

Schmidt Armaturen

FlowTop™

PN 10 - 40, DN 15 - 300

Application

Control of gases, vapours and liquids.

The modular concept of valve, multi spring actuator and our standard Positioners facilitates trouble free expansion to allow for the communication capability of the FlowTop Valve System.

With its simple design the FlowTop modular concept has a wide range of application.

Product features

Body shape gives optimum flow characteristic

- Excellent flow dynamics when correctly selected
- Heavy top resp. top and bottom guided plug
- Largest possible kvs-values

Long service life and operational reliability

- With aggressive or evaporating media due to sturdy design
- Strong guides, give minimum vibration and wear

Replaceable trim

- Simple maintenance as the valve body remains in the piping when trim is replaced
- Seat = DN, screwed seat

Wide range of application

- Up to 17 kvs-values are available per size
- Trims are generally interchangeable
- Spring loaded reduced maintenance packing system
- Special materials on request

Quick delivery

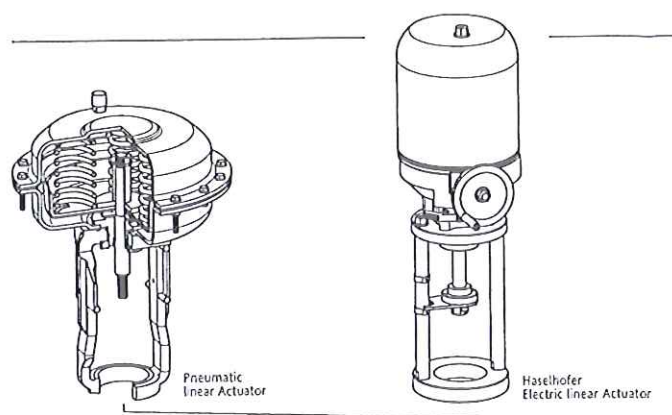
- FlowTop Control Valves are available within shortest delivery times.

Certificates and Licences

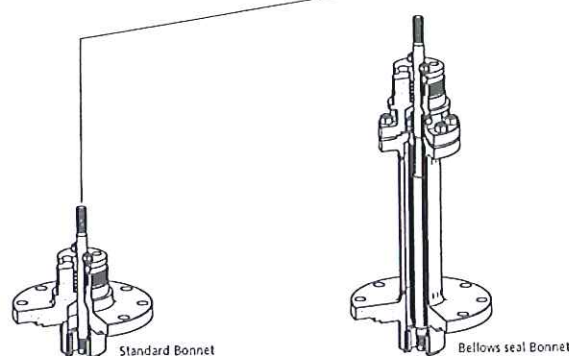
- Quality assurance system certified acc. EN ISO 9001 : 2000 including product development
- EC-Type-Examination acc. to PED 97/23/EC Module B + D
- AK 7 Design acc. to DIN V19250/51 for Valves
- TA-Luft

The System

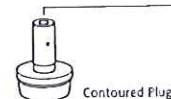
Actuators



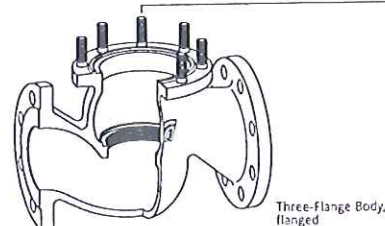
Bonnets



Trim

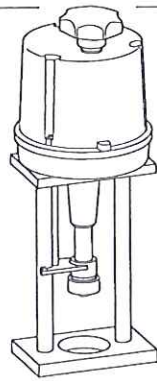


Bodies

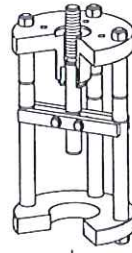


Covers

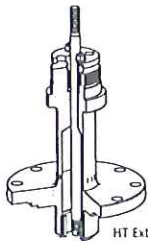
Within the series following combinations of bodies, trim, bonnets and actuators for each valve size are possible:



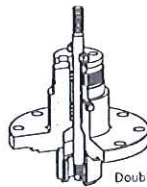
PSL
Electric Linear Actuator



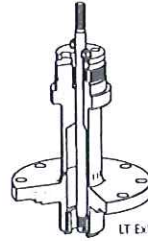
Linear thrust Unit for
Electric rotary Actuators



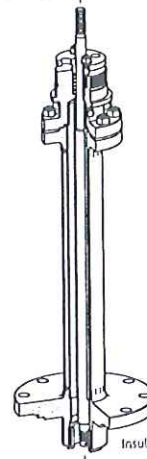
HT Extension Bonnet



Double seal Bonnet



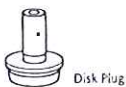
LT Extension Bonnet



Insulating Bonnet



Flat Gasket



Disk Plug



Multi-Hole
Plug



Centured
Plug, Top and
Bottom
Guiding



Multi-Hole
Plug, Top and
Bottom
Guiding



RLS
two-step
Series 1



RLS
two-step
Series 2



RLS
three-step
Series 2



Mixing
Plug



Distributing
Plug



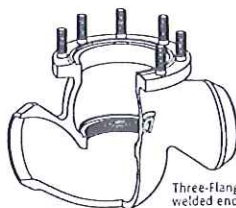
Silentpack



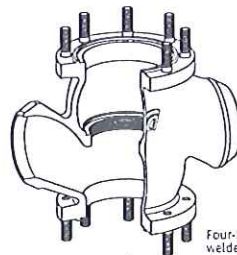
Screwed Seat



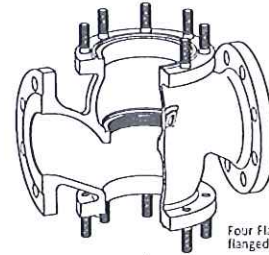
Spiral-wound Gasket



Three-Flange Body,
welded ends



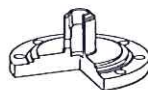
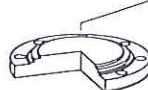
Four-Flange Body,
welded ends



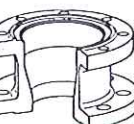
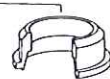
Four Flange Body,
flanged



Flat Gasket



Bottom Flange with
control edge for RLS,
Series 2



Connection Piece for
Three-Way Valve

Body with Flange Connection

Body	Material	Certificate		Nominal Size DN													
		without	with	15	20	25	32	40	50	65	80	100	125	150	200	250	300
Three-Flange	1.0619	Material certificate	Material certificate acc. to	•	•	•	•	•	•	•	•	•	•	•	•		
	1.4581			•	•	•	•	•	•	•	•	•	•	•	•		
	1.5419	without	EN 10 204 2.2 EN 10 204 3.1B EN 10 204 3.1A	•	•	•	•	•	•	•	•	•	•	•	•		
	1.4308	Pressure/leakage certificate	EN 10 204 3.1A	•	•	•	•	•	•	•	•	•	•	•	•		
Three-Flange with Heating Jacket	1.0619	without	Pressure/leakage cert. acc. to			•		•			•	•		•	•		
	1.4581	Schmidt minimal Valve Standards acc. to	EN 10 204 2.2 EN 10 204 3.1B EN 10 204 3.1A			•	•	•	•	•	•	•		•	•	•	•
Four Flange	1.0619	PED 97/23EC Cat. III	Schmidt valves acc. to			•	•	•	•	•	•	•		•	•	•	•
	1.4581					•	•	•	•	•	•	•		•	•	•	•
	1.5419	AD - A4 TRB 801 TRD 110	Customer Standard			•	•	•	•	•	•	•		•	•	•	•
	1.4308					•	•	•	•	•	•		•	•	•	•	
Four Flange with Heating Jacket	1.0619	PED 97/23EC Cat. IV				•	•	•	•	•	•	•		•	•	•	•
	1.4581					•	•	•	•	•	•	•		•	•	•	•
Three Way	1.0619					•	•	•	•	•	•	•		•	•	•	•
	1.4581					•	•	•	•	•	•	•		•	•	•	•
	1.5419					•	•	•	•	•	•	•		•	•	•	•

Form of Connection, Nominal Pressure Range

Form of Connection			PN	Nominal Size DN													
				15	20	25	32	40	50	65	80	100	125	150	200	250	300
Flange Facings acc. to EN 1092-1	Form B1	•	10							•	•	•	•	•	•	•	•
	Form F	•	16	•	•	•	•	•	•						•	•	•
	Form D	•	25							•	•	•	•	•	•	•	•
			40												•	•	•

We reserve the right to deliver valve connections acc. to DIN 2526 during the adoption to EN 1092-1!

Body with Welded End Connection

Body	Material	Certificate		Nominal Size DN									
		without	with	15	25	40	50	80	100	150	200	250	300
Three Flange	1.0619	Material resp. Pressure/leakage certificate	Material resp. Pressure/leakage certificate acc. to	•	•	•	•	•	•	•	•		
	1.4581			•	•	•	•	•	•	•	•		
	1.5419	Schmidt minimal Valve Standards acc. to	EN 10 204 2.2, 3.1B, 3.1A	•	•	•	•	•	•	•	•		
Four Flange	1.0619	PED 97/23EC Kat. III	Schmidt valves acc. to								•	•	•
	1.4581			AD - A4, TRB 801, TRD 110, Customer Standard, PED 97/23EC Kat. IV							•	•	•
	1.5419									•	•	•	

Nominal Pressure Level, Form of Connection

Form of Connection	PN	Dimension	Nominal Size DN									
			15	25	40	50	80	100	150	200	250	300
Standard Welded Ends based on DIN 3239 Section 1, Table 1 (Special welded end dimensions available!)	16	øD ₃	21,3	33,7	48,3	60,3	88,9	114,3	168,3	219,1	273,0	323,9
	40	s	2,0	2,6	2,6	3,2	4,0	5,0	5,6	7,1	8,0	8,0

Pressure- Temperature Ratings (acc. to DIN 2401)

Body Material W.Nr.: 1.0619, GS-C 25														
PN (bar)	-200	-85	-60	-10	0	120	200	250	300	350	400	450	500	
10			7,5	10	10	10	8	7	5	4	3			
16			12	16	16	16	14	13	11	10	8			
25			18,8	25	25	25	22	20	17	16	13			
40			30	40	40	40	35	32	28	24	21			

Body Material W.Nr.: 1.4581, G-X5CrNiMoNb 1810														
PN (bar)	-200	-85	-60	-10	0	120	150	200	250	300	350	400	450	
10			7,5	10	10	8,4	8,0	7,3	6,9	6,5	6,1	5,7		
16			12	16	16	13	13	12	11	10	10	9		
25			18,8	25	25	21	20	18	17	16	15	14		
40			30	40	40	34	32	29	28	26	24	23		

Body Material W.Nr.: 1.5419, GS-22 Mo4														
PN (bar)	-200	-85	-60	-10	0	120	200	250	300	350	400	450	500	
10				10	10	10	10	10	8,5	8	7,5	7		
16				16	16	16	16	16	14	13	12,5	12		
25				25	25	25	25	25	22	20	19	17		
40				40	40	40	40	40	35	31	30	28		

Body Material W.Nr.: 1.4308, G-X 6 CrNi 18 9														
PN (bar)	-200	-100	-60	-10	0	120	150	200	250	300	350	400	450	
10	10	10	10	10	10	7,3	6,7	5,7	5,3					
16	16	16	16	16	16	12	11	9	8					
25	25	25	25	25	25	18	17	14	13					
40	40	40	40	40	40	29	27	23	21					

Bonnet

¹⁾ up to DN 125 and seat diameter ≥ 84 also by plugs with top and bottom guiding.
²⁾ not possible by pressure balancing and disk plug respectively three-way valve and Silentpack!

Pressure Balancing	Body Material	Nominal Size	-Bonnet					
			Standard- Use: general	Bellows seal- Use: toxic, smell strong, freezing, costly me- dia or vacuum	HT Extension- Use: in case of possible overheating of pack- ing and/or linear ac- tuator	Double seal- Use: by strong safety re- quirements of pres- sure or vacuum op- eration	LT Extension- Use: for reducing the danger of icing of the packing box	Insulating- Use: for reducing the danger of icing of the packing box
Unbalanced, shaft guided	1.0619	15 to 300	•	•	•	•	•	
	1.4581		•	•	•	•	•	
	1.5419				•			
	1.4308							•
V-Ring balanced ¹⁾ -60 °C to +250 °C	1.0619	65 ¹⁾ to 300	•				•	
	1.4581		•				•	
Piston-Ring balanced ²⁾ -250 °C to +450 °C	1.0619	300			•			
	1.5419				•			

Packing Box

Type of Packing			-Bonnet					
			Standard-	Bellows seal-	HT Extension-	Double seal-	LT Extension-	Insulating-
standard	Teflon-Rings	- 200 °C + 250 °C, general use, BAM	•	•		•	•	•
	Pure Graphite-Rings	- 200 °C + 450 °C, general use, BAM		•	•			
loaded	Teflon-Rings	- 200 °C + 250 °C, general use, BAM	•	•			•	•
	Pure Graphite-Rings	- 200 °C + 450 °C, general use, BAM		•	•			
	Teflon-Rings with Graphite core (Lally)	- 10 °C + 250 °C, general use, "TA-Luft"	•				•	•
	Teflon-Rings, oil lubricated (Merkel)	- 10 °C + 250 °C, general use, "TA-Luft"	•				•	•
	V-Ring Packing	- 200 °C + 250 °C, general use	•				•	•

Plug

¹⁾ only Four-Flange Body

Plug Type	Characteristic	Design						Guide of Plug		Flow	
		standard	partial stellite	full stellite	soft seated	hardened	nitrided	Top guided Seat \varnothing 3-250	Top and bot- tom guided ¹⁾ Seat \varnothing 20-250	Flow Action tends to open valve	Flow Action tends to close valve
Contoured Plug general use	equal percentage	•	•	•	•	•		•	•	•	
	linear	•	•		•			•	•	•	
Contoured Plug with Silentpack by gases, vapours, for reducing noise ≤ 18 dB(A)	equal percentage	•	•	•	•			•	•	•	
	linear	•	•		•			•	•	•	
Disk Plug	on / off	•			•			•		•	•
Multi-Hole Plug in case of cavitation, high differential pressure by gases, vapours, for reducing noise ≤ 18 dB(A)	equal percentage	•				•	•	•	•	•	•
	linear	•				•	•	•	•	•	•
RLS-Units for reducing noise ≤ 30 dB(A)	equal percentage	•				•	•	•	•	•	•
	linear	•				•	•	•	•	•	•

Disk Plug

Characteristic: on / off

kvs (m ³ /h)	Seat \varnothing	Guide of Plug	Material / Design			Incorporable seat diameter depends on nominal size DN											
			1.4571 standard	soft seated	1.4122 standard	15	20	25	32	40	50	65	80	100	125	150	200
						Stroke = 20 mm						40 mm		60 mm		80 mm	
6,3	16	1	•	•	•	•											
9	20	1	•	•	•		•										
16	25	1	•	•	•			•									
25	34	1	•	•	•				•								
35,5	40	1	•	•	•					•							
53	50	1	•	•	•						•						
90	67	1	•	•	•							•					
140	80	1	•	•	•								•				
200	100	1	•	•	•									•			
285	105	1	•	•	•										•		
400	130	1	•	•	•											•	
630	150	1	•	•	•												•
1000	200	1	•	•	•												•
1600	250	1	•	•	•												•

Contoured Plug

Characteristic: modified - equal percentage

kvs (m³/h) without 1 with Silentpack 2		Seat ø	Guide of Plug	Material / Design						Incorporable seat diameter depends on nominal size DN													
				1.4571				1.4122 2)		15	20	25	32	40	50	65	80	100	125	150	200	250	300
				standard	partial stellite	full stellite	soft seated	standard	hardened														
0,010	-	3	1			•				•	•	•											
0,016	-	3	1			•				•	•	•											
0,025	-	3	1			•				•	•	•											
0,040	-	3	1			•				•	•	•											
0,063	-	4	1			•				•	•	•											
0,10	-	4	1			•				•	•	•											
0,16	-	4	1			•			•	•	•	•											
0,25	-	4	1			•			•	•	•	•											
0,40	-	4	1	•		•		•	•	•	•	•											
0,63		6	1	•		•	• 1)	•	•	•	•	•											
1,0		8	1	•		•	• 1)	•	•	•	•	•											
1,6		8	1	•		•	• 1)	•	•	•	•	•											
2,5		10	1	•		•	•	•	•	•	•	•											
4,0		12	1	•	•	•	•	•	•	•	•	•											
5,6		16	1	•	•	•	•	•	•	•	•	•											
6,3		16	1	•	•	•	•	•	•		•	•	•	•									
8,0		20	1	•	•	•	•	•	•		•												
10		20	1/2	•	•	•	•	•	•			•	•	•	•								
14	12,5	25	1/2	•	•	•	•	•	•			•											
16		25	1/2	•	•	•	•	•	•				•	•	•								
22,4	18	34	1/2	•	•	•	•	•	•				•										
-	20	34	1/2	•	•	•	•	•	•					•									
25	-	34	1/2	•	•	•	•	•	•					•	•	•							
-	25	34	1/2	•	•	•	•	•	•						•	•							
31,5	22,4	40	1/2	•	•	•	•	•	•					•									
40	31,5	42	1/2	•	•	•	•	•	•						•								
40		42	1/2	•	•	•	•	•	•							•	•						
47,5	35,5	50	1/2	•	•	•	•	•	•						•								
63		53	1/2	•	•	•	•	•	•							•	•	•	•				
80	71	67	1/2	•	•	•	•	•	•							•							
100	90	67	1/2	•	•	•	•	•	•								•						
100		67	1/2	•	•	•	•	•	•									•	•	•			
125	100	80	1/2	•	•	•	•	•	•								•						
160	125	84	1/2	•	•	•	•	•	•									•					
160	140	84	1/2	•	•	•	•	•	•										•				
160		84	1/2	•	•	•	•	•	•											•			
180	125	100	1/2	•	•	•	•	•	•									•					
200		100	1/2	•	•	•	•	•	•												•		
250	200	105	1/2	•	•	•	•	•	•										•				
250	224	105	1/2	•	•	•	•	•	•											•			
355	315	125	1/2	•	•	•	•	•	•												•		
355		125	1/2	•	•	•	•	•	•													•	
355	280	130	1/2	•	•	•	•	•	•											•			
450	355	150	1/2	•	•	•	•	•	•												•		
450		150	1/2	•	•	•	•	•	•													•	•
710	630	200	1/2	•	•	•	•	•	•													•	•
1000	800	250	1/2	•	•	•	•	•	•													•	•

¹⁾ Seat facing for seat diameter < 10 mm = 10,5 mm !

²⁾ Only for Body Material 1.0619, 1.5419 !

Micro-Kvs-Values only with stroke 10 mm !

³⁾ Silentpack only for Parabolic Plug in 1.4571 !

Rangeability

Standard Rangeability:

Seat ≤ 20 mm - Rangeability 1 : 30
Seat > 20 mm - Rangeability 1 : 50

Special Rangeability at Contoured Plug and modified-equal percentage Characteristic:

Seat 4, kvs ≥ 0,16 - Seat 20 mm - Rangeability 1 : 70
Seat > 20 mm - Rangeability 1 : 100

Contoured Plug

Characteristic: linear

kvs (m³/h) without 1 with Silentpack 2)		Seat ø	Guide of Plug	Material / Design					Incorporable seat diameter depends on nominal size DN															
				1.4571			1.4122 1)		15	20	25	32	40	50	65	80	100	125	150	200	250	300		
				standard	partial stellite	soft seated	standard	hardened	Stroke = 20 mm						40 mm			60 mm		80 mm				
4,0	12	1	•	•	•	•	•	•	•	•	•													
5,6	16	1	•	•	•	•	•	•	•	•														
6,3	16	1	•	•	•	•	•	•		•	•	•	•											
8,0	20	1	•	•	•	•	•	•		•														
10	20	1/2	•	•	•	•	•	•			•	•	•	•										
14	12,5	25	1/2	•	•	•	•	•			•													
16	25	1/2	•	•	•	•	•	•				•	•	•										
22,4	18	34	1/2	•	•	•	•	•				•												
-	20	34	1/2	•	•	•	•	•					•											
25	-	34	1/2	•	•	•	•	•					•	•	•									
-	25	34	1/2	•	•	•	•	•					•	•	•									
31,5	22,4	40	1/2	•	•	•	•	•					•											
40	31,5	42	1/2	•	•	•	•	•						•										
40	42	1/2	•	•	•	•	•	•							•	•								
47,5	35,5	50	1/2	•	•	•	•	•						•										
63	53	1/2	•	•	•	•	•	•							•	•	•	•						
80	71	67	1/2	•	•	•	•	•							•									
100	90	67	1/2	•	•	•	•	•								•								
100	67	1/2	•	•	•	•	•	•									•	•	•	•				
125	100	80	1/2	•	•	•	•	•								•								
160	125	84	1/2	•	•	•	•	•									•							
160	140	84	1/2	•	•	•	•	•										•						
160	84	1/2	•	•	•	•	•	•											•					
180	125	100	1/2	•	•	•	•	•									•							
200	100	1/2	•	•	•	•	•	•											•					
250	200	105	1/2	•	•	•	•	•										•						
250	224	105	1/2	•	•	•	•	•											•					
355	315	125	1/2	•	•	•	•	•												•				
355	125	1/2	•	•	•	•	•	•													•			
355	280	130	1/2	•	•	•	•	•													•			
450	355	150	1/2	•	•	•	•	•														•		
450	150	1/2	•	•	•	•	•	•														•	•	
710	630	200	1/2	•	•	•	•	•														•	•	
1000	800	250	1/2	•	•	•	•	•															•	•

¹⁾ Only for Body Material 1.0619, 1.5419 !
²⁾ Silentpack only for Parabolic Plug in 1.4571 !

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

Plug with Pressure Balancing	Plug Design	Leakage-class acc. DIN/IEC 534	Test Medium	Test Pressure (bar)	max. Seat Leakage in % of kvs
Unbalanced	metal-to-metal seated	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	IV-S2	Air	Working Pressure, max. 4	0,0001
	mtm-seated, reseated, heightened seal force	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

Multi-Hole Plug

Characteristic: modified - equal percentage

" Only for body material 1.0619 and 1.5419 !

kvs (m³/h)	Seat ø	Guide of Plug	Material / Design			Incorporable seat diameter depends on nominal size DN													
			1.4571 nitrided	1.4122 ¹⁾		15	20	25	32	40	50	65	80	100	125	150	200	250	300
			standard	hardened	Stroke = 20 mm						40 mm			60 mm		80 mm			
2,5	20	1	●	●	●	●	●	●											
4,0	20	1	●	●	●	●	●	●	●										
6,3	20	1	●	●	●		●	●	●	●									
10	25	1	●	●	●			●	●	●	●								
14	34	1	●	●	●				●										
16	34	1	●	●	●					●	●								
20	40	1	●	●	●					●									
25	42	1	●	●	●						●								
28	50	1	●	●	●						●								
40	42	1	●	●	●							●							
56	53	1	●	●	●							●	●						
63	67	1	●	●	●							●							
71	67	1	●	●	●								●	●					
80	80	1	●	●	●								●						
90	67	1	●	●	●										●				
100	84	1	●	●	●									●					
112	100	1	●	●	●									●					
125	84	1	●	●	●										●	●			
160	105	1/2	●	●	●										●				
200	100	1/2	●	●	●												●		
200	130	1/2	●	●	●											●			
280	125	1/2	●	●	●												●	●	
400	150	1/2	●	●	●												●	●	
500	200	1/2	●	●	●													●	
710	250	1/2	●	●	●													●	

Multi-Hole Plug

Characteristic: linear

kvs (m³/h)	Seat ø	Guide of Plug	Material / Design			Incorporable seat diameter depends on nominal size DN													
			1.4571	1.4122 "		15	20	25	32	40	50	65	80	100	125	150	200	250	300
			nitrided	standard	hardened	Stroke = 20 mm						40 mm		60 mm		80 mm			
2,5	20	1	•	•	•	•	•	•											
4,0	20	1	•	•	•	•	•	•	•										
6,3	20	1	•	•	•		•	•	•	•									
10	25	1	•	•	•			•	•	•	•								
16	34	1	•	•	•				•	•	•								
25	40	1	•	•	•					•									
25	42	1	•	•	•						•								
35,5	50	1	•	•	•						•								
40	42	1	•	•	•							•							
63	53	1	•	•	•							•	•						
71	67	1	•	•	•							•							
90	67	1	•	•	•								•	•	•				
100	80	1	•	•	•								•						
125	84	1	•	•	•									•					
140	100	1	•	•	•									•					
160	84	1	•	•	•										•	•			
200	105	1/2	•	•	•										•		•		
200	100	1/2	•	•	•											•			
280	130	1/2	•	•	•											•			
315	125	1/2	•	•	•												•	•	
500	150	1/2	•	•	•												•	•	•
630	200	1/2	•	•	•													•	•
900	250	1/2	•	•	•														•

RLS-Design

Characteristic: modified - equal percentage / linear

" Only for body material 1.0619 and 1.5419 !

Plug Type	kvq (m³/h)	Seat ø	Guide of Plug	Material / Design			Incorporable seat diameter depends on nominal size DN													
				1.4122 "		1.4571	15	20	25	32	40	50	65	80	100	125	150	200	250	300
				standard	hardened	nitrided	Stroke = 20 mm						40 mm			60 mm		80 mm		
RLS 2-step	4,0	20	1	●	●	●	The kvq-Values will be adapted on the operating conditions !													
RLS 2-step	to	to	2	●	●	●														
RLS 3-step	600	250	2	●	●	●														

Mixing Plug

Characteristic: linear

Kvs (m³/h)	Seat ø	Guide of Plug	Material / Design 1.4571 nitrided	Incorporable seat diameter depends on nominal size DN									
				25	32	40	50	65	80	100	150	200	
				Stroke = 20 mm				40 mm			60 mm	80 mm	
6,3	25	2	●	●									
10	25	2	●	●									
10	34	2	●		●								
16	34	2	●		●								
16	40	2	●			●							
25	40	2	●			●							
25	50	2	●				●						
40	50	2	●				●						
40	67	2	●					●					
47,5	50	2	●				●						
63	67	2	●					●					
63	80	2	●						●				
80	67	2	●					●					
100	80	2	●						●				
100	100	2	●							●			
125	80	2	●						●				
160	100	2	●							●			
180	100	2	●							●			
180	130	2	●								●		
250	130	2	●								●		
355	130	2	●								●		
450	150	2	●									●	

Distributing Plug

Characteristic: linear

Kvs (m³/h)	Seat ø	Guide of Plug	Material / Design 1.4571 nitrided	Incorporable seat diameter depends on nominal size DN									
				25	32	40	50	65	80	100	150	200	
				Stroke = 20 mm					40 mm			60 mm	80 mm
6,3	25	2	●	●									
10	25	2	●	●									
10	34	2	●		●								
16	34	2	●		●								
16	40	2	●			●							
25	40	2	●			●							
25	50	2	●				●						
40	50	2	●				●						
40	67	2	●					●					
63	67	2	●					●					
63	80	2	●						●				
100	80	2	●						●				
100	100	2	●							●			
160	100	2	●								●		
180	130	2	●									●	
250	130	2	●									●	
250	130	2	●									●	

Actuator Selection

Multi-Spring Actuator

Actuators are selected for use on FlowTop dependent upon spring action and air supply pressure:

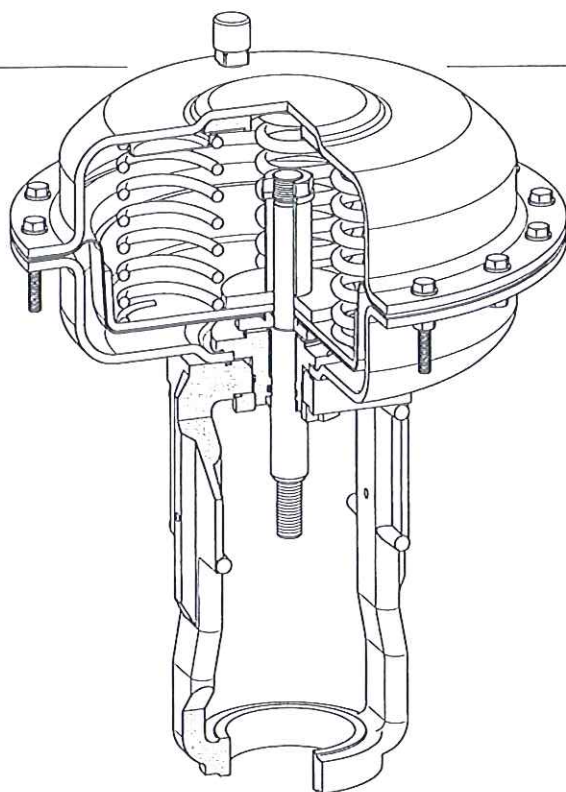
Effective Area (cm²)	Air Supply (bar)	Spring Ranges (bar)
125	2,1	0,5 - 1,9
	2,6	1,0 - 2,4
	2,9	1,5 - 2,7 *
	5,0	2,0 - 4,8
250	2,9	1,5 - 2,7
	5,0	2,0 - 4,8
500	2,1	0,5 - 1,9
	2,6	1,0 - 2,4
	2,9	1,5 - 2,7
	5,0	2,0 - 4,8
700	2,6	1,0 - 2,4
	2,9	1,5 - 2,7
	2,9	1,8 - 2,7
	5,0	2,0 - 4,8
1500	1,8	0,8 - 1,6
	2,2	1,2 - 2,0
	2,4	1,2 - 2,2
	2,5	1,5 - 2,3
	2,7	1,2 - 2,5
	4,0	2,2 - 3,8
3000	4,0	2,6 - 3,8
	1,8	0,8 - 1,6
	2,5	1,3 - 2,3
	2,8	1,3 - 2,6

Actuator Selection for:

Operation: Spring extracted Stem, Air retracted
Flow: tends to open Valve, without Pressure Balancing, p₂ = 0
Packing Box: PTFE
Bonnet: Standard-, Cooling-, Extension-, Freezing-Bonnet

* for on / off service only !

Seat ø	DN	Effective Area (cm²)	max. differential pressure in bar for actuator selection																																				
			125				250		500				700				1500				3000																		
			Spring Ranges (bar)				0,5 - 1,9		1,0 - 2,4		1,5 - 2,7		2,0 - 4,8		0,5 - 1,9		1,0 - 2,4		1,5 - 2,7		2,0 - 4,8		0,8 - 1,6		1,2 - 2,0		1,5 - 2,3		1,2 - 2,2		2,6 - 3,8		1,2 - 2,5		2,2 - 3,8		0,8 - 1,6		1,3 - 2,3
Air (bar)			2,1	2,6	2,9	5,0	2,9	5,0	2,1	2,6	2,9	5,0	2,9	2,9	2,6	5,0	1,8	2,2	2,5	2,4	4,0	2,7	4,0	1,8	2,5	2,8													
3	15, 20, 25	Stroke	40	40	40		40																																
4			40	40	40		40																																
6			40	40	40		40																																
8			30	40	40		40																																
10			15	40	40	40	40		40																														
12	15, 20, 25, 32, 40	20 (mm)	8,0	40	40	40	40	40	40	40	40	40	40																										
16			1,3	32	40	40	40	40	40	40	40	40	40	40																									
20				18	38	40	40	40	40	40	40	40	40	40																									
25				10	22	35	40	40	40	40	40	40	40	40																									
34				4,0	10	17	31	40	40	40	40	40	40	40					40																				
40	40		2,1	7,1	12	21	31	40	40	40	40	40	40					40																					
42	50		1,7	6,2	10	19	28	40	40	40	40	40	40					40																					
50				3,7	6,9	13	19	40	40	32	40	40	40					40																					
34		65							15	40	40	40	40		40		40	40	40	40	40					40													
42	65, 80							9,2	27	40	40	40		40		40	40	40	40	40					40														
53	65, 80, 100	40							5,0	16	27	38		40		40	40	40	40	40					40														
67									2,5	9,5	16	23		25		34	29	40	40						40														
80										1,3	6,3	11	16		17		24	20	32	40						40													
84	100								1,1	5,6	10	14		15		21	18	28	37						39														
100										3,6	6,8	9,9		10		15	12	20	25							27													
53	125	60														24	40				40	40													40				
67	125, 150																14	34				40	40											40					
84																	8,9	21				28	40											40					
105																		5,3	13				18	40											40				
130			150															3,2	8,4							11	27								27				
100	200	80																																					
125	200, 250																																						
150	200, 250, 300																																						
200	250, 300																																						
250	300																																						



Effective Area (cm²)	Air Supply (bar)	Spring Ranges (bar)
125	1,4	0,2 - 1,0
	2,0	0,2 - 1,0
	3,5	0,2 - 1,0
	5,0	0,2 - 1,0
250	3,5	0,2 - 1,0
	5,0	0,2 - 1,0
500	1,4	0,2 - 1,0
	2,0	0,2 - 1,0
	3,5	0,2 - 1,0
	5,0	0,2 - 1,0
700	2,0	0,2 - 1,0
	3,5	0,2 - 1,0
	4,3	0,2 - 1,0
	5,0	0,2 - 1,0
1500	2,0	0,2 - 1,5
	2,5	0,2 - 1,0
	2,5	0,2 - 1,5
	3,2	0,2 - 1,5
	3,6	0,2 - 1,2
	4,0	0,2 - 1,5

Actuator Selection for:

Operation: Spring retracted Stem, Air extracted
Flow: tends to close Valve, without Pressure Balancing, p₂ = 0
Packing Box: PTFE
Bonnet: Standard-, Cooling-, Extension-, Freezing-Bonnet

Seat ø	DN	Effective Area (cm²)	max. differential pressure in bar for actuator selection																					
			125				250		500				700				1500							
			0.2 - 1.0				0.2 - 1.0		0.2 - 1.0		0.2 - 1.0		0.2 - 1.0		0.2 - 1.0		0.2 - 1.0		0.2 - 1.2		0.2 - 1.5		0.2 - 1.5	
			Air (bar)				0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	0.2 - 1.2	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	
				1,4	2,0	3,5	5,0	3,5	5,0	1,4	2,0	3,5	5,0	2,5	2,0	3,5	5,0	2,5	3,6	2,0	2,5	3,2	4,0	
3	15, 20, 25	Stroke 20 (mm)	40	40	40		40																	
4			40	40	40		40																	
6			21	40	40		40																	
8			5,9	40	40		40																	
10				40	40		40																	
12			40	40	40	40																		
16	15, 20, 25, 32, 40			32	40	40	40																	
20	15, 20, 25, 32, 40, 50			18	40	40	40																	
25	25, 32, 40, 50			10	40	40	40	40																
34	32, 40, 50			4,0	24	40	40	40																
40	40			2,1	17	31	40	40																
42	50			1,7	15	28	37	40																
50					10	19	25	40																
34		65							10	40	40	40	40					40						
42	65, 80							5,6	27	40	40	40	40					40						
53	65, 80, 100	40						2,7	16	40	40	40	40					40						
67								1,1	9,5	30	40	40	40					40						
80			80							6,3	21	35	40	40					40					
84	100								5,6	19	32	37	37					37						
100									3,6	13	22	26	26					25						
53	125	60													24	40	40		40					
67	125, 150														14	40	40		40					
84															8,9	27	40		40					
105															5,3	17	29		38					
130			150												3,2	11	18		25					
100	200	80																		6,6	16	29	40	
125	200, 250																			3,9	10	18	28	
150	200, 250, 300																			2,5	6,7	12	19	
200	250, 300																				3,5	6,8	10	
250	300																					2,1	4,2	6,6

Positioner System

Product features

SRI990 Analog Positioner (direct mounting !)

Product Specification PSS EVE 0107 A

- Configuration by means of switches and potentiometers
- Low air consumption
- Supply air pressure up to 6 bar (90 psig)
- Attachment to stroke actuators directly or acc. to IEC 534 part 6 (NAMUR)
- Protection class IP 65 and NEMA 4X
- Explosion protection: EEx ia IIC acc. to CENELEC or "Intrinsic safety" acc. to FM and CSA
- Additional equipments
- Integrated inductive limit switches
- Gauge attachment
- Booster relay

SRD992 Digital Positioner (direct mounting !)

Product Specification PSS EVE 0106 A

Technical data same as SRI990 with additional features

- Autostart with self-calibration
- Selfdiagnostics
- Configuration by means of local keys and LEDs
- Position feedback

SRD991 Intelligent Positioner (direct mounting !)

Product Specification PSS EVE 0105 A

Technical data same as SRD992 with additional features

- Self diagnostics, status- and diagnostic messages
- Communication HART, FoxCom, PROFIBUS-PA or FOUNDATION Fieldbus H1
- Configuration by means of local keys, hand-held terminal, PC or I/A Series system
- Sensors for supply air pressure and output pressure optional
- Additional Inputs / outputs

SRP981 Pneumatic Positioner

Product Specification PSS EVE 0101 A

- Input signal range 0,2 - 1,0 bar (split range up to 4-fold possible)
- Independent adjustment of stroke range and zero
- Low vibration effect in all directions
- Supply pressure up to 6 bar
- Single or double-acting
- Mounting according to IEC 534, part 6 (NAMUR)
- Electrical limit switches optional
- Connection manifold optional
- Booster optional

FRS 107 Airset

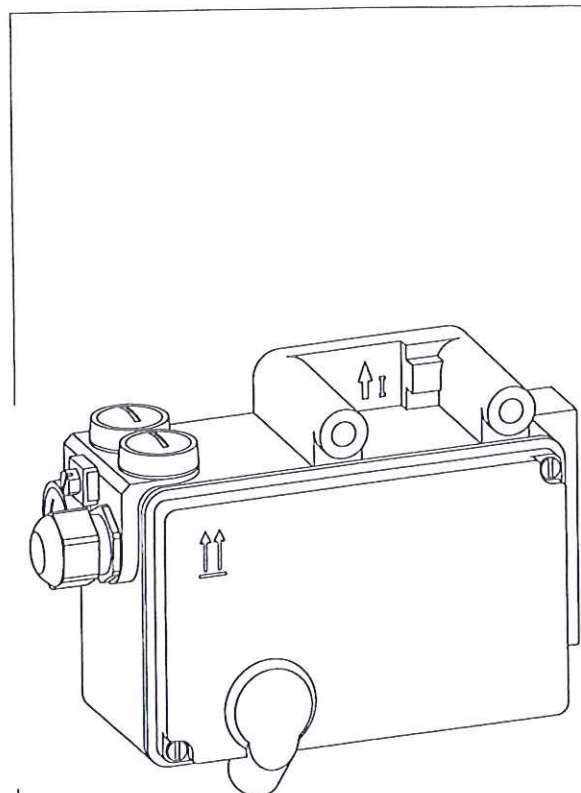
- Max. supply pressure up to 10 bar
- Output range 0,3 - 10 bar
- Filter 5 µm
- Manually operated drain
- With gauge

MV - valve (direct mounting !)

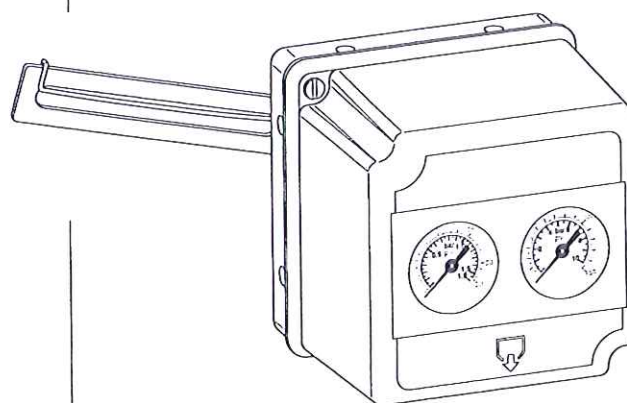
Tubing

- without, by direct mounting
- Steel, chromatised
- Stainless steel

Any further information see product specifications sheet.



SRD992 Digital Positioner

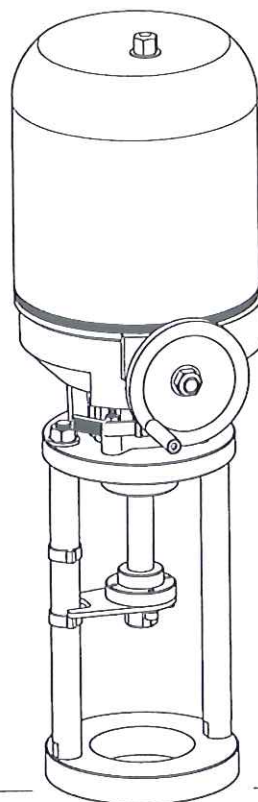


SRP 981 Pneumatic Positioner

Haselhofer-Actuator

Actuators are selected for use on
FLOWTOP:

Linear Actuator	Voltage	Power Input (230V, 50Hz)
EB 1,2	alternating current 230 V, 50 Hz 400 V, 50 Hz	7 W
EB 4,5		28 W / 32 W
EB 8		60 W / 130 W
EB 12		60 W / 130 W
EB 20	direct current 24 V	145 W / 165 W
EB 25		145 W / 165 W



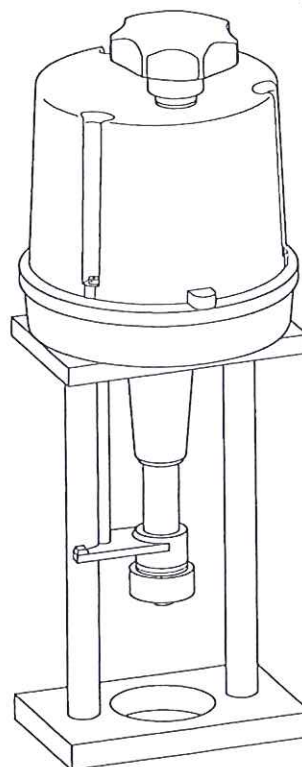
Actuator Selection for Standard Bonnet

Seat ø	DN	Stroke (mm)	max. differential pressure in bar for actuator selection								
			EB 1,2	EB 4,5		EB 8		EB 12	EB 20		EB 25
			1,2 kN	2,0 kN	4,5 kN	6,0 kN	8,0 kN	12 kN	15 kN	20 kN	25 kN
3	15, 20, 25	20	40								
4			40								
6			40								
8			40								
10			40								
12			40								
16	15, 20, 25, 32, 40		29	40							
20	15, 20, 25, 32, 40, 50		17	40							
25	25, 32, 40, 50		9,3	25	40						
34	32, 40, 50		3,4	12	39	40					
40	40		1,7	8,1	27	39	40				
42	50		1,3	7,1	25	35	40				
50			4,3	17	24	34	40				
34	65	40			37	40	40	40	40	40	40
42	65, 80				23	34	40	40	40	40	40
53	65, 80, 100				14	20	29	40	40	40	40
67					8,1	12	18	29	37	40	40
80	80				5,3	8,3	12	20	26	35	40
84	100				4,7	7,4	11	18	23	32	40
100					3,0	4,9	7,4	12	16	22	28
53	125	60			13	20	29	40	40	40	40
67	125, 150				7,7	12	17	28	37	40	40
84					4,4	7,1	10	17	23	32	40
105					2,5	4,2	6,5	11	14	20	26
130	150	80				2,4	3,9	6,9	9,2	12	16
100	200						7,2	12	16	22	28
125	200, 250						4,3	7,5	10	14	18
150	200, 250, 300						2,8	5,0	6,7	9,5	12
200	250, 300						1,3	2,6	3,5	5,1	6,7
250	300							1,5	2,1	3,1	4,1

Using the Actuator Selection Table requires special knowledge !

PSL-Actuator

Actuators are selected for use on
FLOWTOP:



Linear Actuator	Voltage	Power Input
AB 201	alternating current 230 V, 50 Hz	10,7 W
AB 102		11,9 W
AB 202		11,9 W
AB 204		21 W
AB 208		49 W
AB 210		49 W

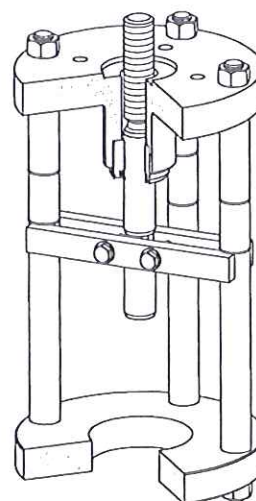
Actuator Selection for Standard Bonnet

Seat ø	DN	Stroke (mm)	max. differential pressure in bar for actuator selection					
			AB 201 1 kN	AB 102 2 kN	AB 202 2 kN	AB 204 4,5 kN	AB 208 8 kN	AB 210 10 kN
3	15, 20, 25	20	40					
4			40					
6			40					
8			40					
10			40					
12			40					
16			15, 20 , 25, 32, 40	19	40			
20	15, 20, 25, 32, 40, 50		10	40	40			
25	25, 32, 40, 50		5,2	25	25	40		
34	32, 40, 50		1,2	12	12	39	40	
40	40			8,1	8,1	27	40	
42	50			7,1	7,1	25	40	
50				4,3	4,3	17	34	40
34	65	40		10	10	37	40	40
42	65, 80			5,6	5,6	23	40	40
53	65, 80, 100			2,7	2,7	14	29	38
67				1,1	1,1	8,1	18	23
80	80					5,3	12	16
84	100					4,7	11	14
100						3,0	7,4	9,9

Using the Actuator Selection Table requires special knowledge !

Linear thrust Unit

Thrust Unit are selected for use on
FLOWTOP:



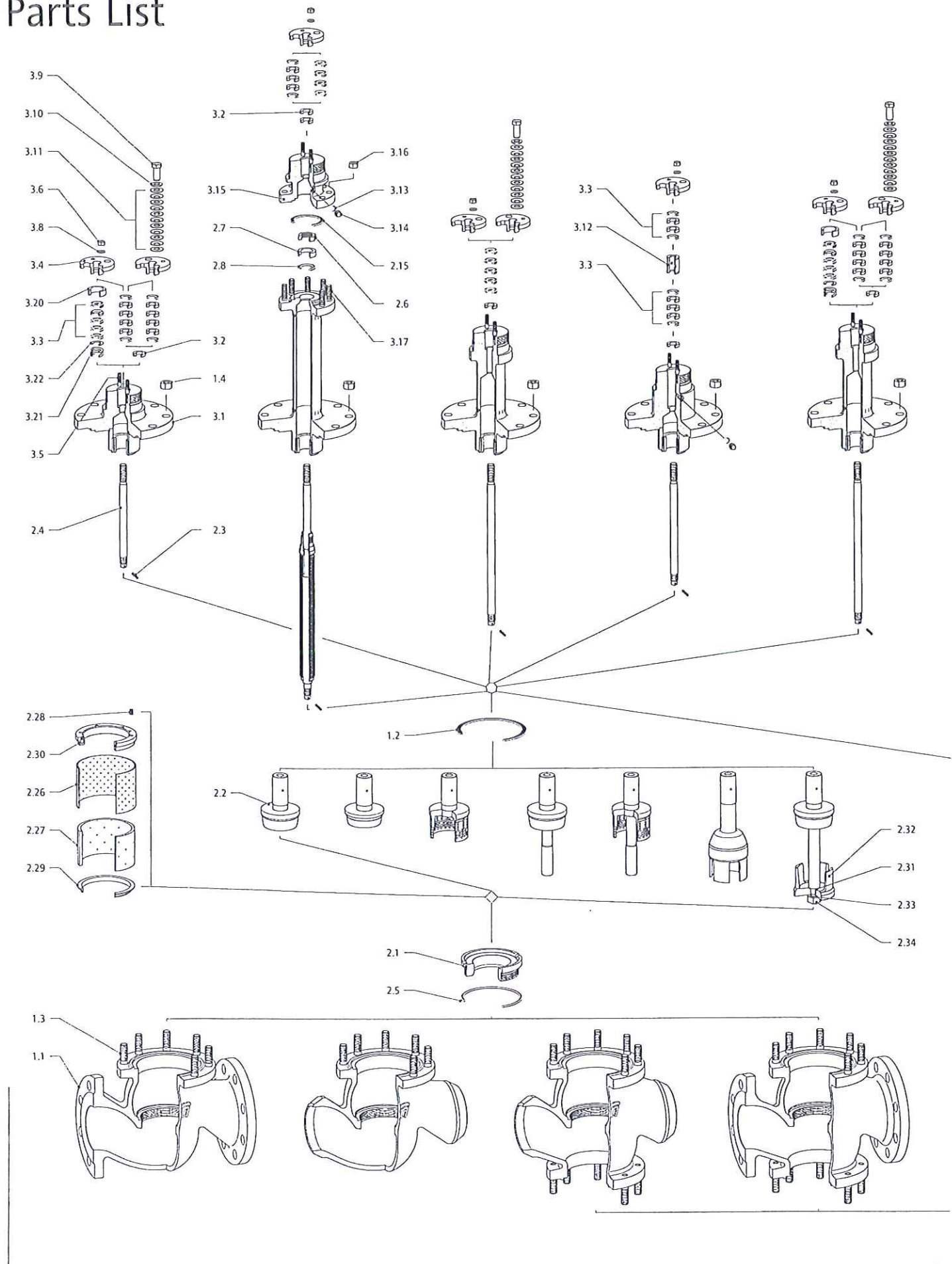
Linear thrust Unit	Connection	max. Torque
LB 12	acc. to ISO 5210 form A trapezoid thread 24 x 5 left	30 Nm
LB 16		50 Nm
LB 20		80 Nm

Actuator Selection for Standard Bonnet

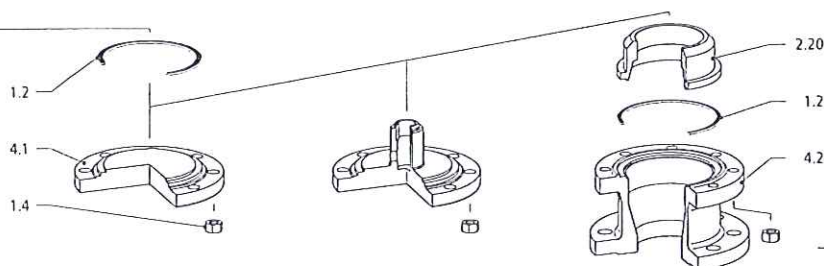
Seat ø	DN	Stroke (mm)	max. differential pressure in bar for actuator selection		
			LB 12 10,4 kN	LB 16 17,3 kN	LB 20 27,7 kN
16	15, 20 , 25, 32, 40	20	40		
20	15, 20, 25, 32, 40, 50		40		
25	25, 32, 40, 50		40		
34	32, 40, 50		40		
40	40		40		
42	50		40		
50			40		
34	65	40		40	
42	65, 80			40	
53	65, 80, 100			40	
67				40	
80	80			30	
84	100			27	
100				19	
53	125	60			40
67	125, 150				40
84					40
105					29
130	150				19
100	200	80			32
125	200, 250				20
150	200, 250, 300				13
200	250, 300				7,5
250	300				4,7

Using the Actuator Selection Table requires special knowledge !

Parts List



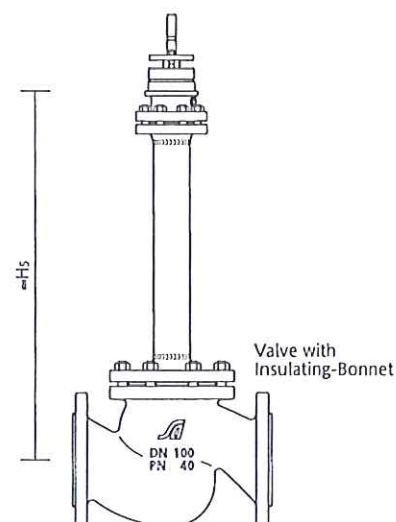
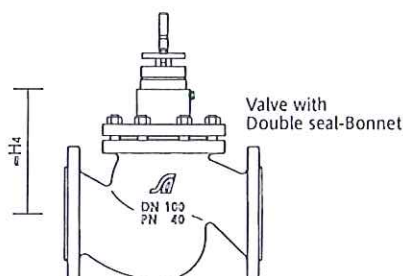
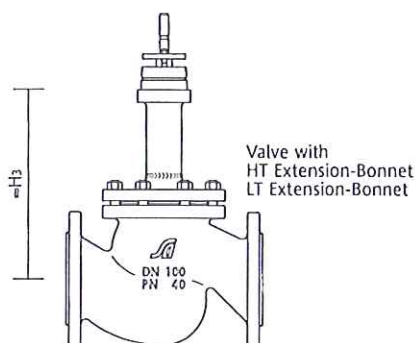
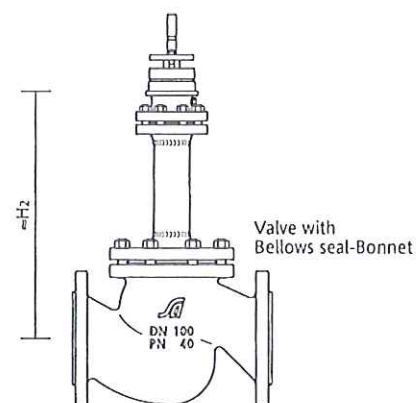
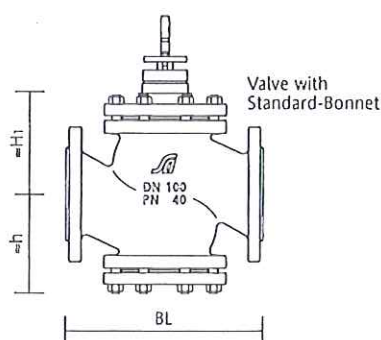
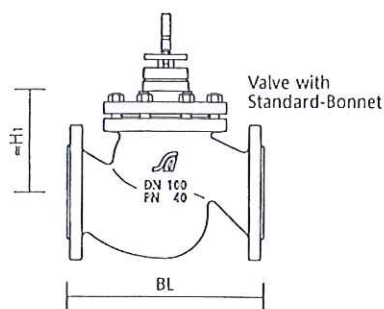
Designation	Part	Materials				Spare Parts
Body	1.1	1.0619	1.4581	1.5419	1.4308	
Flat Gasket	1.2	Pure Graphite ¹⁾				D
Stud Bolt	1.3	G	A2-70	G	A2-70	
Hex Nut	1.4	G	A2-70	G	A2-70	
Screwed Seat	2.1	1.4571 / 1.4122	1.4571	1.4571 / 1.4122	1.4571	S
Contoured Plug	2.2	1.4571 / 1.4122	1.4571	1.4571 / 1.4122	1.4571	K
Disk Plug		1.4571 / 1.4122	1.4571	1.4571 / 1.4122	1.4571	
Multi-Hole Plug		1.4571 / 1.4122	1.4571	1.4571 / 1.4122	1.4571	
RLS-Design		1.4571 / 1.4122	1.4571	1.4571 / 1.4122	1.4571	
Mixing Plug		1.4571				
Distributing Plug		1.4571				
Spring Pin	2.3	A2				K
Stem	2.4	1.4571 cold-finished				K
Spiral-wound Gasket	2.5	Pure Graphite				S
Hex Nut	2.6	1.4571		-	-	
Seal Carrier	2.7	1.4571		-	-	
Profile Ring	2.8	Pure Graphite		-	-	D
Flat Gasket	2.15	Pure Graphite ¹⁾		-	Pure Graphite ¹⁾	D
Seat Ring	2.20	1.4571				S
Multi-Hole Cage	2.26	1.4571		-	1.4571	
Wire Netting	2.27	1.4404		-	1.4404	
Spring	2.28	1.4310		-	1.4310	
Internal Ring	2.29	1.4571		-	1.4571	
Distance Bush	2.30	1.4571		-	1.4571	
Spiral-wound Gasket	2.31	Pure Graphite				K
V-Port Plug	2.32	1.4571				K
Spring Washer	2.33	A2				K
Hex Nut	2.34	A2-70				K
Standard-Bonnet	3.1	1.0460	1.4571	-		
Bellows seal-Bonnet				1.5415		
HT Extension-Bonnet						
Double seal-Bonnet						
LT Extension-Bonnet				1.4571		
Insulating-Bonnet				1.4571		
Bottom Ring	3.2	1.4571				
Packing Box	3.3	PTFE-Rings				D
		Pure Graphite Rings				
		PTFE-Rings				D
		Pure Graphite Rings				
		PTFE-Rings, Oil lubricated or PTFE-Rings with Graphite core				
		V-Ring Packing				
Gland Flange	3.4	1.4404 (DN 15 - 100) or 1.4571 (DN 150)				
Stud Bolt	3.5	A2-70				
Hex Nut	3.6	A2-70				
Plain Washer	3.8	A2				
Hex Nut	3.9	1.4571				
Plain Washer	3.10	A2				
Belleville Spring	3.11	1.4310				
Lantern Ring	3.12	1.4571			-	
Flat Gasket	3.13	Pure Graphite ²⁾				D
Locking Screw	3.14	A2				
Head	3.15	1.0460	1.4571	-	1.4571	
Hex Nut	3.16	G	A2-70	-	A2-70	
Stud Bolt	3.17	G	A2-70	-	A2-70	
Distance Ring	3.20	1.4571				
Pressure Spring	3.21	1.4310				
Plain Washer	3.22	A2				
Spacer	3.23	-			PTFE	
Cover	4.1	1.0460	1.4571	1.5415	1.4571	
Connection Piece	4.2	1.0619	1.4581	1.5419	1.4308	



¹⁾ Pure Graphite on Support Plate from 1.4401
²⁾ Pure Graphite on Support Plate from MYLAR

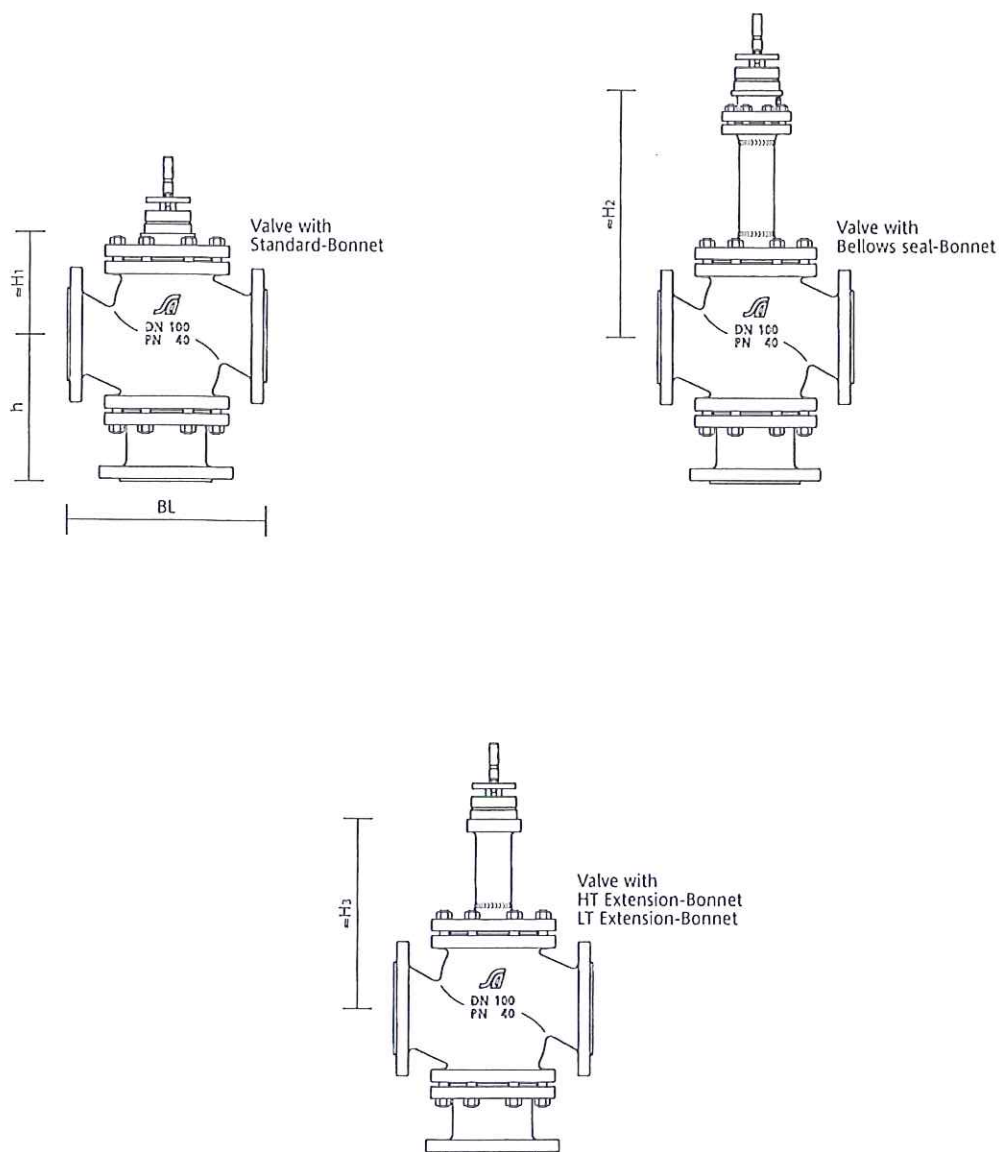
K Plug Set
S Seat
D Gasket Set

Dimensions and Weights



Designations	Nominal Size DN														
	15	20	25	32	40	50	65	80	100	125	150	200	250	300	
	Stroke = 20 mm						40 mm		60 mm		80 mm				
BL Face to Face Dimensions (mm) acc. to EN 558-1 basic line 1	130	150	160	180	200	230	290	310	350	400	480	600	730	850	
≈ h			92		110	115		165	175		235	347	428	470	
Height (mm)	H1 for Standard Bonnet	105	105	105	120	120	120	170	170	175	276	270	369	456	488
	H2 for Bellows seal Bonnet	265	265	265	265	265	265	420	420	420	653	657	760	764	768
	H3 for HT/LT Extension-Bonnet	220	220	220	220	220	220	310	310	310	440	443	509	596	628
	H4 for Double seal-Bonnet	145	145	145	150	150	150	220	220	220	267	295			
	H5 for Insulating-Bonnet	644	644	644	646	646	648	651	651	653	667	670			
Weight (kg) for Valves with Three- Flange Body	and Standard-Bonnet	5	6	7	11	12	16	30	35	50	70	95	218		
	and Bellows seal-Bonnet	9	10	11	15	16	20	34	39	54	84	109	234		
	and HT/LT Extension-Bonnet	7	8	9	13,5	14,5	18,5	32	37	52	74	99	221		
	and Double seal-Bonnet	6	7	8	12,5	13,5	17,5	33	38	53	72	96			
	and Insulating-Bonnet	8	9	10	14	15	19	32	37	52	83	108			
Weight (kg) for Valves with Four- Flange Body	and Standard-Bonnet			10		17	23		48	64		120	278	526	694
	and Bellows seal-Bonnet			14		21	27		52	68		134	297	543	711
	and HT/LT Extension-Bonnet			12		20	25		50	66		124	281	528	697
	and Double seal-Bonnet			11		19	24		51	67		121			
	and Insulating-Bonnet			13		20	26		50	66		133			
Flanges drilled and dimensioned acc. to	EN 1092-1, form B1, F, D														
Welded ends comply with	DIN 3239 Section 1, Table 1														

Dimensions, Three-way Valve

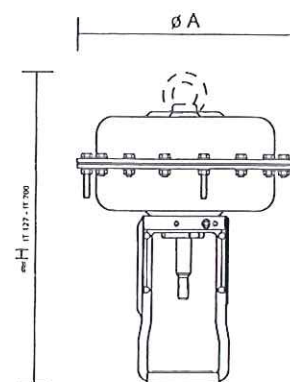


Designation	Nominal Size DN								
	25	32	40	50	65	80	100	150	200
	Stroke = 20 mm				40 mm			60 mm	80 mm
BL Face to Face Dimensions (mm) acc. to EN 558-1 basic line 1	160	180	200	230	290	310	350	480	600
h	130	150	150	175	200	225	260	350	545
Height (mm)	H1 for Standard-Bonnet	105	120	120	120	170	170	175	369
	H2 for Bellows seal-Bonnet	265	265	265	265	420	420	420	760
	H3 for HT/LT Extension-Bonnet	220	220	220	220	310	310	310	509
Weight (kg)	with Standard-Bonnet	11	18	19	25	45	51	72	320
	with Bellows seal-Bonnet	15	22	23	29	49	55	76	345
	with HT/LT Extension-Bonnet	13	21	22	27	47	53	74	327
Flanges drilled and dimensioned acc. to	EN 1092-1, form B1, F, D								

Pneumatic linear Actuator

with direct-mounting Yoke

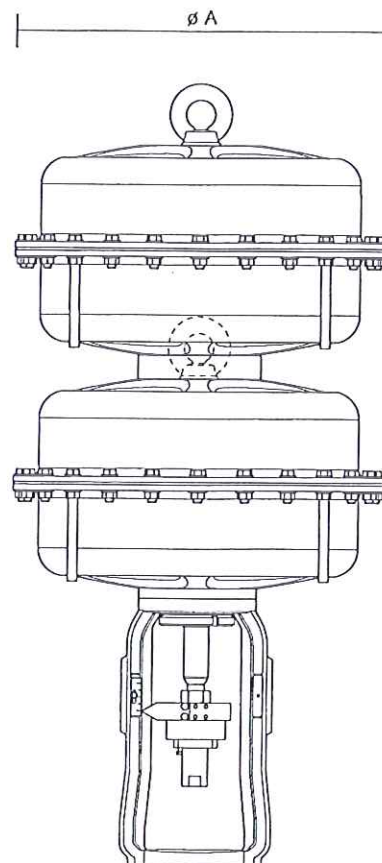
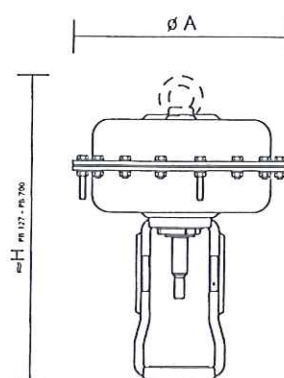
Designation	Area	125	250	500		700	
	Stroke	10 / 20 mm		20 mm	40 mm	20 mm	40 mm
$\varnothing A$	mm	198	265	352	352	405	405
$\approx H$	mm	320	335	455	560	545	550
\approx Weight	kg	11	16	31	40	46	46



Pneumatic linear Actuator

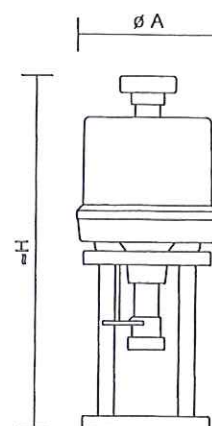
with NAMUR-Yoke

Designation	Area	250	500		700		
	Stroke	10 / 20 mm	20 mm	40 mm	20 mm	40 mm	60 mm
$\varnothing A$	mm	265	352	352	405	405	405
$\approx H$	mm	330	420	450	545	545	600
\approx Weight	kg	16	31	40	46	46	46



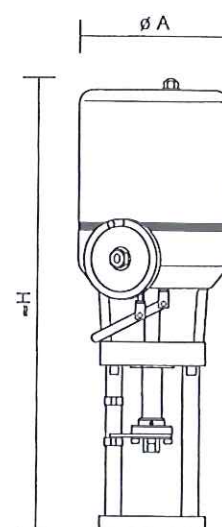
Designation	Area	1500	3000
	Stroke	20 / 40 / 60 / 80 mm	40 / 60 / 80 mm
$\varnothing A$	mm	548	548
$\approx H$	mm	800	1140
\approx Weight	kg	124	240

PSL - Electric linear Actuator



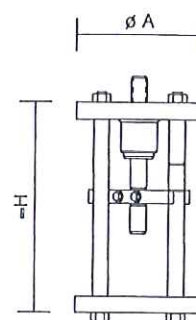
Designation	Electric linear Actuator	AB 201	AB 102	AB 202	AB 204	AB 208	AB 210
	Stroke	20 mm	20 / 40 mm				
ø A	mm	219	219	219	219	236	236
≈ H	mm	462	462	462	462	585	585
≈ Weight	kg	5,5	5,7	5,7	9,5	12	12

Haselhofer - Electric linear Actuator



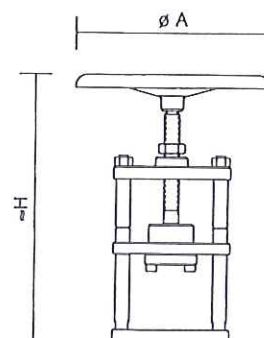
Designation	Electric linear Actuator	EB 1,2	EB 4,5	EB 8	EB 12	EB 20	EB 25
	Stroke	10/20 mm	20 / 40 / 60 / 80 mm			40 / 60 / 80 mm	
ø A	mm	145	145	184	184	216	216
≈ H	mm	505	535	570	570	660	660
≈ Weight	kg	6,5	7,5	13	13	19	19

Linear thrust Unit



Designation	Linear thrust Unit	LB 12	LB 16	LB 20
	Stroke	20 mm	40 mm	60 / 80 mm
ø A	mm	196	196	196
≈ H	mm	240	320	407
≈ Weight	kg	12	17	20

Manual Operation



Designation	Manual Operation	HB 12	HB 16	HB 20
	Stroke	20 mm	40 mm	60 / 80 mm
ø A	mm	300	300	400
≈ H	mm	400	450	480
≈ Weight	kg	17	17	18

SPM - Code

Type	DN	PN	Body/Cert.	Plug	Seat	kvs	Trim	Actuator
V726 DKVNA	50	40	1.0619/00AO	PONP1GG	42	40	1.4571	

Body Form Three-Flange D Three-Flange with Heating Jacket H Four-Flange V Four-Flange with Heating Jacket G Three-Way W		1.4571 Plug, Seat Material 1.4122	
Form of Connection Flange acc. to Form B1 K EN 1092-1 Form F Q Form D Y Welded Ends acc. to DIN 3239 S		kvs - Value 0,01 - 1600 Port Size 3 - 250	
Bonnet Form without Pressure Balancing V with V-Ring Balancing O with Piston-Ring Balancing K		Flow tends top open Valve G Flow tends to close Valve I	
Bonnet Assembly Standard Bonnet N Bellows seal Bonnet B HT Extension Bonnet R Double seal Bonnet L LT Extension Bonnet K Insulating Bonnet I		Characteristic modified - equal percentage linear on / off G L A modified - equal percentage with Special Rangeability H	
Packing Box Assembly Teflon-Rings, adjustable, BAM A Graphite-Rings, adjustable, BAM B Teflon-Rings, loaded, BAM N Graphite-Rings, loaded, BAM O Teflon with Graphite, loaded, "TA" Q Graphite-Rings, loaded, "TA" V V-Ring Packing S		Plug Guidance Top 1 Top and Bottom 2	
Nominal Size 15 - 300		Seat Leakage IEC Class III O Class IV P Class IV - S1 Q Class IV - S2 R Class V S Class VI T EN 12 266 LR A (DIN 3239 BVA) A LR A (DIN 3239 B01) B	
Nominal Pressure PN 10 10 PN 16 16 PN 25 25 PN 40 40		Plug Form standard N partial stellited D contour stellited K soft seated W hardened H nitrided T	
Body Material 1.0619 1.4581 1.5419 1.4308		Plug Cont. Plug without Silent-Set PO with Silentpack PK with XStream Type C PC with XStream Type D PD with XStream Type E PE with XStream Type F PF with XStream Type G PG with XStream Type H PH with XStream Type I PI with XStream Type Q PQ with XStream Type W PW Disk Plug TO Multi-Hole Plug LO RLS-Unit, 2-step, Series I AO RLS-Unit, 2-step, Series II BO RLS-Unit, 3-step, Series II DO Mixing Plug MO Distributing Plug VO	
Materials acc. to international Standards for Pressure Stressed Parts Standards for Materials without DGRL (Standard) O . . . TRD AG 2 I . . . TRB 801 AG A P . . . AG B R . . . AG C2 T . . .		Standards and Certificates for final test Standards for final test without EN 1349 (Standard) . . . A . DGRL Kat. IV . . . M . Certificates for final test without . . . O EN 10 204 2.2 . . . Z 3.1B (Survey of Certs) . . . B 3.1B (Matrix) . . . D 3.1A . . . A	
Certificates for Materials without . . . O . . . EN 10 204 2.2 . . . Z . . . 3.1B (Survey of Certs) . . . B . . . 3.1B (Matrix) . . . D . . . 3.1A . . . A . . .			

IT 252 AADOZ

Operation on air failure

- A Stem retracted
Z Stem extracted

Hand Wheel

- O without
L top, light-weight-variant
IT 127 - 502
H top, heavy-duty-variant
IT 127 - 700

Spring Range

	Actuator Size	Stroke
AD 0,2 - 1,0	IT 127 - 502	20
AD 0,2 - 1,0	IT 502 - 700	40
BL 0,5 - 1,9	IT 127 - 502	20
BL 0,5 - 1,9	IT 502 - 700	40
MU 0,8 - 1,6	IT 127, 252	10
DY 1,0 - 2,4	IT 127 - 502	20
DY 1,0 - 2,4	IT 502 - 700	40
IY 1,4 - 2,4	IT 127, 252	10
VC 1,5 - 2,7	IT 127 - 502	20
VC 1,5 - 2,7	IT 502 - 700	40
VI 1,5 - 3,8	IT 252, 502	20
VI 1,5 - 3,8	IT 502, 700	40
JC 1,8 - 2,7	IT 700	20
FY 2,0 - 4,8	IT 127 - 502	20
FY 2,0 - 4,8	IT 502, 700	40
CW 2,7 - 4,1	IT 127, 252	10

Actuator Color

- A blue
B white
C yellow

Actuator Size with MULTI-yoke

	Actuator Size	Stroke
IT 127	125 cm ²	10, 20
IT 252	250 cm ²	10, 20
IT 502	500 cm ²	20, 40
IT 700	700 cm ²	20, 40

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 Ohm potentiometer Ω
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

	Thrust	Stroke	Torque	ISO5210
LB 12	10,4 kN	20 mm	30 Nm	F10
LB 16	17,3 kN	≤40 mm	50 Nm	F10
LB 20	27,7 kN	≤60 mm	60 Nm	F10

HB 16

Manual Operation

	Thrust	Stroke
HB 12	13 kN	20 mm
HB 16	23 kN	40 mm
HB 20	30 kN	≤60 mm

PB 252 ADYOZ

Operation on air failure

- A Stem retracted
Z Stem extracted

Hand Wheel

- O without
L top, light-weight-variant
PB 252 - 502
H top, heavy-duty-variant
PB 252 - 700
S lateral PB 1502 - 3002

Actuator Color

- A blue
B white
C yellow

Actuator Size with NAMUR-Yoke

	Actuator Size	Stroke
PB 252	250 cm ²	10, 20
PB 502	500 cm ²	20, 40
PB 700	700 cm ²	20, 40, 60
PB 1502	1500 cm ²	20, 40, 60, 80
PB 3002	3000 cm ²	40, 60, 80

AB 204 ZQO

Positionselektronik

- O ohne
M Positionselektronik,
Eingang in mA
V Positionselektronik,
Eingang in V

Stellungsrückmeldung

- O ohne
E 2 zusätzliche Endschrter
P Potentiometer 1000 Ω
M Stellungsrückmeldung
4 - 20 mA
Q Potentiometer 1000 Ω
und 2 zus. Endschrter
N Stellungsrückmeldung
4 - 20 mA und 2 zus.
Endschrter

Netzanschluß

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)

Elektrischer PSL Schubantrieb

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

Spring Range

	Actuator Size	Stroke
AD 0,2 - 1,0	PB 252 - 502	20
AD 0,2 - 1,0	PB 502 - 3002	40
AD 0,2 - 1,0	PB 700 - 3002	60
AD 0,2 - 1,0	PB 1502 - 3002	80
GF 0,4 - 2,0	PB 1502 - 3002	40, 60, 80
BL 0,5 - 1,9	PB 252 - 502	20
BL 0,5 - 1,9	PB 502 - 700	40
BL 0,5 - 1,9	PB 700	60
KI 0,75 - 1,4	PB 1502 - 3002	40, 60, 80
MU 0,8 - 1,6	PB 252	10
MU 0,8 - 1,6	PB 1502	20
DY 1,0 - 2,4	PB 252 - 502	20
DY 1,0 - 2,4	PB 502 - 700	40
DY 1,0 - 2,4	PB 700, 3002	60
DY 1,0 - 2,4	PB 3002	80
EP 1,3 - 2,1	PB 3002	60, 80
IY 1,4 - 2,4	PB 252	10
VC 1,5 - 2,7	PB 252 - 700	20
VC 1,5 - 2,7	PB 502 - 1502	40
VC 1,5 - 2,7	PB 1502	60, 80
VI 1,5 - 3,8	PB 252 - 502	20
VI 1,5 - 3,8	PB 502 - 700	40
VI 1,5 - 3,8	PB 700	60
JC 1,8 - 2,7	PB 700	20
FY 2,0 - 3,5	PB 1502	60, 80
FY 2,0 - 4,8	PB 252 - 502	20
FY 2,0 - 4,8	PB 502 - 700	40
FY 2,0 - 4,8	PB 700	60
AJ 2,6 - 4,2	PB 1502	60, 80
CW 2,7 - 4,1	PB 252	10

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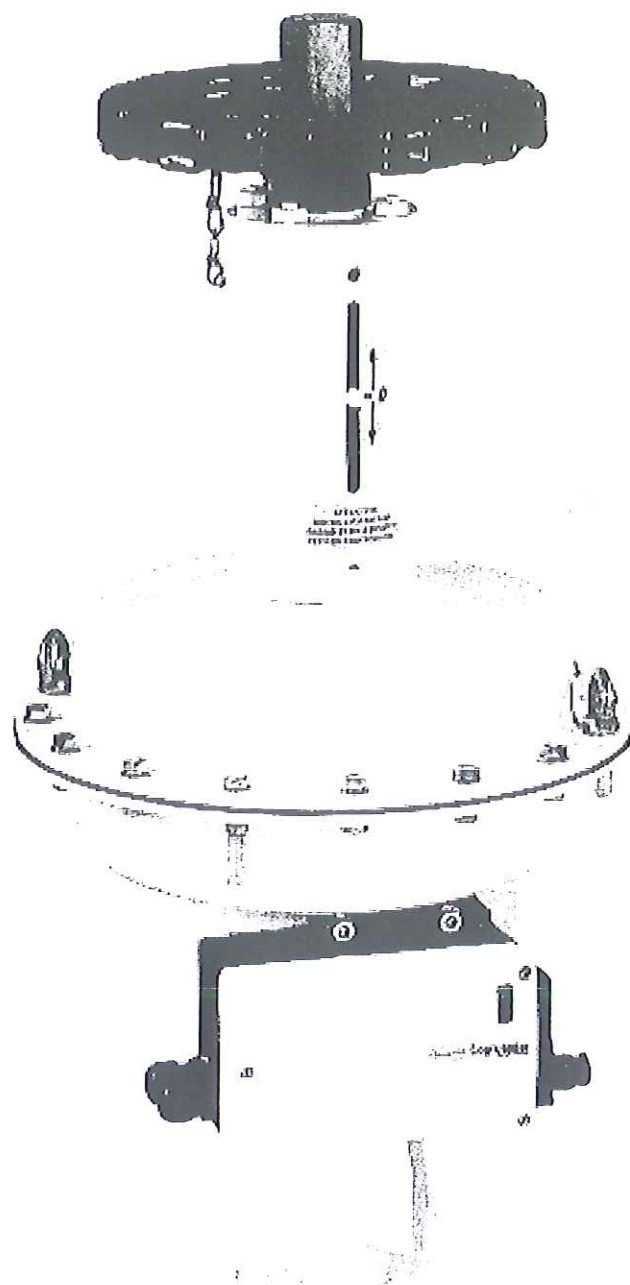
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e-mail: schmidt@flowserve.com
www.flowserve.com







 FLOW

Schmidt Armaturen

FlowAct™

125 - 3000 cm², 0,25 - 60 kN

Application

For installation on control valves, direct or reverse action, for controlled or on/off operation.

Product features

- Multi-spring compact design
- Radial spring arrangement permits a low mounting height
- Low volume between diaphragm and case gives fast response times
- Strong operating force by permissible pressure supply of 6 bar / 87 psig
- Permissible ambient temperature - 40 up to 80°C / - 40 up to 176°F
- Stable guided stem
- Fabric-reinforced roll-type diaphragm with minimum area variation due to stem position on loss in operating force for various stroke positions - linearity is retained
- Stem bushing requires no maintenance
- Stable yoke in spheroidal cast-iron
- Central mounting on the control valve
- Yoke and stem coupling with mounting surfaces according to NAMUR (DIN IEC 65 B CO)
- Top resp. lateral mounted hand wheel

Operation

The diaphragm is actuated by the control signal. The actuator stem moves as soon as the diaphragm force exceeds the counterforces of the springs. There are two operational modes depending on the arrangement of the spring package:

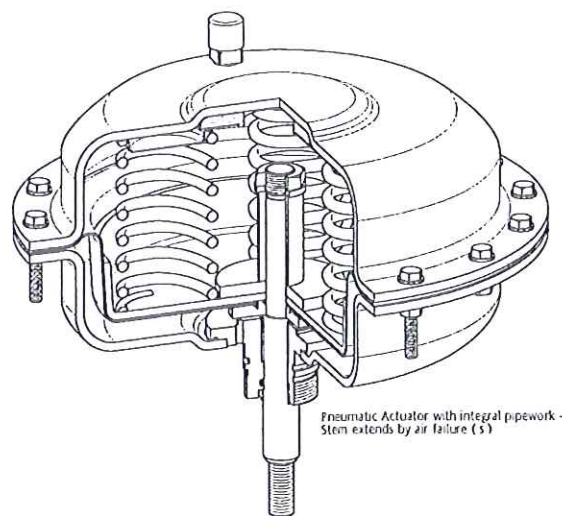
1. Stem extends by air failure
2. Stem retracts by air failure

The control valve can be opened or closed with a rising signal. On air failure, the actuator is set back to the zero position by spring force (fail-safe position).

Quality assurance system certified acc. EN ISO 9001 : 2000 including product development.

The System

Actuator



O-Rings

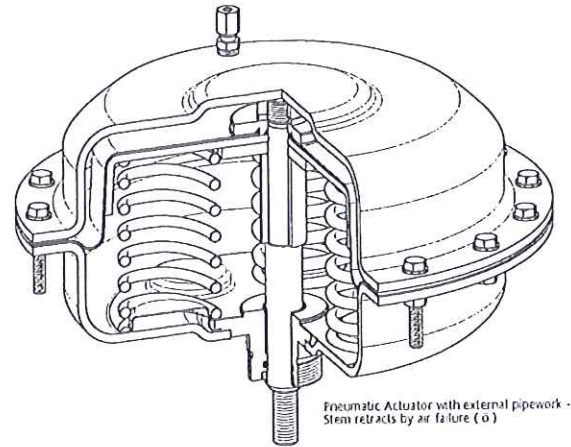
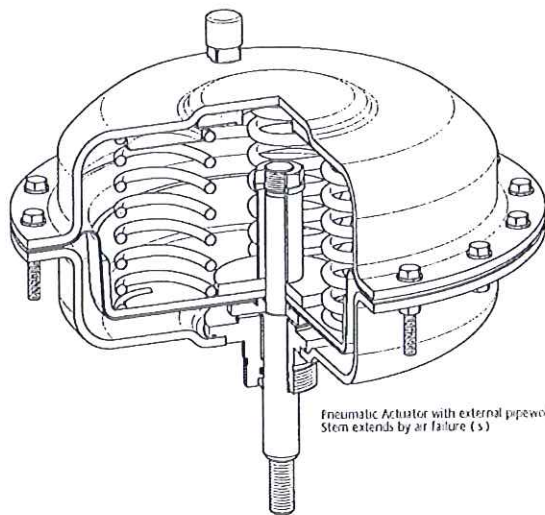
Lock nut

Yoke

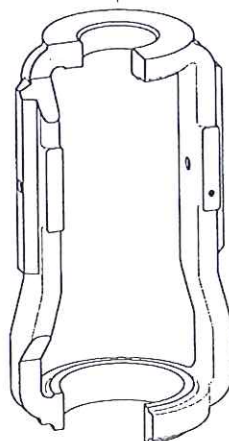
Without Yoke for valve type: FlowPer

MULTI-Yoke for valve type: FlowTor FlowPro

Within the series the following combinations of yoke and valve types are possible:



Lock nut



NAMUR-yoke
for valve type:
FlowTop
FlowPro
VariCoat

Technical data - DIN-Units

Actuator Size	Effective Area (cm²)	Stroke (mm)	Spring Ranges (bar)	Yoke Type (see Page 15)
127	125	10	0,8 - 1,6	P
			1,4 - 2,4	
			2,7 - 4,1	
		20	0,2 - 1,0	
			0,5 - 1,9	
			1,0 - 2,4	
252	250	10	1,5 - 2,7	P
			2,0 - 4,8	
			0,8 - 1,6	
		20	1,4 - 2,4	
			2,7 - 4,1	
			0,2 - 1,0	
502	500	20	0,5 - 1,9	P
			1,0 - 2,4	
			1,5 - 2,7	
		40	1,5 - 3,8	
			2,0 - 4,8	
			0,2 - 1,0	
700	700	20	0,5 - 1,9	P
			1,0 - 2,4	
			1,5 - 2,7	
		40	1,5 - 3,8	
			2,0 - 4,8	
			0,2 - 1,0	
1501	1500	20	0,5 - 1,9	P
			1,0 - 2,4	
			1,5 - 2,7	
		40	1,5 - 3,8	
			2,0 - 4,8	
			0,2 - 1,0	
3001	3000	40	0,5 - 1,9	P
			1,0 - 2,4	
			1,5 - 2,7	
		60	1,5 - 3,8	
			2,0 - 4,8	
			0,2 - 1,0	

Stem extends by Air failure	
nec. Air Supply (bar)	max. Force (N)
1,8	1 000
2,6	1 750
4,3	3 375
1,2	250
2,1	625
2,6	1 250
2,9	1 875
5,0	2 500
1,8	2 000
2,6	3 500
4,3	6 750
1,2	500
2,1	1 250
2,6	2 500
2,9	3 750
4,0	3 750
5,0	5 000
1,2	1 000
2,1	2 500
2,6	5 000
2,9	7 500
4,0	7 500
5,0	10 000
1,2	1 000
2,1	2 500
2,6	5 000
2,9	7 500
4,0	7 500
5,0	10 000
2,9	12 600
1,2	1 400
2,1	3 500
2,6	7 000
2,9	10 500
4,0	10 500
5,0	14 000
1,2	1 400
2,1	3 500
2,6	7 000
4,0	10 500
5,0	14 000
1,8	12 000
2,3	22 500
1,2	3 000
2,2	6 000
1,6	11 250
2,9	22 500
3,7	30 000
4,4	39 000
1,2	3 000
2,2	6 000
1,6	11 250
2,9	22 500
3,7	30 000
4,4	39 000
1,2	6 000
2,2	12 000
1,6	22 500
2,6	30 000
2,3	39 000
3,7	60 000
1,2	6 000
2,2	12 000
1,6	22 500
2,6	30 000
2,3	39 000
3,7	60 000
1,2	6 000
2,2	12 000
1,6	22 500
2,6	30 000
2,3	39 000
3,7	60 000

Positioning Force

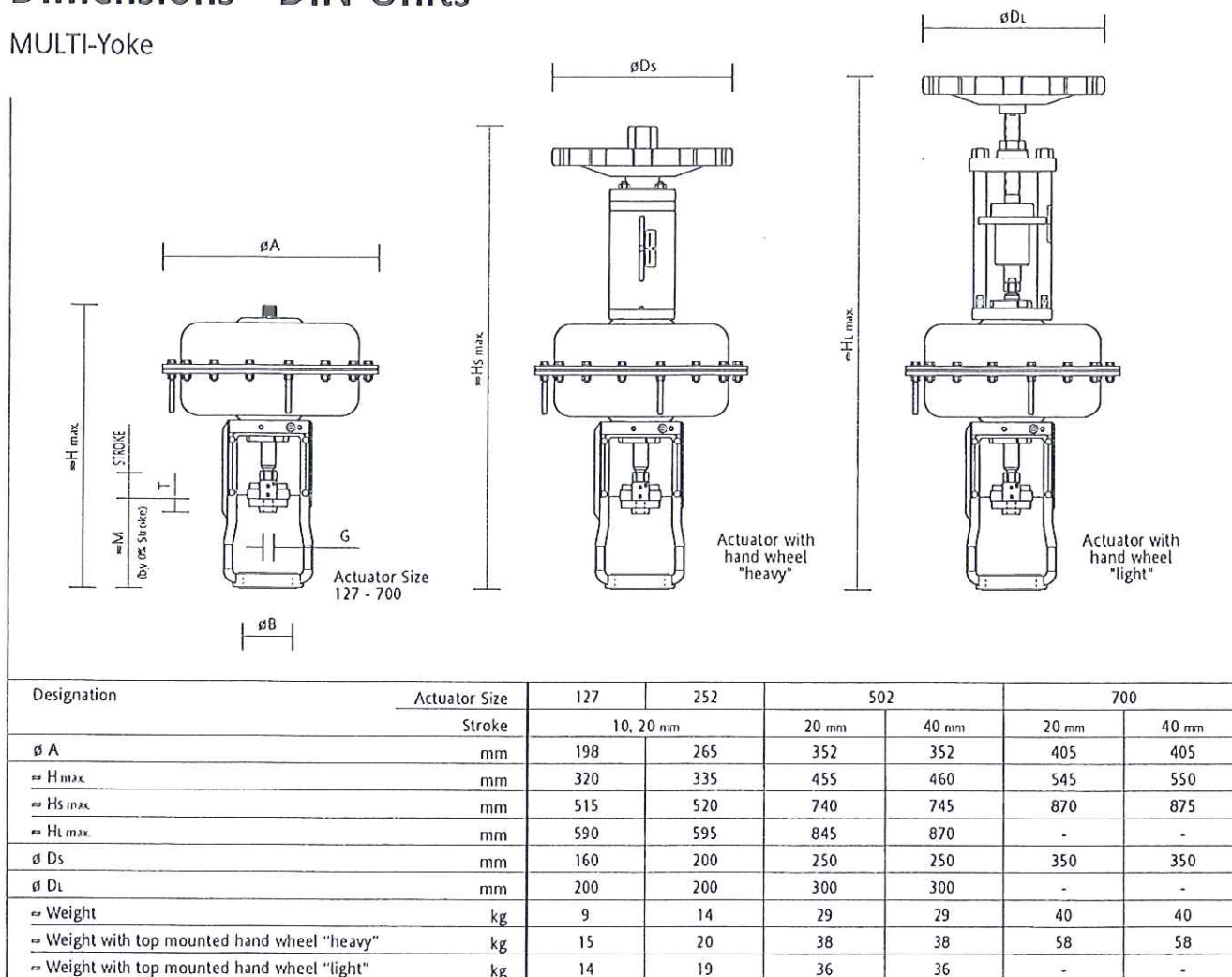
max. Air Supply (bar)	max. Force (N)	1,6	1,8
6,0	5 500		250
6,0	4 500		
6,0	2 375		
6,0	6 250	750	1 000
6,0	5 125		
6,0	4 500		
6,0	4 125		
6,0	1 500		
6,0	11 000		500
6,0	9 000		
6,0	4 750		
6,0	12 500	1 500	2 000
6,0	10 250		
6,0	9 000		
6,0	8 250		
6,0	5 500		
6,0	3 000		
6,0	25 000	3 000	4 000
6,0	20 500		
6,0	18 000		
6,0	16 500		
6,0	11 000		
6,0	6 000		
6,0	25 000	3 000	4 000
6,0	20 500		
6,0	18 000		
6,0	16 500		
6,0	11 000		
6,0	6 000		
6,0	23 100		
6,0	35 000	4 200	5 600
6,0	28 700		
6,0	25 200		
6,0	23 100		
6,0	15 400		
6,0	8 400		
6,0	35 000	4 200	5 600
6,0	28 700		
6,0	25 200		
6,0	15 400		
6,0	8 400		
5,6	60 000		3 000
6,0	58 500		
5,0	60 000	9 000	12 000
6,0	60 000		
5,4	60 000	3 000	6 000
6,0	49 500		
6,0	37 500		
6,0	27 000		
5,0	60 000	9 000	12 000
6,0	60 000		
5,4	60 000	3 000	6 000
6,0	49 500		
6,0	37 500		
6,0	27 000		
3,0	60 000	18 000	24 000
4,0	60 000		
3,4	60 000	6 000	12 000
4,4	60 000		
4,1	60 000		
5,5	60 000		
3,0	60 000	18 000	24 000
4,0	60 000		
3,4	60 000	6 000	12 000
4,4	60 000		
4,1	60 000		
5,5	60 000		
3,0	60 000	18 000	24 000
4,0	60 000		
3,4	60 000	6 000	12 000
4,4	60 000		
4,1	60 000		
5,5	60 000		

ATTENTION: • The max. air supply has picked out for a long operating life !
(Stem $\varnothing = 12 \text{ mm} \leq 13\,500 \text{ N}$, $\varnothing = 16 \text{ mm} \leq 23\,000 \text{ N}$, $\varnothing = 20 \text{ mm} \leq 38\,000 \text{ N}$)
• Max. design pressure for the actuators 6 bar !

Stem retracts by Air failure Actual Air Supply (bar) / Produced Force (N)								
2,0	2,2	2,5	2,8	3,2	3,6	4,0	4,5	5,0
500	750	1 125	1 500	2 000	2 500	3 000	3 625	4 250
1 250	1 500	1 875	2 250	2 750	3 250	3 750	4 375	5 000
	375	750	1 125	1 625	2 125	2 625	3 250	3 875
1 000	1 500	2 250	3 000	4 000	5 000	6 000	7 250	8 500
2 500	3 000	3 750	4 500	5 500	6 500	7 500	8 750	10 000
250	750	1 500	2 250	3 250	4 250	5 250	6 500	7 750
5 000	6 000	7 500	9 000	11 000	13 000	15 000	17 500	20 000
500	1 500	3 000	4 500	6 500	8 500	10 500	13 000	15 500
5 000	6 000	7 500	9 000	11 000	13 000	15 000	17 500	20 000
500	1 500	3 000	4 500	6 500	8 500	10 500	13 000	15 500
5 000	6 000	7 500	9 000	11 000	13 000	15 000	17 500	20 000
500	1 500	3 000	4 500	6 500	8 500	10 500	13 000	15 500
7 000	8 400	10 500	12 600	15 400	18 200	21 000	24 500	28 000
700	2 100	4 200	6 300	9 100	11 900	14 700	18 200	21 700
6 000	9 000	13 500	18 000	24 000	30 000	36 000	43 500	51 000
	1 500	6 000	10 500	16 500	22 500	28 500	36 000	43 500
15 000	18 000	22 500	27 000	33 000	39 000	45 000	52 500	60 000
	3 000	7 500	12 000	18 000	24 000	30 000	37 500	45 000
9 000	12 000	16 500	21 000	27 000	33 000	39 000	46 500	54 000
15 000	18 000	22 500	27 000	33 000	39 000	45 000	52 500	60 000
	3 000	7 500	12 000	18 000	24 000	30 000	37 500	45 000
9 000	12 000	16 500	21 000	27 000	33 000	39 000	46 500	54 000
15 000	18 000	22 500	27 000	33 000	39 000	45 000	52 500	60 000
	3 000	7 500	12 000	18 000	24 000	30 000	37 500	45 000
9 000	12 000	16 500	21 000	27 000	33 000	39 000	46 500	54 000
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				
30 000	36 000	45 000	54 000					
	6 000	15 000	24 000	36 000	48 000	60 000		
18 000	24 000	33 000	42 000	54 000				

Dimensions - DIN-Units

MULTI-Yoke

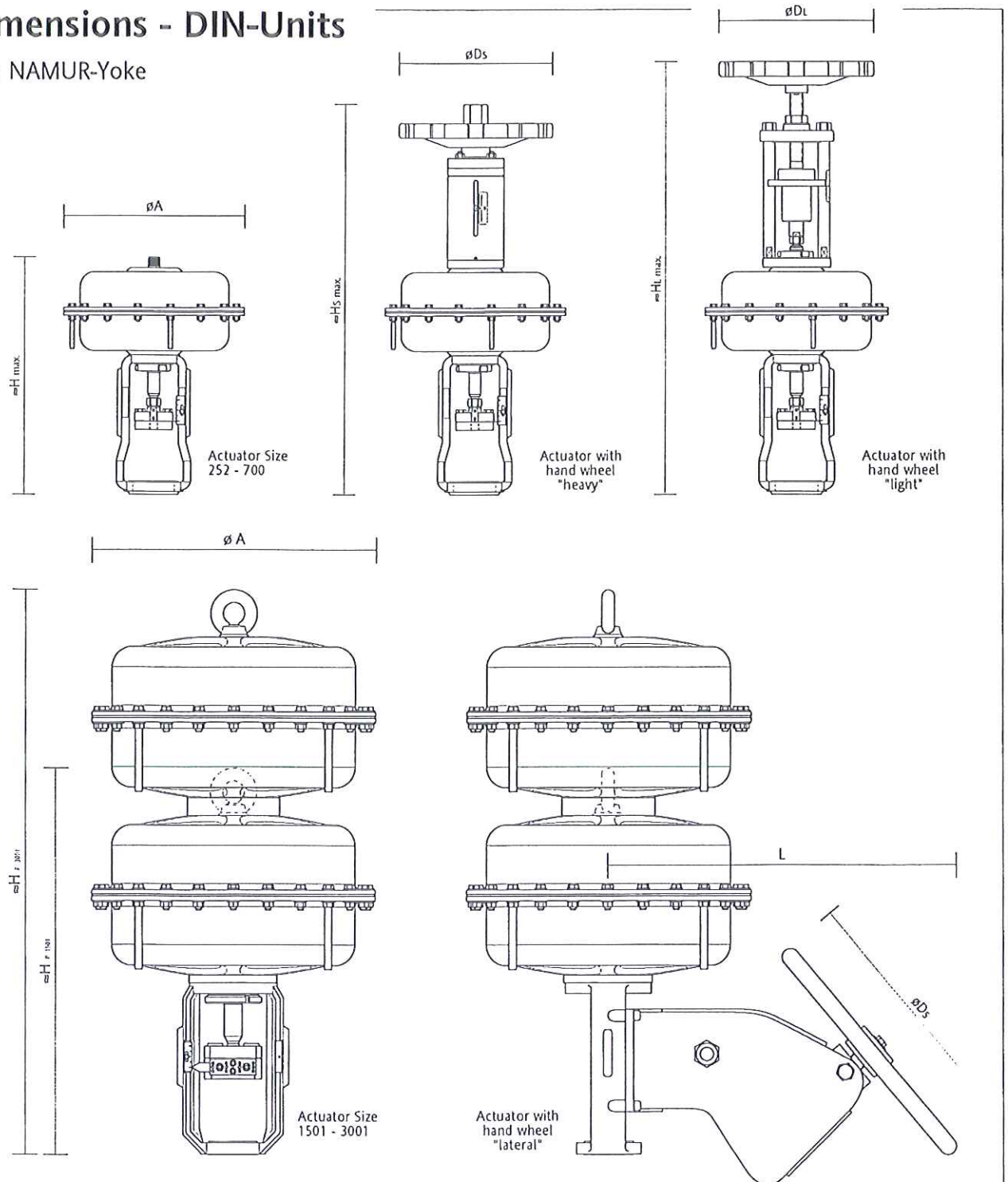


Yoke-Dimensions DIN-Units

Yoke dimensions		MULTI-Yoke for FlowTop, FlowPro				NAMUR-Yoke for FlowTop, FlowPro, VanCool							
Actuator Size	Stroke	øB	øM	G	T	øB	øM	G	T	øB	øM	G	T
127	10	65	110	M12	23	-	-	-	-	-	-	-	-
	20	65	105	M12	23	-	-	-	-	-	-	-	-
252	10	65	110	M12	23	-	-	-	-	-	-	-	-
	20	65	105	M12	23	65	105	M12	16	65	105	M12	16
502	20	65	105	M12	23	65	105	M12	16	82	150	M16	20
	40	82	140	M16	25	82	140	M16	20	82	140	M20	20
700	20	65	105	M12	23	65	105	M12	16	82	150	M16	20
	40	82	140	M16	25	82	140	M16	20	82	140	M20	20
	60	-	-	-	-	82	150	M20	20	-	-	-	-
1 501	20	-	-	-	-	65	105	M12	29	82	150	M16	29
	40	-	-	-	-	82	140	M16	29	82	140	M20	29
	60	-	-	-	-	82	150	M20	29	-	-	-	-
	80	-	-	-	-	82	140	M20	29	82	140	M20	29
3 001	40	-	-	-	-	82	140	M16	29	82	140	M20	29
	60	-	-	-	-	82	150	M20	29	-	-	-	-
	80	-	-	-	-	82	140	M20	29	82	140	M20	29

Dimensions - DIN-Units

with NAMUR-Yoke



Designation	Actuator Size	252	502	700	1501	3001
	Hub	10, 20 mm	20 mm	40 mm	20 mm	40 mm
ϕA	mm	265	352	405	405	600
$\approx H_{max}$	mm	330	420	460	545	600
$\approx H_{S_{max}}$	mm	515	705	745	870	925
$\approx H_{L_{max}}$	mm	590	810	870	-	-
ϕD_s	mm	330	420	450	350	350
ϕD_L	mm	200	300	300	-	-
$\approx L$	mm	-	-	-	-	-
\approx Weight	kg	13	28	28	40	40
\approx Weight with mounted hand wheel "heavy" / "lateral"	kg	19	37	37	58	58
\approx Weight with top mounted hand wheel "light"	kg	18	35	35	-	-

Technical data - ANSI-Units

Positioning force

Actuator Size	Effective Area (in ²)	Stroke (in)	Spring Ranges (psig)	Yoke Type (see Page 15)					
127	19.4	0.4	12 - 23						
			20 - 35						
			39 - 59						
		0.8	3 - 15	P					
			7 - 28						
			14 - 35						
			22 - 39						
252	38.8	0.4	29 - 70	P					
			12 - 23						
			20 - 35						
		0.8	39 - 59		P				
			3 - 15						
			7 - 28						
			15 - 35						
502	77.5	0.8	22 - 39	P					
			22 - 55						
			29 - 70						
			3 - 15						
		1.6	7 - 28		P				
			15 - 35						
			22 - 39						
700	109	0.8	22 - 55	P					
			29 - 70						
			3 - 15						
			7 - 28						
		1.6	15 - 35		P				
			22 - 39						
			22 - 55						
1501	233	0.8	29 - 70	P					
			3 - 15						
			7 - 28						
			15 - 35						
		1.6	22 - 39		P				
			29 - 51						
			38 - 61						
3001	465	1.6	3 - 15	P					
			6 - 29						
			11 - 20						
			22 - 39						
		2.4	29 - 51		P				
			38 - 61						
			3 - 15						

Stem extends by Air failure	
nec. Air Supply (psig)	max. Force (lbs)
26	225
38	393
62	759
17	56
30	141
38	281
42	422
73	562
26	450
38	787
62	1 517
17	112
30	281
38	562
42	843
58	843
73	1 124
17	225
30	562
38	1 124
42	1 686
58	1 686
73	2 248
17	225
30	562
38	1 124
42	1 686
58	1 686
73	2 248
42	2 834
17	315
30	787
38	1 574
42	2 360
58	2 360
73	3 147
17	315
30	787
38	1 574
58	2 360
73	3 147
26	2 698
33	5 058
17	674
32	1 349
23	2 529
42	5 058
54	6 744
64	8 768
17	674
39	1 349
23	2 529
42	5 058
54	6 744
64	8 768
17	674
32	1 349
23	2 529
42	5 058
54	6 744
64	8 768
17	1 349
32	2 698
23	5 058
38	6 744
33	8 768
54	13 489
17	1 349
32	2 698
23	5 058
38	6 744
33	8 768
54	13 489
17	1 349
32	2 698
23	5 058
38	6 744
33	8 768
54	13 489

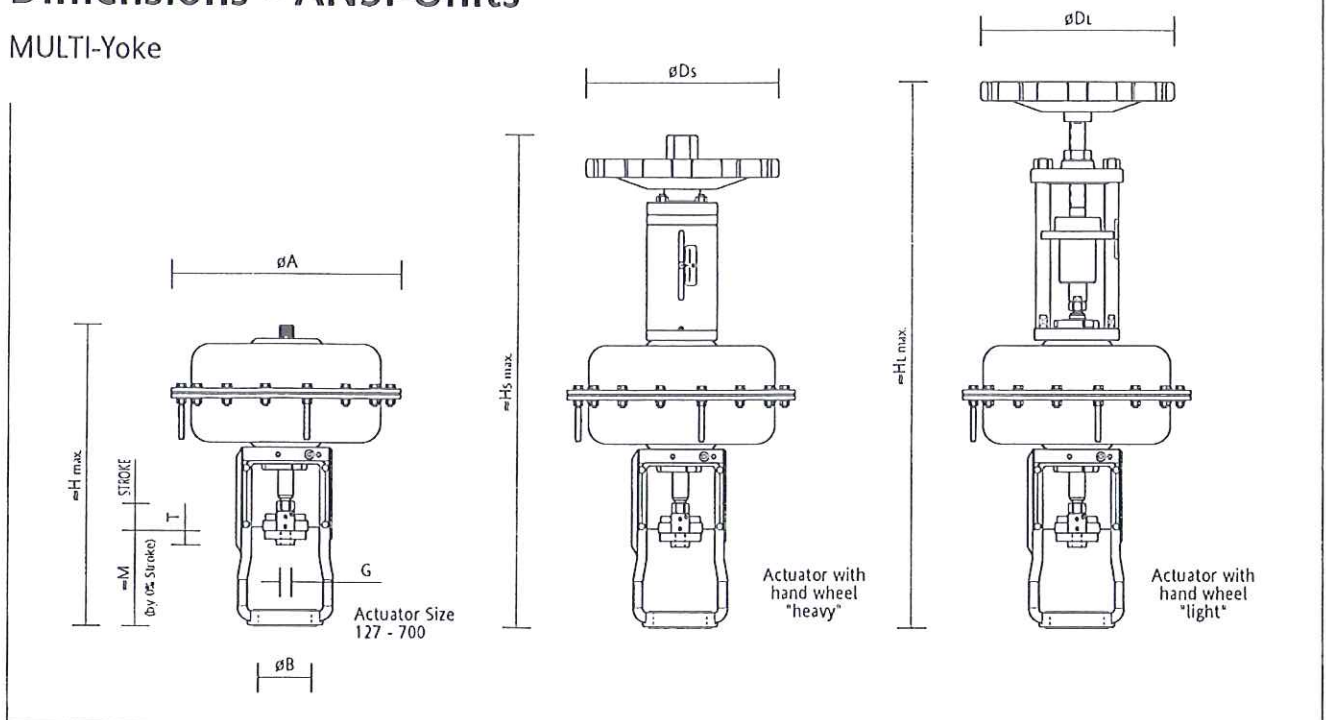
max Air Supply (psig)	max. Force (lbs)	23	26
87	1 236		56
87	1 012		
87	534		
87	1 405	169	225
87	1 152		
87	1 012		
87	927		
87	337		
87	2 473		112
87	2 023		
87	1 068		
87	2 810	337	450
87	2 304		
87	2 023		
87	1 855		
87	1 236		
87	674		
87	5 620	675	899
87	4 609		
87	4 047		
87	3 709		
87	2 473		
87	1 349		
87	5 620	674	899
87	4 609		
87	4 047		
87	3 709		
87	2 473		
87	1 349		
87	5 193		
87	7 868	944	1 259
87	6 452		
87	5 665		
87	5 193		
87	3 462		
87	1 888		
87	7 868	944	1 259
87	6 452		
87	5 665		
87	3 462		
87	1 888		
81	13 489		674
87	13 151		
73	13 489	2 023	2 698
87	13 489		
78	13 489	674	1 349
87	11 128		
87	8 430		
87	6 070		
73	13 489	2 023	2 698
87	13 489		
78	13 489	674	1 349
87	11 128		
87	8 430		
87	6 070		
73	13 489	2 023	2 698
87	13 489		
78	13 489	674	1 349
87	11 128		
87	8 430		
87	6 070		
44	13 489	4 047	5 395
58	13 489		
49	13 489	1 349	2 698
64	13 489		
59	13 489		
80	13 489		
44	13 489	4 047	5 395
58	13 489		
49	13 489	1 349	2 698
64	13 489		
59	13 489		
80	13 489		
44	13 489	4 047	5 395
58	13 489		
49	13 489	1 349	2 698
64	13 489		
59	13 489		
80	13 489		

Stem retracts by Air failure Actual Air Supply (psig) / Produced Force (lbs)								
29	32	36	41	46	52	58	65	73
112	169	253	337	450	562	674	815	955
281	337	422	506	618	731	843	984	1 124
	84	169	253	365	478	590	731	871
225	337	506	674	899	1 124	1 349	1 630	1 911
562	674	843	1 012	1 236	1 461	1 686	1 967	2 248
56	169	337	506	731	955	1 180	1 461	1 742
1 124	1 349	1 686	2 023	2 473	2 923	3 372	3 934	4 496
112	337	674	1 012	1 461	1 911	2 360	2 923	3 485
1 124	1 349	1 686	2 023	2 473	2 923	3 372	3 934	4 496
112	337	674	1 012	1 461	1 911	2 360	2 923	3 485
1 124	1 349	1 686	2 023	2 473	2 923	3 372	3 934	4 496
112	337	674	1 012	1 461	1 911	2 360	2 923	3 485
1 124	1 349	1 686	2 023	2 473	2 923	3 372	3 934	4 496
112	337	674	1 012	1 461	1 911	2 360	2 923	3 485
1 574	1 888	2 360	2 833	3 462	4 092	4 721	5 508	6 295
157	472	944	1 416	2 046	2 675	3 305	4 092	4 878
1 349	2 023	3 035	4 047	5 395	6 744	8 093	9 779	11 465
	337	1 349	2 360	3 709	5 058	6 407	8 093	9 779
3 372	4 047	5 058	6 070	7 419	8 768	10 116	11 802	13 489
	674	1 686	2 698	4 047	5 395	6 744	8 430	10 116
2 023	2 698	3 709	4 721	6 070	7 419	8 768	10 454	12 140
3 372	4 047	5 058	6 070	7 419	8 768	10 116	11 802	13 489
	674	1 686	2 698	4 047	5 395	6 744	8 430	10 116
2 023	2 698	3 709	4 721	6 070	7 419	8 768	10 454	12 140
3 372	4 047	5 058	6 070	7 419	8 768	10 116	11 802	13 489
	674	1 686	2 698	4 047	5 395	6 744	8 430	10 116
2 023	2 698	3 709	4 721	6 070	7 419	8 768	10 454	12 140
6 744	8 093	10 116	12 140					
	1 349	3 372	5 395	8 093	10 791	13 489		
4 047	5 395	7 419	9 442	12 140				
6 744	8 093	10 116	12 140					
	1 349	3 372	5 395	8 093	10 791	13 489		
4 047	5 395	7 419	9 442	12 140				
6 744	8 093	10 116	12 140					
	1 349	3 372	5 395	8 093	10 791	13 489		
4 047	5 395	7 419	9 442	12 340				

Force in both home positions - for Three Way Valves only - nec. Air (psig) max. Force (lbs)	
35	141
49	281
61	422
35	281
49	562
61	843
77	843
35	562
49	1 124
61	1 686
77	1 686
35	562
49	1 124
61	1 686
77	1 686
65	2 833
35	787
49	1 574
61	2 360
77	2 360
35	787
49	1 574
77	2 360
35	2 698
52	5 058
35	1 349
32	2 529
61	5 058
80	6 744
35	1 349
32	2 529
61	5 058
80	6 744
35	1 349
32	2 529
61	5 058
80	6 744
35	2 698
32	5 058
49	6 744
49	8 768
80	13 489
35	2 698
32	5 058
49	6 744
49	8 768
80	13 489
35	2 698
32	5 058
49	6 744
49	8 768
80	13 489

Dimensions - ANSI-Units

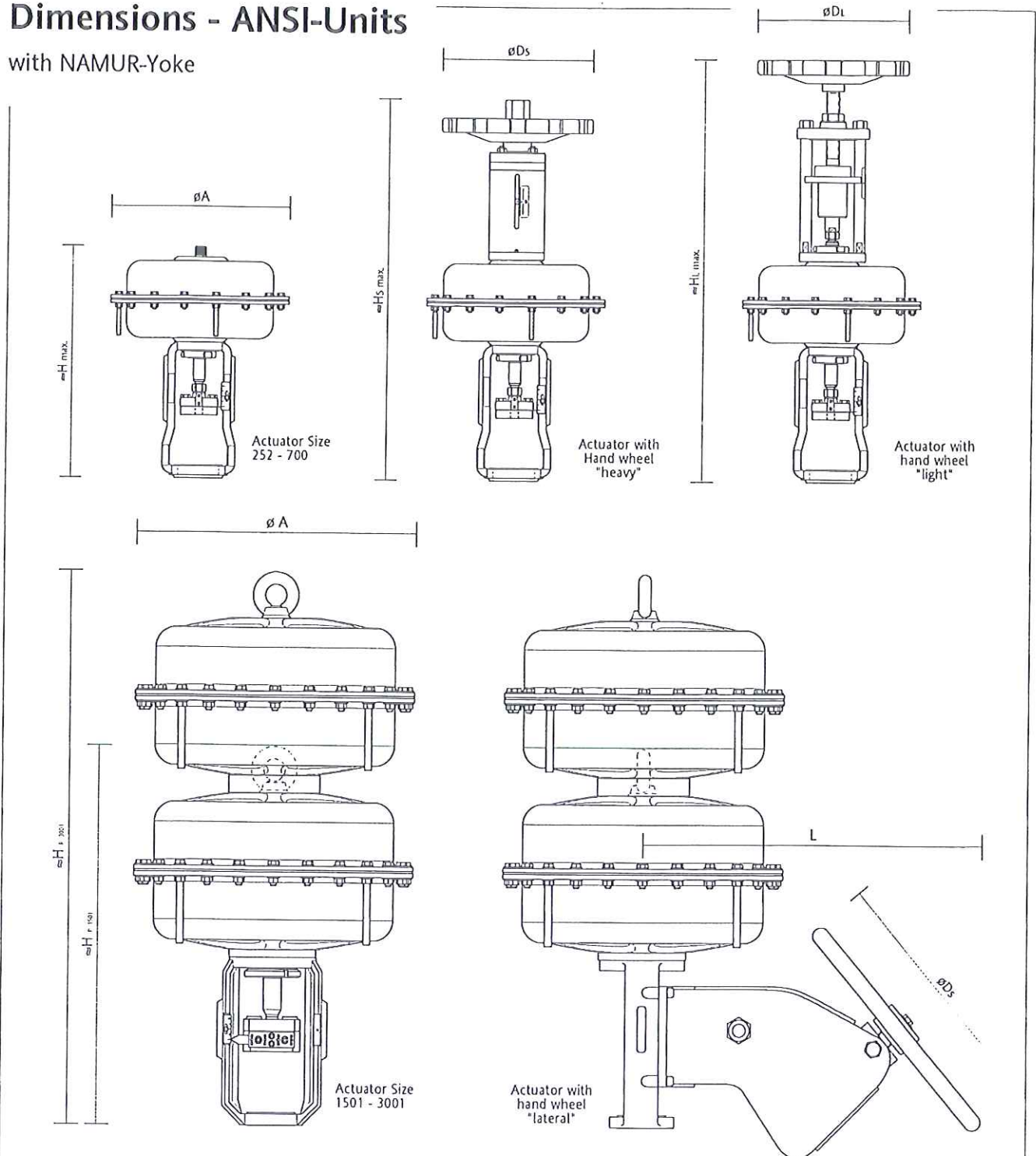
MULTI-Yoke



Designation	Actuator Size	127	252	502		700	
	Stroke	0.4, 0.8 inch		0.8 inch	1.6 inch	0.8 inch	1.6 inch
$\varnothing A$	inch	7.8	10.4	13.9	13.9	15.9	15.9
$\approx H_{max}$	inch	12.6	13.2	17.9	18.1	21.5	21.7
$\approx H_{s max}$	inch	20.3	20.5	29.1	29.3	34.3	34.4
$\approx H_{l max}$	inch	23.2	23.4	33.3	34.3	-	-
$\varnothing D_s$	inch	6.3	7.9	9.8	9.8	13.8	13.8
$\varnothing D_l$	inch	7.9	7.9	11.8	11.8	-	-
\approx Weight	lb	20	31	64	64	88	88
\approx Weight with top mounted hand wheel "heavy"	lb	33	44	84	84	128	128
\approx Weight with top mounted hand wheel "light"	lb	31	42	79	79	-	-

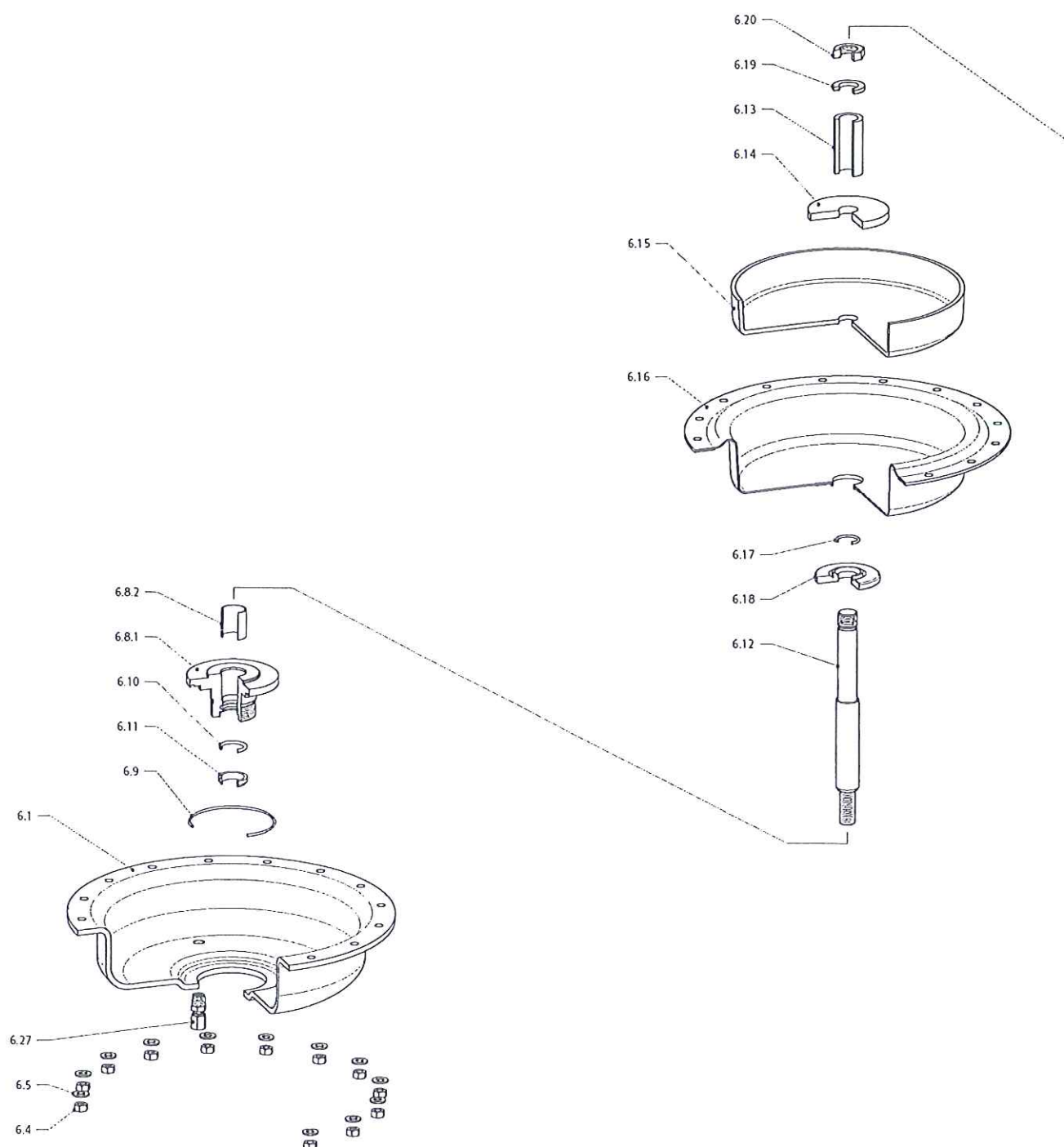
Dimensions - ANSI-Units

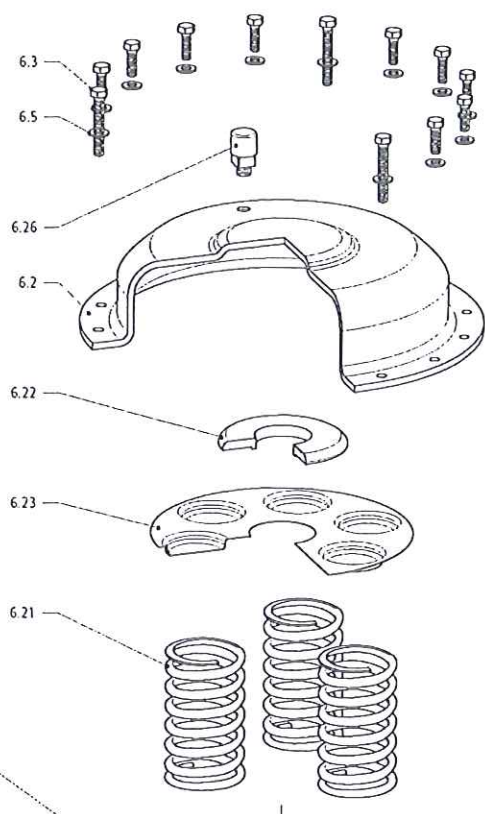
with NAMUR-Yoke



Designation	Actuator Size	252	502	700	1501	3001
	Stroke	0.4, 0.8 inch	0.8 inch	1.6 inch	0.8, 1.6, 2.4, 3.1 inch	1.6, 2.4, 3.1 inch
$\varnothing A$	inch	10.4	13.9	15.9	21.6	21.6
$\approx H_{max}$	inch	13.0	16.5	21.5	28.9	42.2
$\approx H_{s max}$	inch	20.3	27.8	34.3	-	-
$\approx H_{t max}$	inch	23.2	31.9	34.3	-	-
$\varnothing D_s$	inch	13.0	16.5	17.7	19.7	19.7
$\varnothing D_t$	inch	7.9	11.8	11.8	-	-
$\approx L$	inch	-	-	-	27.0	27.0
\approx Weight	lb	29	62	88	279	540
\approx Weight with mounted hand wheel "heavy" / "lateral"	lb	42	82	128	390	652
\approx Weight with top mounted hand wheel "light"	lb	40	77	77	-	-

Parts List





Designation	Part	Materials	Spare Parts
Diaphragm Casing	6.1	1.0322 ¹⁾	
Diaphragm Casing	6.2	1.0322 ²⁾	
Hexagon Bolt	6.3	A2-70	
Hexagon Nut	6.4	A2-70	
Plain Washer	6.5	A2	
Guide Bush	6.8.1	1.0736 ¹⁾	
Plain Bearing	6.8.2	-	
O-Ring	6.9	NBR 70	E
O-Ring	6.10	NBR 70	E
Scraper Ring	6.11	NBR 90	E
Stem	6.12	1.4571	
Spacer Bush	6.13	1.0308 ¹⁾	
Disk	6.14	1.0736 ¹⁾	
Diaphragm Plate	6.15	1.0332 ¹⁾	
Diaphragm	6.16	NBR 60	M
O-Ring	6.17	NBR 70	M
Thrust Washer	6.18	1.0736 ¹⁾	
Lock Washer	6.19	Federstahl	
Hexagon Nut	6.20	17H ¹⁾	
Actuator Spring	6.21	1.7102	
Distance Plate ³⁾	6.22	1.0736 ¹⁾	
Spring Adjusting Plate	6.23	1.0330.03 ¹⁾	
Vent Plug	6.26	Polyamid	
Fitting	6.27	-	
Yoke	-	0.7043	

¹⁾ chromatised acc. to DIN 50 961 Fe/Zn 12C

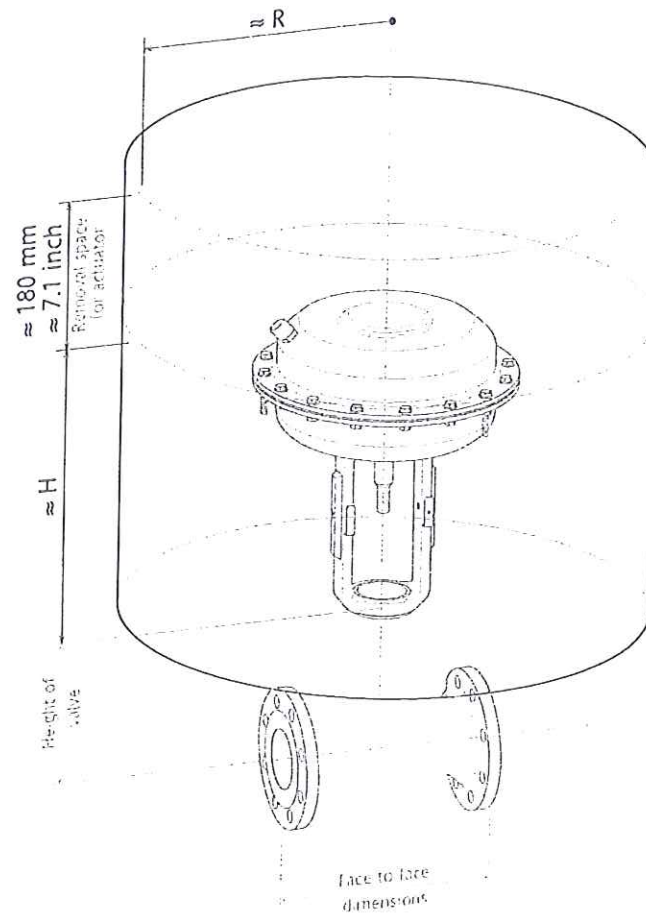
²⁾ powder coating

³⁾ only for "stem extends by air failure"

M Diaphragm

E Gasket set

Minimum Clearance Zone



Actuator Size		≈ R				≈ H max.	
		without accessories	accessories direct mounted	accessories NAMUR-mounted	with lateral mounted hand wheel	without hand wheel	with top mounted hand wheel
127	mm	100	195	260		320	590
252	mm	135	195	290		335	595
502	mm	180	195	330		460	870
700	mm	205	205	345		600	925
1 501	mm	275		415	685	735	
3 001	mm	275		415	685	1037	
127	inch	3.9	7.7	10.2		12.6	23.2
252	inch	5.3	7.7	11.4		13.2	23.4
502	inch	7.1	7.7	13.0		18.1	34.3
700	inch	8.1	8.1	13.6		23.6	36.4
1 501	inch	10.8		16.3	27.0	28.9	
3 001	inch	10.8		16.3	27.0	40.8	

For face to face dimensions and height of valve see PSS-valve

DN	PN	Body/Cert.	Plug	Seat	kvs	Trim	Actuator	S
							IT 502 AVILZB	

SPM - Code

Model-code of the valve

Actuator Design for internal air supply (127 - 700)

Standard-Actuator I.
DVGW-Actuator D.

without MULTI-Yoke .O
for FlowPak .P
for FlowTop DIN and ANSI .T

Actuator Design for external air supply

Standard-Actuator P.
DVGW-Actuator C.

without NAMUR-Yoke .O
for FlowTop DIN and ANSI .B
for FlowPro, VariCool .D

Actuator Size

125 cm² .. 127
250 cm² .. 252
500 cm² .. 502
700 cm² .. 700
1500 cm² .. 1501
3000 cm² .. 3001

Actuator Color

Blue A
White B
Yellow C

Spring Range (not adjustable)

0,2 - 1,0	(3 - 15)	AD
0,4 - 2,0	(6 - 29)	GF
0,5 - 1,9	(7 - 28)	BL
0,75 - 1,4	(11 - 20)	KI
0,8 - 1,4	(12 - 20)	MU
1,0 - 2,4	(15 - 35)	DY
1,3 - 2,1	(19 - 30)	EP
1,4 - 2,4	(20 - 35)	IY
1,5 - 2,1	(22 - 30)	VP
1,5 - 2,7	(22 - 39)	VC
1,5 - 3,8	(22 - 55)	VI
1,8 - 2,7	(26 - 39)	JC
2,0 - 3,5	(29 - 51)	FS
2,0 - 4,8	(29 - 70)	FY
2,6 - 4,2	(38 - 61)	AJ
2,7 - 4,1	(39 - 59)	CW

Stroke

Code in combination with the valve not necessary !

10 mm	M
20 mm	A
40 mm	B
60 mm	C
80 mm	D

Operation*) air failure

Stem retracted	A
Stem extended	Z

Hand Wheel

without Hand Wheel	O
with top mounted Hand Wheel "light" 127 - 502	L
with top mounted Hand Wheel "heavy" 127 - 700	H
with lateral Hand Wheel 1501 - 3001	S

* Definition according to VDI/VDE 3844 - Draft is only possible in conjunction with the control valve.

The codes listed below must be noted when ordering spare parts.

Actuator (complete)	A
Diaphragm	M
Seals	E

When ordering an actuator without the valve, details of stroke, connection thread and required yoke are needed together with the code lettering information.

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Telephone: +27 11 609 2094
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Flowserve

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Al Khobar 31952
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Information given in this leaflet is made in good faith and based upon specific testing but does not, however, constitute a guarantee. Modifications without notice in line with technical progress.



Schmidt Armaturen

Zweigniederlassung der
Flowserve (Austria) GmbH

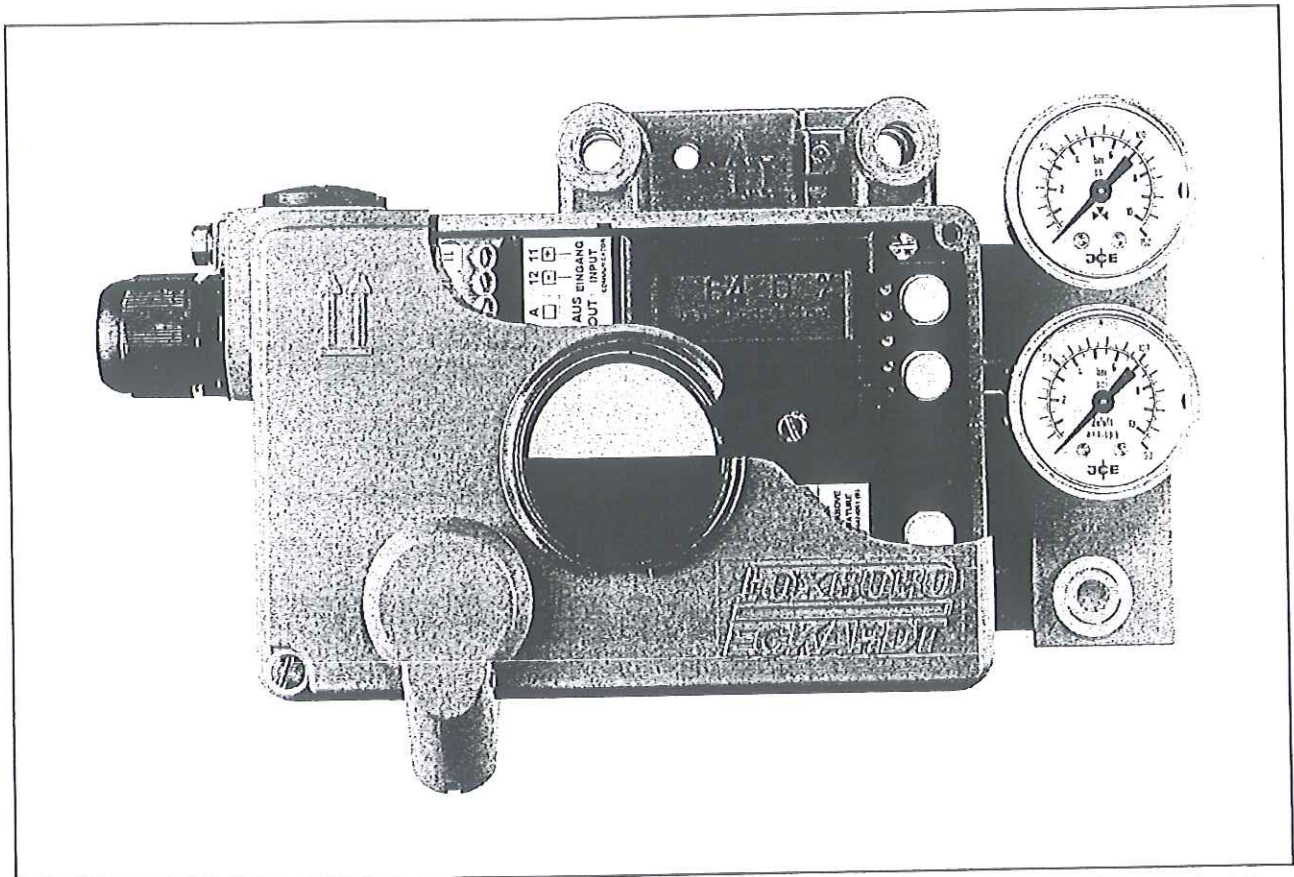
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e-mail: schmidt@flowserve.com
www.flowserve.com



SRD991 Intelligent Positioner with HART, FoxCom, PROFIBUS, F. Fieldbus or Without Communication



The intelligent positioner SRD991 is designed to operate pneumatic valve actuators and can be operated from control systems (e.g. the Foxboro I/A Series System), controllers or PC-based configuration- and operation tools such as PC20 / PC50 (FDT software). The positioner is available with different communication protocols. The multi-lingual full text graphic-LCD in connection with the 3 push buttons (optional with infrared interface) allows a comfortable and easy local configuration and operation as well as the display of valve specific data, and status- and diagnostic messages. For installations in contact with explosive atmospheres, certificates are available.

DEVICE FEATURES

Intelligent

- Auto-start with self-calibration
- Self diagnostics, status- and diagnostic messages
- Easy operation with three key pads
- Multi-Lingual full text grafical LCD, or LEDs

with communication

- HART, FOUNDATION Fieldbus H1, PROFIBUS-PA, FoxCom
- Configuration by means of local keys, hand-held terminal (HART), PC or I/A Series system or with an infrared interface by means of IrCom

without communication

- Input signal 4 to 20 mA

COMMON FEATURES

- Stroke 8 to 120 mm / 260 mm (0.3 to 4.7 in / 10.2 in)
- Angle range up to 95 °
- Supply air pressure up to 6 bar (90 psig), with spool valve up to 7 bar (105 psig)
- Single or double-acting
- Mounting on linear actuators according to NAMUR – IEC 534, Part 6 – VDI/VDE 3847
- Mounting on rotary actuators acc. to VDI/VDE 3845
- Protection class IP 65, NEMA 4X
- Explosion protection: Intrinsic safety according to ATEX and FM/CSA

FOXBORO
ECKARDT

OVERVIEW

The SRD991 consists of a **basic device** with digital controller with different **communication protocols** (or also simply 4-20 mA input). Into the basic device still **additional equipment** can be built, like additional plug-in cards for electrical input/output signals, position feedback and pressure sensors.

The pneumatic part is available in different versions (**single/double acting**, or **spool valve**). To run very large actuators still **boosters** with increased air capacity can be flanged on additionally. Also different **manifolds** for connection and gauges can be flanged on.

For the pneumatic screw connections we offer different threads in the housing; with cable glands there are adapters.

For use in **hazardous areas** there are approvals according to ATEX, FM, CSA ...

The device can be configured locally by means of push buttons and LCD / LED, or with PC + EDC82 Modem connected to the service plug of SRD991.

By means of communication the device can be configured from the distance; or with **IrCom** + PC (Infrared Interface, approx. 1 m).

A large variety of attachment kits for all common valves and actuators are available - the current list is extended constantly and can be found in the Internet under

http://www.foxboro-eckardt.com/products/positioners_en.html

Basic devices:

All devices regulate digitally and have 3 push buttons and 5 LEDS for local configuration.

Device version	Indication	remote configuration
"H" HART (4-20 mA)	LCD or 5 LEDS	by communication / IrCom / Service plug
"P" Profibus	LCD or 5 LEDS	by communication / IrCom / Service plug
"Q" F.Fieldbus	LCD or 5 LEDS	by communication / IrCom / Service plug
"F" FoxCom	5 LEDS	by communication
"D" Digital (4-20 mA) without communication	LCD or 5 LEDS	by IrCom / Service plug

Additional equipment, built into the basic device:

Option Board "Position Feedback" <i>or</i>	1 output 4-20 mA (to be supplied externally) supplies stroke / angles of rotation 1 alarm output becomes active with a configurable* event
Option Board "2 Binary Inputs" <i>or</i>	2 external switches release a control function in the SRD, e.g. "close valve" (configurable)
Option Board "2 Binary Outputs"	2 binary outputs become active during limit value excess of the measured valve position
Grenzwertgeber	Supplies NAMUR signals during excess or falling below of two limit values supplies; inductiv, independent of the controller; in normal or safety version
Pressure sensors	2 sensors measure the pressure of supply air and output y1; the values are passed on via communication ¹⁾
LCD <i>or</i>	Full text graphic LCD in 3 languages ²⁾
LCD and IrCom	Full text graphic LCD in 3 languages, and infrared interface ²⁾

Accessories see page 23

Contents Page

Common technical data for all basic devices . . .	4
• Service plug and IrCom	6

Extended technical data for basic devices:

• with communication HART	8
• with communication FoxCom	9
• with communication PROFIBUS or FOUNDATION F.	10
• Basic device without communication (w = 4-20 mA)	12

**Additional equipment for basic devices
except FoxCom: 13**
(built into the basic device)

1 Option board with additional inputs / outputs:	
• 2 Binary inputs or	14
• 2 Binary outputs or	15
• Position feedback	15

Additional built-in	
• Limit signal switch.	16

Additional built-in	
• Pressure sensors (not "w/o communication" version)	16

Additional equipment for basic device FoxCom: 17
(built into the basic device)

1 Option board with additional inputs / outputs:	
• 2 Binary inputs or	18
• 2 Binary outputs or	18
• Position feedback	19

Additional built-in	
• Limit signal switch.	19

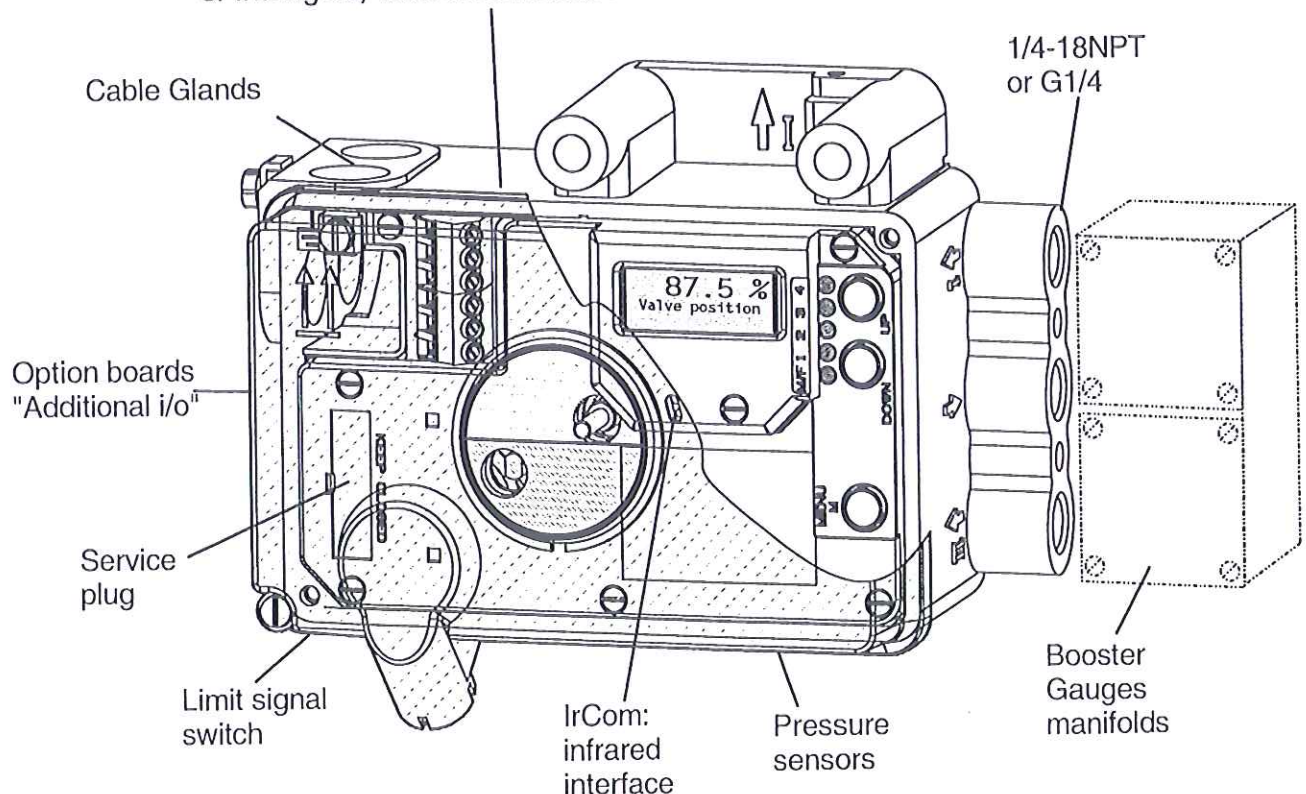
Additional built-in	
• Pressure sensors	19

FUNCTIONAL DESIGNATIONS 20**ACCESSORIES for mounting to the positioner:**

• Booster • Manifolds • Gauge manifolds	23
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ATTACHMENT to actuators 26**DIMENSIONS 30****Electronics Version:**

HART, FoxCom (Digital), PROFIBUS PA, FOUNDATION Fieldbus H1
or Intelligent, without communication



FUNCTIONAL SPECIFICATIONS (common data for all versions)

Travel range

Stroke range 8 ... 70 mm (0.3 ... 2.8 in),
and .. 60 ... 120 mm (2.4 ... 4.7 in),
and .. 100 ... 260 mm (3.9 ... 10.2 in)

Rotation angle range up to 95 °
(without mechanical stop)

Supply

Supply air pressure 1.4 ... 6 bar (20 ... 90 psig)
with spool valve 1.4 ... 7 bar (20 ... 105 psig)

Output to actuator 0 to ~100 % of supply air
pressure (up to 5.5 bar at
6 bar supply air pressure)

Air supply ¹⁾ according to ISO 8573-1

Solid particle size and density class 2.

Oil rate class 3

For air supply, we recommend the FOXBORO ECKARDT
FRS923 filter regulator.

Response characteristic ^{2) 3)}

Sensitivity < 0.1 % of travel span

Non-linearity (terminal

based adjustment) < 0.4 % of travel span

Hysteresis < 0.3 % of travel span

Supply air dependence. < 0.1 % / 1 bar (15 psi)

Temperature effect. < 0.3 % / 10 K

Mechanical vibration

10 to 60 Hz up to 0.14 mm,

60 to 500 Hz up to 2 g < 0.25 % of travel span

Air consumption (steady state) I_n/h (scfh)

Supply air pressure bar (psig)	1.4 (20)	3 (45)	6 (90)
single acting	100 (3.5)	110 (3.9)	150 (5.3)
double acting	200 (7.0)	220 (7.8)	300 (10.6)

The listed values are simplified. The exact values can be determined using the following formulas:

single acting;

P in bar: $Q_{con} = (P_{sup} + 1) \cdot 20 + P_{out} \cdot 60$ [NI/h]

P in psi: $Q_{con} = (P_{sup} + 15) \cdot 0.0008 + P_{out} \cdot 0.0024$ [scfm]

double acting:

P in bar: $Q_{con} = (P_{sup} + 1) \cdot 110$ [NI/h]

P in psi: $Q_{con} = (P_{sup} + 15) \cdot 0.0044$ [scfm]

Q_{con} Max. Air consumption
 P_{sup} Supply pressure
 P_{out} Output pressure

Air output I_n/h (scfh)

at max. deviation, single and double acting:

Supply air pressure bar (psig)	1.4 (20)	2 (30)	4 (60)	6 (90)	7 (105)	
without booster	2 700 (95)	3 500 (124)	5 500 (194)	7 500 (265)	—	
with Spool Valve	3 400 (120)	4 300 (151)	7 200 (254)	10 000 (350)	11 400 (400)	
with booster code F, G	18 000 (636)	24 000 (847)	40 000 (1 492)	55 000 (1 942)	—	
with booster code H	36 000 (1 271)	48 000 (1 695)	80 000 (2 825)	110 000 (3 884)	—	

The listed values are simplified. The exact values can be determined using the following formulas:

single acting and double acting:

P in bar: $Q_{out} = (P_{sup} + 1) \cdot 1100$ [NI/h]

P in psi: $Q_{out} = (P_{sup} + 15) \cdot 2.6$ [scfh]

with booster

single acting, doubled air capacity:

P in bar: $Q_{out} = (P_{sup} + 1) \cdot 15700$ [NI/h]

P in psi: $Q_{out} = (P_{sup} + 15) \cdot 36.8$ [scfh]

with Spool Valve,

single acting and double acting:

P in bar: $Q_{out} = (P_{sup} + 1) \cdot 1450$ [NI/h]

P in psi: $Q_{out} = (P_{sup} + 15) \cdot 3.4$ [scfh]

1) Pressure dew point 10 K under ambient temperature

2) Data measured according to VDI/VDE 2177

3) With stroke 30 mm and lever length 90 mm

PHYSICAL SPECIFICATIONS (common data for all versions)

Mounting

Attachment to stroke actuators

- direct, FlowPak/FlowTop . . . with attachment kit EBZG -E

- for casting yoke

acc. to IEC 534-6 (NAMUR) . . . with attachment kit EBZG -H
or -H1

- for pillar yoke

acc. to IEC 534-6 (NAMUR) . . . with attachment kit EBZG -K
or -K1

Stroke range

with standard feedback lever (EBZG-A) 8 ... 70 mm

with extended feedback lever (EBZG-B) 60 .. 120 mm

with extended feedback lever (EBZG-A1) 110 .. 260 mm

Attachment to rotary actuators acc. VDI/VDE 3845

with attachment kit EBZG -R

- Further attachment kits on request -

- Mounting orientation see attachment dimensions starting
from page 26

Materials

Housing and covers Aluminum (Alloy No. 230)
finished with DD-varnish

All moving parts of

feedback system 1.4306 / 1.4571 / 1.4104

Attachment kits V4A or Aluminum, finished
with DD-varnish

(depending upon version) .. (Alloy No. 230)

Mounting bracket Aluminum (Alloy No. 230)

Pneumatic diaphragms Silicone (suitable for use
in the colour- and lacquer
industry)

Weight

Single acting approx. 1.7 kg (3.7 lbs)

Double acting approx. 2.0 kg (4.4 lbs)

Pneumatic connection

NAMUR mounting 3 x female threads 1/4-18NPT
or G 1/4 for pipe diameter 6 to
12 mm (0.24 to 0.47 in) for air
supply and outputs y1, y2 to
the actuator

Direct mounting Instead of the output y1, an
air connection on the back
side with O-ring will be used
(closed at NAMUR mounting).

Electrical Connection

Line entry 1 or 2 cable glands 1/2-14 NPT
or M20 x1.5
(others with Adapter AD-...)

Cable diameter 6 to 12 mm (0.24 to 0.47 in)

Screw terminals 2 terminals for input,
4 terminals for additional
inputs / outputs

Wire cross section 0.3 to 2.5 mm² (AWG 22-14)

Test sockets for options and communicator
connection

Ambient conditions

Operating conditions acc. to IEC 654-1

The device can be operated at a class Dx location

Ambient temperature

Operation ¹⁾ -40 ... 80 °C (-40 ... 176 °F)

Transport and storage . . . -40 ... 80 °C (-40 ... 176 °F)

Storage conditions

acc. to IEC 60721-3-1: . . . 1K5; 1B1; 1C2; 1S3; 1M2

Indicators

LCD (visible) ²⁾ -25 ... 70 °C (-13 ... 176 °F)

LEDs -40 ... 80 °C (-40 ... 176 °F)

Relative humidity < 100 %

Protection class

acc. to IEC 529 IP 65 ³⁾

acc. to NEMA Type 4X

Electromagnetic compatibility EMC

Operating conditions industrial environment

Immunity according to

EN 61326 fulfilled

IEC 61326 fulfilled

EN 61000-6-2 fulfilled

Emission according to

EN 61326

Class A and Class B fulfilled

EN 61000-6-4 fulfilled

EN 55011 Group 1,

Class A and Class B fulfilled

NAMUR recommendation

EMV NE21 fulfilled

SAFETY REQUIREMENTS

CE label

Electromagnetic

compatibility ⁴⁾ 89/336/EWG

Low-voltage regulation 73/23/EWG not applicable

Safety

According to EN 61010-1

(or IEC 1010-1) Safety class III

Overvoltage Category I

Internal fuses not replaceable

External fuses Limitation of power supplies
for fire protection must be observed acc. to EN 61010-1,
appendix F (bzw. IEC 1010-1).

1) Details see Certificates of Conformity

2) Below -20 °C the LCD reacts only slowly; above +70°C the background
becomes dark.

3) Under service as directed

4) With PROFIBUS or FOUNDATION Fieldbus only, if shield of wiring is
grounded on both sides.

FUNCTIONAL SPECIFICATIONS (common data for versions "Intelligent with communication" HART, PROFIBUS-PA, FOUNDATION Fieldbus H1, FoxCom)

Features

Automatic start-up Autostart functionality
Automatic determination of the mechanical end positions of the valve (initial value and final value), IP motor parameters, direction of action of the spring and control parameter.
The control parameters are optimized dynamically during this routine.

This procedure makes a perfect adjustment and optimization to the actuator possible without additional manual settings!

Short autostart Automatic determination of the mechanical end positions of the valve (initial value and final value), IP motor parameters, direction of action of the spring, without changing the control parameters.

Options

- Built-in independent inductive limit switches
- Pressure sensors for monitoring of air supply and output pressure I (y1)
- Additional inputs / outputs:
 - Position feedback 4-20 mA + binary alarm output
 - 2 binary outputs (position alarms)
 - 2 binary inputs

Operation and Configuration

- Easy configuration by means of 3 local push buttons and, depending upon version, with multilingual menu-driven graphic LCD, or LED.¹⁾

The positioner in the version with LCD contains three different menu languages.

Standard menu languages:

- English - German

Freely selectable third language:

- French - Portuguese - Spanish

- Italian - Swedish - ...

(further menu languages on request)

The third menu language has to be selected and specified with the order, otherwise standard: French.

The third, freely selectable menu language can be modified to another language by means of the configuration software PC20/PC50. The additional languages can be downloaded from our homepage.²⁾

Position feedback and Alarms

Position feedback. via communication
Optional ³⁾ 4-20 mA Position feedback

Alarms via communication

Optional ³⁾ 1 Alarm output

Positions-Alarms via communication,

Upper and lower pre-alarm

Upper and lower main alarm

Optional ³⁾ 2 binary outputs,

Upper and lower pre-alarm

Upper and lower main alarm

Independant feedback

Limit signal switch (inductiv) . Normal version

Security version etc.

Diagnostics

– in the field

- Self diagnostics
- Status and Diagnostic messages
- determines number of cycles, movements of actuator

– via communication and in the field

- shows condition of device:
 - Potentiometer
 - exceeding range of actuator (possible indication for wear of plug or seat)
 - remaining control deviation (possible indication for jammed actuator, blocked valve stem or plug, not sufficient air capacity /supply air pressure /positioning pressure)
- if equipped with pressure sensors (optional):
 - surveillance of air supply and output pressure, each with display of physical value
- Additional diagnostical possibilities in control operation by means of external sensors (optional).

Service plug and IrCom

All basic devices (except FoxCom version) are equipped with a service plug. There via RS232 interface a PC with PC20 / PC50 (FDT-Software) can be connected via modem EDC82 (galv. separated, not Ex).

If the SRD is equipped with option "IrCom", communication can take place contactless via infrared with the positioner (even with a closed cover!). Modem "IR Interface" (not Ex) is connected via RS232 interface to a PC (for practical reasons a notebook) with software PC20 / PC50 (FDT software) and makes possible a range of approx. 1 m. (If the notebook has an IrDa interface, this cannot be used, despite similar technique. The IrDa instruction set has no communication commands for positioners.-)

1) Not with version FoxCom

2) With the versions "Intelligent without communication" this is only possible with modem EDC82

3) By means of "Additional inputs / outputs"

Manual local settings:

Actuator mode	linear or rotary actuator
Linear valve	left or right mounted
Rotary actuator.	opening clockwise or counter-clockwise
Characteristic of setpoint . . .	linear, equal percentage, invers- equal percentage or custom (22 points)
Valve function	opens or closes with increasing setpoint
Split range	free upper and lower values
Travel limits	free upper and lower values
Cutoffs.	free upper and lower values
Control parameters	Determined during Autostart.
Working range	freely adjustable (for indication on LCD
Manual adjustment of.	P-gain, I-time, T63-time and dead band
Manual operation	Manual input of setpoint to drive the valve
Pneumatic test.	Function to test the pneu- matic output
Workshop	input and angle calibration
LCD language	dependent on version
LCD orientation	dependent on version
Bus address.	PROFIBUS-PA only
Simulation	FOUNDATION Fieldbus only

Software supported configurations:

- by means of Hand Held Terminal (HART)
- PC among others by means of PC20/ PC50 /IFDC
- I/A Series System and other DCSs

Failure handling

Safety position at

- Air supply failure pressure y1 = zero
- Electric power failure pressure y1 = zero
- Failure of electronics pressure y1 = zero
- Failure of communication is recognized by configurable
watch dog with response delay of 0.1 s to 24 h

Behavior configurable as

- pressure y1 = zero or
- stop at last value or
- a configured value

Diagnostic report via communication and local
LCD

- historical status is set if alarm was activated
at any time
(also just short alarms)

Reset. by acknowledging

FUNCTIONAL SPECIFICATIONS for basic device with communication HART and ATEX approval

Signal Input

Two wire system

Reverse polarity protection feature

Signal range 4 to 20 mA

Operating range 3.6 to 21.5 mA

Input voltage DC 12...36 V ¹⁾ (unloaded)

Load 420 Ohms, 8.4 V at 20 mA

Communication signal HART, 1200 Baud, FSK
(Frequency Shift Key)
modulated on 4 to 20 mA
0.5 Vpp at 1 kOhm load

Input impedance Zi Z = 320 Ohms

for ac voltage 0.5 to 10 kHz with < 3 dB non-linearity

Cable capacity and inductance see HART standard specifications. (e.g. C < 100 nF).

Impedance of other devices at the input (parallel or serial) must be within HART spec.

Applications without communication require not to exceed input capacitance parallel to the input not higher than 100 µF.

Start-up time approx. 3 sec

Interruption time without power down:

with LCD + LED typ. 80 ms ²⁾

Configuration

Local with local push buttons

Display five LEDs or

Multi-lingual Graphic LCD

The positioner in the version with LCD contains three different menu languages.

Standard menu languages:

- English - German

Freely selectable third language:

- French - Portuguese - Spanish

- Italian - Swedish - ...

(further menu languages on request)

The third menu language has to be selected and specified with the order, otherwise standard: French.

The third, freely selectable menu language can be modified to another language by means of the configuration software PC20/PC50. The additional languages can be downloaded from our homepage.

Software PC20/IFDC by Invensys

Hardware Modem MOD991 for PC, IBM compatible

Hand Held Terminal HT991

I/A Series System FBM215 or FBM218
in combination with CP60 ³⁾

Other control systems AMS, Siemens SIMATIC PDM
(ProcessDeviceManager)

Electrical classification hereto: ^{4) 5)}

see Certificates of Conformity EX EVE0105 A

Type of protection "intrinsically safe"

Type AI 638 GH II 2 G EEx ia IIB/IIC,
II 2 G EEx ib IIB/IIC

Temperature classes

T4 with explosion protection code EA4

T4 / T6 with explosion protection code EAA

Certificate of Conformity PTB 00 ATEX 2128

For use in hazardous areas in circuits certified as intrinsically safe with the following maximum values:

Input circuit:

U max = 30 V, I max = 130 mA, P max = 0.9 W

Li = negligible, Ci = 1.3 nF (5.3 nF to earth)

Ambient temperature ranges:

Temperature class T4: -40 °C to + 80 °C

Temperature class T6: -40 °C to + 55 °C

Explosion protection Zone 2

It is recommended to use the positioner with explosion protection "intrinsically safe" (consider temperature class).

In the Federal Republic of Germany these positioners may be operated in Zone 2 with non-intrinsically safe circuits if the operating values do not exceed the maximum reference values.

Type of protection FM "intrinsic safety"

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X *)

Type of protection FM "non-incendive"

Class I, Div. 2, Groups A, B, C, D, F, G;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA "intrinsic safety" *)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

1) On request we can specify higher voltage limits

2) Worst case conditions 4-20mA, with position feedback option, i/p-output with max. current

*) In preparation

3) Check CP for suitable ECBs

4) With appropriate order only

5) National requirements must be observed

FUNCTIONAL SPECIFICATIONS for basic device with communication PROFIBUS-PA and FOUNDATION Fieldbus H1

PROFIBUS-PA

Data transfer	according to PROFIBUS- PA profile class B based on EN 50170 and DIN 19245 part 4
GSD file	the actual file can be downloaded from our homepage
Software	PC20 / PC50 (FDT software)
Hardware	PC- or PCMCIA- interfaces from Softing
I/A Series System	FBM 223 in combination with CP60 ¹⁾
Other control systems	All Profibus-PA- compatible, e.g. Siemens SIMATIC PDM (ProcessDevice Manager)

FOUNDATION Fieldbus H1

Data transfer	FF Specification Rev. 1.4, Link-Master (LAS)
Certified according to	ITK 4.01
Function Blocks	AO, Transducer, Resource, PID
DD files	the actual file can be downloaded from our homepage
Software	National Instruments NI-FBUS configurator
Hardware	FBUS-interfaces (AT-FBUS and PCMCIA- FBUS)
I/A Series System	FBM220 or FBM221 in combination with CP60 ¹⁾
Other control systems	All FOUNDATION Fieldbus H1- compatible, e.g. SMAR, Fisher Rosemount Delta-V, Honeywell, Yokogawa, ABB

Input signal	digital
Supply voltage	DC 9 to 32 V ²⁾
max. Supply voltage	DC 48 V
Operating current	10.5 mA ± 0.5 mA (base current)
Current amplitude	± 8 mA
Fault current	base current + 0 mA (base current + 4 mA by means of independent FDE-safety circuit) according to IEC 1158-2
Operating values	according to IEC 1158-2
Start-up time (init phase)	approx. 2 sec
Bus connection	Fieldbus interface based on IEC 1158-2 according to FISCO-Model
Power supply	Power supply is achieved dependant on the application by means of fieldbus power supply units or segment coupler

Configuration

Local	with local key pads
Display	multi-lingual graphic LCD or five LEDs

The positioner in the version with LCD contains three different menu languages.

Standard menu languages:

- English - German

Freely selectable third language:

- French - Portuguese - Spanish

- Italian - Swedish - ...

(further menu languages on request)

The third menu language has to be selected and specified with the order, otherwise standard: French.

The third, freely selectable menu language can be modified to another language by means of the configuration software PC20/PC50. The additional languages can be downloaded from our homepage.

1) Check CP for suitable ECBs

2) Data of "Intrinsically Safe" version

Electrical classification hereto:^{1) 2)}

(Electronics family AI 638 per EC- Certificate of
Conformity PTB 00 ATEX 2128)
see Certificates of Conformity EX EVE0105 A

Type of protection "intrinsically safe"

Type AI 638 GP II 2 G EEx ia IIB/IIC,
II 2 G EEx ib IIB/IIC

Temperature classes

T4 / T6 with explosion protection code EAA
Certificate of Conformity . . . PTB 00 ATEX 2128
For use in hazardous areas in circuits certified as intrinsically
safe with the following maximum values:

Input circuit:

U max = 30 V, I max = 130 mA, P max = 0.9 W
Li = negligible, Ci = 1.3 nF (5.3 nF to earth)

Ambient temperature ranges:

Temperature class T4: . . . - 40 °C to + 80 °C
Temperature class T6: . . . - 40 °C to + 55 °C

Explosion protection Zone 2

It is recommended to use the positioner with explosion protection
"intrinsically safe" (consider temperature class).
In the Federal Republic of Germany these positioners may
be operated in Zone 2 with non-intrinsically safe circuits if
the operating values do not exceed the maximum reference
values. See "Manufacturer's Declaration" on our website.

Type of protection FM "intrinsic safety"

Class I, Div. 1, Groups A, B, C, D;
hazardous locations indoor and outdoor, NEMA Type 4X *)

Type of protection FM "non-incendive"

Class I, Div. 2, Groups A, B, C, D, F, G;
hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA "intrinsic safety" *)

Class I, Div. 1, Groups A, B, C, D;
hazardous locations indoor and outdoor, NEMA Type 4X *)

*) In preparation

1) With appropriate order only

2) National requirements must be observed

FUNCTIONAL SPECIFICATIONS for basic device**4-20 mA Intelligent without communication (replaces SRD992) and ATEX approval****Signal Input**

Two wire system

Reverse polarity protection feature

Signal range 4 to 20 mA

Operating range 3.6 to 21.5 mA

Input voltage DC 8.5 to 36 V ¹⁾ (unloaded)

Load 300 Ohms, 6 V at 20 mA

With applications without communication the capacity parallel to input may not be higher than 100 µF.

Start-up time approx. 3 sec

Interruption time without power down:

with LCD + LED typ. 80ms ²⁾**Configuration**

Local with local push buttons

Display multi-lingual graphic LCD or five LEDs

The positioner in the version with LCD contains three different menu languages.

Standard menu languages:

- English - German

Freely selectable third language:

- French - Portuguese - Spanish

- Italian - Swedish - ...

(further menu languages on request)

The third menu language has to be selected and specified with the order, otherwise standard: French.

The third, freely selectable menu language can be modified to another language by means of the configuration software PC20/PC50. The additional languages can be downloaded from our homepage. ³⁾**Electrical classification hereto:^{4) 5)}**

(Electronics family AI 638 per EC- Certificate of Conformity PTB 00 ATEX 2128)

see Certificates of Conformity EX EVE0105 A

Type of protection "intrinsically safe"Type AI 638 GH II 2 G EEx ia IIB/IIC,
II 2 G EEx ib IIB/IIC

Temperature classes

T4 with explosion protection code EAA

Certificate of Conformity . . . PTB 00 ATEX 2128

For use in hazardous areas in circuits certified as intrinsically safe with the following maximum values:

Input circuit:

U max = 30 V, I max = 130 mA, P max = 0.9 W

Li = negligible, Ci = 1.3 nF (5.3 nF to earth)

Ambient temperature ranges:

Temperature class T4: . . . - 40 °C to + 80 °C

Explosion protection Zone 2

It is recommended to use the positioner with explosion protection "intrinsically safe" (consider temperature class).

In the Federal Republic of Germany these positioners may be operated in Zone 2 with non-intrinsically safe circuits if the operating values do not exceed the maximum reference values. See "Manufacturer's Declaration" on our website for details.

Type of protection FM "intrinsic safety"

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection FM "non-incendive"

Class I, Div. 2, Groups A, B, C, D, F, G;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA "intrinsic safety" *)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

*) In preparation

1) On request we can specify higher voltage limits

2) Worst case conditions 4-20mA, with position feedback option, i/p-output with max. current

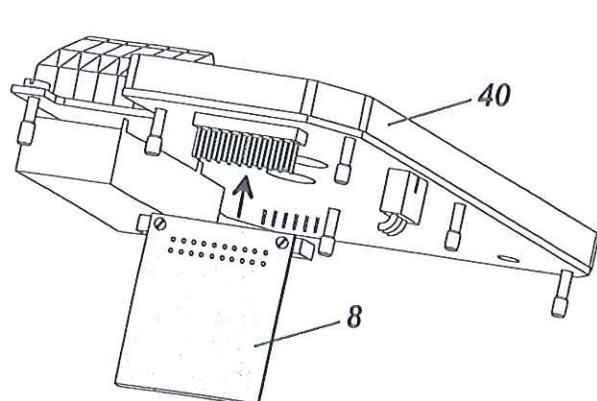
3) With this version "intelligent without communication" this is only possible with EDC82 modem.

4) With appropriate order only

5) National requirements must be observed

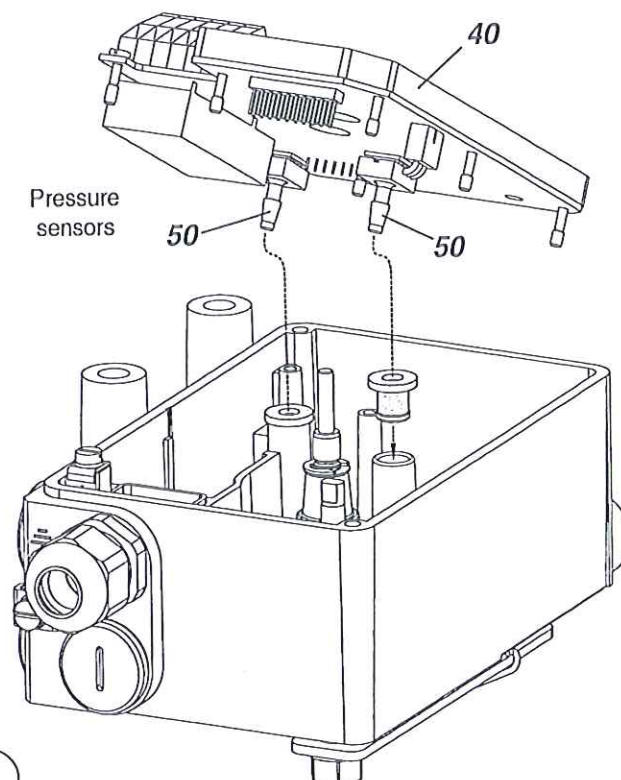
OVERVIEW ADDITIONAL EQUIPMENT

(built into basic device, versions HART, PROFIBUS-PA, FOUNDATION Fieldbus H1, or 4-20 mA)

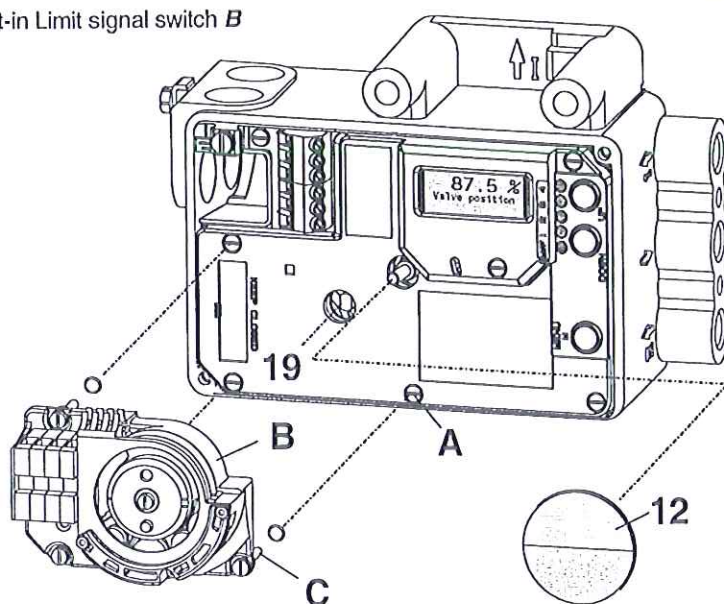


One module "Additional inputs / outputs" **8** can be plugged on main electronics **40**:

- Position feedback or
- 2 Binary outputs or
- 2 Binary inputs



Built-in Limit signal switch **B**



Parts Kits for additional installation of auxiliary functions

Model code Additional inputs / outputs/ Limit signal switch	before HW-Rev. 3.0 conformity acc. to Cenelec, FM and CSA	from HW-Rev. 3.0 conformity acc. to ATEX
Code B: Binary inputs	EW 411 407 273	EW 411 407 325
Code P: Binary outputs	EW 411 407 264	EW 411 407 316
Code Q: 4-20 mA Position feedback	EW 411 407 255	EW 411 407 282
Code T: Limit signal switch, normal version	EW 426 164 012	EW 426 164 012
Code U: Limit signal switch, security version	EW 426 164 021	EW 426 164 021

ADDITIONAL EQUIPMENT built into basic device versions HART, PROFIBUS-PA or FOUNDATION Fieldbus H1 with ATEX approval

Additional Inputs / Outputs:

Two Binary inputs - Code B

(Options for AI 638 per EC- Certificate of Conformity PTB 00 ATEX 2128)

Two independent binary inputs, supplied with the basic device, for connection of external switches.

A connected switch is loaded with 3.5 V, 150 μ A.

The binary inputs can be used for diagnostics or also configurable for the control functions:

Switch 1	Switch 2	Actuator control function
close	close	normal operation
open	close	go to stop at 0 %
close	open	go to stop at 100 %
open	open	hold last position

Klemmen für EB1. A: 13+

B: 14-

EB2. C: 15+

D: 16-

Electrical Classification hereto:

(Electronics family AI 638 per EC- Certificate of Conformity PTB 00 ATEX 2128)

see Certificate of Conformity EX EVE0105 A

Type AI 638 B II 2 G EEx ia IIC T6

Types of protection and temperature classes as basic device.

To this electric circuit only passive electric circuits galvanically separated from earth may be attached.

The electric circuit has the following maximum values:

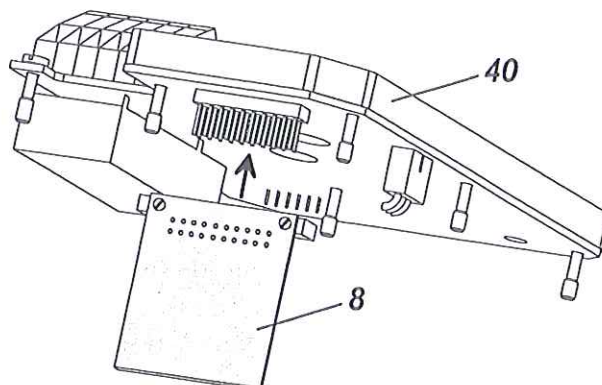
$U_0 = 7.88$ V, $I_0 = 11.4$ mA, $P_0 = 23$ mW

Characteristic is linear

For the maximum values of outer inductances and capacities L_0 and C_0 refer to the following table (L_i and C_i included):

IIC		IIB	
L_0 [mH]	C_0 [μ F]	L_0 [mH]	C_0 [μ F]
100	0.72	100	3.9
10	1.1	10	5.5
1	1.6	1	8.7
0.1	2.7	0.1	15
0.01	4.7	0.01	27

The electric circuits of "2 binary inputs" are galvanically connected with all other circuits but separated from earth.



One module "Additional inputs / outputs" 8 can be plugged on main electronics 40:

- Position feedback or
- 2 Binary outputs or
- 2 Binary inputs

Type of protection FM "intrinsic safety"

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection FM "non-incendive"

Class I, Div. 2, Groups A, B, C, D, F, G;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA "intrinsic safety"

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Additional Inputs / Outputs:**Two binary outputs** (limit signals) - Code P

(Options for electronics family AI 638 per EC- Certificate of conformity PTB 00 ATEX 2128)

Stroke / angle derived from positioner feedback

2 galvanically separated limit signals

Signaling of limit value violation of the measured valve position.

Limit signals / alarms freely configurable via local keys or via communication.

Two-wire system, according to DIN 19234, for external supply.

supply voltage DC 8 ... 36 V ¹⁾²⁾

Logic:

limit value not exceeded . . . < 1 mA

limit value exceeded. > 2.2 mA (typ. 6 mA)

device fault. < 50 µA

configurable as switch output:

limit value not exceeded . . . < 50 µA

limit value exceeded. > 20 mA/20 V / > 40 mA/10 V
(power derated)

Reference: AB1 for upper, AB2 for lower limit

Terminals for AB1 A: 81+

B: 82-

AB2. C: 83+

D: 84-

Electrical classification hereto:

(Electronics family AI 638 per Certificate of Conformity PTB 00 ATEX 2128)

see Certificate of Conformity EX EVE0105 A

Type AI 638 P II 2 G EEx ia IIC T6

Types of protection and temperature classes as basic device.

For use in hazardous areas in circuits certified as intrinsically safe with the following maximum values:

Ui= 16 V, Ii= 80 mA, Pi= 250 mW

Internal capacitance and inductance: Ci= 26 nF, Li= 5 µH

The electric circuits of "2 binary outputs" are galvanically separated from all other circuits and from earth.

Type of protection FM "intrinsic safety"

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection FM "non-incendive"

Class I, Div. 2, Groups A, B, C, D, F, G;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA "intrinsic safety" *)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Additional Inputs / Outputs:**Position feedback 4...20 mA – Code Q**

(Options for electronics family AI 638 per EC- Certificate of conformity PTB 00 ATEX 2128)

Stroke / angle derived from positioner feedback

1 output analog, galvanically separated, two-wire system

according to DIN 19234, for external supply

supply voltage DC 8 ... 36 V ¹⁾²⁾

signal range 3.8 to 21.5 mA

0 % and 100 % configurable

device fault. < 1 mA

Terminals for AI1 C: 31+

D: 32-

1 binary alarm output, galvanically separated, two-wire

system, according to DIN 19234, for external supply

supply voltage external, DC 8 ... 36 V ¹⁾²⁾

Logic no alarm . . . < 1mA

alarm > 2.2 mA

device fault < 50 µA

Terminals for AB1. A: 81+

B: 82-

The binary output for Alarm will be activated in the following cases:

- Remaining control deviation
- Circuit to I/P module is disturbed
- Circuit to potentiometer is disturbed
- Calibration error:
 - no angle calibration
 - no current calibration
- Autostart failed

These pre-settings can be configured via communication¹⁾.

Electrical classification hereto:

(Electronics family AI 638 per Certificate of Conformity PTB 00 ATEX 2128)

see Certificate of Conformity EX EVE0105 A

Type AI 638 0Q II 2 G EEx ia IIC T6

Types of protection and temperature classes as basic device.

For use in hazardous areas in circuits certified as intrinsically safe with the following maximum values:

Ui= 16 V, Ii= 80 mA, Pi= 250 mW

Internal capacitance and inductance: Ci= 26 nF, Li= 5 µH

The electric circuits of "Position feedback 4...20 mA" are galvanically separated from all other circuits and from earth.

Type of protection FM "intrinsic safety"

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection FM "non-incendive"

Class I, Div. 2, Groups A, B, C, D, F, G;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA "intrinsic safety"

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

*) In preparation

1) Other values in hazardous areas

2) On request we can specify higher voltage limits

Built-in Limit Switch

(Options for electronics family AI 638 per EC- Certificate of conformity PTB 00 ATEX 2128)

Inductive Limit Switch

- standard version (SJ2-N) Option T
- security version (SJ2-SN) Option U
- 3-wire (SI2-K08-AP7/ PNP) Option R
- Micro switches Option V *)

Stroke / angle derived from positioner feedback, two-wire system

Output 2 inductive proximity sensors acc. to DIN 19 234 or NAMUR for connection to switching amplifier ¹⁾

Current consumption

vane clear > 2.2 mA

vane interposed < 1 mA

for control circuit with the following electrical values:

supply voltage DC 8 V, R_i approx. 1 kOhm

supply voltage range. DC 5...25 V (only with ZZZ)

residual ripple < 10 % p.p.

permissible

line resistance < 100 Ohms

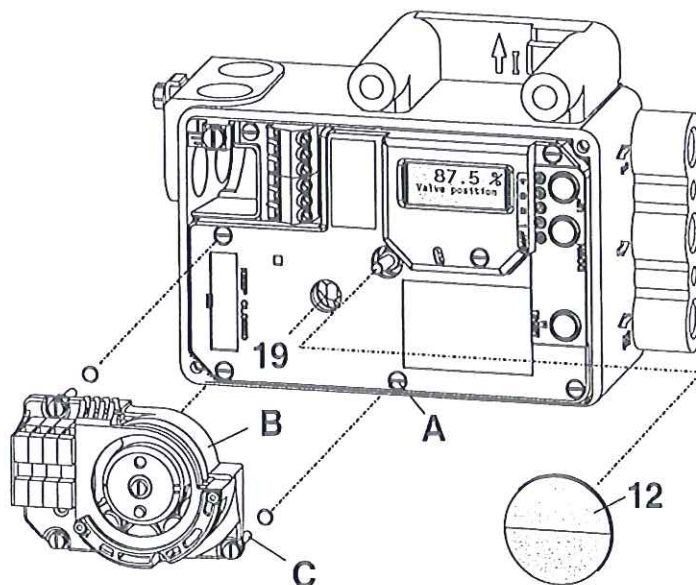
Response characteristic ^{2) 3)}

switching differential < 1 %

switching point repeatability < 0.2 %

Terminals for GW1 41+, 42–

GW2 51+, 52–



Built-in Limit Switch

Electrical classification hereto:

Version "T" and "U":

(Electronics family AI 638 per EC- Certificate of conformity PTB 00 ATEX 2128)

see Certificate of Conformity EX EVE0105 A

Type AI 638 K II 2 G EEx ia IIC T6

Types of protection and temperatur classes as basic device.

For use in hazardous areas in circuits certified as intrinsically safe with the following maximum values:

U_i= 16 V, I_i= 25 mA, P_i= 64 mW

Internal capacitance and inductance: C_i= 30 nF, L_i= 100 µH

The electric circuits of "Built-in Limit Switch" are galvanically separated from all other circuits and from earth.

Type of protection FM "intrinsic safety"

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection FM "non-incendive"

Class I, Div. 2, Groups A, B, C, D, F, G;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA "intrinsic safety"

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

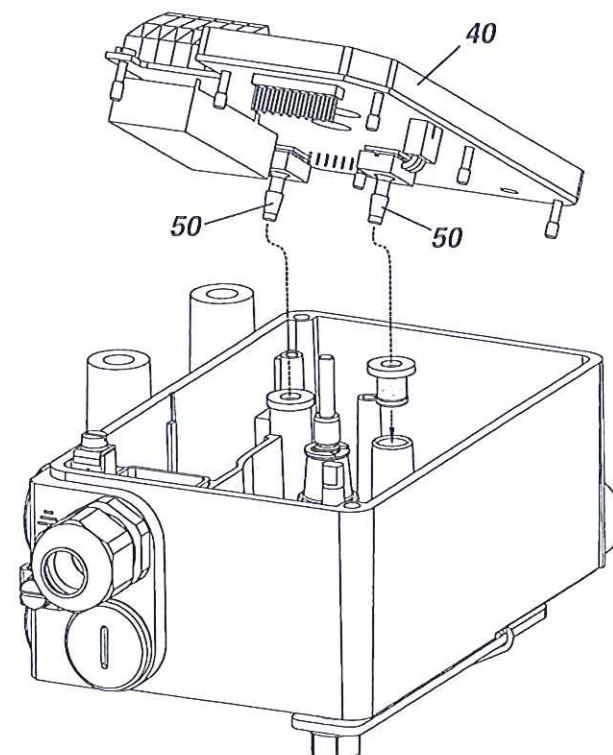
Built-in Pressure sensors, Code Option –B *)

For supply air and output y1 to actuator

Measuring range 0 to 8 bar (0 to 120 psig)

Accuracy 0.5%

Temperature influence 0.5 % / 10k (–40 to 80 °C)



Pressure sensors 50

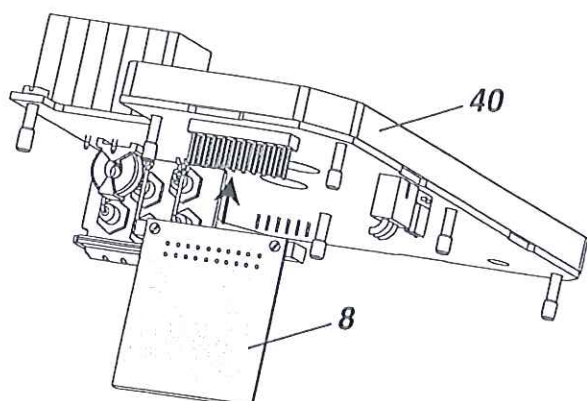
*) In preparation

1) Operating mode min. (= low) / max. (= high) selectable by adjustment of switch vanes

2) Data measured according to VDI/VDE 2177

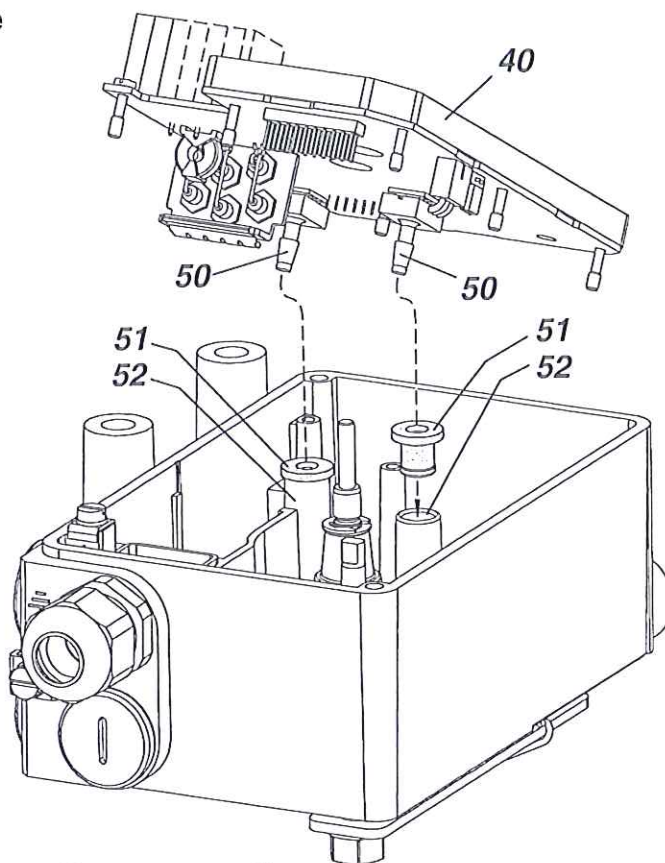
3) With stroke 30 mm and lever length 90 mm

ADDITIONAL EQUIPMENT for basic device with communication FoxCom



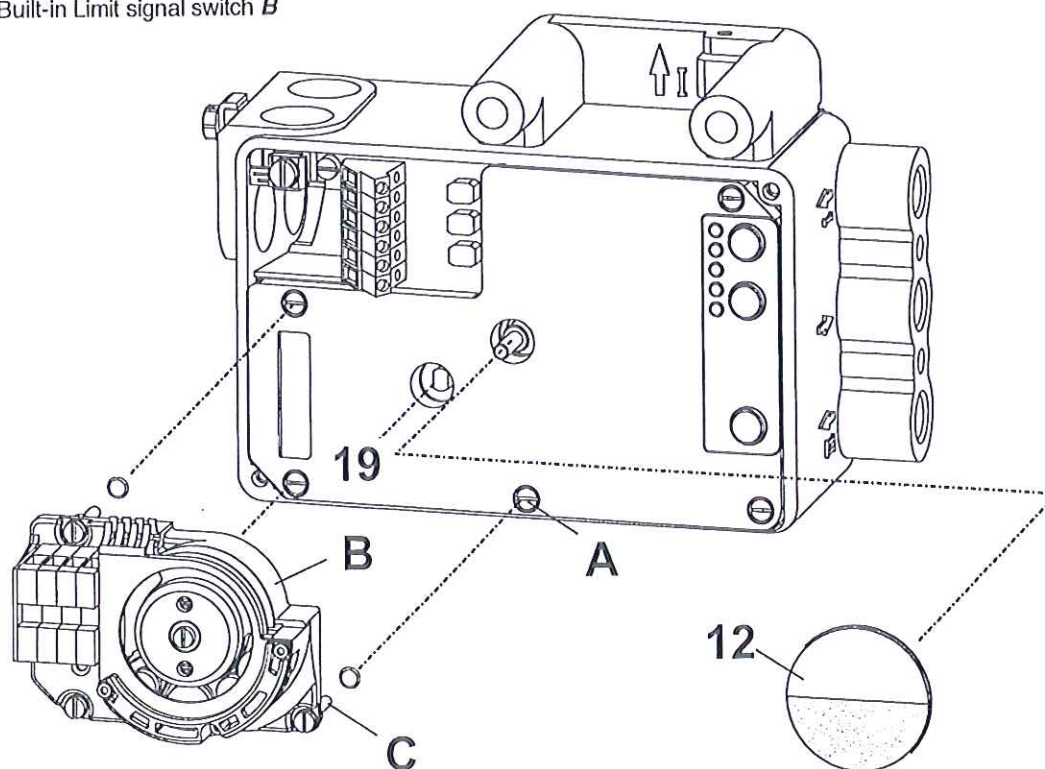
One module "Additional inputs / outputs" **8** can be plugged on main electronics **40**:

- Position feedback or
- 2 Binary outputs or
- 2 Binary inputs



Pressure sensors **50**

Built-in Limit signal switch **B**



ADDITIONAL EQUIPMENT**(built into basic device, version FoxCom with FM / CSA approval)****Additional Inputs / Outputs:**

Two binary outputs (limit signals) - Code P
(Options for electronics family AI 638 per FM 3003731, CSA 1001984 and CSA 1001988)

2 galvanically separated binary outputs

Signaling of limit value violation of the measured valve position, configurable

Two-wire system, according to DIN 19234, for external supply.

supply voltage DC 8 to 36 V ¹⁾²⁾

Logic:

limit value not exceeded . . . < 1 mA

limit value exceeded. > 2.2 mA (typ. 6 mA)

device fault < 50 µA

Reference: AB1 for upper, AB2 for lower limit

Terminals for AB1 81+, 82-

AB2 83+, 84-

Electrical classification hereto:

(Electronics family BIA 637)

see Certificate of Conformity. EX EVE0105 A

Type of protection FM "intrinsic safety"

(Electronics family per FM 3003731)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection FM "non-incendive"

(Electronics family per FM 3003731)

Class I, Div. 2, Groups A, B, C, D, F, G;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA "intrinsic safety"

(Electronics family per CSA 1001984 and CSA 1001988)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X *)

Additional Inputs / Outputs:

Two Binary inputs – Code B

(Options for electronics family AI 638 per FM 3003731, CSA 1001984 and CSA 1001988)

Two independent binary inputs, supplied by basic device, for connection of sensors.

A connected switch is loaded with 3.5 V, 150 µA.

The binary inputs can be used for diagnostics or also configurable for the control functions:

Switch 1	Switch 2	Actuator control function
close	close	normal operation
open	close	go to stop at 0 %
close	open	go to stop at 100 %
open	open	hold last position

Terminals for EB1 13+, 14-

EB2 15+, 16-

Electrical Classification hereto:

(Electronics family BIA 637)

see Certificate of Conformity EX EVE0105

Type of protection FM "intrinsic safety"

(Electronics family per FM 3003731)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection FM "non-incendive"

(Electronics family per FM 3003731)

Class I, Div. 2, Groups A, B, C, D, F, G;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA "intrinsic safety"

(Electronics family per CSA 1001984 and CSA 1001988)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X *)

*) In preparation

1) Other values in hazardous areas

2) On request we can specify higher voltage limits

Additional Inputs / Outputs:**Position feedback 4...20 mA – Code Q**

(Options for electronics family BIA 637 per FM 3003731, CSA 1001984 and CSA 1001988)

Stroke / angle derived from positioner feedback

1 output analog, galvanically separated, two-wire system according to DIN 19234, for external supply

supply voltage DC 8 to 36 V ¹⁾²⁾

signal range 3.8 to 21.5 mA

0 % and 100 % configurable

device fault < 1 mA

Terminals for AI1 31+, 32–

1 binary alarm output, galvanically separated, two-wire system, according to DIN 19234, for external supply

supply voltage external, DC 8 to 36 V ¹⁾²⁾

Logic no alarm . . . < 1 mA

alarm > 2.2 mA

device fault < 50 µA

Terminals for AB1 81+, 82–

The binary output for Alarm will be activated in the following cases:

- Remaining control deviation
- Circuit to I/P module is disturbed
- Circuit to potentiometer is disturbed
- Calibration error:
 - no angle calibration
 - no current calibration
- Autostart failed

(These pre-settings can be configured via communication)

Electrical classification hereto:

(Electronics family BIA 637)

see Certificate of Conformity EX EVE0105 A

Type of protection “intrinsic safety”

(Electronics family per FM 3003731)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection FM “non-incendive”

(Electronics family per FM 3003731)

Class I, Div. 2, Groups A, B, C, D, F, G;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA “intrinsic safety”

(Electronics family per CSA 1001984 and CSA 1001988)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X *)

Additional Inputs / Outputs:**Built-in Limit Switch**

(Options for electronics family BIA 637 per FM 3003731, CSA 1001984 and CSA 1001988)

Inductive Limit Switch

– standard version (SJ2-N) Option T

– security version (SJ2-SN) Option U

– 3-wire (SI2-K08-AP7/ PNP) Option R

– Micro switches Option V *)

Stroke / angle derived from positioner feedback, two-wire system

Output 2 inductive proximity sensors acc. to DIN 19 234 or NAMUR for connection to switching amplifier ³⁾

Current consumption

vane clear > 2.2 mA

vane interposed < 1 mA

for control circuit with the following electrical values:

supply voltage DC 8 V, R_i approx. 1 kOhm

supply voltage range . . . DC 5 to 25 V (only with ZZZ)

residual ripple < 10 % p.p.

permissible

line resistance < 100 Ohms

Response characteristic ⁴⁾⁵⁾

switching differential < 1 %

switching point repeatability < 0.2 %

Terminals for GW1 41+, 42–

GW2 51+, 52–

Electrical classification hereto:

(Electronics family BIA 637)

see Certificate of Conformity EX EVE0105 A

Type of protection FM “intrinsic safety”

(Electronics family per FM 3003731)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection FM “non-incendive”

(Electronics family per FM 3003731)

Class I, Div. 2, Groups A, B, C, D, F, G;

hazardous locations indoor and outdoor, NEMA Type 4X

Type of protection CSA “intrinsic safety”

(Electronics family per CSA 1001984 and CSA 1001988)

Class I, Div. 1, Groups A, B, C, D;

hazardous locations indoor and outdoor, NEMA Type 4X *)

Built-in Pressure sensors, Code Option –B *)

For supply air and output y1 to actuator

Measuring range 0 to 8 bar (0 to 120 psig)

Accuracy 0.5%

Temperature influence 0.5 % / 10k (–40 to 80 °C)

*) In preparation

1) Other values in hazardous areas

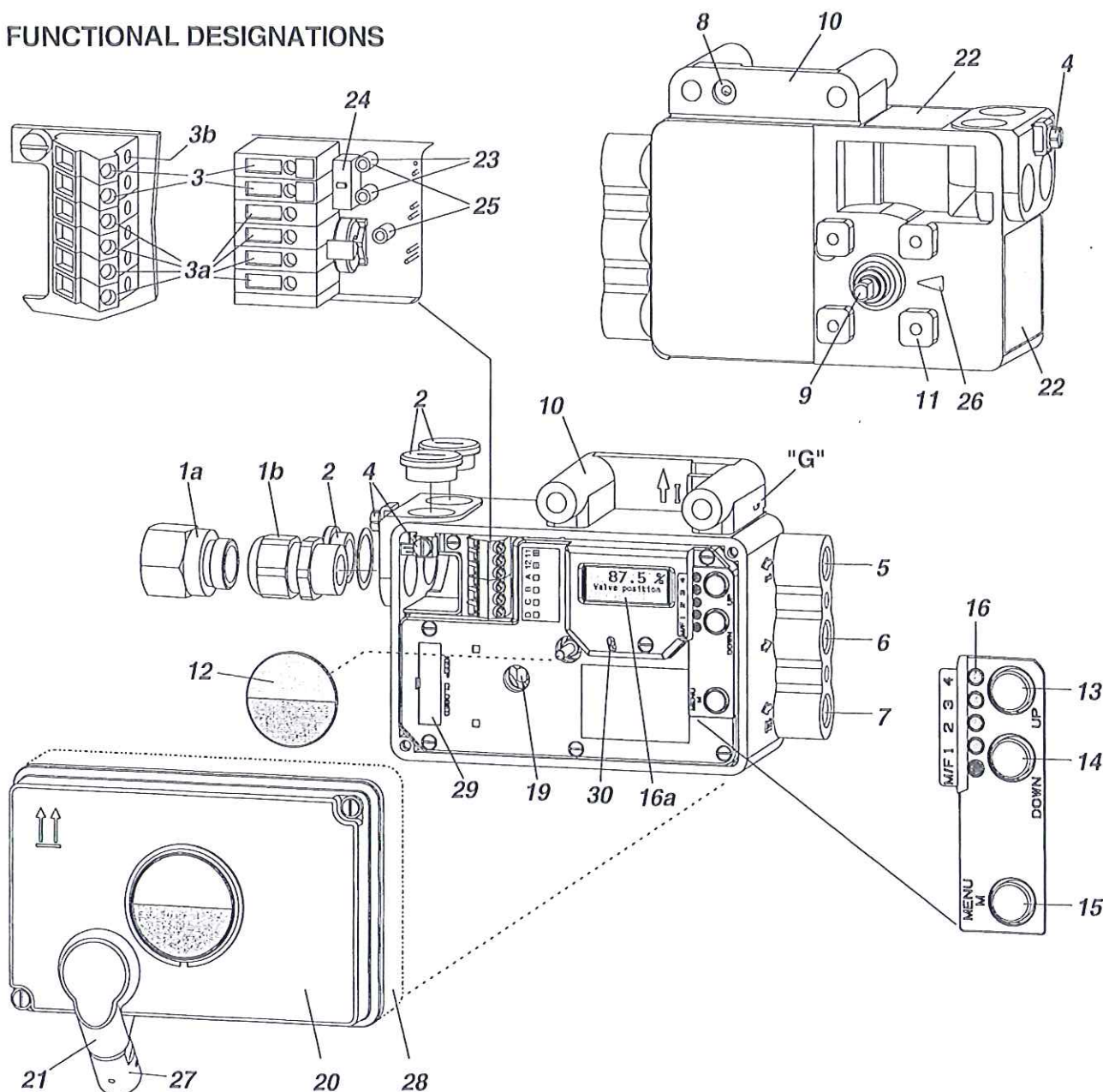
2) On request we can specify higher voltage limits

3) Operating mode min. (= low) / max. (= high) selectable by adjustment of switch vanes

4) Data measured according to VDI/VDE 2177

5) With stroke 30 mm and lever length 90 mm

FUNCTIONAL DESIGNATIONS



1a Adapter, eg. 1/2"-14 NPT

1b Cable gland

2 Plug, interchangeable with Pos.1

3 Screw terminals ¹⁾ (11 / 12) for input (w) or for bus connection IEC 1158-2 ³⁾

3a Screw terminals ¹⁾ for additional inputs / outputs

3b Test sockets Ø 2 mm, integrated in terminal block

4 Ground connection

5 Female thread ⁵⁾ 1/4 -18 NPT or output I (y1)

6 Female thread ⁵⁾ 1/4 -18 NPT for air supply (s)

7 Female thread ⁵⁾ 1/4 -18 NPT or output II (y2)

8 Direct attachment hole for output I (y1)

9 Feedback shaft

10 Connection manifold for attachment to stroke actuators (not with VDI/VDE 3847 version)

11 Connection base for attachment to rotary actuators

12 Travel indicator

13 Key UP

14 Key DOWN

15 Key M (Menu)

16 Status display (1 red LED, 4 green LEDs)

16a LCD with true text in 3 different languages

19 Fixing shaft for limit switch

20 Cover with window to 12

21 Air vent, dust and water protected

22 Data label

23 Tip jacks ²⁾ Ø 2 mm for current measurement

24 Switch ²⁾ for current measurement

25 Tip jacks ²⁾ Ø 2 mm for communication

26 Arrow is perpendicular to shaft 9 at angle 0 degree

27 Ball valve for protection class NEMA 4X

28 High cover with built-in limit switch

29 Plug for service connector ³⁾

30 IrCom interface

G) With marked letter "G" in the housing the pneumatic connecting threads are cut as G 1/4 instead of 1/4-18 NPT

1) Alternatively WAGO terminals instead of screw terminals

2) Only FoxCom version

3) Not with FoxCom version

MODEL CODES SRD991

Intelligent Positioner		SRD991
VERSION		
Single Acting	-B	
Double Acting	-C	
Input/Communication		
Intelligent without communication (4 - 20 mA)	D	
HART Communication (4 - 20 mA)	H	
FoxCOM Communication (4 - 20 mA/IT1)	E	
FoxCOM Communication (Digital/IT2)	F	
PROFIBUS-PA (acc. to FISCO)	P	
FOUNDATION Fieldbus H1 (incl. PID-Function Block, acc. to FISCO)	Q	
Additional Inputs/Outputs		
Prepared For Additional In-/Outputs	N	
Without Additional Inputs / Outputs (e)(q)	M	
Two Binary Outputs (a)	P	
Position Feedback 4 - 20 mA (a)	Q	
Binary Inputs (a)	B	
Sensor Input (b)	C	
Potentiometer Input (b)	D	
Built-In Limit Switch		
Without Built-In Limit Switch	S	
Inductive Limit Switch - Intrinsic Safe (Standard Version SJ2-N)(a)	T	
Inductive Limit Switch - Intrinsic Safe (Security Version SJ2-SN)(a)	U	
Inductive Limit Switch - Three wire version (b)	R	
Mechanical Switches (Micro-Switches) (b)	V	
Cable Entry		
M20 x 1.5 Without Cable Gland	1	
1/2"-14 NPT (with Adapter(s) M20x1,5 to 1/2"-14 NPT)	6	
M20 x 1.5 With One Plastic Cable Gland	7	
Electrical Classification		
Without Ex.	ZZZ	
EEx ia IIC T4 [according to ATEX: (c)(h)][according to CENELEC: (e)(p)(t)]	EA4	
II 2 G EEx ia/Ib IIB/IIC T4/T6 and II 2 G EEX nA/L IIB/IIC according to ATEX (d)(h)	EAA	
FM Nonincendive For Class I, Division 2, Groups A, B, C, D, Hazardous Locations Indoors And Outdoors, NEMA 4X	NFM	
FM Approved For Intrinsic Safety Class I, Division 1, Groups A, B, C, D, Hazardous Locations Indoors And Outdoors, NEMA 4X	FAA	
CSA Approved For Intrinsic Safety Class I, Division 1, Groups A, B, C, D, Hazardous Locations Indoors And Outdoors, NEMA 4X	CAA	
GOST Approved For Intrinsic Safety (b)	GAA	
Attachment Kit		
Order as Auxiliary	N	
Manifold		
Order as Auxiliary	A	
OPTIONS		
(continued on next page)		

MODEL CODES SRD991 (continued)**OPTIONS**

Two Built-In Pressure Sensors For Supply Air And Output To Actuator Y1 . . . (f)(b)	-B
Infrared Interface For Communication By Means Of IRCOM . . . (s)	-I
Pneumatical Connections G 1/4 instead of 1/4-18 NPT	-P
Pneumatic Amplifier in the Version "Spool Valve" (n)	-S
Custom Configuration	-T
Version of Positioner according to VDI/VDE 3847(m) (g)(m)	-N
LCD with Menu-Language in English / German / French . . . (j)(k)(h)	-V01
LCD with Menu-Language in English / German / Spanish . . . (j)(k)(h)	-V02
LCD with Menu-Language in English / German / Portuguese . . (j)(k)(h)	-V03
LCD with Menu-Language in English / German / Polish . . . (j)(k)(h)	-V04
LCD with Menu-Language in English / German / Czech . . . (j)(k)(h)	-V05
LCD with Menu-Language in English / German / Italian . . . (j)(k)(h)	-V06
LCD with Menu-Language in English / German / Turkish . . (b)(j)(k)(h)	-V07
LCD with Menu-Language in English / German / Swedish . . (j)(k)(h)	-V08
LCD with Menu-Language in English / German / Finnish . . . (j)(k)(h)	-V09
LCD with Menu-Language in English / German / Chinese . . (b)(j)(k)(h)	-V10
LCD with Menu-Language in English / German / Russian . . . (j)(k)(h)	-V11
LCD with Menu-Language in English / German / Hungarian . . (j)(k)(h)	-V12
LCD with Menu-Language in English / German / Serbian . . . (j)(k)(h)	-V13
LCD with Menu-Language in English / German / Dutch . . . (j)(k)(h)	-V14
Tag No. Labeling	
Stamped With Weather Resistant Color	-G
Stainless Steel Label Fixed With Wire	-L

(a) Not available with Electrical Classification CAA

(b) Not released

(c) Only with Input/Communication D, H

(d) Only with Input/Communication H, P and Q

(e) Not with Input/Communication D, P and Q

(f) Not available with Input/Communication D, H in connection with Electrical Classification EA4

(g) on request

(h) Not in connection with additional Inputs/Outputs M

(j) Not available with Electrical Classification CAA

(k) Not with Input/Communication E and F

(m) In addition select one Mounting-Adapter EBZG -N1 to -N4

(n) Only with Version -C

(p) Not with Input/Communication D, H

(q) Not available with Input/Communication D, H in connection with Electrical Classification ZZZ

(s) Only available with Optional Feature LCD (-V01 to -V14)

(t) After 1. July 2003 in the region of validity for ATEX this version with Electrical Classification acc. to CENELEC is only available as a spare part

Accessories, for all basic devices:**Booster relay, Code LEXG - ...**

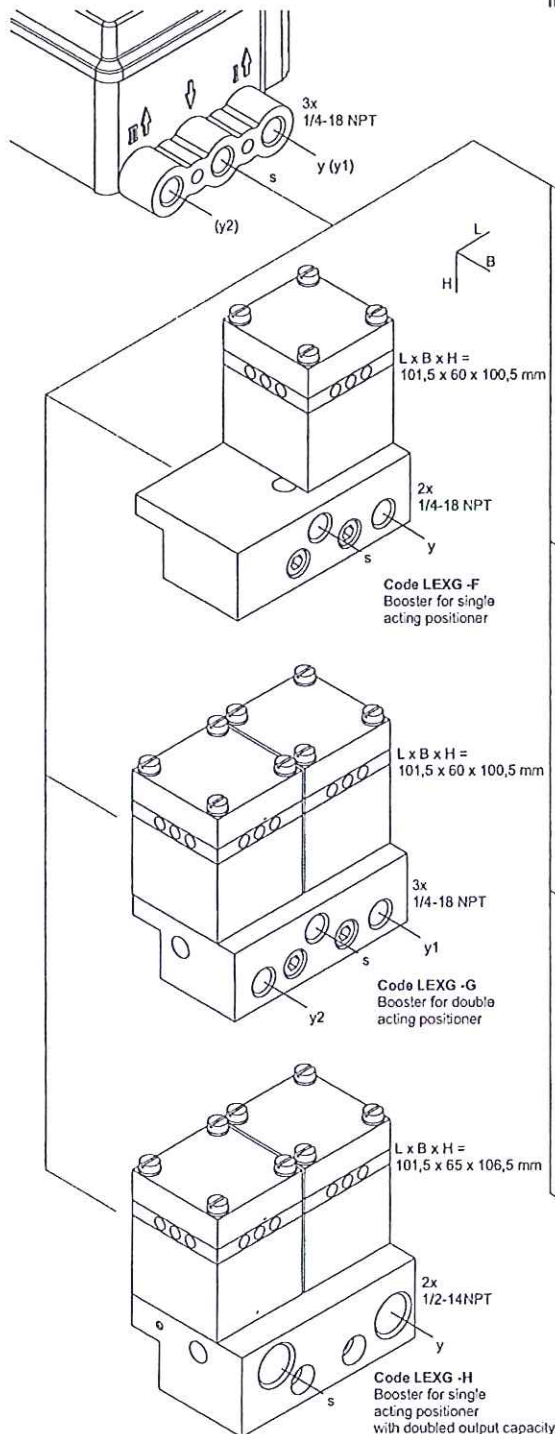
Air output see table on page 4

Lateral attachment to positioner, connection 1/4 -18 NPT:

- LEXG -F Booster relay for version single acting
- LEXG -G Booster relay for version double acting
- LEXG -H Booster relay for version single acting, with doubled output capacity

Lateral attachment to positioner, connection G1/4, G1/2:

- LEXG -F1 Booster relay for version single acting
- LEXG -G1 Booster relay for version double acting
- LEXG -H1 Booster relay for version single acting, with doubled output capacity

**Booster relay, Code LEXG - ...**

Air output see table on page 4

Mounted independent from positioner, connection from positioner to booster with tubes

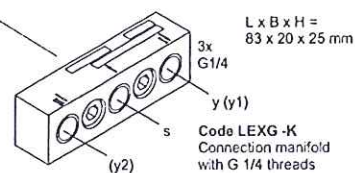
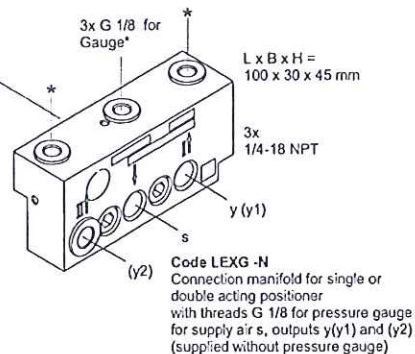
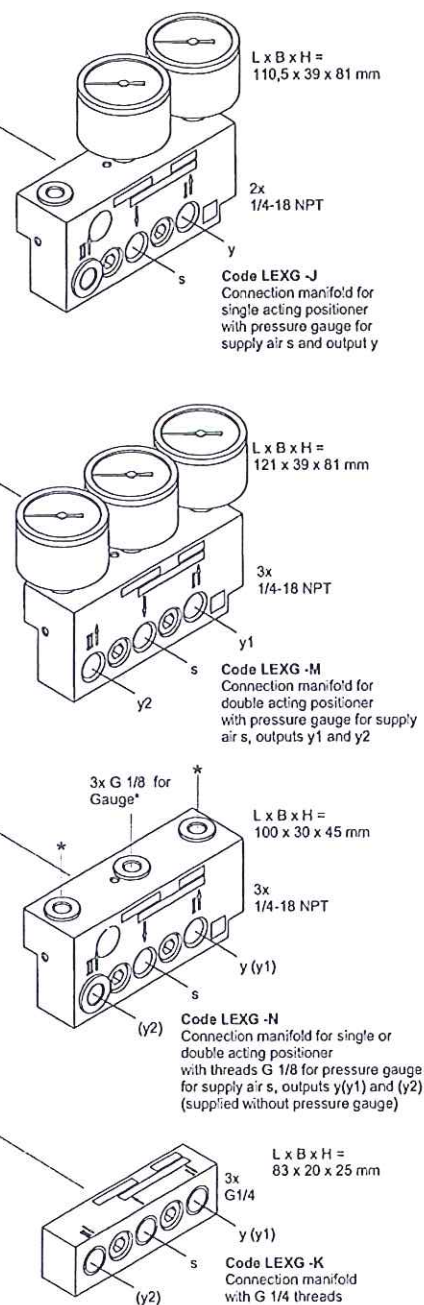
- LEXG -X1 Booster relay for version single acting
- LEXG -Y1 Booster relay for version double acting
- LEXG -Z1 Booster relay for version single acting, with doubled output capacity

Gauges manifold, Code LEXG -J, -M

Lateral attachment to positioner

with 2 or 3 gauges Accuracy class 1.6

Indicating range 0 to 10 bar (0 to 150 psig)



* Unused threads for pressure gauge are closed by means of lock screw Part No. 425 024 013.

Model Codes Accessories

Accessories for intelligent Positioners

Cable Gland	BUSG
M20 x 1.5 stainless steel	-S6
M20 x 1.5 plastics, color gray	-K6
M20 x 1.5 plastics, color blue	-K7
M20 x 1.5 plastics, color white	-K9
M20 x 1.5 HF-cable gland for Fieldbus	-P4
M20 x 1.5 Plug-connector for Fieldbus (ss / threaded connection 7/8 - UN)	-F2
M20 x 1.5 Plug-connector for Fieldbus (ss / threaded connection M12)	-P3
M20 x 1.5 stainless steel EEx d	-S7
M20 x 1.5 brass zink plated EEx d	-S8
1/2-14 NPT cable gland 6...12 mm, Stainless steel, EEx d	-N1
1/2-14 NPT cable gland 6...12 mm, Steel zink plated, EEx d	-N2
1/2-14 NPT, brass zink plated, EEx d	-N3
M20 x 1.5 Plug, plastic	-V3
M20 x 1.5 Plug, EEx d / explosionproof certified, stainless steel	-V4
1/2-14 NPT Plug, EEx d / explosionproof certified, stainless steel	-V5
M20 x 1.5 Plug, brass zink plated, EEx d	-V6
1/2-14 NPT Plug, brass zink plated, EEx d	-V7
Adapter	AD
Adapter 1/2" NPT to 3/4" NPT (stainless steel)	-A3
Adapter M20 x 1.5 to 1/2" - 14 NPT (internal thread) (stainless steel)	-A6
Adapter M20 x 1.5 to PG13.5 (internal thread) (stainless steel)	-A7
Adapter M20 x 1.5 to G1/2" (internal thread) (stainless steel)	-A8
Adapter (plastic) M20 x 1.5 to PG13.5 (internal thread)	-A9
Manifold (1/4-18 NPT connection)(for SRD960, SRD991, SRD992 and SRI990)	LEXG
With Connection G 1/4	-K
Gauges Manifold (1/4 - 18 NPT connection)(for SRD991, SRD992 and SRI990)	
Without gauges	-N
With gauges for Version single acting	-J
With gauges for Version double acting	-M
Booster Relay (for SRD960, SRD991, SRD992 and SRI990)	
With connection 1/4 - 18 NPT for Version single acting	-F
With connection 1/4 - 18 NPT for Version double acting	-G
With connection 1/2 - 18 NPT for Version single acting with doubled output capacity	-H
Options	LEXG
Pneumatic connections in G1/4 instead of 1/4-18 NPT (only for LEXG-N, -J, -M, -F, G)	-P
Pneumatic connections in G1/4 instead of 1/2-14 NPT (only für LEXG-H)	-Q
Example: LEXG-N LEXG-P = Gauges manifold, without gauges, connections in G1/4 instead of 1/4-18 NPT	
Manifolds (for SRP981 and SRI986 with 1/4-18 NPT connection)	LEXG
Staggered connections (for SRP981, SRI986)	-BN
Connections same level (for SRP981, SRI986)	-CN
With gauges for supply air, y, for version single acting (for SRP981, SRI986)	-JN
With gauges for supply air, y1, y2, for version double acting (for SRP981, SRI986)	-MN
Gauge manifold without gauge (for SRP981, SRI986)	-RN
Gauge manifold without gauge, for supply air, y1, y2, for version double acting (for SRP981, SRI986)	-SN
Booster Relay (for SRP981 and SRI986 with 1/4-18 NPT connection)	VKXG
For version single acting (for SRP981, SRI986)	-FN
For version double acting (for SRP981, SRI986)	-GN
For version single acting with doubled output capacity (for SRP981, SRI986)	-HN

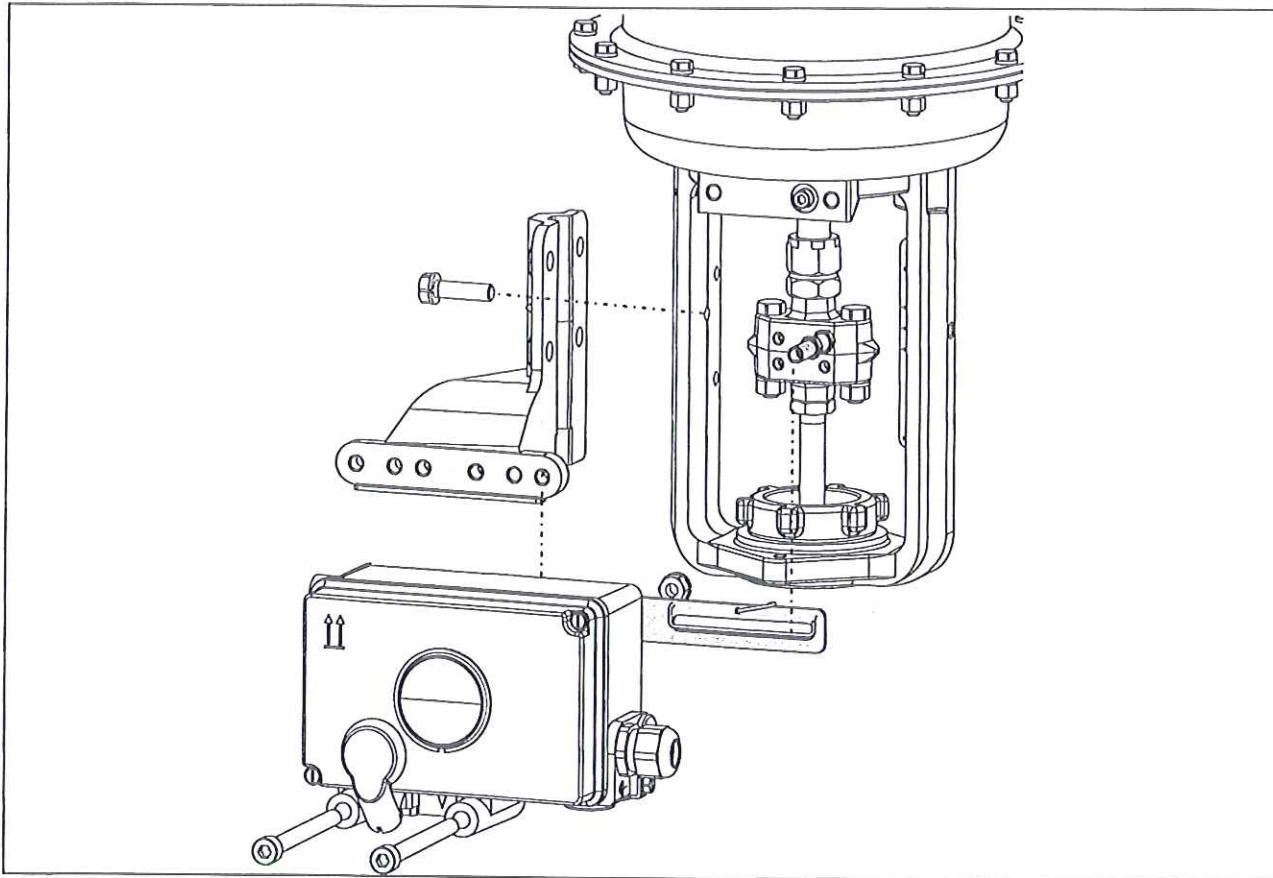
(continued next page)

Model Codes Accessories (continued)

Standard Attachment Kits for SRD991, SRD992, SRI990 and SRD960		EBZG
For diaphragm actuators with casting yoke acc. NAMUR (IEC 534-6):		
Attachment Kit (incl. standard Couple lever)		-H
Attachment Kit (incl. standard Couple lever) with installed height 80 mm / 3.15 in		-H1
For diaphragm actuators with pillar yoke acc. NAMUR (IEC 534-6):		
Attachment Kit (incl. standard Couple lever)		-K
Attachment Kit (incl. standard Couple lever) with installed height 80 mm / 3.15 in		-K1
For diaphragm actuators with casting yoke or pillar yoke acc. NAMUR (VDI/VDE 3847) to interface at actuator *):		
Attachment Kit without gauges, with feedback-lever		-N1
Attachment Kit prepared for gauges, with feedback-lever		-N2
Attachment Kit with gauges (supply/Y1), with feedback-lever		-N3
Attachment Kit with gauges (supply/Y1/Y2), with feedback-lever.		-N4
For mounting to rotary actuators acc. VDI/VDE 3845		
For mounting without bracket		-R
for Schmidt Armaturen		
For FlowTop / FlowPak (SRD991, SRD992, SRI990)		-E
For FlowTop / FlowPak (SRD960)		-E1
Couple Lever for SRD...		
Reduced (stroke 0 ... 8 mm)		-A2
Standard (stroke 8... 70 mm)		-A
Extended (stroke 60...120 mm)		-B
Extended XL (stroke 110...260 mm)		-A1
Standard Attachment Kits for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985		
For diaphragm actuators with casting yoke acc. NAMUR. (incl. standard Couple lever) (for SRI986)		-HN
For diaphragm actuators with pillar yoke acc. NAMUR (incl. standard Couple lever) (for SRI986).		-KN
For rotary actuators, without flange, 3 drill holes 6.5 mm (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985)		-PN
For rotary actuators, without flange, 4 threads M6 (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985)		-NN
For rotary actuators, with flange (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985)		-JN
For rotary actuators acc. to VDI/VDE 3845, with shaft (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985).		-ZN
For Masoneilan type Camflex II (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985).		-RN
Couple Lever for SRP...		
Standard (a = 72 mm) (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985)		-AN
Extended (a = 91 mm) (for SRP981, SRI983, SRI986, SMP981, SMI983, SGE985)		-BN
Cam for SRP...		
Inverse equal percentage cam for rotary actuators (for SRP981, SRI983, SRI986)		-CN
Mounting brackets for attachment to rotary actuators acc. to VDI/VDE 3845 for all positioners		
Attachment dimension at actuator: A= 80 mm / Pivot height: B= 20 mm		-C1
Attachment dimension at actuator: A= 80 mm / Pivot height: B= 30 mm		-C2
Attachment dimension at actuator: A=130 mm / Pivot height: B= 50 mm		-C3
Range springs for SRP...		FESG
Range Springs (4 pc.) (for SRP981, SRI983, SRI986)		-FN
Special Attachment Kits (attachment kits deviating from above indicated standards) *):		
ARCA		
Research Control Valves - Badger Meter		
Fisher-Emerson (Typ 657/667, 3024S, 1250, 1051, 1052, 1061)		
Hagan.		
Ingersoll Rand.		
Kämmer - Flowserve		
Kinetrol		
Masoneilan (Typ 35 Camflex II, 47/48 Sigma-F, 37/38, 87/88, 28 VariPak, Paramax)		
Samson		
Schmidt Armaturen - Flowserve (Typ FoxPak / FoxTop)		
Sereg - Flowserve (Typ Maxflo, Reglob, Revca).		
Valtek - Flowserve (Mark-Serie)		
VETEC		
Worcester - Flowserve		
*) We recommend to contact our field service before selection of these mounting kits.		
Further Attachment kits on request. See also http://www.foxboro-eckardt.com /Products /Positioners /Attachment kits		

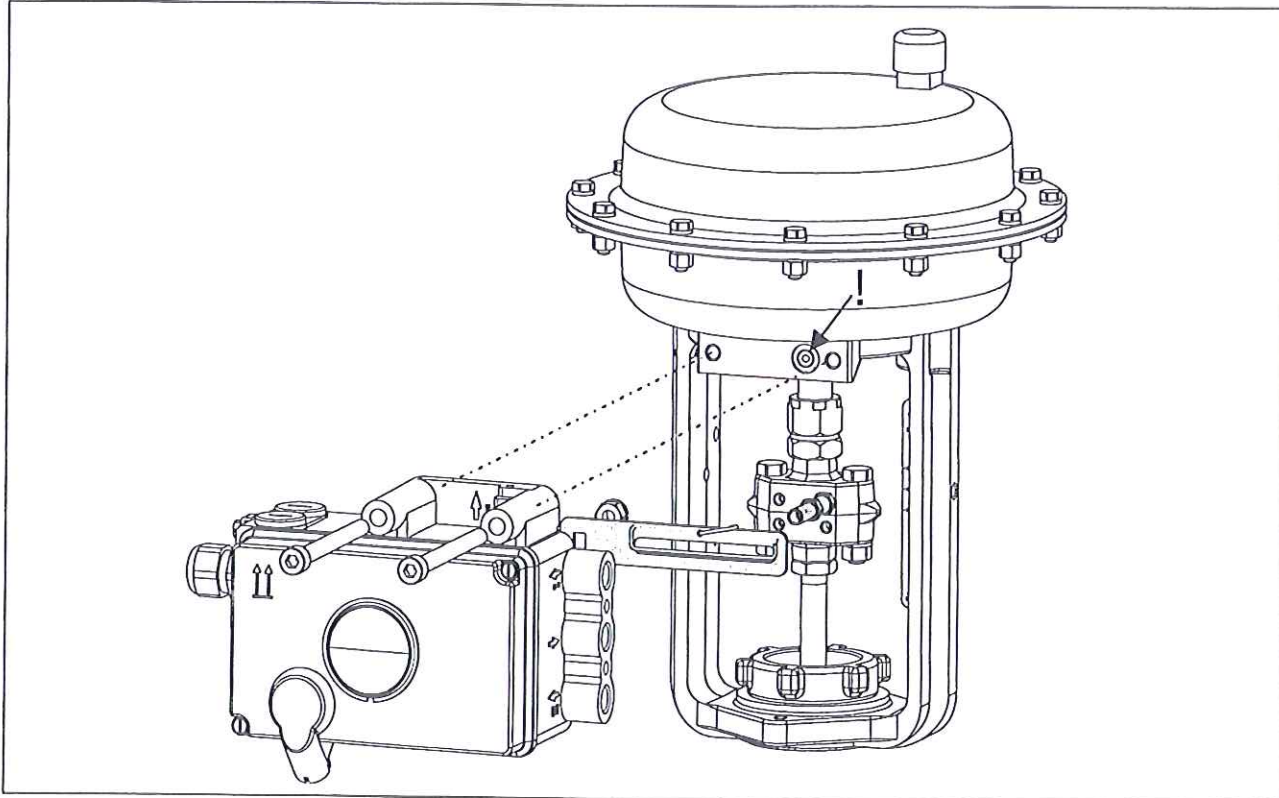
MOUNTING TO LINEAR ACTUATORS

Attachment to stroke actuators acc. to IEC 534-6 (NAMUR), left hand



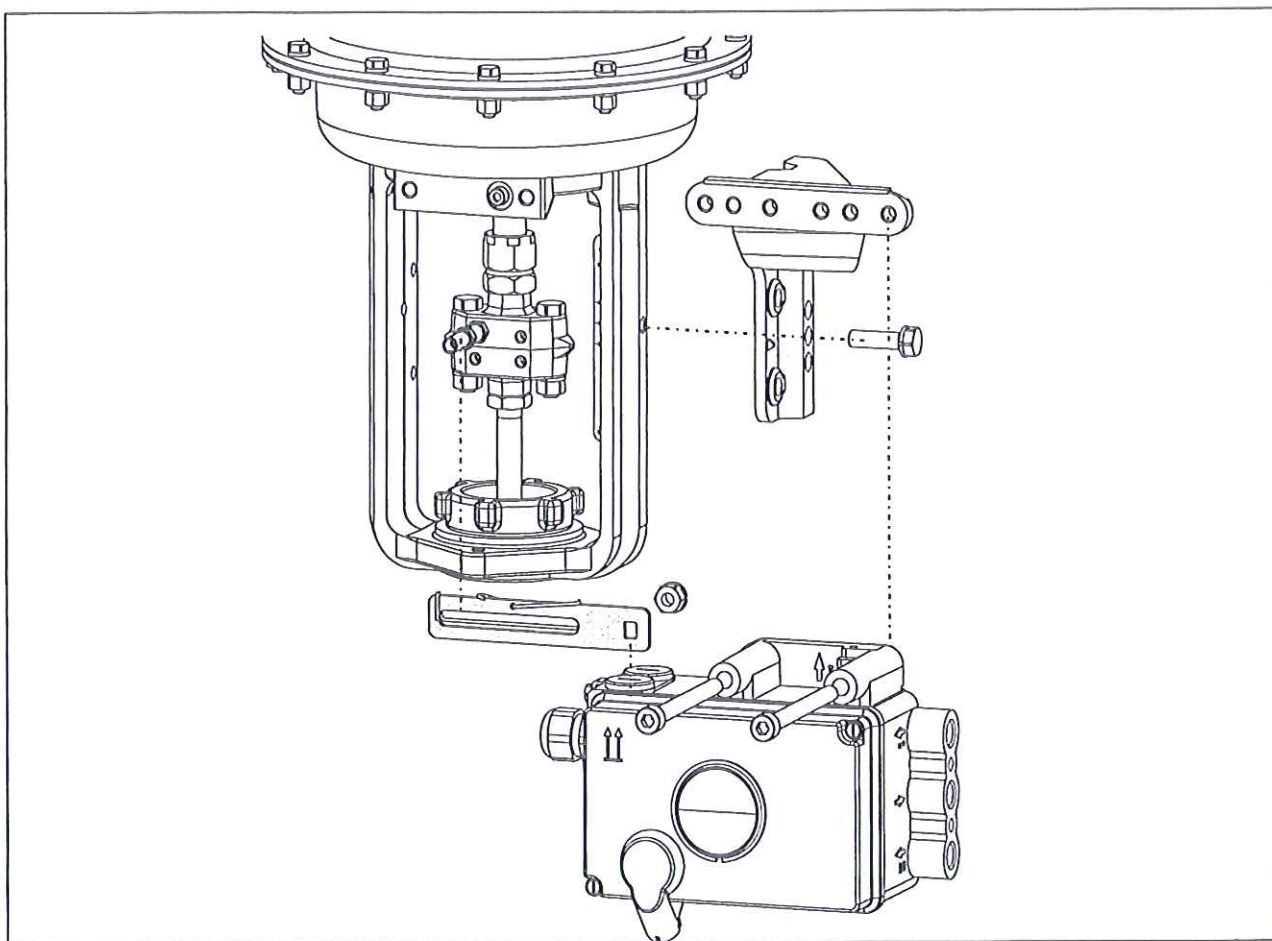
MOUNTING TO LINEAR ACTUATORS

Direct attachment to stroke actuators



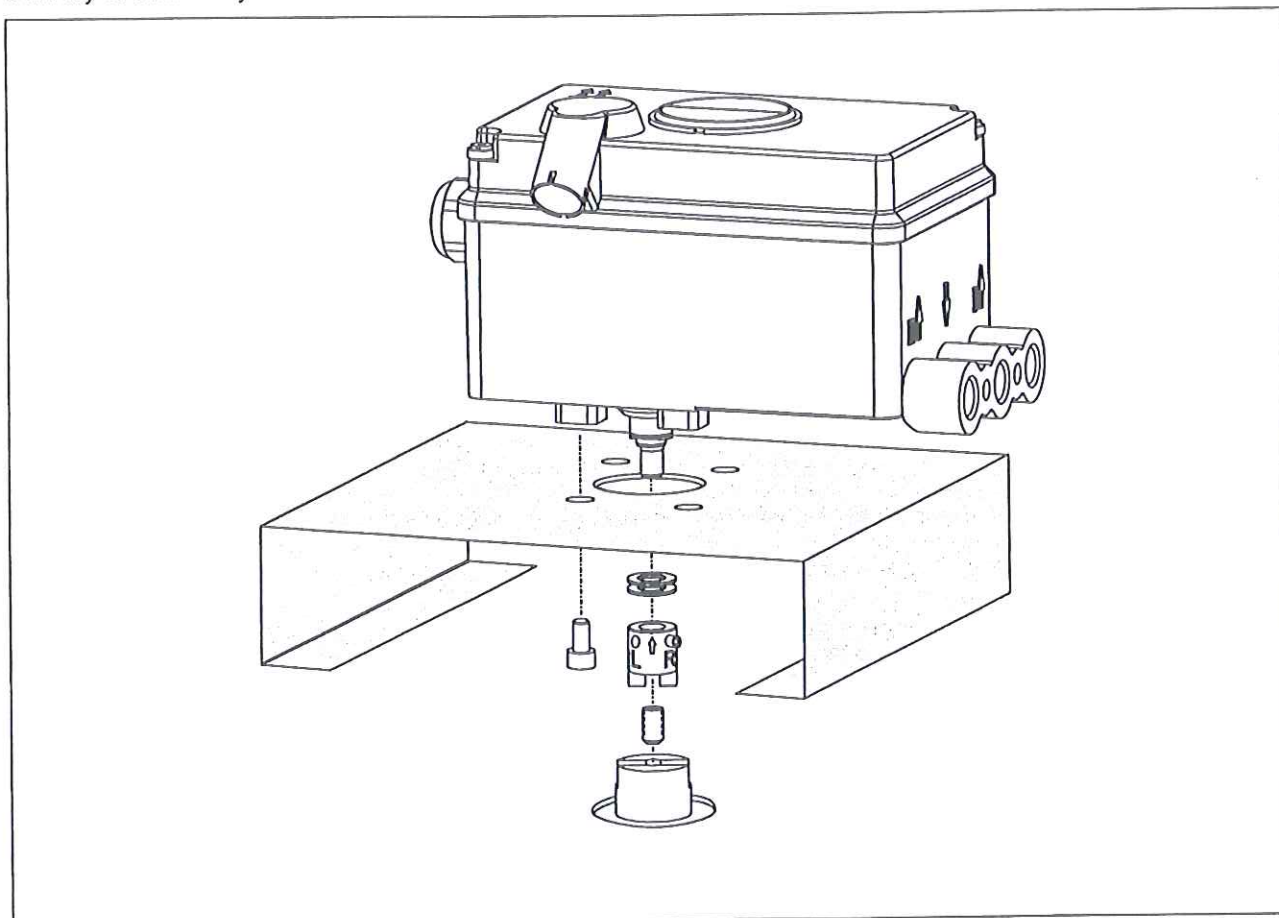
MOUNTING TO LINEAR ACTUATORS

Attachment to stroke actuators acc. to IEC 534-6 (NAMUR), right hand

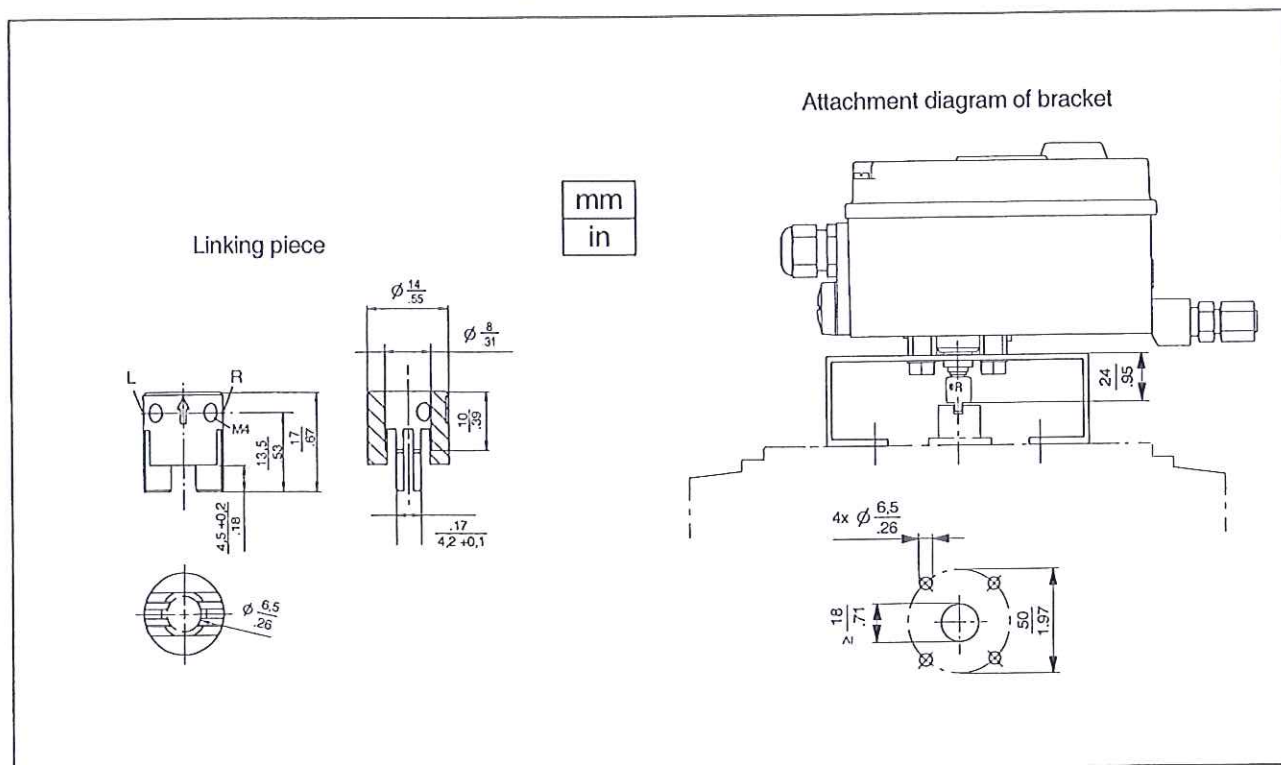


MOUNTING TO ROTARY ACTUATORS

Delivery of bracket by manufacturer of actuator

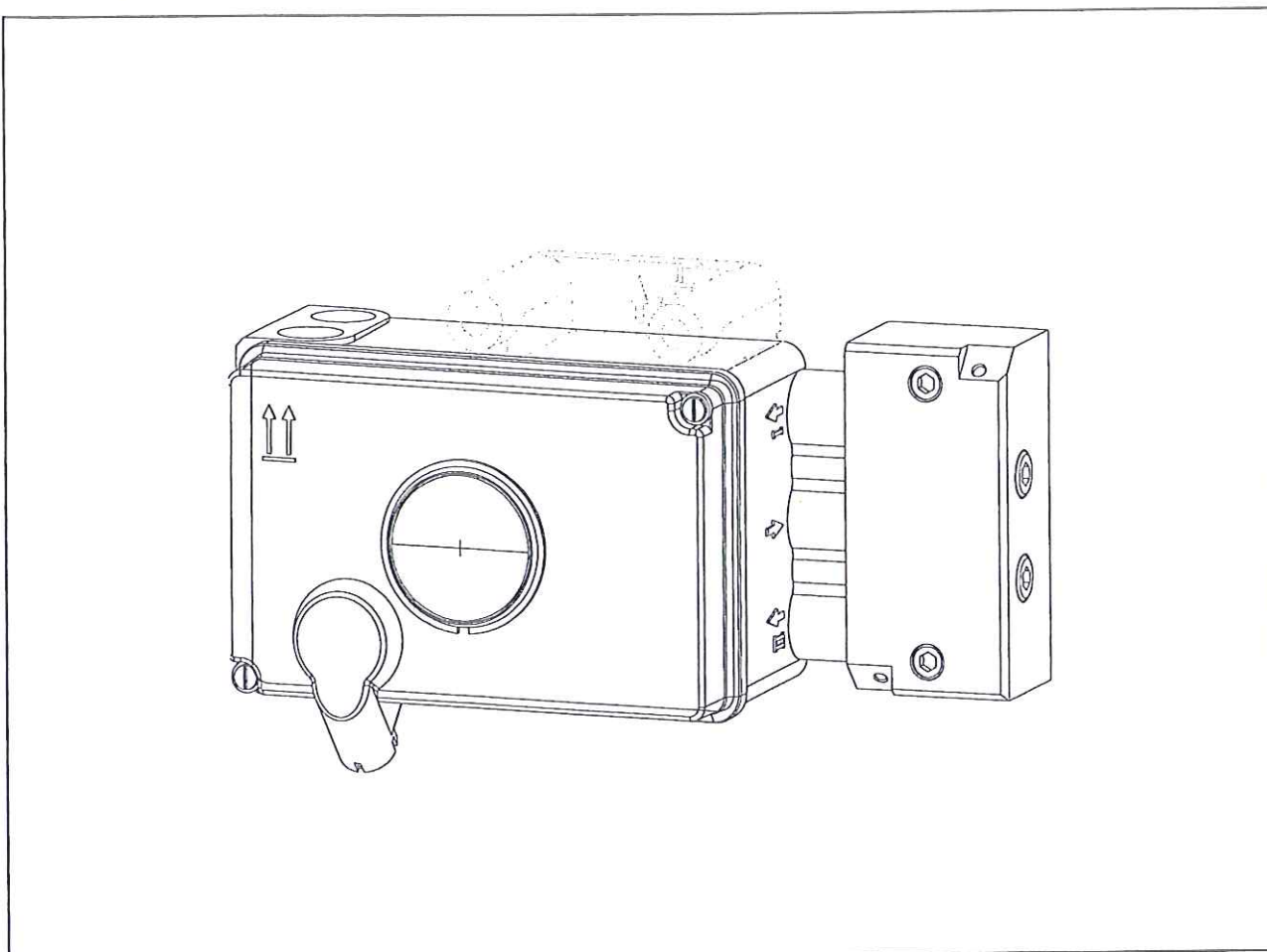


DIMENSIONS – Attachment to rotary actuators acc. to VDI/VDE 3845

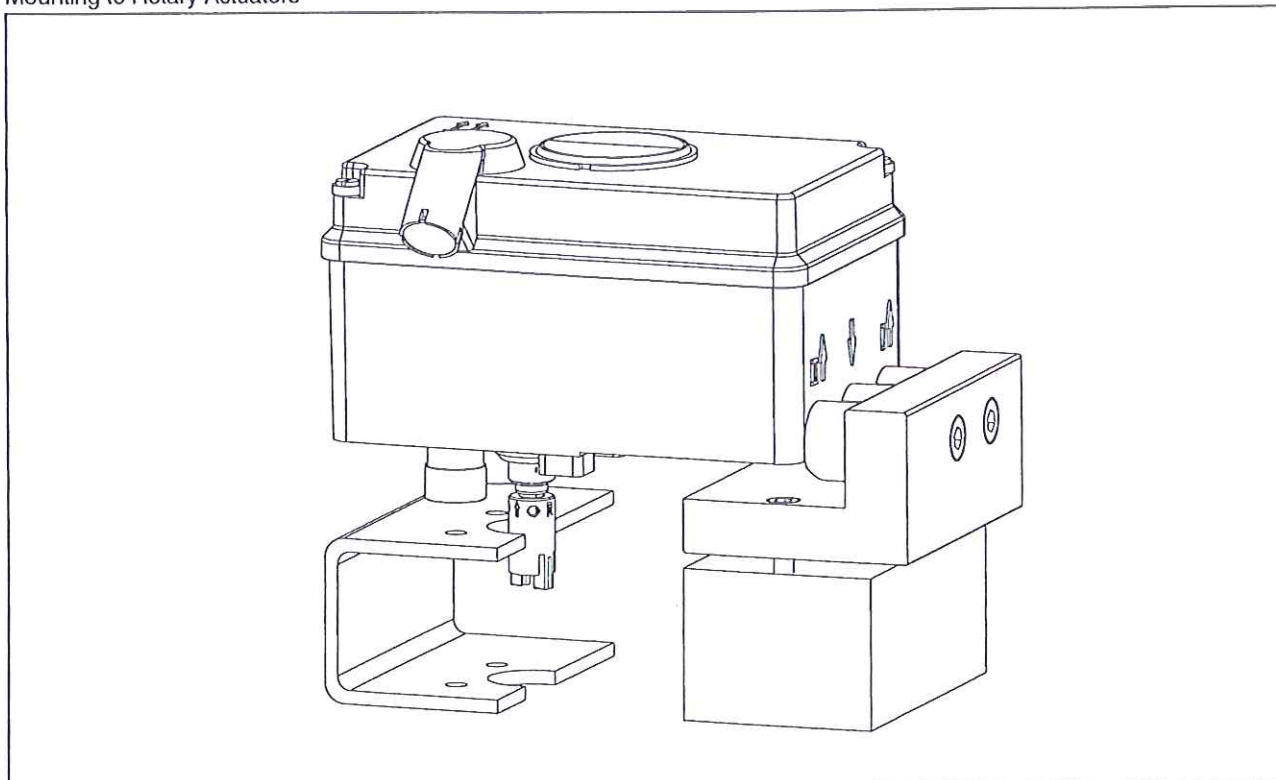


MOUNTING acc. to VDI/VDE 3847

Mounting to Linear Actuators



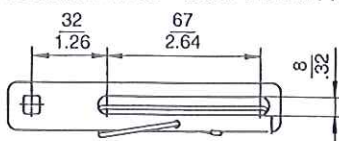
Mounting to Rotary Actuators



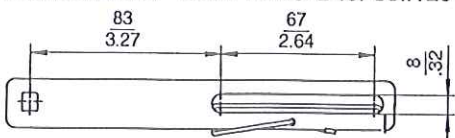
DIMENSIONS

Components of Attachment kits (samples)

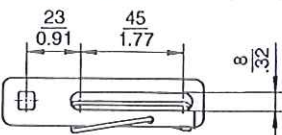
Feedback lever Code EBZG-A for 8..70 mm travel



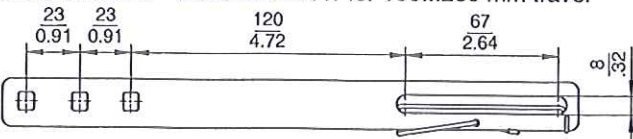
Feedback lever Code EBZG-B for 60..120 mm travel



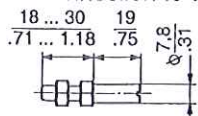
Feedback lever FlowPak/FlowTop in Code EBZG-E



Feedback lever Code EBZG-A1 for 100...260 mm travel

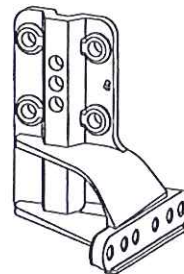
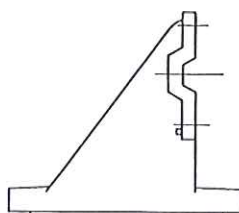
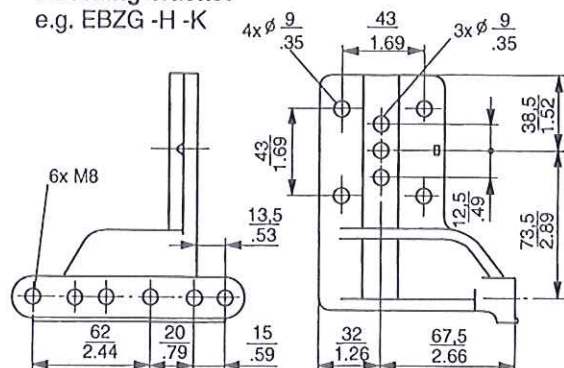


Carrier bolt for connection to valve stem



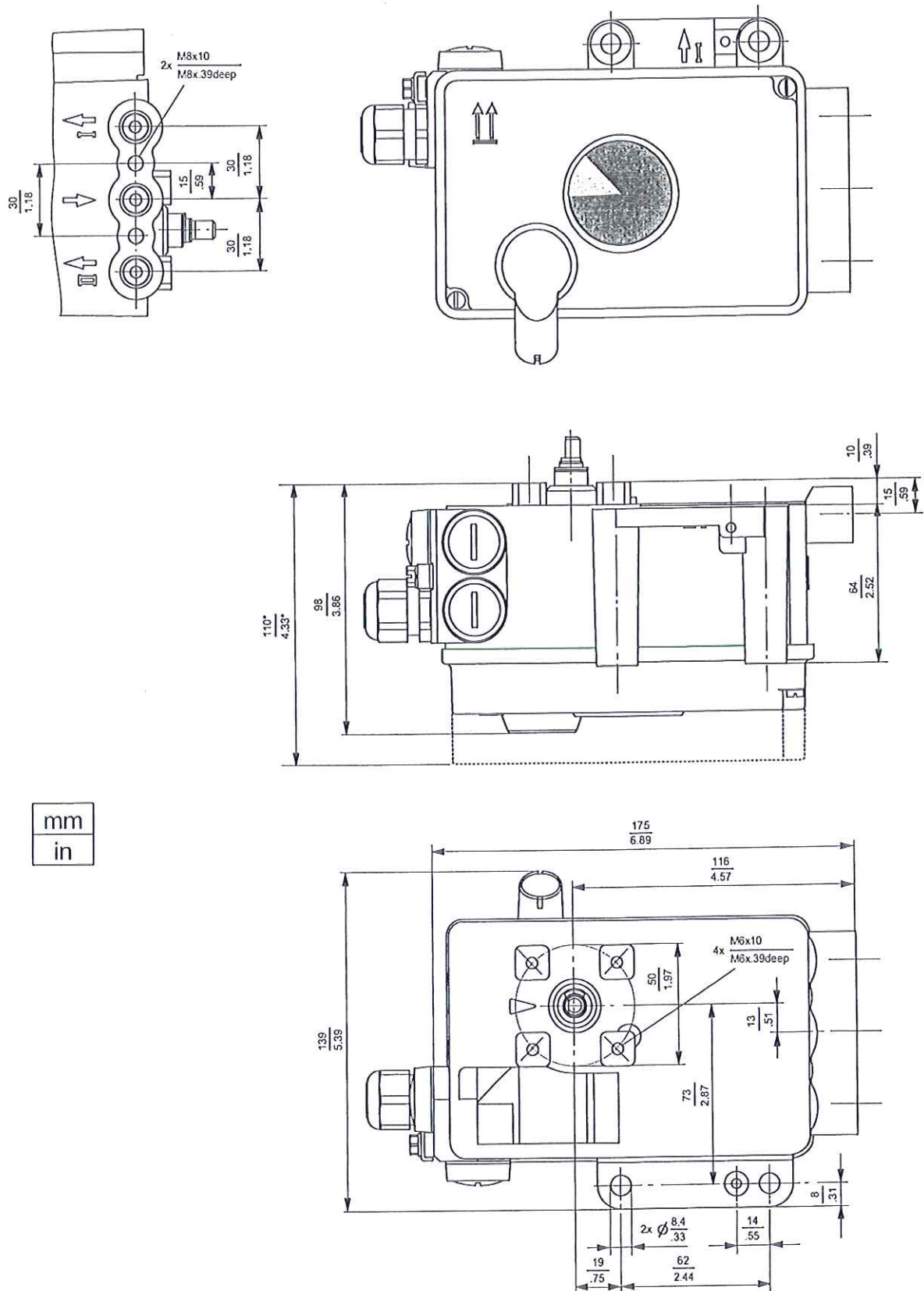
Mounting bracket

e.g. EBZG -H -K



mm
in

DIMENSIONS



*) Dimensions with high cover
for option "limit switch"

Additional Documentation for this product

Technical Information of Attachment Kits for Positioners:

TI EVE0011 A Overview of Attachment Kits of all positioners on actuators/valves of different manufacturers

Quick Guide:

QG EVE0105 A Extract of Master Instruction for an easy to use, easy understandable and fast start-up.
This document highlights the most important.

Master Instructions:

MI EVE0105 A SRD991 -HART and -FoxCom

MI EVE0105 D SRD991 -PROFIBUS-PA and -FOUNDATION Fieldbus H1

Technical Information for Fieldbus-Communication:

TI EVE0105 P SRD991/960 -PROFIBUS-PA

TI EVE0105 Q SRD991/960 -FOUNDATION Fieldbus H1

Master Instruction for HART-Communication:

MI EVE0105 B HART with Hand-Held Terminal

Master Instruction for configuration- and operation-software PC20 and integration into Foxboro I/A Series System:

MI 020-495 HART / FoxCom / PROFIBUS-PA and I/RCOM with PC by means of PC20/ IFDC

B 0193 VH I/A Series System

Additional Documentation for other products

Product Specifications

PSS EVE0105 A-(en) SRD991 Intelligent Positioner

PSS EVE0106 A-(en) SRD992 Digital Positioner

PSS EVE0109 A-(en) SRD960 Universal Positioner

PSS EVE0107 A-(en) SRI990 Analog Positioner

PSS EVE0102 A-(en) SRI986 Electro-Pneumatic Positioner

PSS EVE0103 A-(en) SRI983 Electro-Pneumatic Positioner- explosion proof or EEx d version

PSS EVE0101 A-(en) SRP981 Pneumatic Positioner

PSS EMO0100 A-(en) Accessories for devices with HART Protocol

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