2"	20	20	Kv	-	10,0	10,0	-
	0,8		Cv	-	11,6	11,6	-
	25		Kv	-	16,0	16,0	10,0
	1,0		Cv	-	18,5	18,5	11,6
	34		Kv	-	25	25	16,0
	1,3		Cv	-	29	29	18,5
	42		Kv	-	40	31,5	25
	1,7		Cv	-	46	36	29
	50		Kv	53	47,5	35,5	35,5
	2,0		Cv	61	55	41	41
65	34	40	Kv	-	25	25	-
			Cv	-	29	29	-
	42		Kv	-	40	40	40
			Cv	-	46	46	46
	53		Kv	-	63	63	63
			Cv	-	73	73	73
	67		Kv	90	80	71	71
			Cv	104	92	82	82
80 3"	42	40	Kv	-	40	40	-
	1,7		Cv	-	46	46	-
	53		Kv	-	63	63	63
	2,1		Cv	-	73	73	73
	67		Kv	-	100	90	90
	2,6		Cv	-	116	104	104
	80		Kv	140	125	100	100
	3,1		Cv	162	145	116	116
100 4"	53	40	Kv	-	63	63	-
	2,1		Cv	-	73	73	-
	67		Kv	-	100	100	90
	2,6		Cv	-	116	116	104
	84		Kv	-	160	125	125
	3,3		Cv	-	185	145	145
	100		Kv	200	180	125	140
	3,9		Cv	231	208	145	162
125	53	60	Kv	-	63	63	-
			Cv	-	73	73	-
	67		Kv	-	100	100	90
			Cv	-	116	116	104
	84		Kv	-	160	140	160
			Cv	-	185	162	185
	105		Kv	285	250	200	200
			Cv	329	289	231	231
150 6"	67	60	Kv	-	100	100	-
	2,6		Cv	-	116	116	-
	84		Kv	-	160	160	160
	3,3		Cv	-	185	185	185
	105		Kv	-	250	224	200
	4,1		Cv	-	289	259	231
	130		Kv	400	355	280	280
	5,1		Cv	462	410	324	324
200 8"	100	80	Kv	-	200	200	200
	3,9		Cv	-	231	231	231
	125		Kv	-	355	315	315
	4,9		Cv	-	410	364	364
	150		Kv	630	450	355	500
	5,9		Cv	728	520	410	578
250 10"	125	80	Kv	-	355	355	315
	4,9		Cv	-	410	410	364
	150		Kv	-	450	450	500
	5,9		Cv	-	520	520	578
	200		Kv	1000	710	630	630
	7,9		Cv	1156	821	728	728
300 12"	150	80	Kv	-	450	450	500
	5,9		Cv	-	520	520	578
	200		Kv	-	710	630	630
	7,9		Cv	-	821	728	728
	250		Kv	1600	1000	800	900
	9,8		Cv	1850	1156	925	1040

FlowTop Control Valves

Kvs / Cv Values for Modified Equal Percentage Trims

Valve Size	Port Size	Stroke mm	Kv / Cv	Trim Type: Contoured Plug – Standard Design	Trim Type: Contoured Plug – Silentpack Design	Trim Type: Perforated Plug
15 1/2"	3 0,1	10	Kv	0,010	-	-
			Cv	0,012	-	-
			Kv	0,016	-	-
			Cv	0,018	-	-
			Kv	0,025	-	-
			Cv	0,029	-	-
			Kv	0,040	-	-
			Cv	0,046	-	-
	4 0,2		Kv	0,063	-	-
			Cv	0,073	-	-
			Kv	0,100	-	-
			Cv	0,116	-	-
	4 0,2	20	Kv	0,16	-	-
			Cv	0,18	-	-
			Kv	0,25	-	-
			Cv	0,29	-	-
			Kv	0,40	-	-
			Cv	0,46	-	-
	6 0,2		Kv	0,63	0,63	-
			Cv	0,73	0,73	-
	8 0,3		Kv	1,0	1,0	-
			Cv	1,2	1,2	-
			Kv	1,6	1,6	-
			Cv	1,8	1,8	-
	10 0,4		Kv	2,5	2,5	-
			Cv	2,9	2,9	-
	12 0,5		Kv	4,0	4,0	-
			Cv	4,6	4,6	-
	16 0,6		Kv	5,6	5,6	-
			Cv	6,5	6,5	-
	20 0,8		Kv	-	-	2,5
			Cv	-	-	2,9
			Kv	-	-	4,0
			Cv	-	-	4,6
20	3	10	Kv	0,010	-	-
			Cv	0,012	-	-
			Kv	0,016	-	-
			Cv	0,018	-	-
			Kv	0,025	-	-
			Cv	0,029	-	-
			Kv	0,040	-	-
			Cv	0,046	-	-
	4		Kv	0,063	-	-
			Cv	0,073	-	-
			Kv	0,100	-	-
			Cv	0,116	-	-
	4	20	Kv	0,16	-	-
			Cv	0,18	-	-
			Kv	0,25	-	-
			Cv	0,29	-	-
			Kv	0,40	-	-
			Cv	0,46	-	-
	6		Kv	0,63	0,63	-
			Cv	0,73	0,73	-
			Kv	1,0	1,0	-
			Cv	1,2	1,2	-
			Kv	1,6	1,6	-
			Cv	1,8	1,8	-
	10		Kv	2,5	2,5	-
			Cv	2,9	2,9	-
	12		Kv	4,0	4,0	-
			Cv	4,6	4,6	-
	16		Kv	6,3	6,3	-
			Cv	7,3	7,3	-
	20		Kv	-	-	2,5
			Cv	-	-	2,9
			Kv	-	-	4,0
			Cv	-	-	4,6
			Kv	8,0	8,0	6,3
			Cv	9,2	9,2	7,3

Valve Size	Port Size	Stroke mm	Kv / Cv	Trim Type: Contoured Plug – Standard Design	Trim Type: Contoured Plug – Silentpack Design	Trim Type: Perforated Plug
25 1"	3 0,1	10	Kv	0,010	-	-
			Cv	0,012	-	-
			Kv	0,016	-	-
			Cv	0,018	-	-
			Kv	0,025	-	-
			Cv	0,029	-	-
			Kv	0,040	-	-
			Cv	0,046	-	-
	4 0,2		Kv	0,063	-	-
			Cv	0,073	-	-
			Kv	0,10	-	-
			Cv	0,12	-	-
	4 0,2	20	Kv	0,16	-	-
			Cv	0,18	-	-
			Kv	0,25	-	-
			Cv	0,29	-	-
			Kv	0,40	-	-
			Cv	0,46	-	-
	6 0,2		Kv	0,63	0,63	-
			Cv	0,73	0,73	-
	8 0,3		Kv	1,0	1,0	-
			Cv	1,2	1,2	-
			Kv	1,6	1,6	-
			Cv	1,8	1,8	-
	10 0,4		Kv	2,5	2,5	-
			Cv	2,9	2,9	-
	12 0,5		Kv	4,0	4,0	-
			Cv	4,6	4,6	-
	16 0,6		Kv	6,3	6,3	-
			Cv	7,3	7,3	-
	20 0,8		Kv	-	-	2,5
			Cv	-	-	2,9
			Kv	-	-	4,0
			Cv	-	-	4,6
			Kv	10,0	10,0	6,3
			Cv	11,6	11,6	7,3
	25 1,0		Kv	14,0	12,5	10,0
			Cv	16,2	14,5	11,6
32	16	20	Kv	6,3	6,3	-
			Cv	7,3	7,3	-
	20		Kv	-	-	4,0
			Cv	-	-	4,6
			Kv	10,0	10,0	6,3
			Cv	11,6	11,6	7,3
	25		Kv	16,0	16,0	10,0
			Cv	18,5	18,5	11,6
	34		Kv	22,4	18,0	14,0
			Cv	26	20,8	16,2
40 1 1/2"	16 0,6	20	Kv	6,3	6,3	-
			Cv	7,3	7,3	-
	20 0,8		Kv	10,0	10,0	6,3
			Cv	11,6	11,6	7,3
	25 1,0		Kv	16,0	16,0	10,0
			Cv	18,5	18,5	11,6
	34 1,3		Kv	25	20	16,0
			Cv	29	23	18,5
	40 1,6		Kv	31,5	22,4	20
			Cv	36,4	25,9	23
50 2"	20 0,8	20	Kv	10,0	10,0	-
			Cv	11,6	11,6	-
	25 1,0		Kv	16,0	16,0	10,0
			Cv	18,5	18,5	11,6
	34 1,3		Kv	25	25	16,0
			Cv	29	29	18,5
	42 1,7		Kv	40	31,5	25
			Cv	46	36	29
	50 2,0		Kv	47,5	35,5	28
			Cv	55	41	32

Continued....

FlowTop Control Valves

Kvs / Cv Values for Modified Equal Percentage Trims

Valve Size	Port Size	Stroke mm	Kv Cv	Trim Type		
				Contoured Plug		
				Standard Design	Silentpack Design	Perforated plug
65	34	40	Kv	25	25	-
			Cv	29	29	-
	42		Kv	40	40	40
			Cv	46	46	46
	53		Kv	63	63	56
			Cv	73	73	65
	67		Kv	80	71	63
			Cv	92	82	73
80 3"	42	40	Kv	40	40	-
	1,7		Cv	46	46	-
	53		Kv	63	63	56
	2,1		Cv	73	73	65
	67		Kv	100	90	71
	2,6		Cv	116	104	82
	80		Kv	125	100	80
	3,1		Cv	145	116	92
100 4"	53	40	Kv	63	63	-
	2,1		Cv	73	73	-
	67		Kv	100	100	71
	2,6		Cv	116	116	82
	84		Kv	160	125	100
	3,3		Cv	185	145	116
	100		Kv	180	125	112
	3,9		Cv	208	145	129
125	53	60	Kv	63	63	-
			Cv	73	73	-
	67		Kv	100	100	90
			Cv	116	116	104
	84		Kv	160	140	125
			Cv	185	162	145
	105		Kv	250	200	160
			Cv	289	231	185
150 6"	67	60	Kv	100	100	-
	2,6		Cv	116	116	-
	84		Kv	160	160	125
	3,3		Cv	185	185	145
	105		Kv	250	224	160
	4,1		Cv	289	259	185
	130		Kv	355	280	200
	5,1		Cv	410	324	231
200 8"	100	80	Kv	200	200	200
	3,9		Cv	231	231	231
	125		Kv	355	315	280
	4,9		Cv	410	364	324
	150		Kv	450	355	400
	5,9		Cv	520	410	462
250 10"	125	80	Kv	355	355	280
	4,9		Cv	410	410	324
	150		Kv	450	450	400
	5,9		Cv	520	520	462
	200		Kv	710	630	500
	7,9		Cv	821	728	578
300 12"	150	80	Kv	450	450	400
	5,9		Cv	520	520	462
	200		Kv	710	630	500
	7,9		Cv	821	728	578
	250		Kv	1000	800	710
	9,8		Cv	1156	925	821

FlowTop Control Valves

FlowAct Actuator Data

Actuator

The FlowAct is a diaphragm linear actuator used as standard on the FlowTop valve. Multi-spring, compact design, the FloAct can be operated with supply pressures up to 6 bar. Available with Multi-yoke or NAMUR design yokes the FlowAct will accept all FLOWSERVE positioners and accessories.

Top mounted handwheel

127, 252 and 500 size actuators use the top light handwheel. The size 700 actuator uses only the heavy style handwheel. The sizes 1501 and 3001 should use only the side mounted style handwheel.

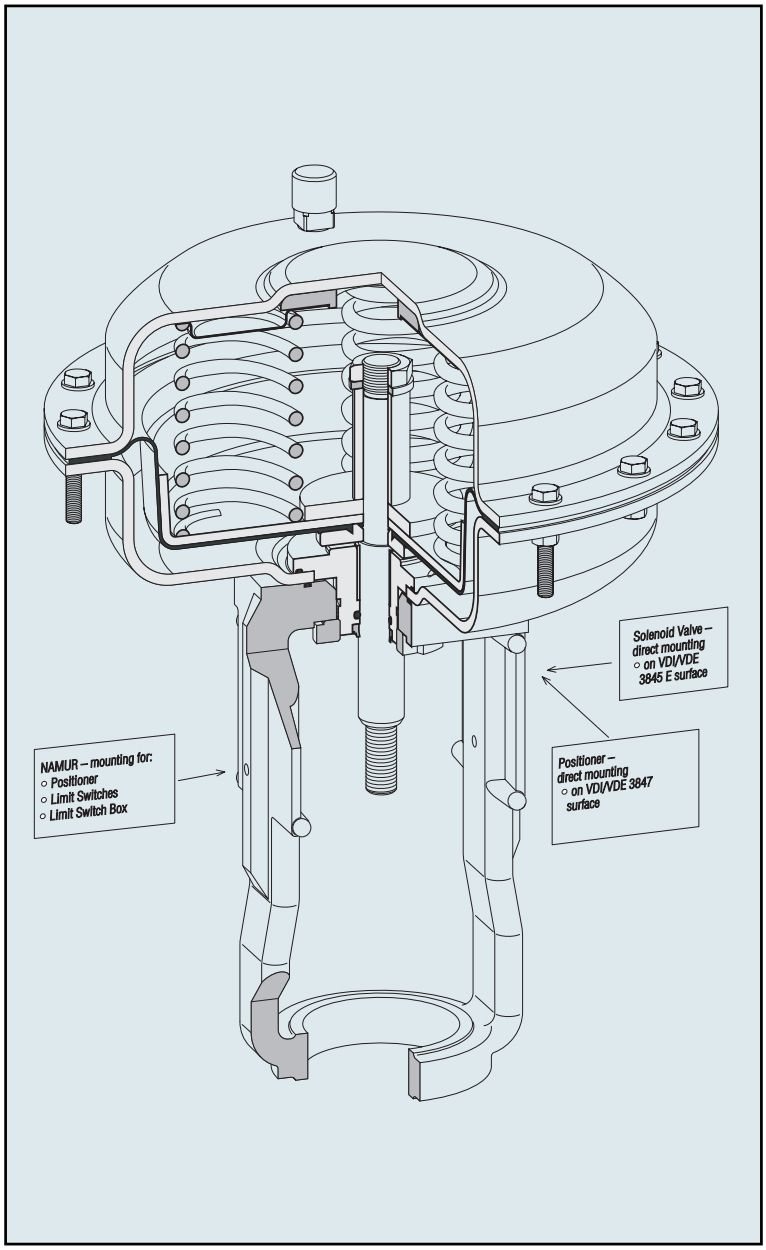


Figure 27: FlowAct assembly

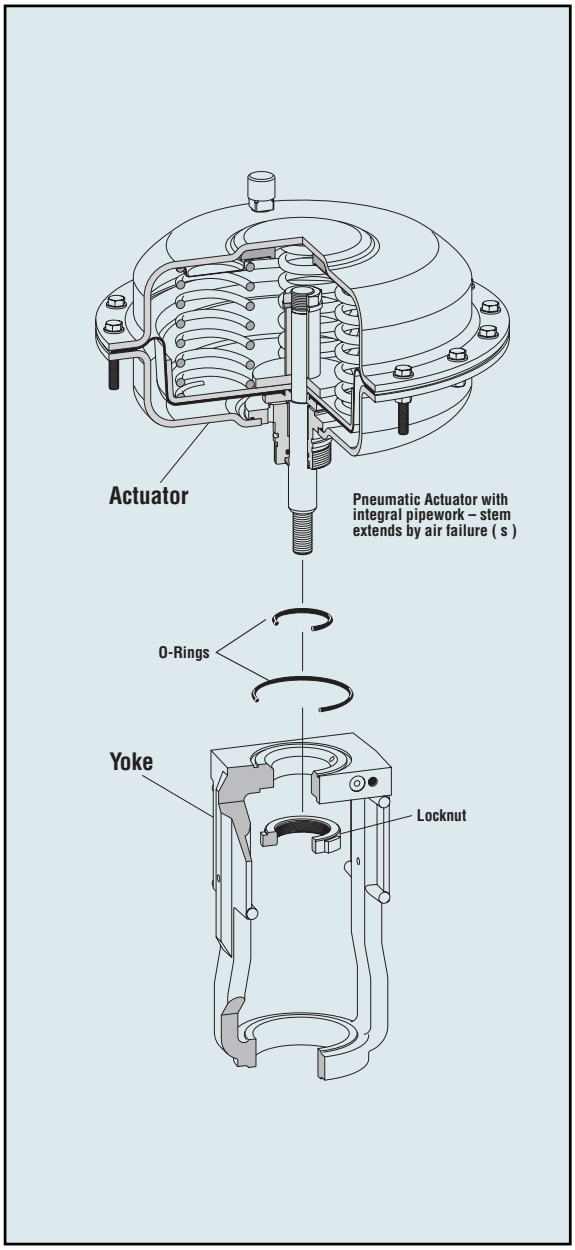


Figure 28: FlowAct/yoke assembly

FlowTop Control Valves

Actuator Data Range

Actuator Size	Effective Area cm^2	Stroke mm	Spring Range bar / psi	**Stem extends** by Air failure nec. Air Supply bar / psi	**Stem extends** by Air failure max. Force daN / lbs	**Stem retracts** by Air failure max. Air Supply bar / psi	**Stem retracts** by Air failure max. Force daN / lbs	**Force in both home positions** - for Three Way Valves only - nec. Air Supply bar / psi	**Force in both home positions** - for Three Way Valves only - max. Force daN / lbs
127	125	10	0,8 - 1,6	1,8	1000	-	-	-	-
			12 - 23	26	225	-	-	-	-
			1,4 - 2,4	2,6	1750	-	-	-	-
			20 - 35	38	393	-	-	-	-
			2,7- 4,1	4,3	3375	-	-	-	-
			39 - 59	62	759	-	-	-	-
		20	0,2 - 1,0	-	-	6,0	6250	-	-
			03 - 15	-	-	87	1405	-	-
			0,5 - 1,9	-	-	6,0	5125	2,4	625
			07 - 28	-	-	87	1152	35	141
			1,0 - 2,4	2,6	1250	-	-	3,4	1250
			15 - 35	38	281	-	-	49	281
			1,5 - 2,7	2,9	1875	-	-	4,2	1875
			22 - 39	42	422	-	-	61	422
			2,0 - 4,8	5,0	2500	-	-	-	-
			29 - 70	73	562	-	-	-	-
252	250	10	0,8 - 1,6	1,8	2000	6,0	11000	-	-
			12 - 23	26	450	87	2473	-	-
			1,4 - 2,4	2,6	3500	-	-	-	-
			20 - 35	38	787	-	-	-	-
			2,7 - 4,1	4,3	6750	-	-	-	-
			39 - 59	62	1517	-	-	-	-
		20	0,2 - 1,0	-	-	6,0	12500	-	-
			3 - 15	-	-	87	2810	-	-
			0,5 - 1,9	-	-	6,0	10250	2,4	1250
			7 - 28	-	-	87	2304	35	281
			1,0 - 2,4	2,6	2500	-	-	3,4	2500
			15 - 35	38	562	-	-	49	562
			1,5 - 2,7	2,9	3750	-	-	4,2	3750
			22 - 39	42	843	-	-	61	843
			1,5 - 3,8	4,0	3750	-	-	5,3	3750
			22 - 55	58	843	-	-	77	843
			2,0 - 4,8	5,0	5000	-	-	-	-
			29 - 70	73	1124	-	-	-	-
502	500	20	0,2 - 1,0	-	-	6,0	25000	-	-
			3 - 15	-	-	87	5620	-	-
			0,5 - 1,9	-	-	6,0	20500	2,4	2500
			7 - 28	-	-	87	4609	35	562
			1,0 - 2,4	2,6	5000	-	-	3,4	5000
			15 - 35	38	1124	-	-	49	1124
			1,5 - 2,7	2,9	7500	-	-	4,2	7500
			22 - 39	42	1686	-	-	61	1686
			1,5 - 3,8	4,0	7500	-	-	5,3	7500
			22 - 55	58	1686	-	-	77	1686
			2,0 - 4,8	5,0	10000	-	-	-	-
			29 - 70	73	2248	-	-	-	-
		40	0,2 - 1,0	-	-	6,0	25000	-	-
			3 - 15	-	-	87	5620	-	-
			0,5 - 1,9	-	-	6,0	20500	2,4	2500
			7 - 28	-	-	87	4609	35	562
			1,0 - 2,4	2,6	5000	-	-	3,4	5000
			15 - 35	38	1124	-	-	49	1124
			1,5 - 2,7	2,9	7500	-	-	4,2	7500
			22 - 39	42	1686	-	-	61	1686
			1,5 - 3,8	4,0	7500	-	-	5,3	7500
			22 - 55	58	1686	-	-	77	1686
			2,0 - 4,8	5,0	10000	-	-	-	-
			29 - 70	73	2248	-	-	-	-
700	700	20	1,8 - 2,7	2,9	12600	-	-	4,5	12600
			26 - 39	42	2833	-	-	65	2833
		40	0,2 - 1,0	-	-	6,0	35000	-	-
			3 - 15	-	-	87	7868	-	-
			0,5 - 1,9	-	-	6,0	28700	2,4	3500
			7 - 28	-	-	87	6452	35	787
			1,0 - 2,4	2,6	7000	-	-	3,4	7000
			15 - 35	38	1574	-	-	49	1574
			1,5 - 2,7	2,9	10500	-	-	4,2	10500
			22 - 39	42	2360	-	-	61	2360
			1,5 - 3,8	4,0	10500	-	-	5,3	10500
			22 - 55	58	2360	-	-	77	2360

contintued...

Actuator Size	Effective Area cm^2	Stroke mm	Spring Range bar / psi	**Stem extends** by Air failure		**Stem retracts** by Air failure		**Force in both home positions** - for Three Way Valves only -	
				nec. Air Supply bar / psi	max. Force daN / lbs	max. Air Supply bar / psi	max. Force daN / lbs	nec. Air Supply bar / psi	max. Force daN / lbs
			2,0 - 4,8 29 - 70	5,0 73	14000 3147	- -	- -	- -	- -
		60	0,2 - 1,0 3 - 15	- -	- -	6,0 87	35000 7868	- -	- -
			0,5 - 1,9 7 - 28	- -	- -	6,0 87	28700 6452	2,4 35	3500 787
			1,0 - 2,4 15 - 35	2,6 38	7000 1574	- -	- -	3,4 49	7000 1574
			1,5 - 3,8 22 - 55	4,0 58	10500 2360	- -	- -	5,3 77	10500 2360
			2,0 - 4,8 29 - 70	5,0 73	14000 3147	- -	- -	- -	- -
1501	1500	20	0,8 - 1,6 12 - 23	1,8 26	12000 2698	4,2 61	39000 8768	2,4 35	12000 2698
			1,5 - 2,1 22 - 30	2,3 33	22500 5058	4,7 68	39000 8768	3,6 52	22500 5058
		40	0,2 - 1,0 3 - 15	- -	- -	3,6 52	39000 8768	- -	- -
			0,4 - 2,0 6 - 29	- -	- -	4,6 67	39000 8768	2,4 35	6000 1349
			0,75 - 1,4 11 - 20	1,6 23	11250 2529	- -	- -	2,2 31	11250 2529
			1,5 - 2,7 22 - 39	2,9 42	22500 5058	- -	- -	4,2 61	22500 5058
			2,0 - 3,5 29 - 51	3,7 54	30000 6744	- -	- -	5,5 80	30000 6744
			2,6 - 4,2 38 - 61	4,4 64	39000 8768	- -	- -	- -	- -
		60	0,2 - 1,0 3 - 15	- -	- -	3,6 52	39000 8768	- -	- -
			0,4 - 2,0 6 - 29	- -	- -	4,6 67	39000 8768	2,4 35	6000 1349
			0,75 - 1,4 11 - 20	1,6 23	11250 2529	- -	- -	2,2 31	11250 2529
			1,5 - 2,7 22 - 39	2,9 42	22500 5058	- -	- -	4,2 61	22500 5058
			2,0 - 3,5 29 - 51	3,7 54	30000 6744	- -	- -	5,5 80	30000 6744
			2,6 - 4,2 38 - 61	4,4 64	39000 8768	- -	- -	- -	- -
		80	0,2 - 1,0 3 - 15	- -	- -	3,6 52	39000 8768	- -	- -
			0,4 - 2,0 6 - 29	- -	- -	4,6 67	39000 8768	2,4 35	6000 1349
			0,75 - 1,4 11 - 20	1,6 23	11250 2529	- -	- -	2,2 31	11250 2529
			1,5 - 2,7 22 - 39	2,9 42	22500 5058	- -	- -	4,2 61	22500 5058
			2,0 - 3,5 29 - 51	3,7 54	30000 6744	- -	- -	5,5 80	30000 6744
			2,6 - 4,2 38 - 61	4,4 64	39000 8768	- -	- -	- -	- -
3001	3000	40	0,2 - 1,0 3 - 15	- -	- -	2,3 33	39000 8768	- -	- -
			0,4 - 2,0 6 - 29	- -	- -	3,3 48	39000 8768	2,4 35	12000 2698
			0,75 - 1,4 11 -20	1,6 23	22500 5058	- -	- -	2,2 31	22500 5058
			1,0 - 2,4 15 - 35	2,6 38	30000 6744	- -	- -	3,4 49	30000 6744
			1,3 - 2,1 19 - 30	2,3 33	39000 4384	- -	- -	3,4 49	39000 4384
		60	0,2 - 1,0 3 - 15	- -	- -	2,3 33	39000 8768	- -	- -
			0,4 - 2,0 6 - 29	- -	- -	3,3 48	39000 8768	2,4 35	12000 2698
			0,75 - 1,4 11 - 20	1,6 23	22500 5058	- -	- -	2,2 31	22500 5058
			1,0 - 2,4 15 - 35	2,6 38	30000 6744	- -	- -	3,4 49	30000 6744
			1,3 - 2,1 19 - 30	2,3 33	39000 8768	- -	- -	3,4 49	39000 8768
		80	0,2 - 1,0 3 - 15	- -	- -	2,3 33	39000 8768	- -	- -
			0,4 - 2,0 6 - 29	- -	- -	3,3 48	39000 8768	2,4 35	12000 2698
			0,75 - 1,4 11 - 20	1,6 23	22500 5058	- -	- -	2,2 31	22500 5058
			1,0 - 2,4 15 - 35	2,6 38	30000 6744	- -	- -	3,4 49	30000 6744
			1,3 - 2,1 19 - 30	2,3 33	39000 8768	- -	- -	3,4 49	39000 8768

FlowTop Control Valves
Positioners

Logix 500si Positioner

The Logix 500si series digital positioner is a single-acting digital positioner that is quickly and easily configured at the valve – which does not require a hand-held device or a host system. The Logix 500 digital positioner combines state-of-the-art piezo technology with inner-loop feedback that provides high-performance control with minimal air consumption. Highly visible LED status lights allow the user to diagnose the condition of the valve at a glance.

With its versatile mounting options, the Logix 500 si positioner offers a cost-effective retrofit solution for applications requiring communication (HART protocol) and diagnostics for diaphragm-actuated valves from any manufacturer.

Figure 29: Logix 500si positioner

XL Positioner

The XL two-stage analog positioner offers fast and sensitive dynamic response characteristics to meet extremely demanding control requirements. The positioner is available with either an electro-pneumatic (I/P) transducer module for milliamp current control signals or a pneumatic module for air control signals. Designed for high performance, this positioner is field-reversible and ruggedly built for reliability in severe environments. It is fully capable of handling up to 150 psi / 10.3 bar without a pressure regulator. Two and three-way split ranges are available without special feedback springs.

Figure 30: XL positioner

Logix 1000 Series Positioners

For HART® and fieldbus applications, the Logix 1000 digital positioners offer unparalleled performance with a powerful 16-bit microprocessor and proprietary two-stage electronic relay (patent pending). For HART applications (Model 1200), the on-board *Quick-Cal™* button allows the user to complete setup and calibration in less than 30 seconds without the use of hand-held devices or additional software. For fieldbus applications (Model 1400), the positioner offers an on-board *Re-Cal™* button that allows the user to complete setup and calibration in less than 30 seconds. Local status LEDs provide an insight into valve status at a glance.

With the Logix 1200 positioner, data transfer with the SoftTools™ software is substantially faster than other current HART-compatible systems, resulting in a dramatic speed increase in configuration and diagnostic signature acquisition. When fieldbus communications are required, the Logix 1400 positioner is designed and registered as a FOUNDATION™ Fieldbus device, and contains AO and PID function blocks. In addition to high performance, both the Logix 1200 and 1400 positioners offer in-process diagnostics for the valve as well as for the actuation system. They are designed to provide users with significant improvements in today's plant operations while offering simple and economical migration to fieldbus standards.

Figure 31: Logix 1000 positioner

FlowTop Control Valves
Valve Dimensions, DIN

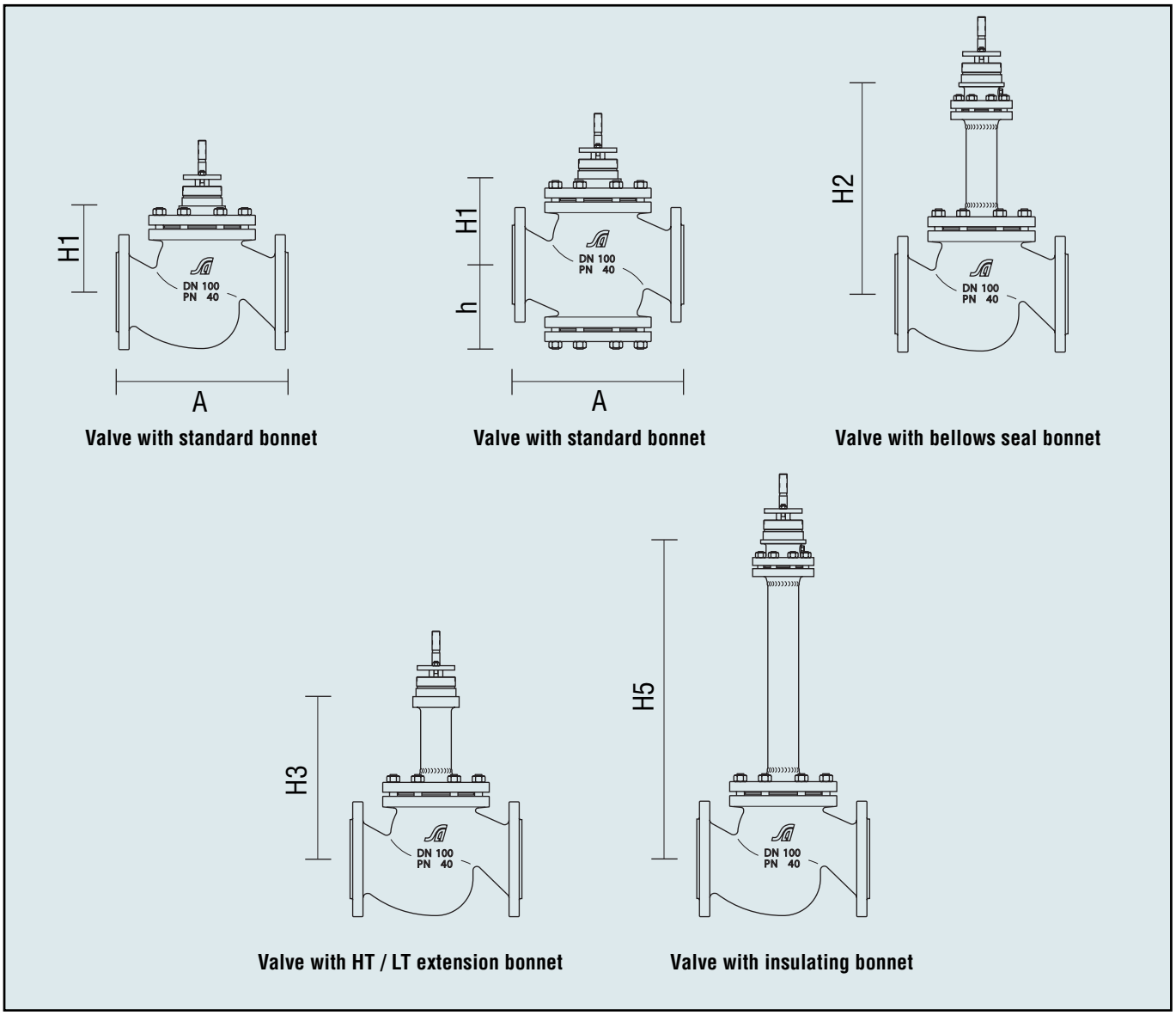


Figure 32: Valve dimensions

Designation		Nominal Size													
	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300
A acc. to EN 558-1 Grunreihe 1	mm	130	150	160	180	200	230	290	310	350	400	480	600	730	850
≈ **h**	mm	-	-	92	-	110	115	-	165	175	-	235	347	428	470
≈ **H1** Valves with Standard Bonnet	mm	105	105	105	120	120	120	170	170	175	276	270	369	456	488
≈ **H2** Valves with Bellows Seal Bonnet	mm	300	300	300	300	300	300	480	480	480	815	821	1047	1050	1053
≈ **H3** Valves with Extension Bonnet	mm	220	220	220	220	220	220	310	310	310	440	443	509	596	628
≈ **H5** Valves with Insulating Bonnet	mm	644	644	644	646	646	648	651	651	653	667	670	-	-	-

FlowTop Control Valves
Valve Dimensions, ANSI

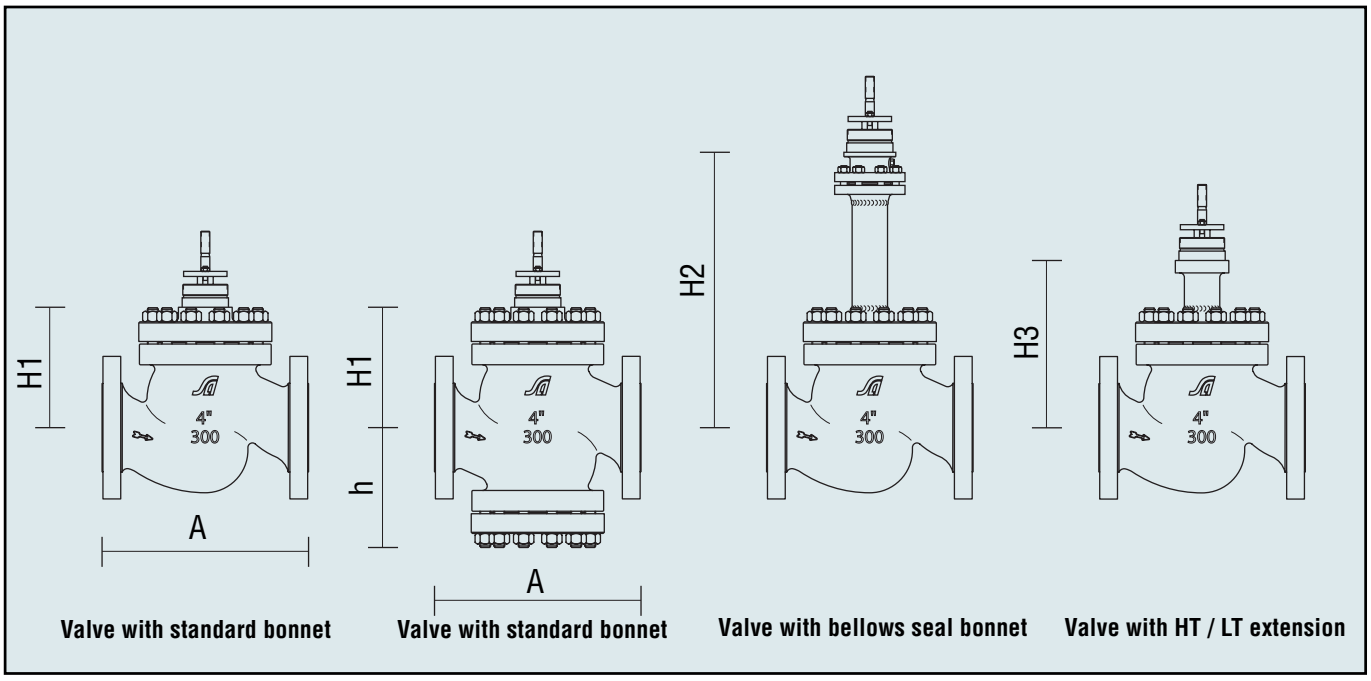


Figure 33: Valve dimensions

Designation		Nominal Size									
	mm in.	15 1/2"	25 1"	40 1 1/2"	50 2"	80 3"	100 4"	150 6"	200 8"	250 10"	300 12"
A acc. to ANSI/ISA S75.03 Class 150	mm	184,2	184,2	222,3	254,0	298,5	352,6	450,8	543,1	673,1	736,6
	in.	7,25	7,25	8,75	10,00	11,75	13,88	17,75	21,38	26,50	29,00
A acc. to ANSI/ISA S75.03 Class 300 RF	mm	190,5	196,9	235,0	266,7	317,5	368,3	472,9	568,5	708,2	774,7
	in.	7,50	7,75	9,25	10,50	12,50	14,50	18,62	22,38	27,88	30,50
A acc. to ANSI/ISA S75.03 Class 300 RTJ	mm	201,7	209,6	247,7	282,4	333,2	384,0	488,7	584,2	723,9	790,4
	in.	7,94	8,25	9,75	11,12	13,12	15,12	19,24	23,00	28,50	31,12
≈ **h**	mm	-	92	110	115	165	175	235	347	428	470
	in.	-	-	-	-	-	-	-	13,66	16,85	18,50
≈ **H1** Standard Bonnet	mm	116	116	137	138	203	204	270	369	456	488
	in.	4,6	4,6	5,4	5,4	8,0	8,0	10,6	14,5	18,0	19,2
≈ **H2** Bellows Seal Bonnet	mm	299	299	305	306	498	499	821	1047	1050	1053
	in.	11,8	11,8	12,0	12,0	19,6	19,6	32,3	41,2	41,3	41,5
≈ **H3** Extension Bonnet	mm	217	217	218	220	310	311	443	509	596	628
	in.	8,5	8,5	8,6	8,7	12,2	12,2	17,4	20,0	23,5	24,7

FlowTop Control Valves
Valve Weights

Designation		Nominal Size													
	mm in.	15 1/2"	20 -	25 1"	32 -	40 1 1/2"	50 2"	65 -	80 3"	100 4"	125 -	150 6"	200 8"	250 10"	300 12"
DIN Valves with Three Flange Body and Standard Bonnet	kg	5	6	7	11	12	16	30	35	50	70	95	218	-	-
DIN Valves with Three Flange Body and Bellows Seal Bonnet	kg	9	10	11	15	16	20	35	40	55	88	113	245	-	-
DIN Valves with Three Flange Body and Extension Bonnet	kg	7	8	9	13,5	14,5	18,5	32	37	52	74	99	221	-	-
DIN Valves with Three Flange Body and insulating bonnet	kg	8	9	10	14	15	19	32	37	52	83	108	-	-	-
DIN Valves with Four Flange Body and Standard Bonnet and Insulating Bonnet	kg	-	-	10	-	17	23	-	48	64	-	120	278	526	694
DIN Valves with Four Flange Body and Bellows Seal Bonnet	kg	-	-	14	-	21	27	-	53	69	-	138	304	550	718
DIN Valves with Four Flange Body and Extension Bonnet	kg	-	-	12	-	20	25	-	50	66	-	124	281	528	697
DIN Valves with Four Flange Body and Insulating Bonnet	kg	-	-	13	-	20	26	-	50	66	-	133	-	-	-
ANSI Valves with Three Flange Body and Standard Bonnet **Class 150**	kg lbs	6,2 13,7	- -	7,3 16,1	- -	13,4 29,5	17,4 38,4	- -	42 93	62 137	- -	91 201	203 448	- -	- -
ANSI Valves with Three Flange Body and Standard Bonnet **Class 300**	kg lbs	6,3 13,9	- -	8,1 17,9	- -	15,5 34,2	18,6 41,0	- -	47 104	72 159	- -	134 295	231 509	- -	- -
ANSI Valves with Three Flange Body and Bellows Seal Bonnet **Class 150**	kg lbs	10,2 22,5	- -	11,3 24,9	- -	17,4 38,4	21,4 47,2	- -	50 110	70 154	- -	109 240	230 507	- -	- -
ANSI Valves with Three Flange Body and Bellows Seal Bonnet **Class 300**	kg lbs	10,3 22,7	- -	12,1 26,7	- -	19,5 43,0	22,6 49,8	- -	55 121	80 176	- -	154 340	258 569	- -	- -
ANSI Valves with Three Flange Body and Extension Bonnet **Class 150**	kg lbs	7,5 16,5	- -	8,6 19,0	- -	14,2 31,3	18,2 40,1	- -	43 95	63 139	- -	95 209	206 454	- -	- -
ANSI Valves with Three Flange Body and Extension Bonnet **Class 300**	kg lbs	7,6 16,8	- -	9,4 20,7	- -	16,3 35,9	19,4 42,8	- -	49 108	74 163	- -	138 304	234 516	- -	- -
ANSI Valves with Four Flange Body and Standard Bonnet **Class 150**	kg lbs	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	261 575	499 1100	674 1486
ANSI Valves with Four Flange Body and Standard Bonnet **Class 300**	kg lbs	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	289 637	542 1195	724 1596
ANSI Valves with Four Flange Body and Bellows Seal Bonnet **Class 150**	kg lbs	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	287 633	524 1155	698 1539
ANSI Valves with Four Flange Body and Bellows Seal Bonnet **Class 300**	kg lbs	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	315 694	567 1250	748 1649
ANSI Valves with Four Flange Body and Extension Bonnet **Class 150**	kg lbs	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	264 582	501 1105	677 1493
ANSI Valves with Four Flange Body and Extension Bonnet **Class 300**	kg lbs	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	292 644	544 1199	727 1603

FlowTop Control Valves

Actuator Dimensions and Weights (Multi-Yoke)

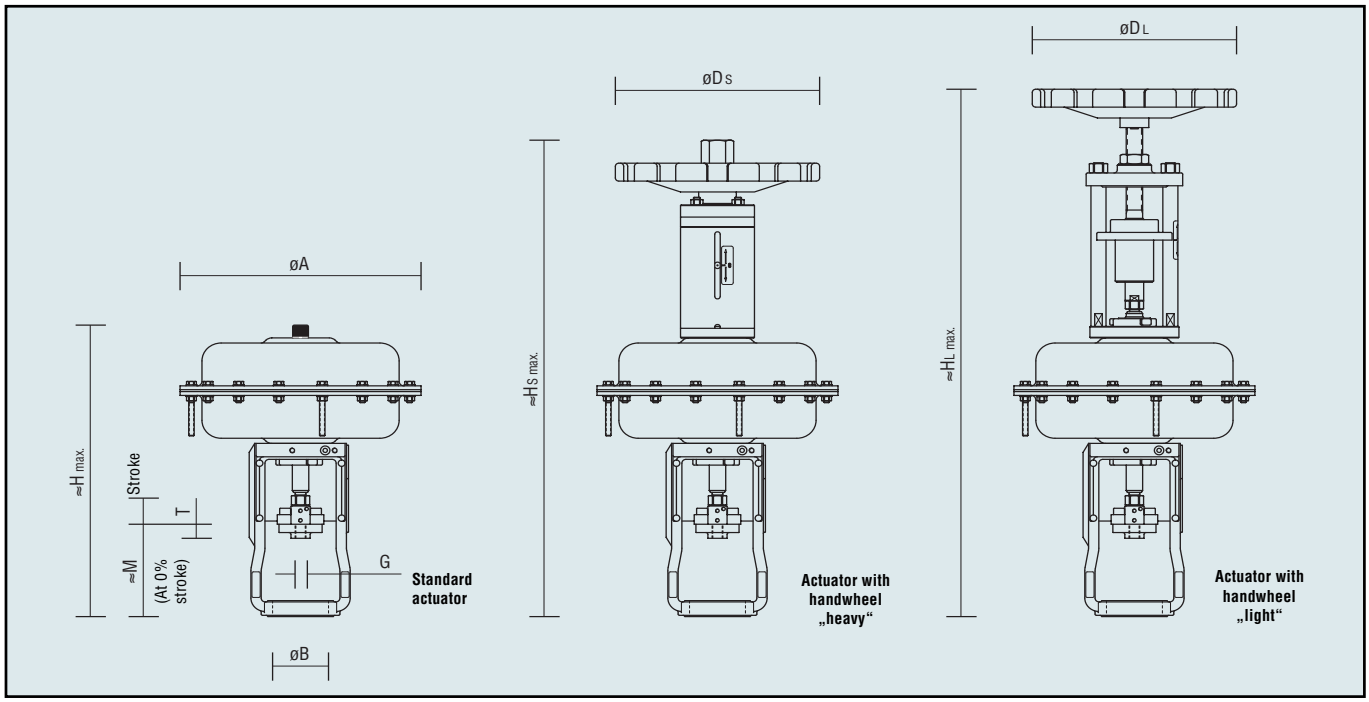


Figure 34: Actuator dimensions

Actuator Size	127	252	502		700	
Stroke in (mm)	10, 20	10, 20	20	40	20	40
Designation	cm	cm	cm	cm	cm	cm
ø A	198	265	352	252	405	405
H max.	320	335	455	460	545	550
Hs max.	515	520	740	745	870	875
HL max.	590	595	845	870	-	-
ø Ds max.	160	200	250	250	350	350
ø DL max.	200	200	300	300	-	-
Weight	kg	kg	kg	kg	kg	kg
Actuator:	9	14	29	29	40	40
With top mounted hand wheel “heavy”	15	20	38	38	58	58
With top mounted hand wheel “light”	14	19	36	36	-	-

Actuator Size	127	127	252	252	502		700	
Stroke	10	20	10	20	20	40	20	40
ø B	65	65	65	65	65	82	65	82
≈ M	110	105	110	105	105	140	105	140
G	M12	M12	M12	M12	M12	M16	M12	M16
T	23	23	23	23	23	25	23	25

FlowTop Control Valves

Actuator Dimensions and Weights (NAMUR-Yoke)

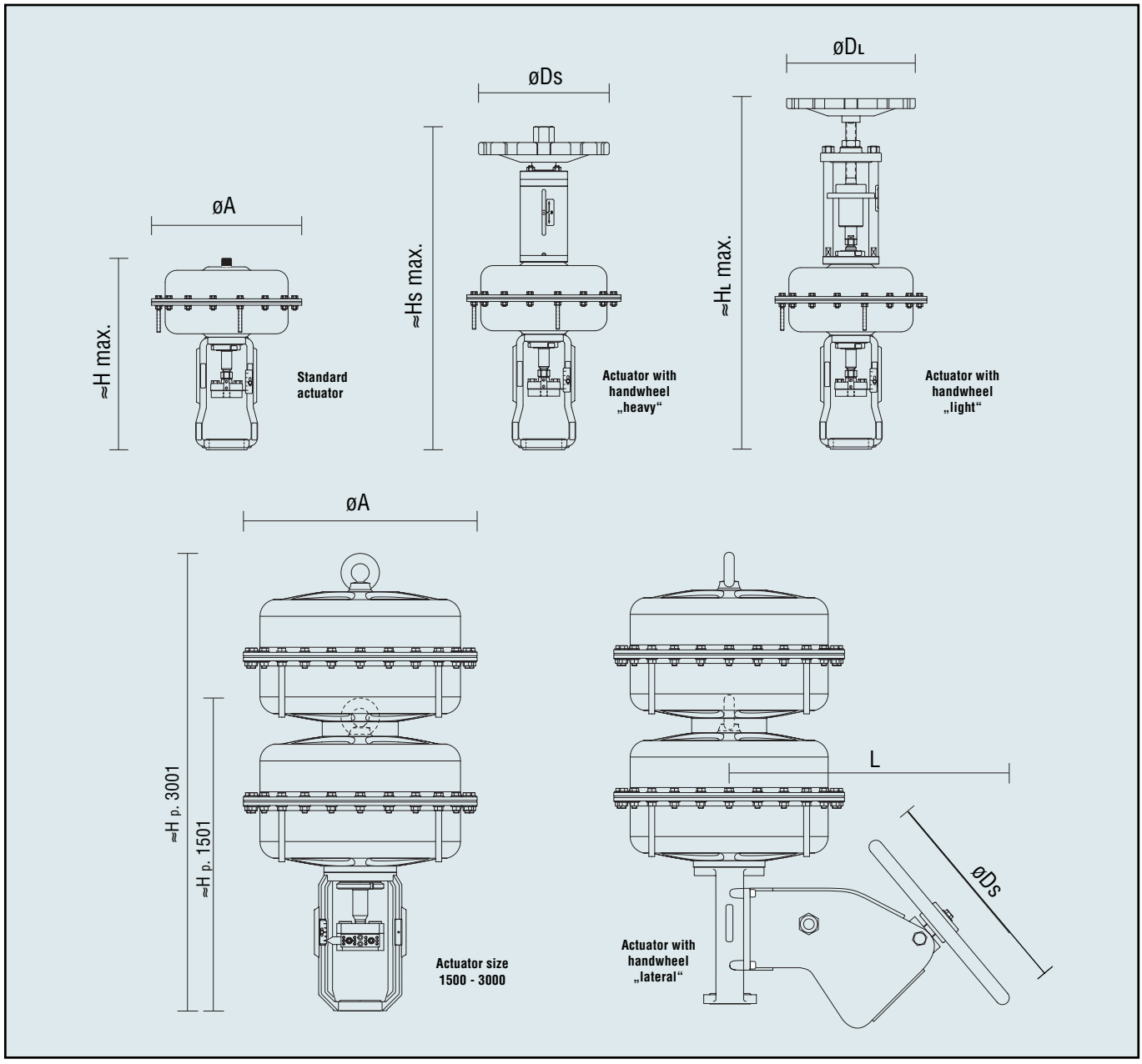


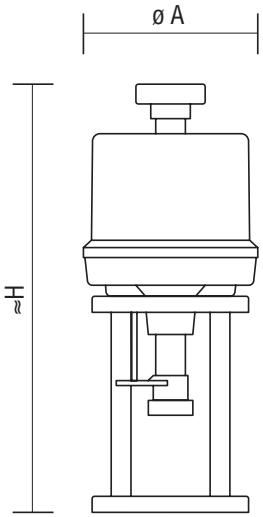
Figure 35: Actuator dimensions

Actuator Size	**252**	**502**		**700**			**1501**	**3001**
Stroke (mm)	10, 20	20	40	20	40	60	20, 40, 60, 80	40, 60, 80
ø A	265	352	352	405	405	405	548	548
H max.	330	420	460	545	545	600	835	1140
Hs max.	515	705	745	870	870	925	-	-
HL max.	590	810	870	-	-	-	-	-
ø Ds max.	330	420	450	350	350	350	500	500
ø DL max.	200	300	300	-	-	-	-	-
L	–	–	–	–	–	–	685	685
Weight	kg	kg	kg	kg	kg	kg	kg	kg
Actuator:	13	28	28	40	40	41	124	240
With top mounted hand wheel “heavy”	19	37	37	58	58	58	174	290
With top mounted hand wheel “light”	18	35	35	-	-	-	-	-

FlowTop Control Valves

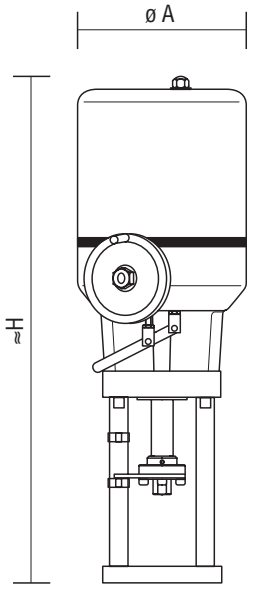
PSL - Electric Linear Actuator

Designation	Actuator	AB 201	AB 102	AB 202	AB 204	AB 208	AB 210
Stroke	mm	20	20 / 40				
Ø A	mm	219	219	219	219	236	236
≈H	mm	462	462	462	462	585	585
≈Weight	kg	5,5	5,7	5,7	9,5	12	12
Positioning force	kN	1	2	2	4,5	8	10
Voltage		AC 24 V / 115 V / 230 V / 400 V, 50 Hz					
Power input	W	10,7	11,9	11,9	21	49	49



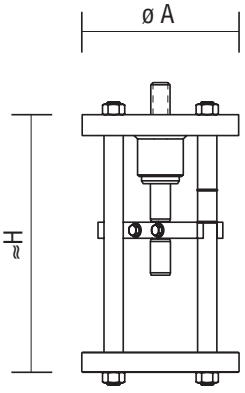
Haselhofer - Electric Linear Actuator

Designation	Actuator	EB 1,2	EB 4,5	EB 8	EB 12	EB 20	EB 25
Stroke	mm	20	20 / 40 / 60		40 / 60 / 80		
Ø A	mm	145	145	184	184	216	216
≈H	mm	505	535	570	570	660	660
≈Weight	kg	6,5	7,5	13	13	19	19
Positioning force	kN	1,2	2,0/4,5	6,0/8,0	12	15/20	25
Voltage (other on request)		AC 230 V 50 Hz / 400 V, 50 Hz direct current 12 V					
Power input	W	7	28/32	60/130	60/130	145/165	145/165



Linear Thrust Unit

Designation	Linear unit	LB 12	LB 16	LB 20
Stroke	mm	20	40	60/80
Ø A	mm	196	196	196
≈H	mm	240	320	407
≈Weight	kg	12	17	20
max. torque	Nm	30	50	80
Connection acc. to ISO 5210 form A =Trapezoid thread 24 x 5 left				



SPM - Code DIN *

Type	DN	PN	Body/Cert .	Plug	Seat	kvs	Trim	Actuator	S
V726 DKVNA	50	40	1.0619/ZZ	PN1GG	42	40	1.4571		

(Actuator see page 31)

Body Form

Three-Flange	D
Three-Flange with Heating Jacket	H
Four-Flange	V
Four-Flange with Heating Jacket	G
Three-Way	W

Form of Connection

Flange acc. to EN 1092-1	Form B1	K
	Form F	Q
	Form D	Y
Welded Ends acc. to DIN 3239		S

Bonnet Form

without Pressure Balancing	V
with V-Ring Balancing	O
with Piston-Ring Balancing	K

Bonnet Assembly

Standard Bonnet	N
Bellows seal Bonnet	F
HT Extension Bonnet	R
Double seal Bonnet	L
LT Extension Bonnet	K
Insulating Bonnet	I

Packing Box Assembly

Teflon-Rings, adjustable, BA M	A
Pure Graphite-Rings, adjustable, BAM	B
Teflon-Rings, loaded, BA M	N
Pure Graphite-Rings, loaded, BAM	O
Teflon-Rings, Graphite core, load., "T A"	Q
Teflon-Rings, Oil lubricated, load., "T A"	R
V-Ringe Packing	S

Nominal Size 15 - 300

Nominal Pressure

PN 10	10
PN 16	16
PN 25	25
PN 40	40

Body Material

1.0619
1.4581
1.5419
1.4308

Certificates for pressure stressed parts acc. to PED 97/23/EC Cat. III

without	O .
EN 10 204 - 2.2	Z .
EN 10 204 - 3.1B (Summary of certificates)	B .
EN 10 204 - 3.1B (With copies of material certificates)	D .
EN 10 204 - 3.1A	A .
TRD 110, TRB 801	I - T .

Pressure- and leakage test certificate acc. to PED 97/23/EC Cat. III

without	. O
EN 10 204 - 2.2	. Z
EN 10 204 - 3.1B	. B
EN 10 204 - 3.1A	. A
acc. to PED 97/23/EC Cat. IV	.M, L

1.4571 / 1.4122 Plug, Seat Material

kvs - Value 0,01 - 1500

Port Size 3 - 250

Flow tends to

open Valve	G
close Valve	I

Characteristic

modified - equal percentage	G
linear	L
on / off	A
modified - equal percentage with Special Rangeability	H

Plug Guidance

Top	1
Top and Bottom	2

Plug Type

standard	N
standard, IEC 534-4 Class IV S1	E
partial stellited	D
partial stellited, IEC 534-4 Class IV S1	L
full stellited	K
full stellited, IEC 534-4 Class IV S1	F
soft seated	W
hardened	H
nitrided	T

Plug

Parabolic Plug	P
Parabolic Plug with Silentpack	K
Xstream, downstream cage, 2-step	E, F
Xstream, downstream cage, 3-step	G,H
Xstream, upstream cage	I
Xstream, up- + downstream cage, 2-step	Q
Xstream, up- + downstream cage, 3-step	W
Disk Plug	T
Multi-Hole Plug	L
RLS-unit, 2-step, series I	A
RLS-unit, 2-step, series II	B
RLS-unit, 3-step, series II	D
Mixing Plug	M
Distributing Plug	V

* Possible combinations according to VALQUO / PERFORMANCE / FlowTop price list

SPM - Code ANSI*

Type	DN	PN	Body/Cert .	Plug	Seat	c_V	Trim	Actuator
V740 DFVNA	2”	300	A216 WCB/BB	PN1GG	42	46	316 SS	

Valve Model

ANSI 150	V738
ANSI 300	V740

Body Form

Three Flange	D
Three Flange w. Heating Jacket	H
Four Flange	V
Four Flange w. Heating Jacket	G

Form of Connection

Flange acc. to ANSI B16.5	Form RF	F
	Form RTJ	J
	Form RFS	U
Welding Ends		W

Bonnet Form

without Pressure Balancing	V
with V-Ring Balancing	O
with Piston-Ring Balancing	K

Bonnet Assembly

Standard Bonnet	N
Bellows seal Bonnet	F
HT-Extension Bonnet	R
LT-Extension Bonnet	K

Packing Box Assembly

Teflon-Rings, adjustable, BA M	A
Pure Graphite-Rings, adjustable, BAM	B
Teflon-Rings, loaded, BAM	N
Pure Graphite-Rings, loaded, BAM	O
Teflon-Rings, Graphite core, load., “T A”	Q
Teflon-Rings, Oil lubricated, load., “T A”	R
V-Ring Packing	S

Nominal Size 1/2” - 12”

ANSI Class

ANSI Class 150	150
ANSI Class 300	300

Body Material

A216 WCB	
A351 CF8M	
A217 WC6	

Certificates for pressure stressed parts acc. to PED 97/23/EC Cat. III

without	O .
EN 10 204 - 2.2	Z .
EN 10 204 - 3.1B (Summary of certificates)	B .
EN 10 204 - 3.1B (With copies of material certificates)	D .

Pressure- and leakage test certificate acc. to PED 97/23/EC Cat. III

without	. O
EN 10 204 - 2.2	. Z
EN 10 204 - 3.1B	. B
acc. to PED 97/23/EC Cat. IV	. M

316 SS 1.4122	Plug, Seat-Material
cv - value	0.012 - 1734
Port Size	3 - 250
Flow tends to open V alve	G
Flow tends to close V alve	I

Characteristic

equal percentage	G
linear	L
on / off	A
equal percentage with special rangeability	H

Plug Guidance

top	1
top and bottom	2

Plug Type

standard	N
standard, IEC 534-4 Class IV S1	E
partial stellited	D
partial stllited, IEC 534-4 Class IV S1	L
full stellited	K
full stellited, IEC 534-4 Class IV S1	F
soft seated	W
hardened	H
nitrided	T

Plug

Parabolic Plug	P
Parabolic Plug with Silentpack	K
Xstream, downstream cage, 2-step	E, F
Xstream, downstream cage, 3-step	G, H
Xstream, upstream cage	I
Xstream, up- + downstream cage, 2-step	Q
Xstream, up- + downstream cage, 3-step	W
Disk Plug	T
Multi-Hole Plug	L
RLS-unit, 2-step, series I	A
RLS-unit, 2-step, series II	B
RLS-unit, 3-step, series II	D

* Possible combinations according to VALQUO / PERFORMANCE / FlowTop price list

IT 252 AAOZ

Operation on air failure

A	Stem retracted
Z	Stem extracted

Hand Wheel

O	without
L	top, "light"- Type, for IT 127 - 502
H	top, "heavy" - Type, for IT 127 - 502

Spring Range

		Actuator Size	Stroke
A	0,2 - 1,0	IT 127 - 700	20, 40
B	0,5 - 1,9	IT 127 - 700	20, 40
M	0,8 - 1,6	IT 127 - 252	10
D	1,0 - 2,4	IT 127 - 700	20, 40
I	1,4 - 2,4	IT 127 - 252	10
V	1,5 - 2,7	IT 127 - 700	20, 40
U	1,5 - 3,8	IT 252 - 700	20, 40
J	1,8 - 2,7	IT 700	20
F	2,0 - 4,8	IT 127 - 700	20, 40
T	2,7 - 4,1	IT 127 - 252	10

Actuator Colour

A	blue
B	white
C	yellow

Actuator Size with Multi Y oke

IT 127	Area 125 cm²
IT 252	Area 250 cm²
IT 502	Area 500 cm²
IT 700	Area 700 cm²

PB 252 AAOZ

Operation on air failure

A	Stem retracted
Z	Stem extracted

Hand Wheel

O	without
L	top, "light"- Type, for PB 252 and 502
H	top, "heavy" - Type, for PB 252 - 700
S	lateral, for PB 1501 - 3001

Actuator Colour

A	blue
B	white
C	yellow

Actuator Size with Standard Y oke

PB 252	Area 250 cm²
PB 502	Area 500 cm²
PB 700	Area 700 cm²
PB 1501	Area 1500 cm²
PB 3001	Area 3000 cm²

Spring Range

		Actuator Size	Stroke
A	0,2 - 1,0	PB 252 - 502	20
A	0,2 - 1,0	PB 502 - 3001	40
A	0,2 - 1,0	PB 700 - 3001	60
A	0,2 - 1,0	PB 1501 - 3001	80
G	0,4 - 2,0	PB 1501 - 3001	40, 60, 80
B	0,5 - 1,9	PB 252 - 502	20
B	0,5 - 1,9	PB 502 - 700	40
B	0,5 - 1,9	PB 700	60
R	0,75 - 1,4	PB 1501 - 3001	40, 60, 80
M	0,8 - 1,6	PB 252	10
M	0,8 - 1,6	PB 1501	20
D	1,0 - 2,4	PB 252 - 502	20
D	1,0 - 2,4	PB 502 - 700	40
D	1,0 - 2,4	PB 700, 3001	60
D	1,0 - 2,4	PB 3001	80
E	1,3 - 2,1	PB 3001	60, 80
I	1,4 - 2,4	PB 252	10
V	1,5 - 2,7	PB 252 - 502	20
V	1,5 - 2,7	PB 502 - 1501	40
V	1,5 - 2,7	PB 1501	60
U	1,5 - 3,8	PB 252 - 502	20
U	1,5 - 3,8	PB 502 - 700	40
U	1,5 - 3,8	PB 700	60
J	1,8 - 2,7	PB 700	20
F	2,0 - 4,8	PB 252 - 502	20
F	2,0 - 4,8	PB 252 - 700	40
F	2,0 - 4,8	PB 700	60
F	2,0 - 3,5	PB 1501	60, 80
C	2,6 - 4,2	PB 1501	60, 80
T	2,7 - 4,1	PB 252	10

EB 8/8 ZPO 50

Positioning Speed

13,5	13,5 mm/min
17	17 mm/min
25	25 mm/min
50	50 mm/min

Positioning Electronics

O	without
M	Positioning Electronics, Input in mA
V	Positioning Electronics, Input in V

Positioning Feedback

O	without
P	1000 W potentiometer
M	4 - 20 mA positioning feedback

Mains Power

Z	alternating current 230 V, 50 Hz
D	alternating current 400 V, 50 Hz
G	direct current 24 V

Haselhofer - Electric linear Actuator

EB 1,2/1,2	actuating power 1,2 kN
EB 4,5/2	actuating power 2 kN
EB 4,5/4,5	actuating power 4,5 kN
EB 8/6	actuating power 6 kN
EB 8/8	actuating power 8 kN
EB 12/12	actuating power 12 kN
EB 20/15	actuating power 15 kN
EB 20/20	actuating power 20 kN
EB 25/25	actuating power 25 kN

LB 16

Linear thrust Unit

LB 12	actuating power 10,4 kN
LB 16	actuating power 17,3 kN
LB 20	actuating power 27,7 kN

AB 204 ZQO

Positioning Electronics

O	without
M	Positioning Electronics, Input in mA
V	Positioning Electronics, Input in V

Positioning Feedback

O	without
E	2 ad. limit switches
P	1000 W potentiometer
M	4 - 20 mA position feedback
Q	1000 W potentiometer and 2 add. limit switches
N	4 - 20 mA position feed-back and 2 add. limit switches

Mains Power

Z	220 - 240 V	50 Hz
Y	110 - 115 V	50 Hz
F	24 V	50 Hz
D	400 V	50 Hz (AB 208/10)

PSL - Electric linear Actuator

AB 201	actuating power 1 kN
AB 102	actuating power 2 kN
AB 202	actuating power 2 kN
AB 204	actuating power 4,5 kN
AB 208	actuating power 8 kN
AB 210	actuating power 10 kN

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