control valve with electrical actuator
series SG13

Fast and high resolution motor valve for control and switching of neutral through to highly aggressive media in process engineering, chemical industries and for plant equipment.

- Space saving wafer type construction
- Lowest possible weight (especially in larger sizes)
- Low operation noise level (quiet operation)
- Control of high differential pressures with small actuators
- Fast stroking speed
- Small dead band
- Smooth start and slow down
- Metal body

Technical Information of the Valve

Design	flangeless design for flanges acc. EN 1092-1 Form B or ASME B16.5 RF		
Nominal size	DN 15 up to DN 250		
Nominal pressure acc. EN 1333	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	ANSI 150		DN 15 - DN 250
	ANSI 300		DN 15 - DN 150
	ANSI 600		DN 15 - DN 80
Nominal pressure acc. JIS for flanges with raised face	10K		DN 15 - DN 50
	20K		DN 15 - DN 40
Media temperature	Versions from -60°C up to +350°C		
Rangeability	40 : 1		
Leakage % of Kvs IEC 60534-4 EN 12266-1	Disc pair Carbon-stainless steel < 0,0001 IV-S1 D	Disc pair SFC < 0,0005 IV-S1 E	Disc pair STN 2 < 0,001 IV E
Packing leakage	tested according to TA-Luft as defined in DIN EN ISO 15848-1 and VDI 2440		

K_{vs}-value see datasheet 8001.

Fluid temperature

Rating	PN40	PN 16	PN 100	ANSI 150	ANSI 300	ANSI 600
Body material cpl. stainless steel						
Tmin [°C]	-60	-60	-60	-29	-29	-29
Tmax [°C]	350	350	350	350	350	350
Body material cpl. carbon steel						
Tmin [°C]	-60	-60	-10	-20	-20	-10
Tmax [°C]	300	300	300	300	300	300
Body material carbon steel with stainless steel body cover						
Tmin [°C]	-60	-60	-10	-20	-20	-20
Tmax [°C]	350	350	350	350	350	350

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control valve with electrical actuator
series SG13

Materials of the Valve

Body*	carbon steel 1.0570 /1.0619	stainless steel 1.4571 /1.4581 or 1.4404 /1.4408	
Bodycover*	carbon steel 1.0570 /1.0619	stainless steel 1.4571 /1.4581 or 1.4404 /1.4408	
Packing	PTFE (carbon filled), spring 1.4310		
Actuating stem	stainless steel, roller burnished		
Bellow	stainless steel 1.4571		
Fixed disc	stainless steel 1.4571, plated		STN2-disc
Sliding disc	standard: special carbon material	SFC-disc (max. +350°C)	STN2-disc
Coupling ring for disc	stainless steel 1.4581		

*Further Materials such as Hastelloy or Inconel on request

Technical Information of the Actuator

Driving force	2,0 kN / 5,0 kN
Power connections	24 V AC/DC 100 - 240 V 50/60Hz
Ambient temperature	Standard: -10°C up to +60°C Low temperature version: -40°C up to +60°C
Storage Temperature	Standard: -30°C up to +80°C (+60°C with Fail-Safe protection) Low temperature version: -40°C up to +80°C (+60°C with Fail-Safe protection)
Mounting position	choice horizontal or vertical actuator only
Protection class (EN 60529)	IP 67
Max. power consumption	40 Watt
Dead band	±0,2% at min. 6mm stroke
Repeat accuracy	±0,1% at min. 6mm stroke
Stroking speed	2,0 kN-version: 0,75 s/mm up to 250 s/mm (standard 1,5 s/mm) 5,0 kN-version: 2 s/mm up to 250 s/mm (standard 4 s/mm)
Stroking speed of the Fail-Safe protection	2,0 kN-version: 0,75 s/mm up to 4 s/mm 5,0 kN-version: 2 s/mm up to 4 s/mm
Set point range	adjustable 0(4) - 20 mA, 0(2) - 10 V optional binary input signal (24V DC)
Feed back	adjustable 0(4) - 20 mA, 0(2) - 10 V
cycles (Fail-Safe)	500.000
life-time (Fail-Safe)	10 years
duty cycle	100%
Self Monitoring	monitoring of the driving power, set point, actuator temperature, temperatrure of the electronic etc.
Diagnostic function	storage of motor and total service life, temperature- and way classes
Valve adaptation	automatic stroke adjustment to suit valve limits
additional inputs	binary input

Stroking Times

		Stroking time (sec.) for the complete stroke at a stroking speed of				
DN	Stroke	0,75 s/mm	1 s/mm	1,5 s/mm	2 s/mm	4 s/mm
15 - 40	6,25	4,7	6,3	9,4	12,5	25,0
50 - 80	8,25	6,2	8,3	12,4	16,5	33,0
100 - 250	8,75	6,6	8,8	13,1	17,5	35,0
				Standard 2kN-actuator	min. stroking time for 5kN-actuator	Standard 5kN-actuator

Options

2 additional stroke limit switches	free adjustable volt free contacts (open/close)
Fail safe protection	Mounted in own body at actuator Safety position freely selectable
Communication software	with communication link, for parametrization and diagnosis of the actuator
Bluetoothmodul BT-1	Wireless connection to DeviceConfig configuration software (upgrade option)

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Actuator with fail-safe protection (Option)

- Safety function at power failure
- Power supply via high performance capacitors
- Safety position open, closed or in every other position selectable
- Automatic monitoring of the charge condition of the capacitors

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 !

DN	driving force: 2kN		driving force: 5kN	
	max. differential pressure (bar)			
	disc - pair carbon/SFC stainless steel coated	disc - pair STN2	disc - pair carbon/SFC stainless steel coated	disc - pair STN2
15	102,1	102,1	102,1	102,1
20	102,1	101,9	102,1	102,1
25	88 (102,1)*	76,1	88 (102,1)*	88 (102,1)*
32	102,1	56,6	102,1	102,1
40	84	38,9	88 (100)*	72,6
50	55,1	23,2	100	59,9
65	46,4	19	80	49,1
80	29,5	11,5	48	29,7
100	18,8	7,1	33	18,4
125	12,8	4,8	23	12,3
150	9,5	3,5	16	9,1
200	5,5	-	14,3	-
250	3,4	-	8,8	-

*: figures in brackets for bodys made 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

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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.

PN40

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible pressures for GS3-valves in stainless steel						Sliding unit: STN2 max. admissible pressures for GS3-valves in stainless steel					
	100°C	150°C	200°C	250°C	300°C	350°C	100°C	150°C	200°C	250°C	300°C	350°C
15-32	40	40	40	40	40	40	40	40	40	40	40	40
40	40	40	40	40	40	40	40	40	40	40	40	37
50	40	40	40	40	40	40	40	40	40	40	40	40
65	40	40	40	40	40	40	40	40	40	40	37	32
80	40	40	40	40	40	40	36	34	33	26	22	19
100	33	33	33	33	33	33	32	31	30	24	20	17
125	23	23	23	23	23	23	21	21	19	16	13	11
150	16	16	16	16	16	16	15	15	14	11	9	8
200 (only PN16)	16	16	15	13	12	11	-	-	-	-	-	-
250 (only PN16)	10	9	9	8	7	6	-	-	-	-	-	-

Limitation for SFC-sliding discs: 300°C

PN100

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible pressures for GS3-valves in stainless steel						Sliding unit: STN2 max. admissible pressures for GS3-valves in stainless steel					
	100°C	150°C	200°C	250°C	300°C	350°C	100°C	150°C	200°C	250°C	300°C	350°C
15	100	100	100	93	84	79	100	100	100	93	84	79
20	100	100	89	81	73	68	100	100	89	81	73	68
25	88	81	70	63	57	54	88	81	70	63	57	54
32	100	93	80	73	65	62	100	93	80	73	65	60
40	88	81	70	63	57	54	72	69	65	53	43	37
50	100	100	100	100	100	94	77	73	70	56	46	40
65	80	80	80	79	71	67	62	59	56	45	37	32
80	48	48	48	48	48	44	36	34	33	26	22	19

Limitation for SFC-sliding discs: 300°C

ANSI150

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible pressures for GS3-valves in stainless steel								Sliding unit: STN2 max. admissible pressures for GS3-valves in stainless steel							
	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C
15-125	19,0	18,4	16,2	14,8	13,7	12,1	10,2	8,4	19,0	18,4	16,2	14,8	13,7	12,1	10,2	8,4
150	16,0	16,0	16,0	14,8	13,7	12,1	10,2	8,4	16,2	16,2	16,2	14,8	13,7	11,8	9,7	8,4
200	16,0	16,0	16,0	14,8	13,7	12,1	10,2	8,4	-	-	-	-	-	-	-	-
250	10,4	10,4	10,4	9,9	9,4	8,4	7,4	6,8	-	-	-	-	-	-	-	-

Limitation for SFC-sliding discs: 300°C

ANSI300

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible pressures for GS3-valves in stainless steel								Sliding unit: STN2 max. admissible pressures for GS3-valves in stainless steel							
	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C
15-65	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3	49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,3
80	48,0	48,0	42,2	38,5	35,7	33,4	31,6	30,3	36,6	36,6	36,6	34,8	33,0	26,8	22,0	19,0
100	33,0	33,0	33,0	33,0	33,0	33,0	31,6	30,3	33,0	33,0	33,0	31,7	30,1	24,4	20,1	17,3
125	23,0	23,0	23,0	23,0	23,0	23,0	23,0	23,0	22,0	22,0	22,0	21,0	19,9	16,1	13,2	11,5
150	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	15,4	14,6	11,8	9,7	8,4

Limitation for SFC-sliding discs: 300°C

ANSI600

DN	Sliding unit: carbon/SFC - stainless steel, coated max. admissible pressures for GS3-valves in stainless steel								Sliding unit: STN2 max. admissible pressures for GS3-valves in stainless steel							
	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C
15-20	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,7	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,7
25	88,0	88,0	84,4	77,0	70,1	63,7	57,3	54,2	88,0	88,0	84,4	77,0	70,1	63,7	57,3	54,2
32	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,7	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,2
40	88,0	88,0	84,4	77,0	70,1	63,7	57,3	54,2	72,5	72,5	72,5	69,0	65,5	53,1	43,6	37,7
50	99,3	96,2	84,4	77,0	71,3	66,8	63,2	60,7	77,7	77,7	77,7	73,9	70,2	56,9	46,7	40,4
65	80,0	80,0	80,0	77,0	71,3	66,8	63,2	60,7	62,5	62,5	41,7	59,5	56,4	45,8	37,6	32,5
80	48,0	48,0	48,0	48,0	48,0	48,0	48,0	44,5	36,6	36,6	36,6	34,8	33,0	26,8	22,0	19,0

Limitation for SFC-sliding discs: 300°C

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Application limitations for GS3 valves in carbon steel

These pressure must not be exceeded for GS-valves from the GS3-series made of carbon steel, even though the actuator power might allow it.

PN40

DN	Sliding unit: carbon/SFC - stainless steel, coated						Sliding unit: STN2					
	max. admissible pressures for GS3-valves in carbon steel						max. admissible pressures for GS3-valves in carbon steel					
	100°C	150°C	200°C	250°C	300°C	350°C	100°C	150°C	200°C	250°C	300°C	350°C
15-50	40	40	40	40	40	40	40	40	40	40	40	40
65	40	40	40	40	40	40	40	40	40	40	37	32
80	40	40	40	40	40	40	36	34	33	26	22	19
100	33	33	33	33	33	33	33	31	30	24	20	17
125	23	23	23	23	23	23	22	21	19	16	13	11
150	16	16	16	16	16	16	16	15	14	11	9	8
200 (nur PN 16)	16	16	15	13	12	11	-	-	-	-	-	-
250 (nur PN 16)	10	9	9	8	7	6	-	-	-	-	-	-

Limitation for SFC-sliding discs: 300°C

PN100

DN	Sliding unit: carbon/SFC - stainless steel, coated						Sliding unit: STN2					
	max. admissible pressures for GS3-valves in carbon steel						max. admissible pressures for GS3-valves in carbon steel					
	100°C	150°C	200°C	250°C	300°C	350°C	100°C	150°C	200°C	250°C	300°C	350°C
15 - 20	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	94	87	100	100	100	100	94	87
32	100	100	100	100	100	99	100	100	100	84	69	60
40	100	100	100	100	94	87	72	69	65	53	43	37
50	100	100	100	100	100	94	77	73	70	56	46	40
65	80	80	80	80	80	76	62	59	56	45	37	32
80	48	48	48	48	48	44	36	34	33	26	22	19

Limitation for SFC-sliding discs: 300°C

ANSI150

DN	Sliding unit: carbon/SFC - stainless steel, coated								Sliding unit: STN2							
	max. admissible pressures for GS3-valves in carbon steel								max. admissible pressures for GS3-valves in carbon steel							
	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C
15-125	19,6	19,2	17,7	15,8	13,8	12,1	10,2	8,4	19,6	19,2	17,7	15,8	13,8	12,1	10,2	8,4
150	16,0	16,0	16,0	15,8	13,8	12,1	10,2	8,4	16,2	16,2	16,2	15,4	13,8	11,8	9,7	8,0
200	16,0	16,0	16,0	15,8	13,8	12,1	10,2	8,4	-	-	-	-	-	-	-	-
250	10,5	10,5	10,5	9,9	9,4	8,4	7,4	6,0	-	-	-	-	-	-	-	-

Limitation for SFC-sliding discs: 300°C

ANSI300

DN	Sliding unit: carbon/SFC - stainless steel, coated								Sliding unit: STN2							
	max. admissible pressures for GS3-valves in carbon steel								max. admissible pressures for GS3-valves in carbon steel							
	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C
15-50	51,1	50,1	46,6	45,1	43,8	41,9	19,8	40,0	51,1	50,1	46,6	45,1	43,8	41,9	19,8	37,6
65	51,1	50,1	46,6	45,1	43,8	41,9	19,8	40,0	41,7	41,7	41,7	39,7	37,6	33,5	19,8	32,5
80	48,0	48,0	46,6	45,1	43,8	41,9	19,8	40,0	36,6	36,6	36,6	34,8	33,0	26,8	19,8	19,0
100	33,0	33,0	33,0	33,0	33,0	33,0	19,8	33,0	33,0	33,0	33,0	31,7	30,1	24,4	19,8	17,0
125	23,0	23,0	23,0	23,0	23,0	23,0	19,8	23,0	22,1	22,1	22,1	21,0	19,9	16,1	13,2	11,0
150	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	16,0	15,4	14,6	11,8	9,7	8,0

Limitation for SFC-sliding discs: 300°C

ANSI600

DN	Sliding unit: carbon/SFC - stainless steel, coated								Sliding unit: STN2							
	max. admissible pressures for GS3-valves in carbon steel								max. admissible pressures for GS3-valves in carbon steel							
	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C	38°C	50°C	100°C	150°C	200°C	250°C	300°C	350°C
15-25	102,1	100,2	93,2	90,2	87,6	83,9	79,6	75,1	102,1	100,2	93,2	90,2	87,6	83,9	79,6	75,1
32	102,1	100,2	93,2	90,2	87,6	83,9	79,6	75,1	102,1	100,2	93,2	90,2	87,6	83,9	69,6	60,0
40	100,0	100,0	93,2	90,2	87,6	83,9	79,6	75,1	72,5	72,5	72,5	69,0	65,5	53,1	43,6	37,0
50	100,0	100,0	93,2	90,2	87,6	83,9	79,6	75,1	77,7	77,7	77,7	73,9	70,2	56,9	46,7	40,0
65	80,0	80,0	80,0	80,0	80,0	80,0	79,6	75,1	62,5	62,5	62,5	59,5	56,4	45,8	37,6	32,0
80	48,0	48,0	48,0	48,0	48,0	48,0	48,0	44,0	36,6	36,6	36,6	36,8	33,0	26,8	22,0	19,0

Limitation for SFC-sliding discs: 300°C

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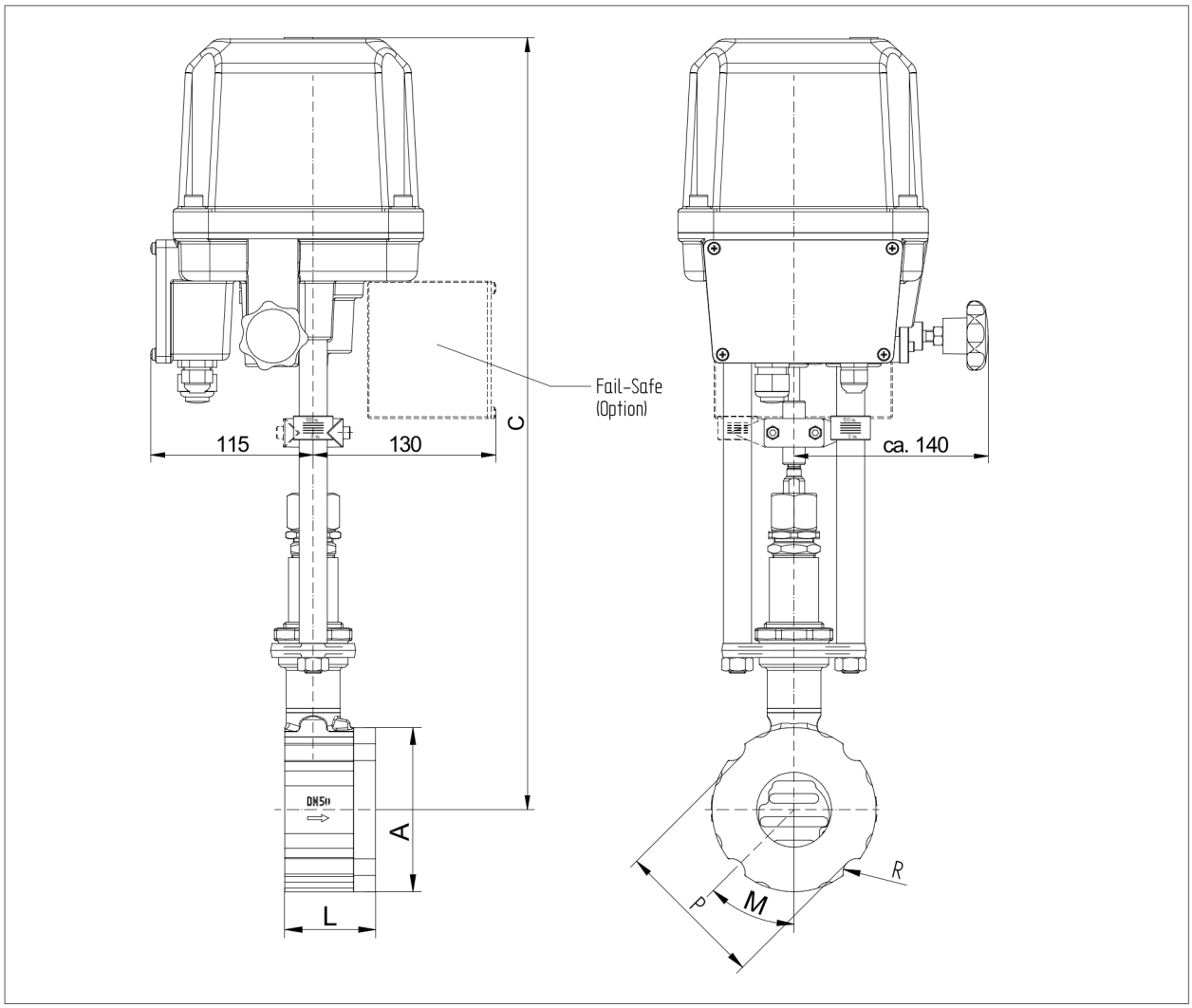
Dimensions and Weights



DN	ØA	C		L	Stroke	weight 2kN-Actuator kg		weight 5kN-Actuator kg	
		2kN	5kN			without Fail-Save	with Fail-Save	without Fail-Save	with Fail-Save
15	64	522	554	56	6	10,8	12,6	11,7	13,5
20	72	527	559	56	6	11,0	12,8	11,9	13,7
25	82	532	564	56	6	11,5	13,3	12,4	14,2
32	89	542	574	56	6	11,8	13,6	12,7	14,5
40	99	547	579	56	6	12,2	14,0	13,1	14,9
50	116	552	584	64	8	13,8	15,6	14,7	16,5
65	138	562	594	68	8	15,7	17,5	16,6	18,4
80	153	567	599	70	8	16,8	18,6	17,7	19,5
100	184	582	614	75	8,5	20,2	22,0	21,1	22,9
125	212	592	624	80	8,5	24,4	26,2	25,3	27,1
150	242	612	644	80	8,5	28,1	29,9	29,0	30,8
200	302	642	674	93	8,5	45,0	46,8	45,9	47,7
250	360	667	699	96	8,5	50,2	52,0	51,1	52,9

Dimensions in mm

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