

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	
Nominal pressure acc. JIS for „raised face“ flanges	ANSI 600	DN 15 - DN 80	
	10K	DN 15 -DN 50	
Supply pressure	20K	DN 15 -DN 40	
Fluid temperature	max. 6 bar		
Ambient temperature	-60°C up to +450°C for function unit carbon-stainless steel -60°C up to +450°C for function unit STN2 -60°C up to +300°C for function unit SFC up to +530°C with stainless steel body, bellows from Inconel 625 and function unit STN2		
Rangeability	-30°C up to +80°C		
Leakage	40 : 1		
% of Kvs IEC 60534-4 EN 12266-1	Disc pair Carbon-stainless steel	Disc pair SFC	Disc pair STN 2
	< 0,0001	< 0,0005	< 0,001
	IV-S1	IV-S1	IV
	D	E	E

Kvs-values see data sheet 8001.

Materials

Body	Stainless steel 1.4571 / 1.4581 or 1.4408	acier 1.0619
Bodycover	Stainless steel 1.4571 or 1.4404	
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 (max. 300°C) STN2-disc
Guide ring for sliding disc	Stainless steel 1.4581	



Packing tested according to TA-Luft as defined in DIN EN ISO 15848-1 and VDI 2440

Options

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

Admissible differential pressures
(For temperatures of up to 120°C with PN-rating
up to 38°C with ANSI-rating)

For temperatures of 120°C (PN)
or 38°C (ANSI) and above:
obey application limits !

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

Actuator size	125 cm ²					250 cm ²				
	0.2 to 1	1.0 to 2	1.5 to 3	1.8 to 3,8	2.1 to 4,5	0.2 to 1	0.8 to 1,4	1.2 to 2,2	1.5 to 2,7	1.7 to 3,2
Spring range (bar)	1,2	2,8	4,2	5,2	6,0	1,2	2,1	3,2	4	4,6
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									
15	4,4	102,1	102,1	102,1	102,1	18,9	102,1	102,1	102,1	102,1
20	3,8	102,1	102,1	102,1	102,1	16,4	102,1	102,1	102,1	102,1
25	3,2	88 (100)*	88 (102,1)*	88 (102,1)*	88 (102,1)*	13,7	88 (102,1)*	88 (102,1)*	88 (102,1)*	88 (102,1)*
32	2,6	100	102,1	102,1	102,1	11,3	102,1	102,1	102,1	102,1
40	2,0	66	88 (102,1)*	88 (102,1)*	88 (102,1)*	8,5	88 (102,1)*	88 (102,1)*	88 (102,1)*	88 (102,1)*
50	-	36	57	70	84	5,8	63	97	102,1	102,1
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	Code D	Code 2	Code 3	Code 4	Code 5	Code D	Code 2	Code 3	Code 4	Code 5

Standard
 *: figures in brackets for bodys of carbon steel

	Upper limits for admissible pressures in bar					
	PN16	PN40	PN100	ANSI150	ANSI 300	ANSI 600
P max. carbon steel	16	40	100	19,6	51,1	102,1
P max. stainless steel				19,0	49,6	99,3

Disc pair: STN 2

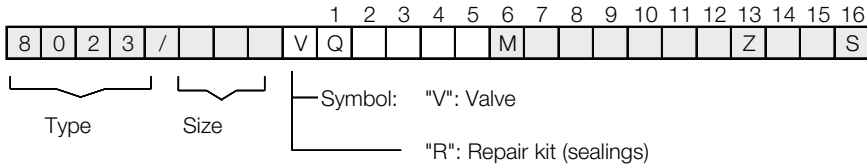
Actuator size	125 cm ²					250 cm ²				
	0.2 to 1	1.0 to 2	1.5 to 3	1.8 to 3,8	2.1 to 4,5	0.2 to 1	0.8 to 1,4	1.2 to 2,2	1.5 to 2,7	1.7 to 3,7
Spring range (bar)	1,2	2,8	4,2	5,2	6,0	1,2	2,1	3,2	4	4,6
Supply air (bar)	1,2	2,8	4,2	5,2	6,0	1,2	2,1	3,2	4	4,6
DN	Admissible differential pressures in bar									
15	3,1	102,1	102,1	102,1	102,1	13,4	102,1	102,1	102,1	102,1
20	2,4	57	102,1	102,1	102,1	10,3	102,1	102,1	102,1	102,1
25	1,8	57	88	88 (102,1)*	88 (102,1)*	7,7	88 (102,1)*	88 (102,1)*	88 (102,1)*	88 (102,1)*
32	1,3	38	59	73	87	5,7	66	102,1	102,1	102,1
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	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	Code D	Code 2	Code 3	Code 4	Code 5	Code D	Code 2	Code 3	Code 4	Code 5

Standard
 *: figures in brackets for bodys of carbon steel

	Upper limits for admissible pressures in bar					
	PN16	PN40	PN100	ANSI150	ANSI 300	ANSI 600
P max. carbon steel	16	40	100	19,6	51,1	102,1
P max. stainless steel				19,0	49,6	99,3

The supply air pressure stated in the table is the minimum supply air pressure that has to be available. This is valid for the usage without positioner. For the usage with positioner the required supply air pressure is being determined by the adjustment of the positioner. For the standard version it is 4 bar ü. The spring configuration "D" allows the usage of a control valve without positioner but with limited performance. The valve can be controlled directly by a process controller with the norm signal of 0,2 up to 1 bar.

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 or 1.4404 /1.4408 4 body carbon steel 1.0619, body cover made of stainless steel	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 gauges 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.
Application limits for carbon steel bodys on request.

PN40

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	400°C	450°C
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	38
32	40	40	40	40	40	40	40	40
40	40	40	40	40	40	40	40	38
50	40	40	40	40	40	40	40	40
65	40	40	40	40	40	40	40	40
80	40	40	40	40	40	40	40	35
100	33	33	33	33	33	33	33	33
125	23	23	23	23	23	23	23	23
150	16	16	16	16	16	16	16	16
200 (only PN16)	16	16	15	13	12	11	10	9
250 (only PN16)	10	9	9	8	7	6	6	5

DN	Sliding unit: STN2									
	max. admissible pressures for GS3-valves									
	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C	500°C	550°C
15	40	40	40	40	40	40	40	40	39	27
20	40	40	40	40	40	40	40	40	33	23
25	40	40	40	40	40	40	40	38	26	18
32	40	40	40	40	40	40	40	40	30	21
40	40	40	40	40	40	37	32	29	26	18
50	40	40	40	40	40	40	35	31	28	26
65	40	40	40	40	37	32	28	25	22	21
80	36	34	33	26	22	19	16	14	13	12
100	32	31	30	24	20	17	15	13	12	11
125	21	21	19	16	13	11	10	8	8	7
150	15	15	14	11	9	8	7	6	5	5
200 (only PN16)	-	-	-	-	-	-	-	-	-	-
250 (only PN16)	-	-	-	-	-	-	-	-	-	-

Limitation for SFC-sliding discs: 300°C

PN100

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	400°C	450°C
15	100	100	100	93	84	79	74	55
20	100	100	89	81	73	68	64	48
25	88	81	70	63	57	54	51	38
32	100	93	80	73	65	62	58	43
40	88	81	70	63	57	54	51	38
50	100	100	100	100	100	94	87	76
65	80	80	80	79	71	67	63	47
80	48	48	48	48	48	44	41	35

DN	Sliding unit: STN2									
	max. admissible pressures for GS3-valves									
	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C	500°C	550°C
15	100	100	100	93	84	79	74	55	39	27
20	100	100	89	81	73	68	64	48	33	23
25	88	81	70	63	57	54	51	38	26	18
32	100	93	80	73	65	60	52	43	30	21
40	72	69	65	53	43	37	32	29	26	18
50	77	73	70	56	46	40	35	31	28	26
65	62	59	56	45	37	32	28	25	22	21
80	36	34	33	26	22	19	16	14	13	12

Limitation for SFC-sliding discs: 300°C

ANSI150

Sliding unit: carbon/SFC - stainless steel, coated										
max. admissible pressures for GS3-valves										
DN	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C
15-125	19,0	18,4	16,2	14,8	13,7	12,1	10,2	8,4	6,5	4,6
150	16,0	16,0	16,0	14,8	13,7	12,1	10,2	8,4	6,5	4,6
200	16,0	16,0	16,0	14,8	13,7	12,1	10,2	8,4	6,5	4,6
250	10,4	10,4	10,4	9,9	9,4	8,4	7,4	6,8	6,3	4,6

Sliding unit: STN2												
max. admissible pressures for GS3-valves												
DN	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C	500°C	550°C
15-125	19,0	18,4	16,2	14,8	13,7	12,1	10,2	8,4	6,5	4,6	2,2	-
150	16,2	16,2	16,2	14,8	13,7	11,8	9,7	8,4	6,5	4,6	2,2	-
200	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-

Limitation for SFC-sliding discs: 300°C

ANSI300

Sliding unit: carbon/SFC - stainless steel, coated										
max. admissible pressures for GS3-valves										
DN	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C
15	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8
20	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8
25	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8
32	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8
40	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8
50	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8
65	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8
80	48,0	48,0	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8
100	33,0	33,0	33,0	33,0	33,0	33,0	31,6	30,3	29,4	28,8
125	23,0	23,0	23,0	23,0	23,0	23,0	23,0	23,0	23,0	23,0
150	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0

Sliding unit: STN2												
max. admissible pressures for GS3-valves												
DN	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C	500°C	550°C
15	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8	27,6	25,0
20	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8	27,6	23,6
25	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8	26,6	18,6
32	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8	27,6	21,3
40	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8	26,6	18,6
50	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	29,4	28,8	27,6	25,0
65	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	28,4	25,2	22,8	21,4
80	36,6	36,6	36,6	34,8	33,0	26,8	22,0	19,0	16,6	14,7	13,3	12,5
100	33,0	33,0	33,0	31,7	30,1	24,4	20,1	17,3	15,1	13,4	12,2	11,4
125	22,0	22,0	22,0	21,0	19,9	16,1	13,2	11,5	10,0	8,9	8,0	7,5
150	16,0	16,0	16,0	15,4	14,6	11,8	9,7	8,4	7,3	6,5	5,9	5,5

Limitation for SFC-sliding discs: 300°C

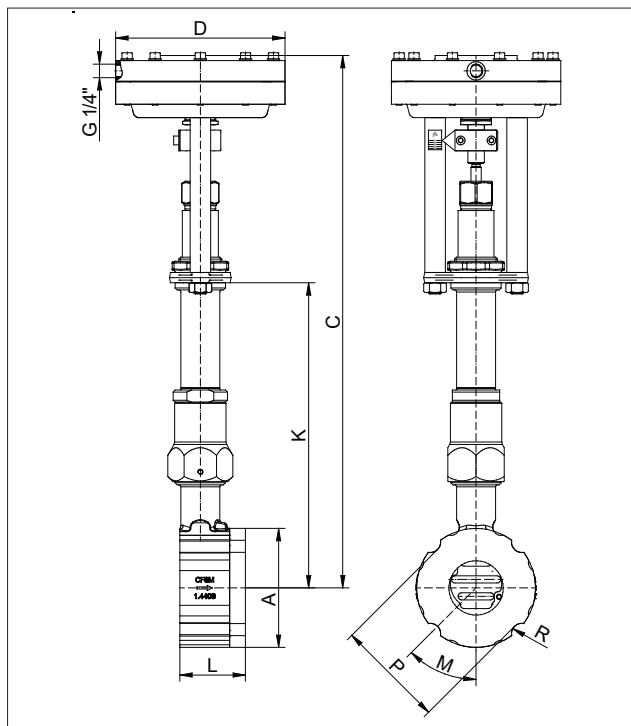
ANSI600

Sliding unit: carbon/SFC - stainless steel, coated										
max. admissible pressures for GS3-valves										
DN	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C
15	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,7	59,8	55,7
20	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,7	59,8	48,3
25	88,0	88,0	84,4	77,0	70,1	63,7	57,3	54,2	51,0	38,0
32	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,7	58,5	43,6
40	88,0	88,0	84,4	77,0	70,1	63,7	57,3	54,2	51,0	38,0
50	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,7	59,8	57,7
65	80,0	80,0	80,0	77,0	71,3	66,8	63,2	60,7	59,8	47,5
80	48,0	48,0	48,0	48,0	48,0	48,0	48,0	44,5	41,1	35,4

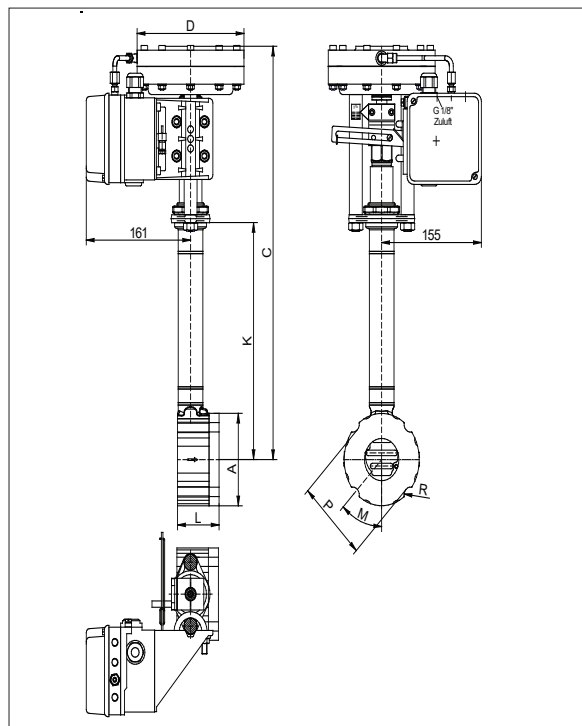
Sliding unit: STN2												
max. admissible pressures for GS3-valves												
DN	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C	500°C	550°C
15	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,7	59,8	55,7	39,0	27,2
20	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,7	59,8	48,3	33,9	23,6
25	88,0	88,0	84,4	77,0	70,1	63,7	57,3	54,2	51,0	38,0	26,6	18,6
32	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,2	52,6	43,6	30,5	21,3
40	72,5	72,5	72,5	69,0	65,5	53,1	43,6	37,7	32,9	29,2	26,5	18,6
50	77,7	77,7	77,7	73,9	70,2	56,9	46,7	40,4	35,3	31,3	28,4	26,6
65	62,5	62,5	41,7	59,5	56,4	45,8	37,6	32,5	28,4	25,2	22,8	21,4
80	36,6	36,6	36,6	34,8	33,0	26,8	22,0	19,0	16,6	14,7	13,3	13,3

Limitation for SFC-sliding discs: 300°C

Dimensions and Weights



without positioner



with electropneumatic positioner

DN	A mm	C mm	Ø D actuator size		K mm	L mm	Weight kg actuator size		Stroke mm
			125	250			125	250	
15	64	495	165	222	272	56	7,5	9,7	6
20	72	500	165	222	276	56	7,7	9,9	6
25	82	505	165	222	281	56	8,2	10,4	6
32	89	510	165	222	283	56	8,5	10,7	6
40	99	515	165	222	289	56	9	11	6
50	116	525	165	222	297	64	10,5	13	8
65	138	535	165	222	306	68	12,5	15	8
80	153	545	165	222	315	70	13,5	16	8
100	184	555	165	222	328	75	16,5	19	8,5
125	212	570	165	222	343	80	19,5	22	8,5
150	242	585	165	222	356	80	23	25	8,5
200	302	615	165	222	384	93	40	42	8,5
250	360	640	165	222	410	96	45,5	47,5	8,5

Dimensions in mm