

High Temperature Valve 8023

GS 3 series DN 15 up to DN 250



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 design
- Lowest possible weight
- Quiet operation
- Fast response
- 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		
Nominal sizes	DN 15 up to DN 250		
Nominal pressure acc. DIN 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	
Supply pressure	max. 6 bar		
Fluid temperature	-60°C up to +450°C for function unit carbon-stainless steel		
	-60°C up to +450°C for function unit STN2		
Ambient temperature	-60°C up to +300°C for function unit SFC		
	up to +530°C with bellows from Inconel 625 and function unit STN2		
Rangeability	40 : 1		
Leakage rate (% of Kvs-value)	Function unit Carbon-stainless steel	Function unit SFC	Function unit STN2
	<0.0001	<0.0005	<0.001

Kvs-values see data sheet 8001.

Materials

Body	Stainless steel 1.4571 / 1.4581		
Head section	Stainless steel 1.4571		
Diaphragm housing	Aluminium, KTL coated		
Packing	PTFE (Carbon filled), spring 1.4310		
Actuating stem	Stainless steel 1.4571, roller burnished		
Bellows	Stainless steel 1.4571		
Fixed disc	Stainless steel 1.4571, coated		STN2-disc
Sliding disc	Special carbon material	SFC-disc	STN2-disc
Guide ring for sliding disc	Stainless steel 1.4581		



Options

- Metal bellows
- Positioner
 - pneumatic
 - electro-pneumatic
 - electro-pneumatic (Ex, intrinsically safe)
- Limit switches
- Position transmitter
- Manual override

Admissible Differential Pressures (for temperatures up to 120°C)

For temperatures exceeding 120°C: apply operation limits

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

Actuator size	125 cm ²					250 cm ²				
	0.2 to (bar)	1.0 to (bar)	1.5 to (bar)	1.8 to (bar)	2.1 to (bar)	0.2 to (bar)	0.8 to (bar)	1.2 to (bar)	1.5 to (bar)	1.7 to (bar)
Spring range	1,0	2,0	3,0	3,8	4,5	1,0	1,4	2,2	2,7	3,2
Supply air (bar)	1,2	2,8	4,2	5,2	6,0	1,2	2,1	3,2	4	4,6
DN	Admissible differential pressures in bar (see pressure diagram for GS-Valves)									
15	4,4	100	100	100	100	18,9	100	100	100	100
20	3,8	100	100	100	100	16,4	100	100	100	100
25	3,2	100	100	100	100	13,7	100	100	100	100
32	2,6	100	100	100	100	11,3	100	100	100	100
40	2	66	100	100	100	8,5	100	100	100	100
50	-	36	57	70	84	5,8	63	97	100	100
65	-	29	45	56	67	4,9	51	78	80	80
80	-	17	26	33	39	3,1	30	45	48	48
100	-	10	16	20	24	-	18	27	33	33
125	-	6,5	10	13	15	-	12	18	22	23
150	-	5	7,5	9	11	-	8,5	13	16	16
200	-	2,5	4,5	5,5	6,5	-	5	7,5	9	10
250	-	1,8	2,8	3,4	4,1	-	2,2	4,7	5,7	6,7
Springconfiguration	D	2	3	4	5	D	2	3	4	5

Standard

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

Disc pair: STN2

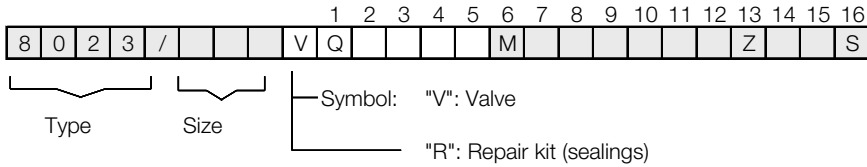
Actuator size	125 cm ²					250 cm ²				
	0.2 to (bar)	1.0 to (bar)	1.5 to (bar)	1.8 to (bar)	2.1 to (bar)	0.2 to (bar)	0.8 to (bar)	1.2 to (bar)	1.5 to (bar)	1.7 to (bar)
Spring range	1,0	2,0	3,0	3,8	4,5	1,0	1,4	2,2	2,7	3,7
Supply air (bar)	1,2	2,8	4,2	5,2	6,0	1,2	2,1	3,2	4	4,6
DN	Admissible differential pressures in bar (see pressure diagram for GS-Valves)									
15	3,1	100	100	100	100	13,4	100	100	100	100
20	2,4	57	100	100	100	10,3	100	100	100	100
25	1,8	57	88	100	100	7,7	100	100	100	100
32	1,3	38	59	73	87	5,7	66	100	100	100
40	0,9	23	37	45	54	3,9	41	63	72	72
50	-	13	20	25	30	2,4	23	35	42	49
65	-	10	16	20	24	2,0	18	28	34	40
80	-	6	9	11	14	1,2	10	16	19	23
100	-	3,5	5,5	7	8,5	-	6,5	10	12	14
125	-	2,5	3,5	4,5	5,5	-	4	6,5	8	9
150	-	1,5	2,5	3,5	4	-	3	4,5	5,5	6,5
Springconfiguration	D	2	3	4	5	D	2	3	4	5

Standard

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

Supply pressure values in the tables are minimum values. They are valid if no positioner is used. When using a positioner the required supply pressure is fixed by its adjustment values. As a standard this value is 4 barg. The spring configuration „D“ allows direct operation without positioner and reduced performance concerning the differential pressures. The valve then can be controlled directly by a process controller using a standard 0,2 to 1 bar signal.

Ordering Number System



1 - 5 : Please quote all 5 sections.
 6 - 16: Quote only if required.

1. Function	2. Body design	3. Body materials	4. Pilot function	5. Actuator	6. Special versions	7. Springs	8. Stem sealing
Q Control valve with pneumatic actuator (8023)	E GS3-flangeless design acc. ANSI 150 F GS3-flangeless design acc. ANSI 300 K GS3-flangeless design acc. ANSI 600 G GS3 - flangeless design acc. DIN, PN 10-PN 40 H GS3 - flangeless design acc. DIN, PN 100	1 stainless Steel 1.4571 / 1.4581	0 spring to close 1 spring to open	3 diaphragm actuator 125 cm ² 4 diaphragm actuator 250 cm ²	M to state, if some sections 7-16 are quoted A nut and nut acc. DIN EN1092-1 C nut and tongue acc. DIN EN1092-1 E 2x lowered face acc. DIN EN1092-1 H lowered and raised face acc. DIN EN1092-1	- Standard 1 2 springs 2 4 springs 3 6 springs 4 8 springs 5 10 springs D Set of springs 0,2-1 bar (4 springs)	- PTFE-V-shaped seal, self-adjusting (Standard) 1 additional bellows 1.4571 3 additional inconel 625 bellow 2.4856
9. Sliding disc	10. Fixed disc	11. Kvs-values	12. Flow characteristic	13. Accessories	14. Positioner	15. Signalling equipment	16. Special version
- carbon material 9 STN2 S SFC	- stainless steel 1.4571 coated 1 STN 2-plate (only in combination with the position "9" 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 to state, if in sections 14 and 15 accessories are quoted	- without 1 p/p - without gauges 2 p/p - with gauges 3 i/p - without gauges 4 dto. with gauges 6 i/p - intrinsically safe, without gauges 7 dto. without gauges	- without 0 2 limit switches inductive, M12x1 10-30 V DC PNP 1 2 limit switches inductive, integrated in positioner 2 i/p-converter 5 2 limit switches inductive, M 12x1 10-55 V DC PNP/NPN	S other special versions have to be quoted in letters

Ordering Example: 8023/080VQG103M4 - - - - - Z3
 GS3-Control Valve with pneumatic actuator, DN 80, PN 10/40, stainless steel, spring closes, actuator area 125 cm², 8 springs, PTFE-V-shaped sealings, function unit carbon-stainless steel 1.4571 coated, linear characteristic, i/p-positioner ex-proof

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					
	200°C	250°C	300°C	350°C	400°C	450°C
15 - 65	34	32	31	29	27	25
80	34	32	31	29	27	25
100	29	27	25	24	24	23
125	20	19	18	17	16	16
150	14	13	12	12	11	11
200 (PN16 only)	14	13	12	11	10	9
250 (PN16 only)	9,5	8,4	7,4	6,9	6,4	5,9

DN	Sliding unit: STN2							
	max. admissible diff. pressures for GS3-valves							
	200°C	250°C	300°C	350°C	400°C	450°C	500°C	530°C
15 - 65	34	32	31	29	27	25	15	5
80	33	26	22	19	16	14	13	5
100	26	24	20	17	15	13	12	5
125	17	16	13	11	10	9	8	5
150	13	11	9	8	7	6	6	5

Limitation for SFC-sliding discs: 300°C

PN 100

DN	Sliding unit: carbon/SFC - stainless steel, coated					
	max. admissible diff. pressures for GS3-valves					
	200°C	250°C	300°C	350°C	400°C	450°C
15 - 32	71	66	63	60	58	56
40	71	66	63	60	58	56
50	71	66	63	60	58	56
65	71	66	62	60	58	56
80	43	40	37	36	35	33

DN	Sliding unit: STN2							
	max. admissible diff. pressures for GS3-valves							
	200°C	250°C	300°C	350°C	400°C	450°C	500°C	530°C
15 - 32	71	66	63	60	52	46	33	11
40	65	53	43	37	32	29	26	11
50	70	56	46	40	35	31	28	11
65	56	45	37	32	28	25	22	11
80	33	26	22	19	16	14	13	11

Limitation for SFC-sliding discs: 300°C

ANSI #150

DN	Sliding unit: carbon/SFC - stainless steel, coated					
	max. admissible diff. pressures for GS3-valves					
	200°C	250°C	300°C	350°C	400°C	450°C
15 - 125	13	12	10	8	6,5	4,5
150	13	12	10	8	6,5	4,5
200	13	12	10	8	6,5	4,5
250	9,5	8,4	7,4	6,9	6,4	5,9

DN	Sliding unit: STN2							
	max. admissible diff. pressures for GS3-valves							
	200°C	250°C	300°C	350°C	400°C	450°C	500°C	530°C
15 - 125	13	12	10	8	6,5	4,5	1,5	0,3
150	13	11	9,5	8	6,5	4,5	1,5	0,3

Limitation for SFC-sliding discs: 300°C

ANSI #300

DN	Sliding unit: carbon/SFC - stainless steel, coated					
	max. admissible diff. pressures for GS3-valves					
	200°C	250°C	300°C	350°C	400°C	450°C
15 - 65	35	33	31	30	29	28
80	35	33	31	30	29	28
100	29	27	25	24	24	23
125	20	19	18	17	16	16
150	14	13	12	12	11	11
200 (PN16 only)	14	13	12	11	10	9

DN	Sliding unit: STN2							
	max. admissible diff. pressures for GS3-valves							
	200°C	250°C	300°C	350°C	400°C	450°C	500°C	530°C
15 - 65	35	32	31	29	27	25	16	5
80	33	26	22	19	16	14	13	5
100	26	24	20	17	15	13	12	5
125	17	16	13	11	10	8,5	8	5
150	13	11	9	8	7	6	5,5	5

Limitation for SFC-sliding discs: 300°C

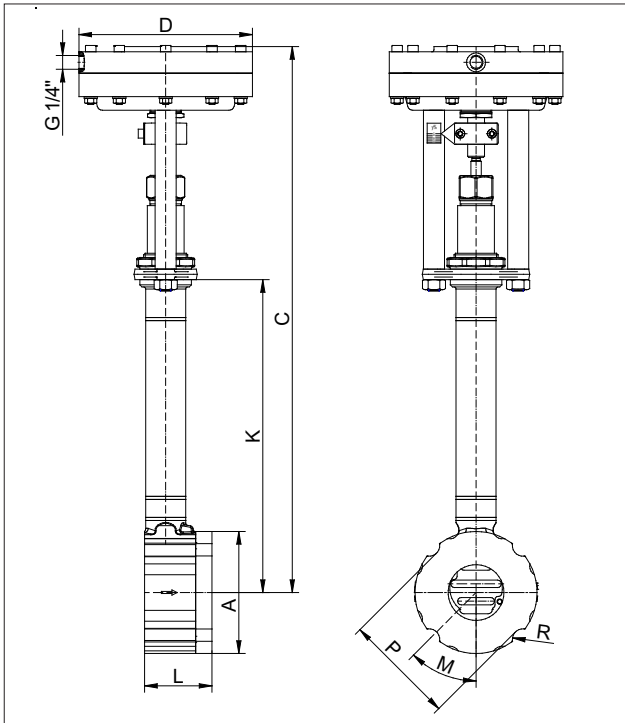
ANSI #600

DN	Sliding unit: carbon/SFC - stainless steel, coated					
	max. admissible diff. pressures for GS3-valves					
	200°C	250°C	300°C	350°C	400°C	450°C
15 - 32	71	66	63	60	58	56
40	71	66	63	60	58	56
50	71	66	63	60	58	56
65	71	66	62	60	58	56
80	43	40	37	36	35	33

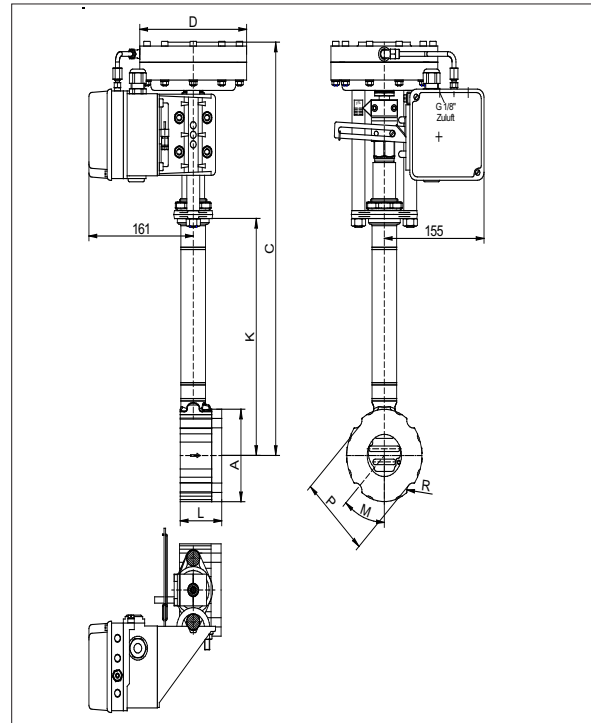
DN	Sliding unit: STN2							
	max. admissible diff. pressures for GS3-valves							
	200°C	250°C	300°C	350°C	400°C	450°C	500°C	530°C
15 - 32	71	66	63	60	52	46	33	11
40	65	53	43	37	32	29	26	11
50	70	56	46	40	35	31	28	11
65	56	45	37	32	28	25	22	11
80	33	26	22	19	16	14	13	11

Limitation for SFC-sliding discs: 300°C

Dimensions and Weights



without positioner



with electropneumatic positioner

DN	A mm	C mm	Ø D actuator size		L mm	Weight kg actuator size		Stroke mm
			125	250		125	250	
15	64	495	165	222	56	7,5	9,7	6
20	72	500	165	222	56	7,7	9,9	6
25	82	505	165	222	56	8,2	10,4	6
32	89	510	165	222	56	8,5	10,7	6
40	99	515	165	222	56	9	11	6
50	116	525	165	222	64	10,5	13	8
65	138	535	165	222	68	12,5	15	8
80	153	545	165	222	70	13,5	16	8
100	184	555	165	222	75	16,5	19	8,5
125	212	570	165	222	80	19,5	22	8,5
150	242	585	165	222	80	23	25	8,5
200	302	615	165	222	93	40	42	8,5
250	360	640	165	222	96	45,5	47,5	8,5

Dimensions in mm