

# 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-(Cv)-values

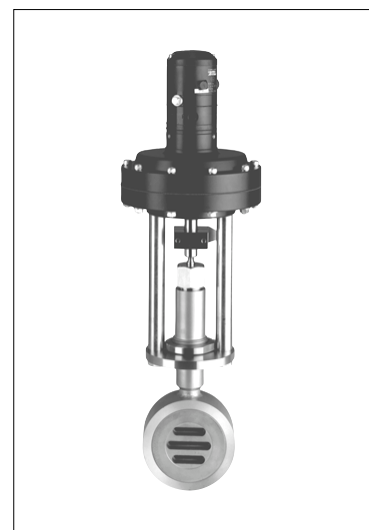
### Technical Information

Body design	Flangeless, wafer-type construction construction for DIN EN 558-1 series 20 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	
Leakage rate (% of Kvs-value)	Sliding unit Carbon steel, coated < 0.0001	Sliding unit STN2 < 0.001

K<sub>vs</sub>-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	STN2 - disc
Coupling ring for disc	Stainless steel 1.4581	
Positioner Housing	Aluminium anodized, synthetic	



**Type 8021  
with i/p-positioner,  
Type 8047**



**Type 8021  
with digital positioner,  
Type 8048**

#### Options:

- bellows (only Type 8043)
- external i/p-converter
- Positioner (II 2 G EEEx ib IIC T6)

# Control Valve 8021-GS1

with integrated p/p and i/p - 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

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



## 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

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	38	40	40	40
65	31	39	40	40
80	20	24	34	40
100	12	15	21	25
125	8	10	14	16
150	6	7,5	10	12
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	39	40	40	40
40	26	27	27	27
50	15	19	26	32
65	12	15	22	26
80	7,5	9,5	13	15
100	4,5	5,5	8	9,5
125	3	3,5	5	6,5
150	2	2,5	4	4,5
Spring configuration	3	4	3	4

 Standard

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

### PN 40



DN	Sliding unit: carbon - stainless steel, coated					
	max. admissible diff. pressures for GS1-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
15 - 65	40	38	35	32	28	24
80	40	38	35	32	28	24
100	33	31	29	27	25	24
125	23	21	20	19	18	17
150	16	15	14	13	12	12

DN	Sliding unit: carbon - STN2					
	max. admissible diff. pressures for GS1-valves					
	100°C	150°C	200°C	250°C	300°C	350°C
40	38	35	32	28	24	
36	34	33	26	22	19	
33	31	29	24	20	17	
22	21	20	16	13	11	
16	15	14	11	9,5	8,5	

# Control Valve 8021-GS1

## 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 NI/min.	according the version	50 NI/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		

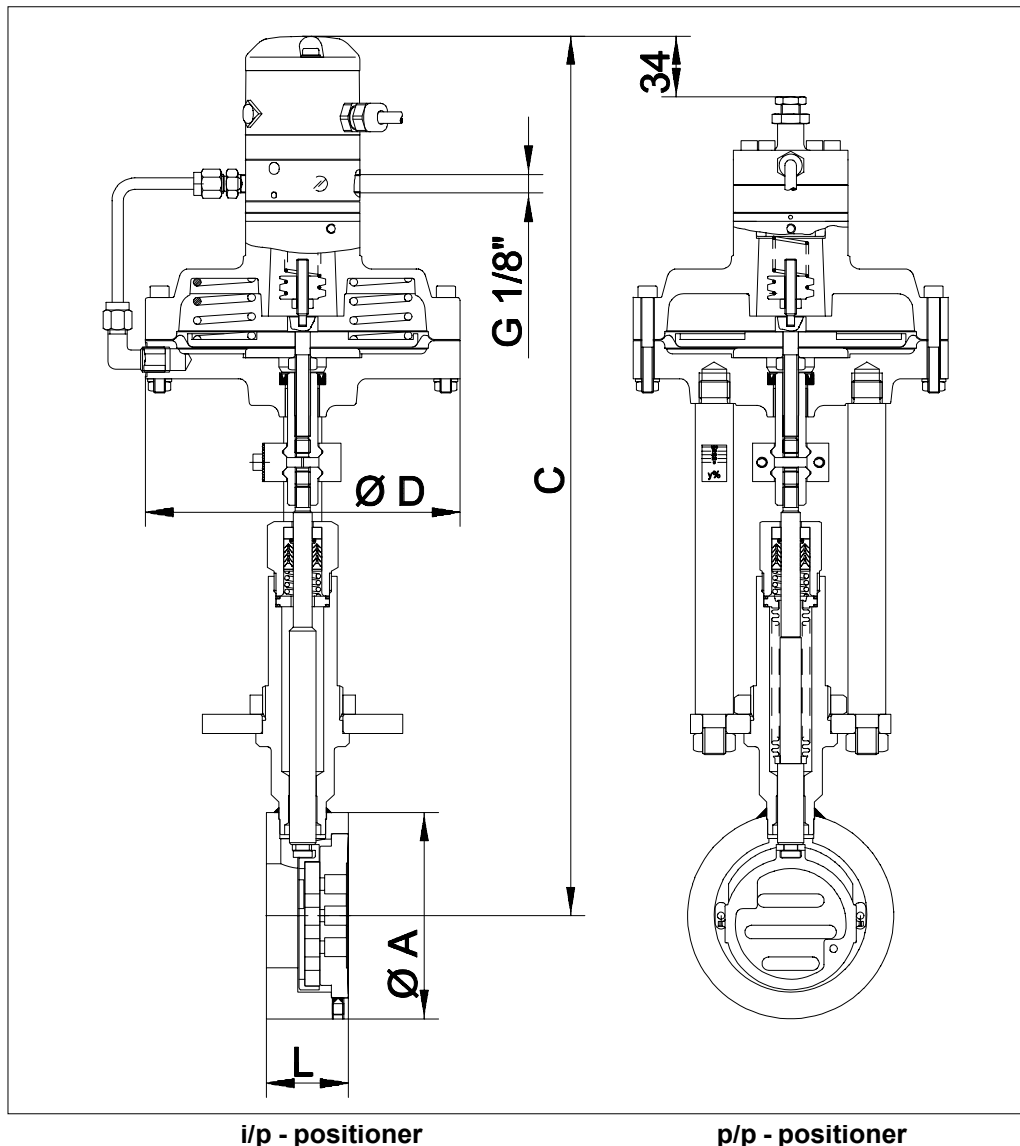
\* 6 bar supply air



# Control Valve 8021-GS1

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

## Dimensions and Weights



i/p - positioner

p/p - positioner

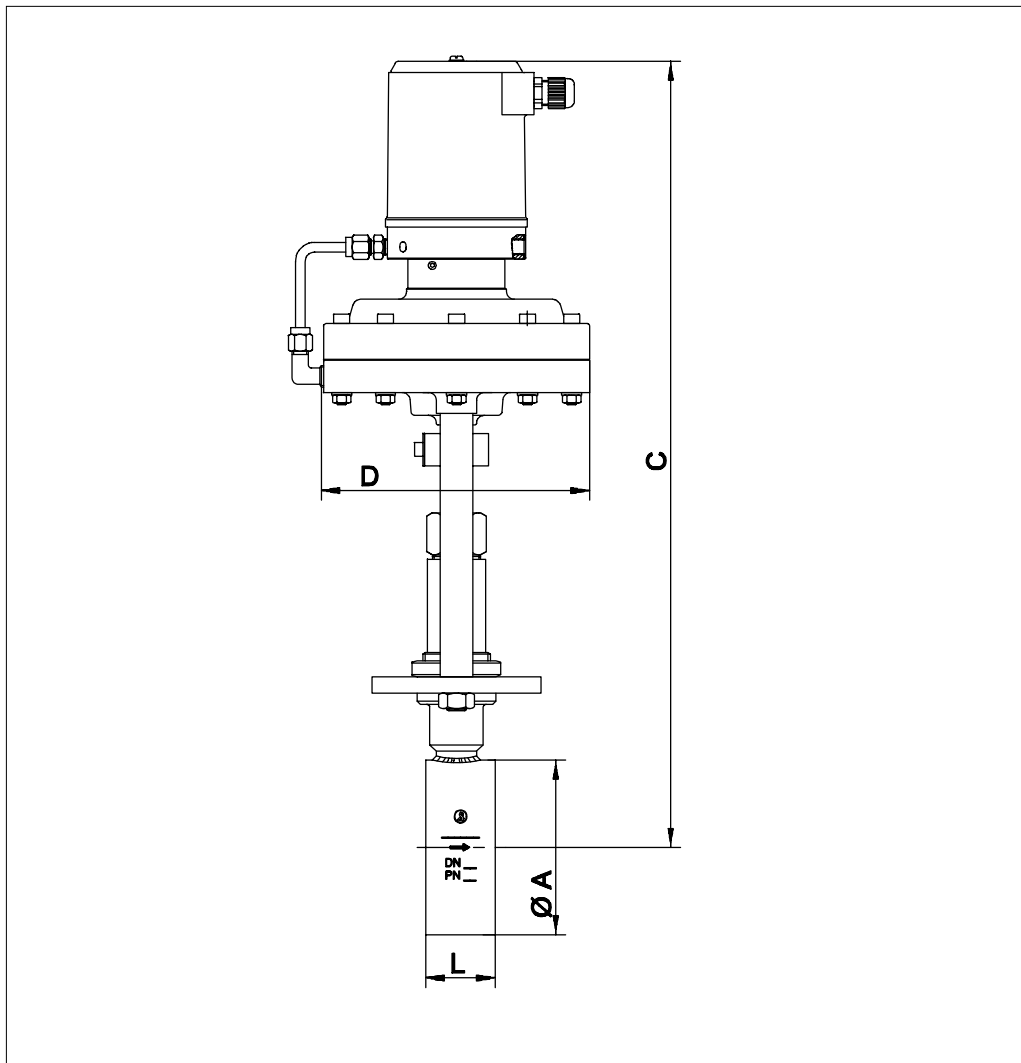
DN	Ø A	C*	Ø D		L	Weight		Stroke
			Actuator			Actuator		
			D 125	D 250		D 125	D 250	
15	53	430	165	222	33	6,9	9,1	6
20	62	435	165	222	33	7,0	9,2	6
25	72	440	165	222	33	7,2	9,4	6
32	82	445	165	222	33	7,5	9,7	6
40	92	450	165	222	33	7,7	9,9	6
50	108	460	165	222	43	8,9	11,1	8
65	127	470	165	222	46	9,7	11,9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

Dimensions in mm

# Control Valve 8021-GS1

with integrated digital positioner, Type 8048

## Dimensions and Weights



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

Dimensions in mm