

Control Valve 8021

with integrated positioner

GS 3 series DN 15 up to DN 250



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-values

Technical Information

Design	wafer-type design further versions see data sheet 8021-GS1		
Nominal Sizes	DN 15 - 250, 1/2" - 12"		
Nominal pressure acc. DIN 2401 for flanges with facing type B	PN 40 (fits also to PN 10-25)	DN 15 - DN 150	
	PN 100	DN 15 - DN 80	
	PN 16	DN 200 - DN 250	
Nominal pressure acc. ANSI for flanges acc. ASME B16.5 RF	ANSI 150	DN15 - DN 250	
	ANSI 300	DN 15 - DN 150	
	ANSI 600	DN 15 - DN 80	
Nominal pressure acc. JIS for "raiced face" flanges	10K	DN 15 - DN 50	
	20K	DN 15 - DN 40	
Fluid Temperature	carbon steel body	-10°C up to +300°C	
	stainless steel body	-60°C up to +350°C (+300°C for SFC)	
Ambient temperature*	-30°C up to +100°C		
Rangeability / Characteristic analog positioner digital positioner	30 : 1 40 : 1 linear / 80 : 1 equal percentage		
Leakage Rate (% of Kvs-value)	sliding unit carbon-stainless steel, coated < 0.0001	sliding unit SFC < 0.0005	sliding unit STN2 < 0.001

* Please consider the limitation of use of the positioner!

Kvs- 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	SFC-disc	STN2-disc

Positioner

For technical information of our positioners please refer to the corresponding data sheets.



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Options

- Stainless steel bellow
- External i/p-converter
- Positioner (EEx ib IIC T6)

Control Valve 8021-GS3



with integrated p/p and i/p - positioner, Type 8047

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
SFC - 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
250	0,9	1,1	1,1	1,8	1,5	1,5	1,9	2,5	3,2	3,2	3,8	5,2
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 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	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, Type 8049
(also on-off valves and valves with 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
SFC - stainless steel coated

Actuator Size	125 cm ²		250 cm ²		500 cm ²	
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
250	2,7	3,4	4,6	5,6	9,5	10,5
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 cm ²		250 cm ²		500 cm ²	
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

with integrated positioner

Ordering Number System

[illegible]

1 - 5 : Please quote all 5 sections.

6 - 12: Quote only if required.

Type

Size

-Symbol: "V": Valve

"R": Repair kit (sealings)

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 packing 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. DIN EN1092-1	4	8 springs	1	additional stainless steel bellows 1.4571 (max. 33 bar)
		K	GS3-flangeless design acc. ANSI 600				5	diaphragm actuator 500 cm²	C	groove and tongue acc. DIN EN1092-1	8	16 springs			
		G	GS3-flangeless design acc. DIN PN10-PN40					E	2x lowered face acc. DIN EN1092-1						
		H	GS3-flangeless design acc. DIN PN100					H	lowered and raised face acc. DIN EN1092-1						

[illegible]

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 1.4571 coated, flow characteristic linear, i/p-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

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible diff. pressures for GS3-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
15 - 65	40	38	34	32	31	29
80	40	38	34	32	31	29
100	33	31	29	27	25	24
125	23	21	20	19	18	17
150	16	15	14	13	12	12
200 (PN16 only)	16	15	14	13	12	11,0
250 (PN16 only)	10,5	10	9,5	8,4	7,4	6,9

DN	Sliding unit: carbon - STN2 max. admissible diff. pressures for GS3-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
100	40	38	34	32	31	29
125	36	34	33	26	22	19
150	33	31	26	24	20	17
175	22	21	17	16	13	11
200	16	15	13	11	9	8
250	-	-	-	-	-	-

Limitation for SFC-sliding discs: 300°C

PN 100

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible pressures for GS3-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
15	100	95	87	82	77	72
20	100	95	87	82	77	72
25	100	95	87	82	77	72
32	100	95	87	82	77	72
40	100	95	87	82	77	72
50	100	95	87	82	77	72
65	80	76	72	67	62	60
80	48	45	43	40	37	36

DN	Sliding unit: STN2 max. admissible pressures for GS3-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
100	100	95	87	82	77	72
125	100	95	87	82	77	72
150	100	95	87	82	77	72
175	100	95	87	82	69	60
200	72	69	65	53	43	37
225	77	73	70	56	46	40
250	62	59	56	45	37	32
275	36	34	33	26	22	19

Limitation for SFC-sliding discs: 300°C

ANSI #150

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible diff. pressures for GS3-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
15 - 125	16	15	13	12	10	8
150	16	15	13	12	10	8
200	16	15	13	12	10	8
250	10,5	10	9,5	8,4	7,4	6,9

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

Limitation for SFC-sliding discs: 300°C

ANSI #300

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible pressures in bar for GS3-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
15 - 65	40	38	35	33	31	30
80	40	38	35	33	31	30
100	33	31	29	27	25	24
125	23	21	20	19	18	17
150	16	15	14	13	12	12

DN	Sliding unit: STN2 max. admissible pressures for GS3-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
100	40	38	35	32	31	29
125	36	34	33	26	22	19
150	33	31	26	24	20	17
175	22	21	17	16	13	11
200	16	15	13	11	9	8

Limitation for SFC-sliding discs: 300°C

ANSI #600

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible pressures for GS3-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
15 - 32	80	77	71	66	63	60
40	80	77	71	66	63	60
50	80	77	71	66	63	60
65	80	76	71	66	62	60
80	48	45	43	40	37	36

DN	Sliding unit: STN2 max. admissible pressures for GS3-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
100	80	77	71	66	63	60
125	72	69	65	53	43	37
150	77	73	70	56	46	40
175	62	59	56	45	37	32
200	36	34	33	26	22	19

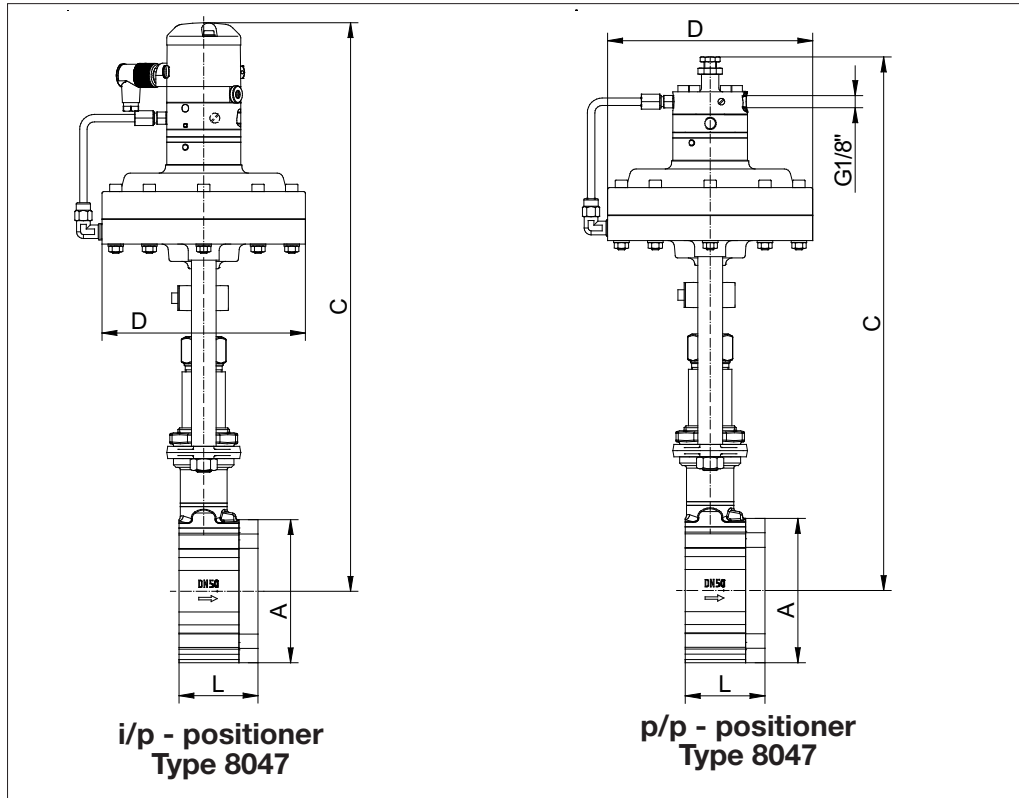
Limitation for SFC-sliding discs: 300°C

Control Valve 8021-GS3

with integrated i/p and p/p - positioner, Type 8047



Dimensions and Weights



DN	Ø A	C1*	C2*	Ø D for actuator			L	Stroke	Weight (kg) for actuator		
				D 125	D250	D 500			D 125	D 250	D500
15	64	430	400	165	222	222	56	6	7,5	9,7	13,4
20	72	435	405	165	222	222	56	6	7,7	9,9	13,6
25	82	440	410	165	222	222	56	6	8,1	10,3	14,0
32	89	445	415	165	222	222	56	6	8,5	10,7	14,4
40	99	450	420	165	222	222	56	6	8,9	11,1	14,8
50	116	460	430	165	222	222	64	8	10,5	12,7	16,4
65	138	470	440	165	222	222	68	8	12,3	14,5	18,2
80	153	480	450	165	222	222	70	8	13,4	15,6	19,3
100	184	490	460	165	222	222	75	8,5	16,9	19,1	22,8
125	212	505	475	165	222	222	80	8,5	21,1	23,3	27,0
150	242	520	490	165	222	222	80	8,5	24,8	27,0	30,7
200	302	550	520	165	222	222	93	8,5	41,7	43,9	47,6
250	360	575	545	165	222	222	96	8,9	46,9	49,9	52,8

* for actuator D500 +47,5mm

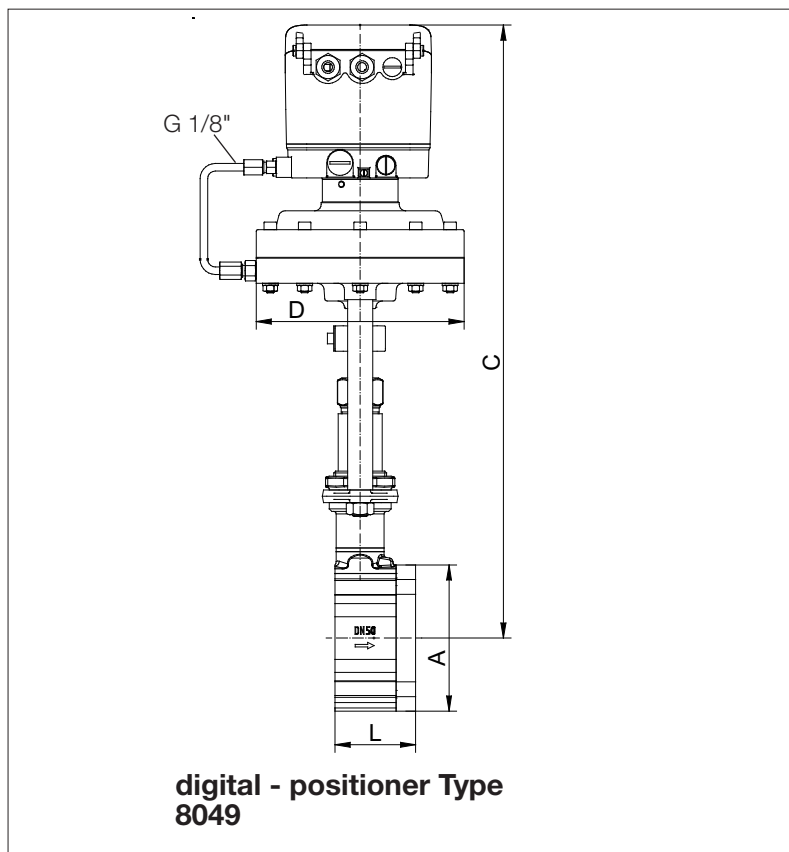
Dimensions in mm

Control Valve 8021-GS3

with integrated digital positioner, Type 8049



Dimensions and Weights



DN	Ø A	C*	Ø D for actuator			L	Stroke	Weight (kg) for actuator		
			D 125	D 250	D 500			D 125	D 250	D 500
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
250	360	605	165	222	222	96	8,5	46,9	49,1	52,8

* for actuator D500 +47,5mm

Dimensions in mm