

# Control Valve 8021

## with integrated positioner

### GS 1 series DN 15 up to DN 150



**Pneumatic control valve for the control of neutral through to highly aggressive media in process engineering, chemical industries and for plant equipment.**

- 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



**Type 8021  
with digitalpositioner,  
Type 8049**

#### Technical Information

Body design	flangeless, wafer-type construction dimensions acc. DIN EN 558-1 series 20 for flanges acc. DIN EN 1092-1, form B more versions see data-sheet 8021-GS3		
Nominal size	DN 15 to DN 150		
Nominal pressure	PN 40 acc. DIN 2401 (also for flanges PN 10 to PN 25)		
Fluid temperature	carbon steel body	-10°C to +300°C	
	stainless steel body	-60°C to +350°C (300°C for SFC)	
Ambient temperature*	-30°C up to +100°C		
Rangeability / Characteristic analog positioner	30 : 1		
digital positioner	40 : 1 linear / 80 : 1 equal percentage		
Leakage	Disc pair Carbon-stainless steel	Disc pair SFC	Disc pair STN 2
% of Kvs	< 0,0001	< 0,0005	< 0,001
IEC 60534-4	IV-S1	IV-S1	IV
EN 12266-1	D	E	E

\* Please consider the limitation of use of the positioner!

Kvs-values see data sheet 8001.

#### Materials

Body	Carbon steel 1.0570 /1.0619	Stainless steel 1.4571 /1.4581
Head section	Carbon steel 1.0570 /1.0619	Stainless steel 1.4571 /1.4581
Diaphragm housing	Aluminium, KTL- coated	
Actuator springs	Stainless steel 1.4310	
Packing	PTFE carbon filled (spring 1.4310)	
Actuating stem	Stainless steel 1.4571, roller burnished	
Bellows (optional)	Stainless steel 1.4571	
Fixed disc	Stainless steel 1.4571 coated	STN2 - disc
Sliding disc	Special carbon material	SFC - disc STN2 - disc
Coupling ring for disc	Stainless steel 1.4581	
Positioner Housing	Aluminium anodized, synthetic	

#### Positioner

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

# Control Valve 8021-GS1



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

**Admissible Differential Pressure**  
(For temperatures of up to 120°C)

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

**Disc pair: carbon - stainless steel**  
**SFC - stainless steel**

Diaphragm area	125 cm <sup>2</sup>				250 cm <sup>2</sup>			
	4		5		3		4	
Supply air (bar)	Admissible differential pressures in bar							
DN	Control	On-Off	Control	On-Off	Control	On-Off	Control	On-Off
15	40	40	40	40	40	40	40	40
20	40	40	40	40	40	40	40	40
25	40	40	40	40	40	40	40	40
32	40	40	40	40	40	40	40	40
40	29	29	36	40	40	40	40	40
50	17	19	21	29	29	29	35	40
65	14	16	17	24	24	24	29	34
80	8	10	10	15	14	14	17	22
100	5	6	6	10	9	9	10	14
125	3	4	4	6	6	6	7	9
150	2	3	3	5	4	4	5	7
Spring configuration	3		4		3		4	

Standard

**Disc pair: STN2**

Diaphragm area	125 cm <sup>2</sup>				250 cm <sup>2</sup>			
	4		5		3		4	
Supply air (bar)	Admissible differential pressures in bar							
DN	Control	On-Off	Control	On-Off	Control	On-Off	Control	On-Off
15	40	40	40	40	40	40	40	40
20	37	37	40	40	40	40	40	40
25	25	26	31	40	40	40	40	40
32	17	19	22	30	30	30	36	40
40	11	13	14	20	19	19	24	27
50	6	8	8	12	11	11	13	17
65	5	6	6	10	9	9	11	14
80	3	4	3,5	6	5	5	6	8
100	1,5	2	2	3	3	3	4	5
125	-	-	1,5	2	2	2	2,5	3,5
150	-	-	1	1,5	1,5	1,5	1,8	2,5
Spring configuration	3		4		3		4	

Standard

# Control Valve 8021-GS1

with integrated digital positioner, Type 8049  
(also on-off valves and valves with other side-mounted positioner)



## Admissible Differential Pressure (For temperatures of up to 120°C)

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

### Disc pair: carbon - stainless steel SFC - stainless steel

Diaphragm area	125 cm <sup>2</sup>		250 cm <sup>2</sup>	
	4,5	5,5	3	4
Supply air (bar)				
DN	Admissible differential pressures in bar			
15	40	40	40	40
20	40	40	40	40
25	40	40	40	40
32	40	40	40	40
40	40	40	40	40
50	40	40	40	40
65	37	40	40	40
80	23	29	40	40
100	15	16	24	25
125	10	11	16	16
150	7	7,5	13	15
Spring configuration	3	4	3	4

Standard

### Disc pair: STN2

Diaphragm area	125 cm <sup>2</sup>		250 cm <sup>2</sup>	
	4,5	5,5	3	4
Spring range (bar)				
DN	Admissible differential pressures in bar			
15	40	40	40	40
20	40	40	40	40
25	40	40	40	40
32	40	40	40	40
40	26	27	27	27
50	18	20	31	38
65	15	16	26	31
80	9	9,5	15	19
100	5	5,5	9	11
125	3	3,5	6	7
150	2	2,5	4,5	5,5
Spring configuration	3	4	3	4

Standard

## Applications limits for GS1-Valves made of stainless steel

### PN 40

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible pressures for GS1-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
15 - 25	40	38	34	33	31	29
32	40	38	34	33	31	29
40	40	38	34	33	31	29
50	40	38	34	33	31	29
65	40	38	34	33	31	29
80	40	38	34	31	26	23
100	24	23	22	19	16	14
125	16	15	14	12	10	9,0
150	16	15	14	13	12	12

DN	Sliding unit: carbon - STN2 max. admissible pressures for GS1-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
15 - 25	40	38	34	33	31	29
32	40	38	34	31	25	22
40	27	25	24	19	16	14
50	40	38	34	33	28	24
65	37	35	33	27	22	19
80	22	21	20	16	13	11
100	13	12	12	10	8,0	7,0
125	8,8	8,4	8,0	6,5	5,3	4,6
150	11	10	9,8	7,9	6,5	5,6

Limitation for valves in carbon steel and SFC-sliding discs: 300°C

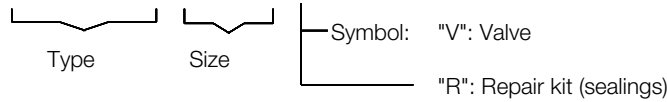
# Control Valve 8021-GS1

with integrated positioner



## Ordering Number System

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



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

1. Type	2. Connection	3. Body material	4. Safety position	5. Actuator	6. Special versions	7. Springs	8. Stem sealing
G	pneumatic control valve type 8021	0 carbon steel 1.0570 / '1.0619 1 stainless steel 1.4571 / '1.4581 8 hastelloy	0 spring closes 1 spring opens	3 diaphragm 125 cm <sup>2</sup> 4 diaphragm 250 cm <sup>2</sup> 5 diaphragm 250 cm <sup>2</sup> 500 cm <sup>2</sup>	M state, if further sections are quoted sections are quoted	- standard 1 2 springs 2 4 springs 3 6 springs 4 8 springs 5 10 springs D spring set 0,2-1 bar	- PTFE-packing, self adjusting (standard) self adjusting (standard) 1 additional bellows 1.4571

9. Moving disc	10. Fixed disc	11. Kvs-values	12. Characteristic	13. Accessories	14. Positioner	15. Feedback	16. Special versions
- carbon S SFC-disc 9 STN2-disc	- stainless steel '1.4571, coated 1 STN2-disc	- 100% (stand.) A red. to 63% 1 red. to 40% B red. to 25% 2 red. to 16% C red. to 10% 3 red. to 6,3% 4 red. to 2,5% 5 red. to 1 % 6 red. to 20% 7 red. to 12% 8 red. to 2% 9 red. to 0,4%	- linear 1 equal percentage	Z accessories	- without 1 p/p positioner Type 8047 3 i/p positioner Type 8047 6 i/p positioner Type 8047 8 i/p positioner with plug conn. M12x1 C digital positioner, type 8049, 4 wire R digital positioner, type 8049, 2 wire T digital positioner, type 8049, AS-i version W digital positioner, type 8049, 2 wire ex-version	- without 0 2 ind. limit switches M12x1 DC 10-30V 5 2 ind. limit switches M12x1 DC 10-55V D 1 ind. limit switch M12x1 DC 10-30V 6 1 ind. limit switch M12x1 DC 10-55V	S further special versions

Ordering example:

8021/050VG0003M - - 91 - - Z3

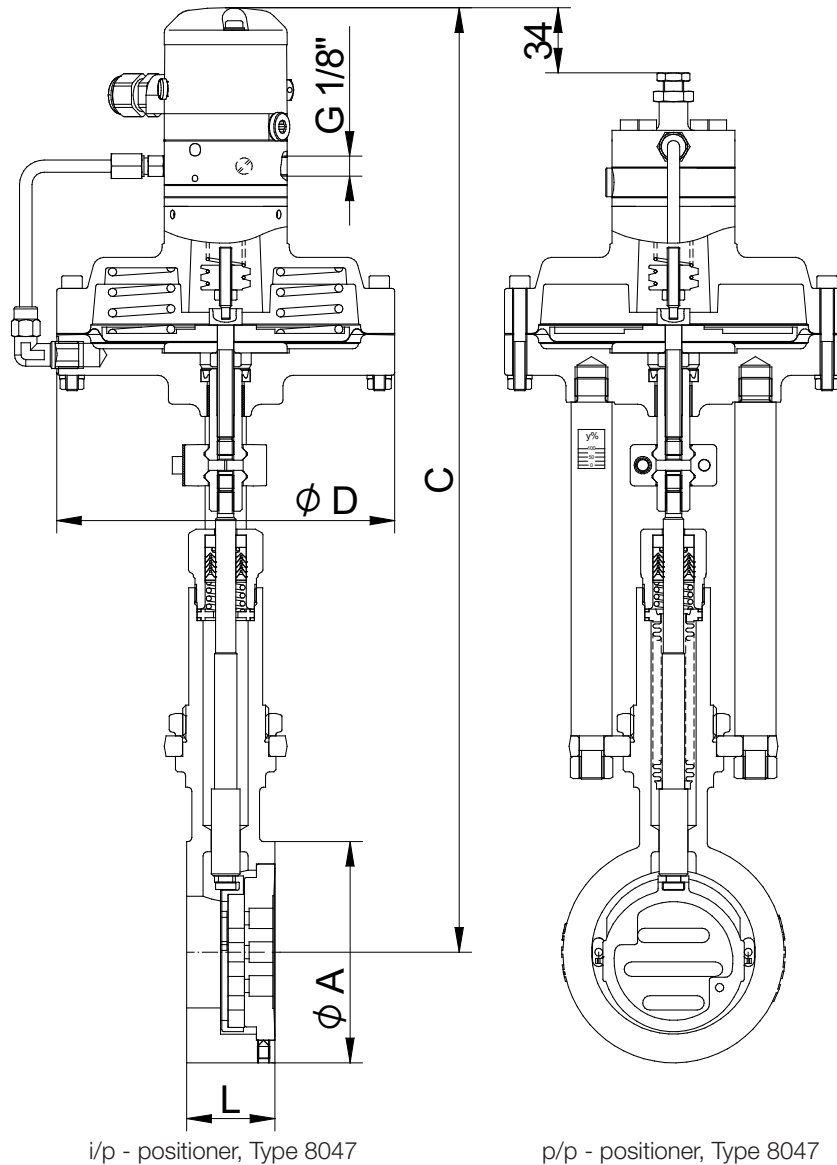
GS-control valve type 8021 with pneumatic actuator, DN 50, PN 10/40, body material carbon steel, spring closes, actuator 125 cm<sup>2</sup>, PTFE-V-shaped seal, STN2-disc and plate, Kvs-value 100 %, Flow characteristic linear, integrated i/p positioner

# Control Valve 8021-GS1

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



## Dimensions and Weights



i/p - positioner, Type 8047

p/p - positioner, Type 8047

DN	Ø A	C*	Ø D Actuator		L	Stroke	Weight Actuator	
			D 125	D 250			D 125	D 250
15	53	430	165	222	33	6	6,9	9,1
20	62	435	165	222	33	6	7,0	9,2
25	72	440	165	222	33	6	7,2	9,4
32	82	445	165	222	33	6	7,5	9,7
40	92	450	165	222	33	6	7,7	9,9
50	108	460	165	222	43	8	8,9	11,1
65	127	470	165	222	46	8	9,7	11,9
80	142	480	165	222	46	8	10,3	12,5
100	164	490	165	222	52	8,5	11,8	14,0
125	194	505	165	222	56	8,5	14,0	16,2
150	219	520	165	222	56	8,5	15,5	17,7

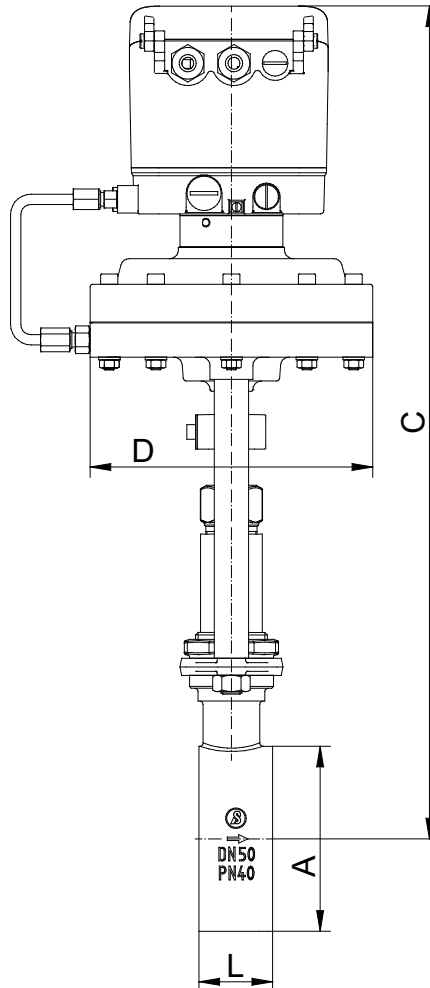
Dimensions in mm

# Control Valve 8021-GS1

with integrated digital positioner, Type 8049



## Dimensions and Weights



digital positioner , Type 8049

DN	ØA	C	D Actuator		L	Stroke	Weight kg	
			125	250			D 125	D 250
15	53	460	165	222	33	6	6,9	9,1
20	62	465	165	222	33	6	7	9,2
25	72	470	165	222	33	6	7,2	9,4
32	82	475	165	222	33	6	7,5	9,7
40	92	480	165	222	33	6	7,7	9,9
50	108	490	165	222	43	8	8,9	11,1
65	127	500	165	222	46	8	9,7	11,9
80	142	510	165	222	46	8	10,3	12,5
100	164	520	165	222	52	8,5	11,8	14
125	194	535	165	222	56	8,5	15,5	17,7
150	219	550	165	222	56	8,5	17,4	19,6

Dimensions in mm