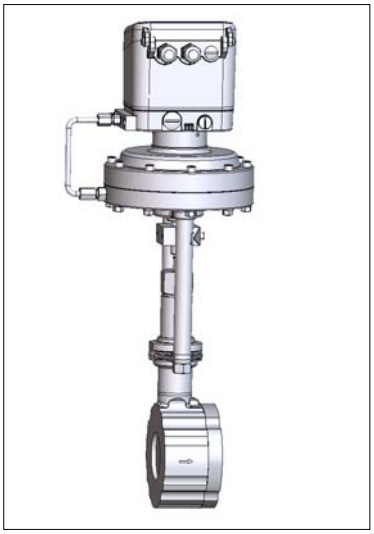
Control Valve 8021

with integrated positioner
GS 3 series DN 15 up to DN 200

SCHUBERT & SALZER CONTROL SYSTEMS

Pneumatic control valve for the control of neutral and aggressive fluids with integrated positioner

- Space saving wafer type construction
- Lowest possible weight
- Quiet operation
- Fast response time
- Control of high differential pressures with small actuators
- Greatly reduced energy consumption rates due to short strokes and low actuating forces on the throttle element
- High Kvs-(Cv)-values



Options

- Stainless steel bellow
- External i/p-converter
- Positioner (EEx ib IICT6)

Technical Information

Design	wafer-type design further versions see data sheet 8021-GS1	
Nominal Sizes	DN 15 - 200, 1/2" - 8"	
Nominal pressure acc. DIN 2401	PN 40 (fits also to PN 10-25)	DN 15 - DN 150
	PN 100	DN 15 - DN 80
	PN 16	DN 200
Nominal pressure acc. ANSI	ANSI 150	DN15 - DN 200
	ANSI 300	DN 15 - DN 150
	ANSI 600	DN 15 - DN 80
Fluid Temperature	Carbon steel body	-10°C up to +300°C
	Stainless steel body	-60°C up to +350°C
Leakage Rate (% of Kvs-value)	sliding unit carbon-stainless steel, coated < 0,0001	sliding unit STN2 < 0,001

K_{vs}- and Cv-values see data sheet 8001.

Materials

Valve body	stainless steel 1.4571 /1.4581	carbon steel 1.0570 /1.0619
Head section	stainless steel 1.4571 /1.4581	
Diaphragm casing	aluminium, KTL-coated	
Actuator springs	stainless steel 1.4310	
Packing	carbon-filled PTFE (spring 1.4310)	
Valve stem	stainless steel 1.4571, roller burnished	
Fixed disc	stainless steel coated	STN2-disc
Sliding disc	special carbon material	STN2-disc

Control Valve 8021-GS3

with integrated p/p and i/p - positioner

SCHUBERT & SALZER CONTROL SYSTEMS

Admissible differential pressures

(For temperatures of up to 120°C)

For temperatures of 120°C and above: obey application limits !

Disc pair: carbon - stainless steel coated

Actuator Size	125 cm²				250 cm²				500 cm²			
Spring Range (bar)	1,5 up to 3,0		1,8 up to 3,8		1,2 up to 2,2		1,5 up to 2,7		1,2 up to 2,2		1,5 up to 2,7	
Supply air (bar)	4		5		3		4		3		4,5	
	max. admissible differential pressure for PN100-body (bar)											
DN	Control	On-Off	Control	On-Off	Control	On-Off	Control	On-Off	Control	On-Off	Control	On-Off
15	100	100	100	100	100	100	100	100	-	-	-	-
20	77	77	96	96	100	100	100	100	-	-	-	-
25	57	57	71	71	98	98	100	100	100	100	100	100
32	42	42	52	58	73	73	88	88	100	100	100	100
40	29	29	36	44	49	49	60	60	100	100	100	100
50	17	19	21	29	29	29	35	40	60	60	72	72
65	14	16	17	24	24	24	29	34	49	49	59	59
80	8	10	10	15	14	14	17	22	29	29	35	44
100	5	6	6	10	9	9	10	14	18	18	22	28
125	3	4	4	6	6	6	7	9	12	12	14	19
150	2	3	3	5	4	4	5	7	9	9	10	14
200	2	2	2	3	3	3	3	4	5	5	6	8
Spring Configuration	3 (Standard)		4		3 (Standard)		4		6 (Standard)		8	

Standard

	Upper limits for admissible pressures in bar					
	PN16	PN40	PN100	ANSI 150	ANSI 300	ANSI 600
P max.	16	40	100	16	40	80

Disc pair: STN2

Actuator Size	125 cm²				250 cm²				500 cm²			
Spring Range (bar)	1,5 to 3,0		1,8 to 3,8		1,2 to 2,2		1,5 to 2,7		1,2 to 2,2		1,5 to 2,7	
Supply air (bar)	4		5		3		4		3		4,5	
	max. admissible differantial pressure for PN100-body (bar)											
DN	Control	On-Off	Control	On-Off	Control	On-Off	Control	On-Off	Control	On-Off	Control	On-Off
15	55	55	68	70	95	95	100	100	100	100	100	100
20	37	37	46	53	64	64	78	78	100	100	100	100
25	25	26	31	40	43	43	53	55	89	89	100	100
32	17	19	22	30	30	30	36	40	62	62	75	80
40	11	13	14	20	19	19	24	27	40	40	48	58
50	6	8	8	12	11	11	13	17	23	23	27	35
65	5	6	6	10	9	9	11	14	18	18	22	28
80	3	4	4	6	5	5	6	8	11	11	13	17
100	2	2	2	3	3	3	4	5	6	6	8	10
125	-	-	2	2	2	2	3	4	4	4	5	7
150	-	-	1	2	2	2	2	3	3	3	4	5
200	-	-	-	-	-	-	-	-	-	-	-	-
Spring Configuration	3 (Standard)		4		3 (Standard)		4		6 (Standard)		8	

Standard

	Upper limits for admissible pressures in bar					
	PN16	PN40	PN100	ANSI 150	ANSI 300	ANSI 600
P max.	16	40	100	16	40	80

Control Valve 8021-GS3

with integrated digital positioner
(also on-off valves and valves wiht other side-mounted positioner)

Admissible differential pressures
(For temperatures of up to 120°C)

For temperatures of 120°C and above: obey application limits !

Disc pair: carbon - stainless steel coated

Actuator Size	125 cm²		250 cm²		500 cm²	
Supply air (bar)	4,5	5,5	3,0	4,0	3,0	4,5
DN	max. admissible differential pressure for PN 100-body (bar)					
15	100	100	100	100	-	-
20	100	100	100	100	-	-
25	100	100	100	100	-	-
32	88	100	100	100	-	-
40	67	83	100	100	-	-
50	44	54	75	91	100	100
65	37	45	63	76	80	80
80	23	29	40	48	48	48
100	15	16	25	31	33	33
125	10	11	17	21	23	23
150	7	8	13	15	16	16
200	4	5	7	9	15	16
Spring Configuration	3 (Standard)	4	3 (Standard)	4	6 (Standard)	8

Standard

	Upper limits for admissible pressures in bar					
	PN16	PN40	PN100	ANSI 150	ANSI 300	ANSI 600
P max.	16	40	100	16	40	80

Disc pair: STN2

Actuator Size	125 cm²		250 cm²		500 cm²	
Supply air (bar)	4,5	5,5	3,0	4,0	3,0	4,5
DN	max. admissible differential pressure for PN100-body (bar)					
15	100	100	100	100	-	-
20	81	100	100	100	-	-
25	60	75	100	100	100	100
32	45	56	77	93	100	100
40	31	38	53	64	72	72
50	18	22	31	38	64	77
65	15	18	26	31	53	62
80	9	10	15	19	32	36
100	5	6	9	11	19	23
125	3	4	6	7	13	16
150	2	3	4	5	9	11
200	-	-	-	-	-	-
Spring Configuration	3 (Standard)	4	3 (Standard)	4	6 (Standard)	8

Standard

	Upper limits for admissible pressures in bar					
	PN16	PN40	PN100	ANSI 150	ANSI 300	ANSI 600
P max.	16	40	100	16	40	80

Control Valve 8021-GS3
with integrated positioner

Positioner

	Digital positioner Type 8048	i/p-positioner Type 8047	p/p-positioner Type 8047
Input signal range	0/4 - 20 mA, 0/2 - 10 V	0/4 - 20 mA, 0/2 - 10 V	0,2 - 1 bar
Supply voltage, electrical	24 V DC, maximum 10 W	none	none
Supply air pressure	max. 6 bar	max. 6 bar	max. 6 bar
Hysteresis	< 0,5 %	< 1 %	< 1 %
Rangeability	40 :1	30 : 1	30 : 1
Characteristics	linear, equal percentage, user-defined, process optimized*	Characteristics of function unit	Characteristics of function unit
Adjustment (Stroke, zero point)	self-adapting	mechanical	mechanical
Ambient temperature	-20°C up to + 75°C	-20°C up to +60°C	-20°C up to +80°C
Protection class acc. DIN 40050	IP65	IP 54	IP 54
Ex-proof (Optional)	-	II 2 G EEx ib IIC T6 up to 45°C II 2 G EEx ib IIC T5 up to 60°C	-

*Produces a linear process flow characteristic for optimal control. After entering a few process data points (e.g. upstream and downstream pressures) the optimised flow characteristic is calculated by the positioner configuration software and stored in the positioner memory.

Digital Positioner Type 8049

Version	**4-wire**	**2-wire**	**AS-I**
Set point signal	0/4 - 20 mA	4 - 20 mA	Single Slave, Slave Profil S - 7.3.4
Burden voltage	1,2 V	14 V	-
Supply energy, electrical	24 VDC	none	supply with AS-I
Adaption to range and zero	self-learning		
Configuration	with PC-Software		
Air delivery*	50 Nl/min.	according the version	50 Nl/min.
System air consumption	none		
Ambient temperature limits	-20 up to +75°C	-10 up to +75°C	-20 up to +75°C
Supply connection	G 1/8"		
Class of protection acc. DIN 40050	IP 65		
Accessories	Analogue feedback module RM-1 2 wire design, feedback signal 4 - 20 mA		

* 6 bar supply air

Control Valve 8021-GS3

with integrated positioner

SCHUBERT & SALZER CONTROL SYSTEMS

Ordering Number System

					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	0	2	1	/				V	G					M						Z			S

Type — Size — Symbol: "V": Valve; "R": Repair kit (sealings)

1 - 5 : Please quote all 5 sections.
6 - 12: Quote only if required.

1. Function		2. Body design		3. Body material		4. Safety function		5. Actuator		6. Special version		7. Springs		8. Stem sealing	
G	GS-control valve with pneumatic actuator (type 8021)	E	GS3-flangeless design acc. ANSI 150	0	carbon steel 1.0570 / 1.0619	0	spring closes	3	diaphragm actuator 125 cm²	M	To state, if further sections are quoted	-	Standard	-	PTFE pakcing self-adjusting (Standard)
		F	GS3-flangeless design acc. ANSI 300	1	stainless steel 1.4571 / 1.4581	1	spring opens	4	diaphragm actuator 250 cm²	A	groove and groove acc. DIN2512	4	8 springs		
		K	GS3-flangeless design acc. ANSI 600					5	diaphragm actuator 500 cm²	C	groove and tongue acc. DIN 2512	8	16 springs	1	addtional stainless steel bellows 1.4571 (max. 33 bar)
		G	GS3-flangeless design acc. DIN PN10-PN40							E	2x lowered face acc. DIN 2513				
		H	GS3-flangeless design acc. DIN PN100							H	lowered and raised face acc. DIN 2513				

9. Sliding disc		10. Fixed disc		11. Kvs-Values		12. Flow characteristic		13. Accessories		14. Positioners		15. Signalling equipment		16. Further versions	
-	Carbon material	-	stainless steel 1.4571	-	100 %(Stand.)	-	linear	Z	To state if further sections are quoted	-	without	-	without	S	Quote for further special versions
B	Carbon material fibre reinforced	1	STN2 (only in combination with pos. "9" STN2)	A	red. auf 63 %	1	equal-%			1	p/p positioner Type 8047	0	2 limit switches M12x1 DC 10-30V PNP		
9	STN2			1	red. auf 40 %					3	i/p positioner Type 8047				
				B	red. auf 25 %					6	i/p positioner Type 8047 Eex ib IIC T6 + plug connection M12x1				
				2	red. auf 16 %										
				C	red. auf 10 %					8	i/p positioner with plug connec. M12x1				
				3	red. auf 6,3 %										
				4	red. auf 2,5 %					A	process controller type 8048 IPC				
				5	red. auf 1 %										
				6	red. auf 20 %					C	dig. positioner, type 8049, 4-wire				
				7	red. auf 12 %										
				8	red. auf 2 %					D	dig. positioner, type 8048, IP65				
				9	red. auf 0,4 %										
										R	dig. positioner, type 8049, 2-wire				
										T	dig. positioner, type 8049, AS-i version				

Ordering example: 8021/050VGG103M------Z3
GS3-control valve, Type 8021, DN 50, PN 10 - PN 40, body material stainless steel, spring to close, diaphragm actuator 125 cm², PTFE packing self-adjusting, sliding disc carbon material, fixed disc stainless steel 1.4571coated, flow characteristic linear, i/p-positioner

Control Valve 8021-GS3
with integrated positioner

Application limitations for GS3 valves in stainless steel

These pressure must not be exceeded for GS-valves from the GS3-series made of stainless steel, even though the actuator power might allow it.

PN 40

	Sliding unit: carbon - stainless steel, coated						Sliding unit: carbon - STN2					
	max. admissible diff. pressures for GS3-valves						max. admissible diff. pressures for GS3-valves					
DN	100°C	150°C	200°C	250°C	300°C	350°C	100°C	150°C	200°C	250°C	300°C	350°C
15 - 65	40	38	34	32	31	29	40	38	34	32	31	29
80	40	38	34	32	31	29	36	34	33	26	22	19
100	33	31	29	27	25	24	33	31	26	24	20	17
125	23	21	20	19	18	17	22	21	17	16	13	11
150	16	15	14	13	12	12	16	15	13	11	9	8
200 (PN16 only)	16	15	14	13	12	11,0	-	-	-	-	-	-

PN 100

	Sliding unit: carbon - stainless steel, coated						Sliding unit: STN2					
	max. admissible diff. pressures for GS3-valves						max. admissible diff. pressures for GS3-valves					
DN	100°C	150°C	200°C	250°C	300°C	350°C	100°C	150°C	200°C	250°C	300°C	350°C
15	100	95	87	82	77	72	100	95	87	82	77	72
20	100	95	87	82	77	72	100	95	87	82	77	72
25	100	95	87	82	77	72	100	95	87	82	77	72
32	100	95	87	82	77	72	100	95	87	82	69	60
40	100	95	87	82	77	72	72	69	65	53	43	37
50	100	95	87	82	77	72	77	73	70	56	46	40
65	80	76	72	67	62	60	62	59	56	45	37	32
80	48	45	43	40	37	36	36	34	33	26	22	19

ANSI #150

	Sliding unit: carbon - stainless steel, coated						Sliding unit: carbon - STN2					
	max. admissible diff. pressures for GS3-valves						max. admissible diff. pressures for GS3-valves					
DN	100°C	150°C	200°C	250°C	300°C	350°C	100°C	150°C	200°C	250°C	300°C	350°C
15 - 125	16	15	13	12	10	8	16	15	13	12	10	8
150	16	15	13	12	10	8	16	15	13	11	9,5	8
200	16	15	13	12	10	8	-	-	-	-	-	-

ANSI #300

	Sliding unit: carbon - stainless steel, coated						Sliding unit: carbon - STN2					
	max. admissible diff. pressures for GS3-valves						max. admissible diff. pressures for GS3-valves					
DN	100°C	150°C	200°C	250°C	300°C	350°C	100°C	150°C	200°C	250°C	300°C	350°C
15 - 65	40	38	35	33	31	30	40	38	35	32	31	29
80	40	38	35	33	31	30	36	34	33	26	22	19
100	33	31	29	27	25	24	33	31	26	24	20	17
125	23	21	20	19	18	17	22	21	17	16	13	11
150	16	15	14	13	12	12	16	15	13	11	9	8

ANSI #600

	Sliding unit: carbon - stainless steel, coated						Sliding unit: STN2					
	max. admissible diff. pressures for GS3-valves						max. admissible diff. pressures for GS3-valves					
DN	100°C	150°C	200°C	250°C	300°C	350°C	100°C	150°C	200°C	250°C	300°C	350°C
15 - 32	80	77	71	66	63	60	80	77	71	66	63	60
40	80	77	71	66	63	60	72	69	65	53	43	37
50	80	77	71	66	63	60	77	73	70	56	46	40
65	80	76	71	66	62	60	62	59	56	45	37	32
80	48	45	43	40	37	36	36	34	33	26	22	19

Control Valve 8021-GS3

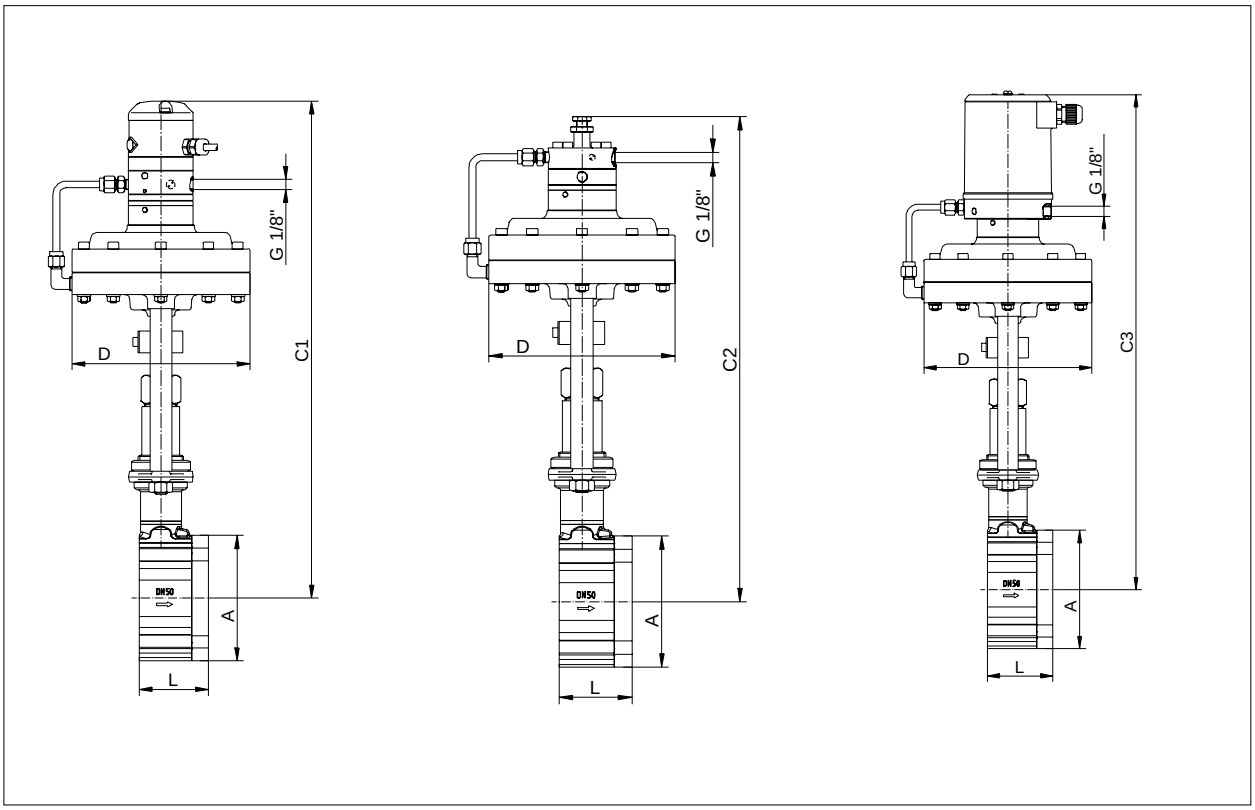
with integrated positioner

Dimensions and Weights

DN	Ø A	C1*	C2*	C3*	Ø D for actuator			L	Stroke	Weight (kg) for actuator		
					D 125	D250	D 500			D 125	D 250	D500
15	64	430	400	460	165	222	222	56	6	7,5	9,7	13,4
20	72	435	405	465	165	222	222	56	6	7,7	9,9	13,6
25	82	440	410	470	165	222	222	56	6	8,1	10,3	14,0
32	89	445	415	475	165	222	222	56	6	8,5	10,7	14,4
40	99	450	420	480	165	222	222	56	6	8,9	11,1	14,8
50	116	460	430	490	165	222	222	64	8	10,5	12,7	16,4
65	138	470	440	500	165	222	222	68	8	12,3	14,5	18,2
80	153	480	450	510	165	222	222	70	8	13,4	15,6	19,3
100	184	490	460	520	165	222	222	75	8,5	16,9	19,1	22,8
125	212	505	475	535	165	222	222	80	8,5	21,1	23,3	27,0
150	242	520	490	550	165	222	222	80	8,5	24,8	27,0	30,7
200	302	550	520	580	165	222	222	92,5	8,5	41,7	43,9	47,6

* for actuator D500 +47,5mm

Dimensions in mm



i/p - positioner
Type 8047

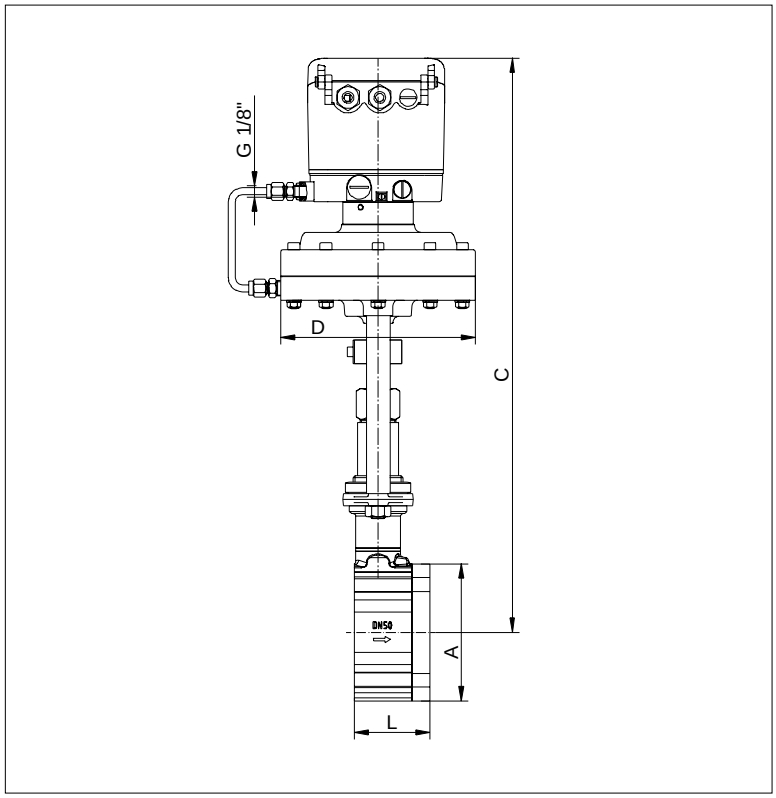
p/p - positioner
Type 8047

digital - positioner
Type 8048

Control Valve 8021-GS3

with integrated positioner, type 8049

Dimensions and Weights



digital - positioner Type 8049

DN	Ø A	C*	Ø D for actuator			L	Stroke	Weight (kg) for actuator		
			D 125	D250	D 500			D 125	D 250	D500
15	64	460	165	222	222	56	6	7,5	9,7	13,4
20	72	465	165	222	222	56	6	7,7	9,9	13,6
25	82	470	165	222	222	56	6	8,1	10,3	14,0
32	89	475	165	222	222	56	6	8,5	10,7	14,4
40	99	480	165	222	222	56	6	8,9	11,1	14,8
50	116	490	165	222	222	64	8	10,5	12,7	16,4
65	138	500	165	222	222	68	8	12,3	14,5	18,2
80	153	510	165	222	222	70	8	13,4	15,6	19,3
100	184	520	165	222	222	75	8,5	16,9	19,1	22,8
125	212	535	165	222	222	80	8,5	21,1	23,3	27,0
150	242	550	165	222	222	80	8,5	24,8	27,0	30,7
200	302	580	165	222	222	93	8,5	41,7	43,9	47,6

* for actuator D500 +47,5mm

Dimensions in mm