



FlowPak™
General Application Valve
1/2" - 4", Class 150



Experience In Motion

Application

Control of gases, vapours and liquids.

The modular concept of valve, multi spring actuator and digital Positioner Type Logix 520si, facilitates trouble free expansion to allow for the communication capability of the **FLOWPAK** Valve System. Optionally also using a PSL electric linear actuator.

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

Product features

Compact overall height

Body shape gives optimum flow characteristics

- Largest possible kvs-values
- Excellent flow dynamics when correctly selected

Long service life and operational reliability

- Low clearance double guided valve stem achieved by an additional guide bushing, thus minimizing 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

- Trims are generally interchangeable
- Similar stem plug with both standard and bellows seal bonnet

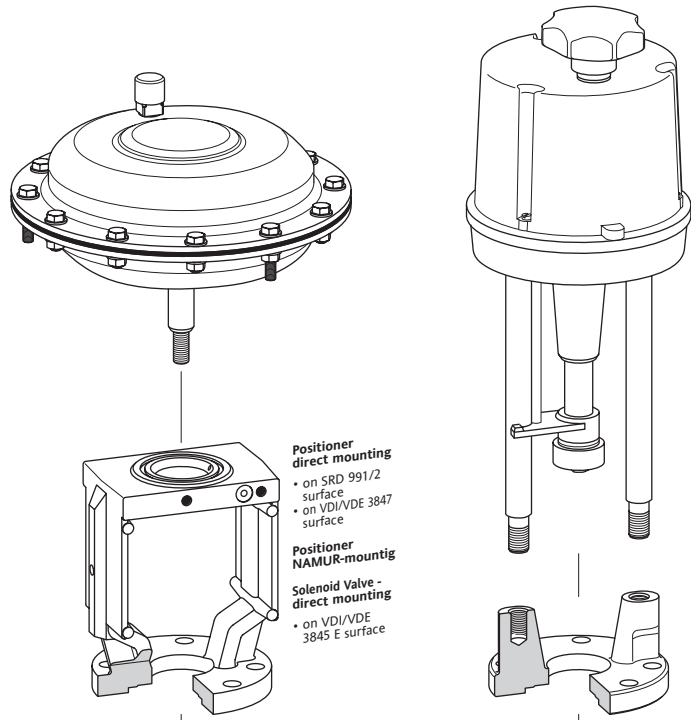
Quick delivery

- **FLOWPAK** Control Valves can be delivered within 48 hours

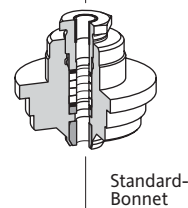
Quality assurance system certified acc. EN ISO 9001 : 2000 including product development.

The System

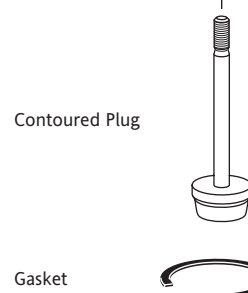
Actuators



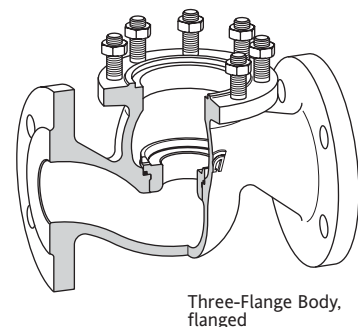
Bonnets



Trim



Body



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

Form of Connection, Nominal Pressure Range

Form of Connection			ANSI Class	Nominal Size					
				1/2"	1"	1 1/2"	2"	3"	4"
Flange acc. to ANSI B16.5	Form RF	•	150	•	•	•	•	•	•

Pressure-Temperature Ratings (acc. to ASME B 16.34a)

ANSI Class	Body Material	Service Temperature in	°F	-20	100	212	302	392	482	572	662	752	800	842	932	1000
			°C	-29	38	100	150	200	250	300	350	400	427	450	500	538
150	A216 WCB	Working Pressures in	psi	290	290	261	232	203	174							
			bar	20	20	18	16	14	12							
	A351 CF8M	Working Pressures in	psi	276	276	232	218	203	174							
			bar	19	19	16	15	14	12							

Packing Box

Type of Packing		Bonnet	
		Standard Bonnet	Standard Bonnet suitable for PSL-Actuator
PTFE-Rings	- 29 °C + 250 °C, BAM	•	•
PTFE-V-ring, Spring loaded	- 29 °C + 250 °C, maintenance free	•	•
PTFE-Rings "TA-Luft", Spring loaded	- 29 °C + 250 °C, BAM	•	•

Contoured Plug

Characteristic: **modified-equal percentage or linear**

¹⁾ Only for characteristic modified-equal percentage !
²⁾ Seat Facing for seat diameter < 10 mm = 10 mm

C _v (gpm)	Kvs (m ³ /h)	Port Size	Material / Design				Incorporable seat diameter depends on nominal size								
			1.4571				1/2"	1"	1 1/2"	2"	3"	4"			
			standard	partial stellited	full stellited	soft-seated ²⁾	Stroke = 20 mm			40 mm					
0.18	0,16	4 ¹⁾			•		•	•							
0.29	0,25	4 ¹⁾			•		•	•							
0.45	0,40	4 ¹⁾			•		•	•							
0.73	0,63	6 ¹⁾	•		•	•	•	•							
1.16	1,0	8 ¹⁾	•		•	•	•	•							
1.8	1,6	8 ¹⁾	•		•	•	•	•							
2.9	2,5	10 ¹⁾	•		•	•	•	•							
4.6	4,0	12	•	•		•	•	•							
6.5	5,6	16	•	•		•	•	•							
7.3	6,3	16	•	•		•	•	•							
11.6	10	20	•	•		•	•	•	•						
16.2	14	25	•	•		•	•	•							
18.5	16	25	•	•		•	•	•	•						
29	25	34	•	•		•	•	•	•						
36	31,5	40	•	•		•	•	•	•						
46	40	42	•	•		•	•	•	•						
55	47,5	50	•	•		•	•	•	•						
73	63	53	•	•		•	•	•	•				•		
116	100	67	•	•		•	•	•	•				•		•
145	125	80	•	•		•	•	•	•				•		
185	160	84	•	•		•	•	•	•				•		•
208	180	100	•	•		•	•	•	•				•		•

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

Contoured Plug	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 (IEC only)	Water	Working Pressure, max. 4	0,0005
	soft seated	VI	Air	Working Pressure, max. 4	0,0 - bubble-tight

Disk Plug

Characteristic: on / off

C _v (gpm)	Kvs (m ³ /h)	Port Size	Material / Design		Incorporable seat diameter depends on nominal size						
			1.4571		1/2"	1"	1 1/2"	2"	3"	4"	
			standard	soft seated	Stroke = 20 mm			40 mm			
7.3	6,3	16	•	•	•						
18.5	16	25	•	•		•					
41	35,5	40	•	•			•				
61	53	50	•	•				•			
162	140	80	•	•					•		
231	200	100	•	•							•

Multi-Spring Actuator

Actuators are selected for use on FLOWPAK:

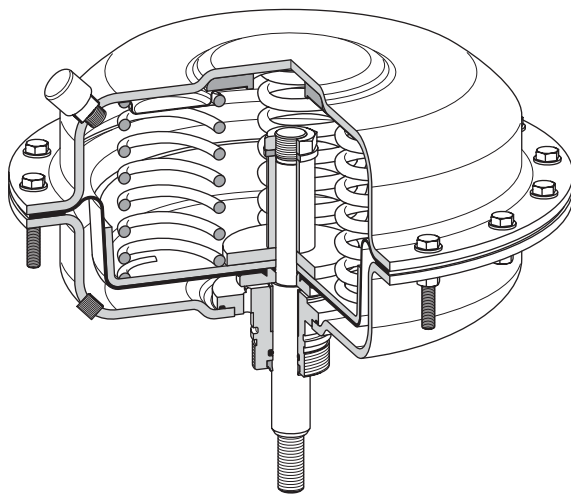
Effective area (cm ²)	Air supply (bar)	Spring ranges (bar)
125	2,9	1,5 - 2,7 *
	5,0	2,0 - 4,8
250	2,9	1,5 - 2,7
	5,0	2,0 - 4,8
500	2,9	1,5 - 2,7
	5,0	2,0 - 4,8
700	2,9	1,5 - 2,7
	5,0	2,0 - 4,8

* only using with a positioner and PTFE-V-ring !

Actuator Selection for:

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

Seat ø	Size	Effective area (cm ²)	max. differential pressure in bar for actuator selection							
			125		250		500		700	
			1,5 - 2,7	2,0 - 4,8	1,5 - 2,7	2,0 - 4,8	1,5 - 2,7	2,0 - 4,8	1,5 - 2,7	2,0 - 4,8
Spring ranges (bar)		Air (bar)								
6	1/2", 1"	Stroke 20 (mm)	19	19	19	19				
8			19	19	19	19				
10			19	19	19	19				
12			19	19	19	19				
16			19	19	19	19				
20	1", 1 1/2"	40	19	19	19	19				
25	1", 1 1/2", 2"		19	19	19	19				
34	1 1/2", 2"		11	18	19	19				
40	1 1/2"		7,0	12	19	19				
42	2"		6,0	11	19	19				
50		3,7	7,0	13	19					
53	3"					19	19	19	19	
67	3", 4"					16	19	19	19	
80	3"					11	16	17	19	
84	4"					10	14	15	19	
100						7,0	10	11	15	



Effective area (cm ²)	Air supply (bar)	Spring ranges (bar)
125	3,5	0,5 - 1,9
	5,0	0,5 - 1,9
250	3,5	0,2 - 1,0
	5,0	0,2 - 1,0
500	3,5	0,2 - 1,0
	5,0	0,2 - 1,0
700	3,5	0,2 - 1,0
	5,0	0,2 - 1,0

Actuator Selection for:

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

Seat ø	Size	Effective Area (cm ²)	max. differential pressure in bar for actuator selection										
			125		250		500		700				
			0,5 - 1,9	0,5 - 1,9	0,2 - 1,0	0,2 - 1,0	0,2 - 1,0	0,2 - 1,0	0,2 - 1,0	0,2 - 1,0			
		Spring Range (bar)											
		Air (bar)	3,5	5,0	3,5	5,0	3,5	5,0	3,5	5,0			
6	1/2", 1"	Stroke 20 (mm)	19	19	19	19							
8			19	19	19	19							
10			19	19	19	19							
12			19	19	19	19							
16	1", 1 1/2"		19	19	19	19							
20			19	19	19	19							
25	1", 1 1/2", 2"		19	19	19	19							
34	1 1/2", 2"		12	19	19	19							
40	1 1/2"		8,0	19	19	19							
42	2"		7,0	19	19	19							
50		4,3	14	19	19								
53	3"	40					19	19	19	19			
67	3", 4"						19	19	19	19			
80	3"						19	19	19	19			
84	4"						19	19	19	19			
100							13	19	19	19	19		

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

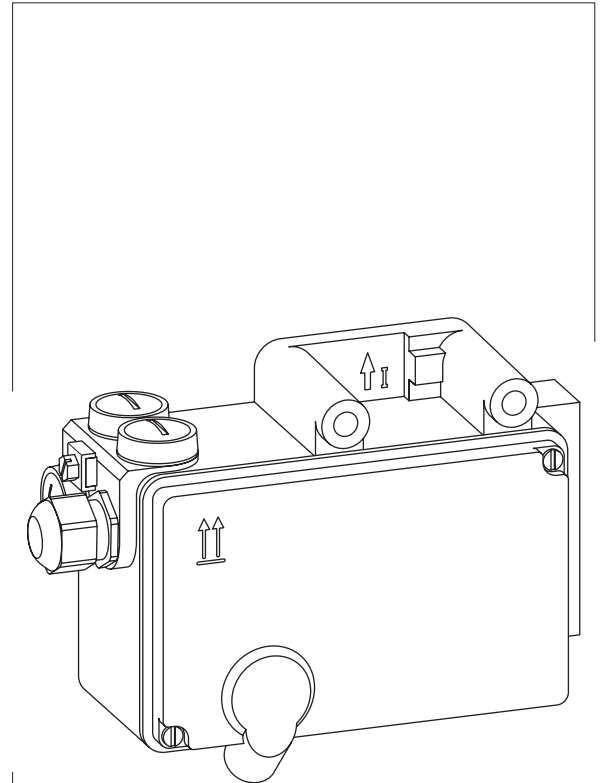
- Max. supply pressure up to 10 bar
- Output range 0,3 - 10 bar
- Filter 5 µm
- Manually operated drain
- With gauge

MV - valve (direct mounting !)

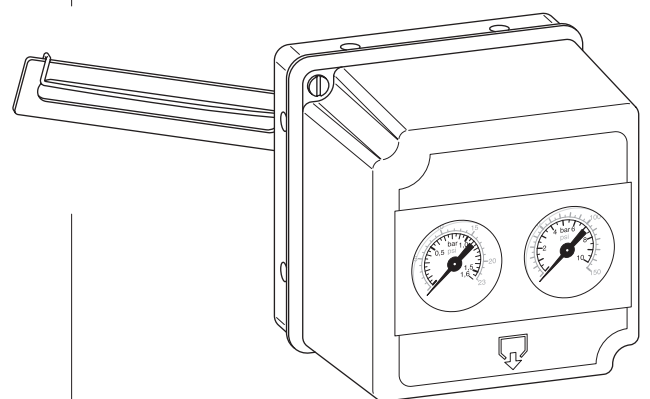
Tubing

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

Any further information see product specifications sheet.



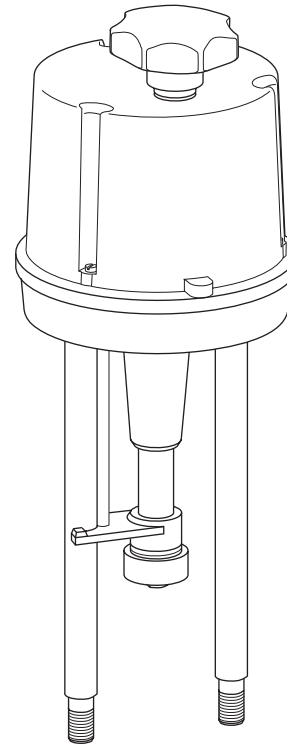
SRD992 Digital Positioner



SRP 981 Pneumatic Positioner

PSL-Actuator

Actuators are selected for use on FLOWPAK:



Linear Actuator	Voltage	Power input
AP 102	alternating current 230 V, 50 Hz	11,9 W
AP 202		11,9 W
AP 204		21 W
AP 208		49 W

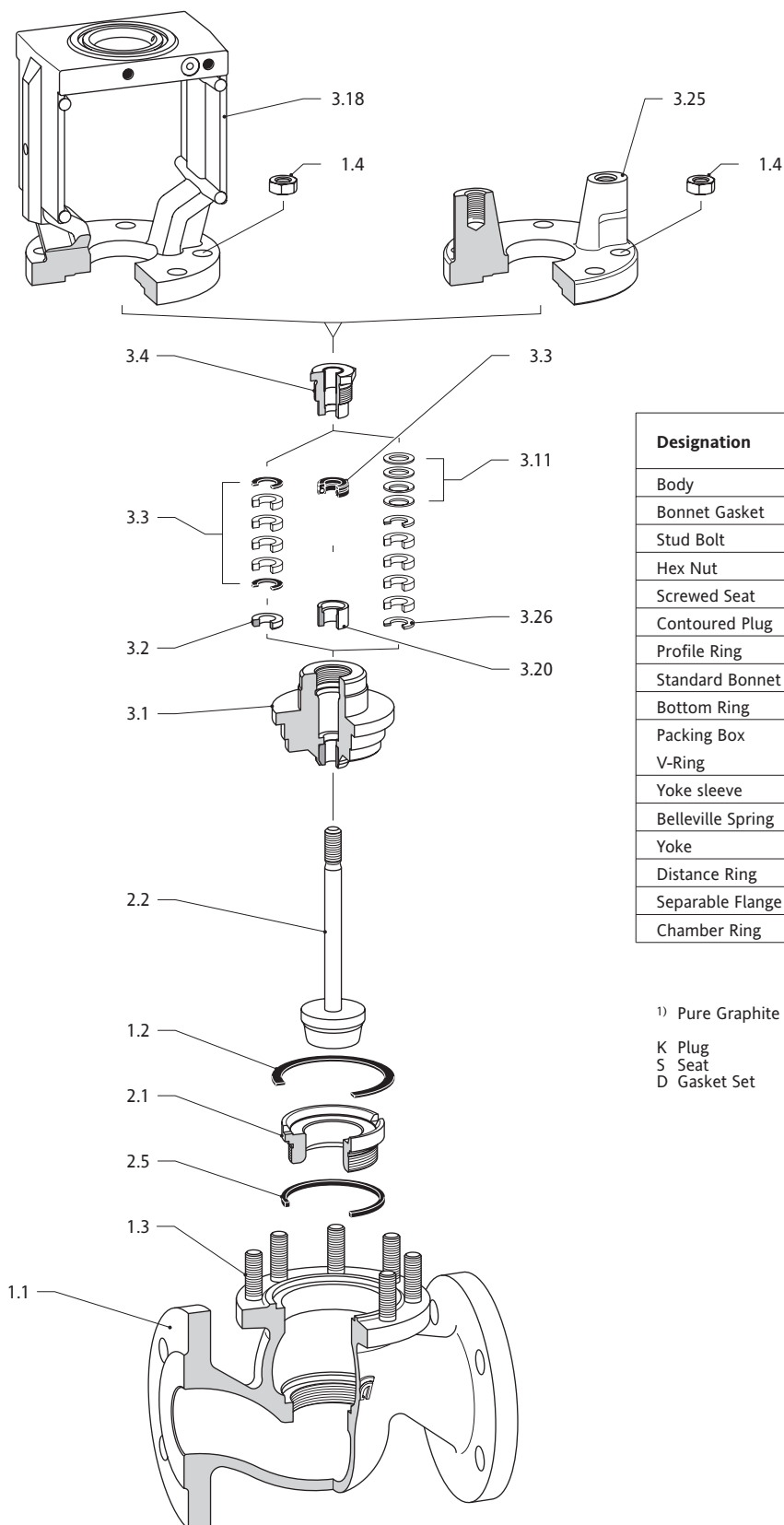
Actuator Selection for:

Operation: **Stem retracted or extracted tends to open Valve**, without Pressure Balancing, $p_2 = 0$
 Flow:
 Packing Box: **PTFE**
 Bonnet: **Standard-Bonnet**

Seat Ø	Size	Stroke (mm)	max. differential pressure in bar for actuator selection			
			AP 102 A.p. 2 kN	AP 202 A.p. 2 kN	AP 204 A.p. 4,5 kN	AP 208 A.p. 8 kN
4	1/2", 1"	20	19	19	19	
6			19	19	19	
8			19	19	19	
10			19	19	19	
12			19	19	19	
16			19	19	19	
20	1", 1 1/2"	20	19	19	19	
25	1", 1 1/2", 2"		19	19	19	
34	1 1/2", 2"		12	12	19	
40	1 1/2"		8,0	8,0	19	
42	2"		7,0	7,0	19	
50			4,0	4,0	17	
53	3"	40			13	19
67	3", 4"				8,0	18
80	3"				5,0	12
84	4"				4,0	11
100					3,0	7,0

Using the FLOWPAK valve system in the grey fields requires special knowledges and is recommended only for moderate operating conditions

Parts List

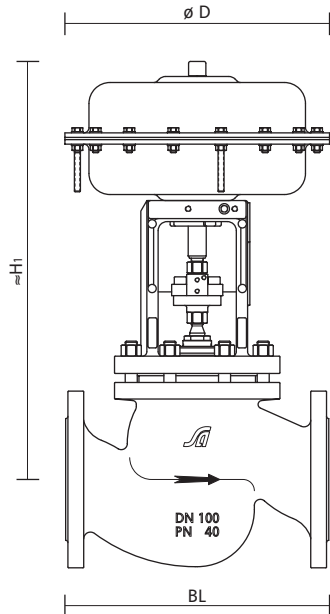


Designation	Part	Materials		Spare Parts
Body	1.1	A216 WCB	A351 CF8M	
Bonnet Gasket	1.2	Pure Graphite ¹⁾		D
Stud Bolt	1.3	G	A2-70	
Hex Nut	1.4	G	A2-70	
Screwed Seat	2.1	1.4571		S
Contoured Plug	2.2	1.4571		K
Profile Ring	2.5	Pure Graphite		S
Standard Bonnet	3.1	1.0460	1.4571	
Bottom Ring	3.2	1.4571		
Packing Box	3.3	PTFE-Rings, PTFE-Graphite Rings		D
V-Ring		PTFE-Graphite		
Yoke sleeve	3.4	1.4571 / Iglidur X		
Belleville Spring	3.11	1.4301		
Yoke	3.18	0.7043		
Distance Ring	3.20	1.4571		
Separable Flange	3.25	0.7043		
Chamber Ring	3.26	1.4571		

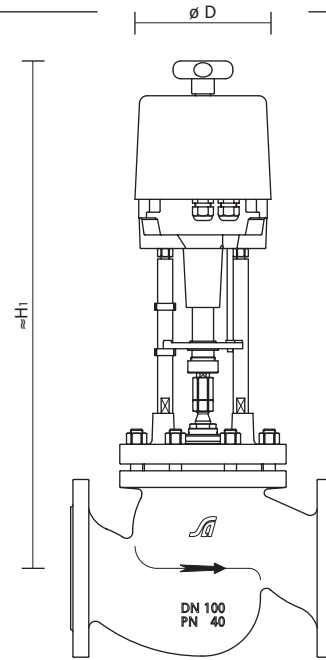
¹⁾ Pure Graphite on Support Plate from 1.4401

K Plug
S Seat
D Gasket Set

Dimensions and Weights



Valve with Standard Bonnet and IP-Actuator



Valve with Standard Bonnet and AP-Actuator

Designations			Nominal Size DN					
			1/2"	1"	1 1/2"	2"	3"	4"
BL Face to Face Dimensions	ø D	in.	Stroke 20 mm				40 mm	
		mm	7.25	7.25	8.75	10	11.75	13.88
≈ H1 for Standard Bonnet	IP 127	in.	7.8	14	14	14.2		
		mm	198	355	355	355	360	
	IP 252	in.	10.4	14.4	14.4	14.4	14.6	
		mm	265	365	365	365	370	
	IP 502	in.	13.9				21.3	21.3
		mm	352				540	540
	IP 700	in.	15.9				25.6	25.6
		mm	405				650	650
	AP 102	in.	7	20	20	20.7	22.8	
		mm	177	508	508	525	578	
	AP 202	in.	7	20	20	20.7	22.8	
		mm	177	508	508	525	578	
AP 204	in.	7	20	20	20.7	22.8	24.8	25
	mm	177	508	508	525	578	631	635
AP 208	in.	7				26.3	26.5	
	mm	177				669	673	
≈ Weight in kg for Standard Bonnet, without Accessories	IP 127	lbs	28.7	33	44.1	52.9		
		kg	13	15	20	24		
	IP 252	lbs	41.8	39.7	52.9	61.7		
		kg	17	19	24	28		
	IP 502	lbs					143	174
		kg					65	79
	IP 700	lbs					170	205
		kg					77	93
	AP 102	lbs	24	28.4	41.8	55		
		kg	10	12	17	21		
	AP 202	lbs	24	28.4	41.8	55		
		kg	10	12	17	21		
AP 204	lbs	24	28.4	41.8	58	97	121	
	kg	10	12	17	22	44	58	
AP 208	lbs					101	126	
	kg					46	60	

Flanges Drilled and Dimensioned acc. to

ANSI B16.5, Form RF

SPM - Code

Typ	DN	Class	Body/Cert.	Plug	Seat	cv	Trim	Actuator
V725 DFFNA	2"	150	A216WCB/OOAO	PONP1GG	42	46	1.4571	

Body Form
Three-Flange D

Form of Connection
Flange acc. to ANSI B16.5 Raised Face F

Bonnet Form
without Pressure Balancing F

Bonnet Assembly
Standard Bonnet N
Standard Bonnet for PSL-Sct. P

Packing Box Assembly
Teflon-Rings, adjustable, BAM A
V-Ring Packing T
Teflon-Rings, loaded, "TA" U

Nominal Size 1" - 4"

Nominal Pressure Class 150 150

Body Material A216 WCB
A351 CF8M

Standards and Certificates for Pressure Stressed Materials

Standards for Materials
without DGRL (Standard) O . . .

Certificates for Materials
without . . . O . .
EN 10 204 2.2 . . . Z . .
3.1 (Survey of Cert.) . . . B . .
3.1 (CMTR) . . . D . .

Standards and Certificates for Final Test

Standards for Final Test
EN 1349 (Standard) . . . A .

Certificates for Final Test
without . . . O
EN 10 204 2.2 . . . Z
3.1 . . . B
3.2 . . . A

Plug
Contoured Plug P O
Disk Plug T O

Plug Form
standard N
partial stellited D
Contour stellited K
soft seated W

1.4571 Plug, Seat Material

cv - Value 0,18 - 231

Port Size 4 - 100

Flow tends top open Valve G

Characteristic
modified - equal percentage G
linear L
on / off A

Plug Guidance
Top 1

Seat Leakage
IEC Class IV P
Class IV - S1 Q
Class VI T
EN 12 266 LR A (DIN 3230 B1) A
LR A (DIN 3230 B0) B

IP 252 BADOZ

Operation on air failure
 A Stem retracted
 Z Stem extracted

Hand Wheel
 O without
 L top, light-weight-variant
 IP 127 - 502
 H top, heavy-duty-variant
 IP 127 - 700

Spring Range

		Actuator Size	Stroke
AD	0,2 - 1,0	IP 127 - 502	20
AD	0,2 - 1,0	IP 502 - 700	40
BL	0,5 - 1,9	IP 127 - 502	20
BL	0,5 - 1,9	IP 502 - 700	40
DY	1,0 - 2,4	IP 127 - 502	20
DY	1,0 - 2,4	IP 502 - 700	40
VC	1,5 - 2,7	IP 127 - 502	20
VC	1,5 - 2,7	IP 502 - 700	40
VI	1,5 - 3,8	IP 252, 502	20
VI	1,5 - 3,8	IP 502, 700	40
FY	2,0 - 4,8	IP 127 - 502	20
FY	2,0 - 4,8	IP 502, 700	40

Actuator Color
 A blue
 B white
 C yellow

Actuator Size

	Area	Stroke
IP 127	125 cm ²	20
IP 252	250 cm ²	20
IP 502	500 cm ²	40
IP 700	700 cm ²	40

AP 204 ZQO

Positioning Electronics
 O without
 M Positioning electronics,
 input in mA
 V Positioning electronics,
 input in V

Positioning Feedback
 O without
 E 2 add. limit switches
 P 1000 Ohm potentiometer
 M 4 - 20 mA positioning
 feedback
 Q 1000 Ohm potentiometer
 and 2 add. limit switches
 Ω 4 - 20 mA positioning feed-
 back and 2 add. limit
 N switches

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

PSL - Electric linear Actuator
 AP 102 Actuating Power 2 kN
 AP 202 Actuating Power 2 kN
 AP 204 Actuating Power 4,5 kN
 AP 208 Actuating Power 8 kN



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SAENBRA725-00 05.07

Your contact:

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Modifications without notice in line with technical progress.

PSS 108267 05/07 A725 en