

GS 3 series, DN 15 up to DN 250

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 further versions see data sheet 8038-GS3		
Nominal size	DN 15 up to DN 250		
Nominal pressure acc. EN 1333	PN 40 (fits also to PN 10-25) PN 100 PN 16	DN 15 - DN 150 DN 15 - DN 80 DN 200 - DN 250	
Nominal pressure acc. ANSI	ANSI 150 ANSI 300 ANSI 600	DN 15 - DN 250 DN 15 - DN 150 DN 15 - DN 80	
Nominal pressure acc. JIS for flanges with raised face	10K 20K	DN 15 - DN 50 DN 15 - DN 40	
Media temperature	Versions from -60°C up to +350°C		
Rangeability	40 : 1		
Leakage	Disc pair Carbon-stainless steel	Disc pair SFC	Disc pair STN 2
% of Kvs IEC 60534-4 EN 12266-1	< 0,0001 IV-S1 D	< 0,0005 IV-S1 E	< 0,001 IV E
Specific leakage rate shaft and body sealing	ISO FE-BH-CC3-SSA0-t(-40°C/+350°C)-PN40-ISO 15848-1		
Applications acc. PED 2014/68/EU	stainless steel or carbon steel body body made of Alloy C-276		up to category II up to category I

* With DN15 with reduction of less than 25%, different leakage rates possible.
K_{vs}-values see data sheet 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 carbon steel						
Tmin [°C]	-60	-60	-10	-20	-20	-20
Tmax [°C]	350	350	350	350	350	350
Body material Alloy C-276						
Tmin [°C]	-60	-60	-60	-29	-29	-29
Tmax [°C]	350	350	350	350	350	350

Materials

		Stainless steel version		
Valve body	stainless steel, 1.4408			
Bodycover	stainless steel, 1.4404 or 316L			
Valve stem	stainless steel 1.4571, roller burnished			
coupling ring	Stainless steel 1.4581			
Packing tube	Stainless steel 1.4408			
Packing	PTFE carbon filled (spring 1.4310)			
Body seal	Graphite with stainless steel foil			
Fixed disc	stainless steel coated		STN2-disc	STN3-disc
Sliding disc	special carbon material	SFC-disc (max. +300°C)	STN2-disc	STN3-disc

		carbon steel version		
Valve body	carbon steel, 1.0619			
Bodycover	stainless steel, 1.4404 or 316L			
Valve stem	stainless steel 1.4571, roller burnished			
coupling ring	Stainless steel 1.4581			
Packing tube	Stainless steel 1.4408			
Packing	PTFE carbon filled (spring 1.4310)			
Body seal	Graphite with stainless steel foil			
Fixed disc	stainless steel coated		STN2-disc	STN3-disc
Sliding disc	special carbon material	SFC-disc (max. +300°C)	STN2-disc	STN3-disc

		Version in Alloy C-276		
Valve body	Alloy C-276, 2.4819			
Bodycover	Alloy C-276, 2.4819			
Valve stem	Alloy C-276, 2.4819			
coupling ring	Alloy C-276, 2.4819			
Packing tube	Alloy C-276, 2.4819			
Packing	PTFE carbon filled (spring Alloy C4, 2.4610)			
Body seal	Pure graphite			
Fixed disc	Alloy C-276, 2.4819		STN3-disc	
Sliding disc	special carbon material		STN3-disc	

		For all versions		
Coupling	zinc die-cast or stainless steel			
Mounting parts	stainless steel			

Limitations for valves made of Alloy C-276

Additionally to the limitations of the pressure rating valves made of Alloy C-276 are limited to applications of the category I of the PED 2014/68/EU

		maximum admissible operating pressure in bar for application of category I of the pressure equipment directive 2014/68/EU				
		DN15	DN25	DN40	DN50	DN80
Fluid groupe 1	gaseous	X	X	25	20	12,5
	liquid	X	X	50	40	25
Fluid groupe 2	gaseous	X	X	X	X	X
	liquid	X	X	X	X	X

X = no limitation

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	
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, temperature 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	
additonal outputs	2 alarm outputs	

Stroking Times

DN	Stroke	Stroking time (sec.) for the complete stroke at a stroking speed of				
		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)

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 !**

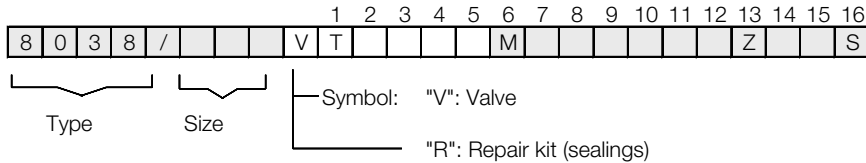
DN	driving force: 2kN		driving force: 5kN	
	max. differential pressure (bar)			
	disc - pair carbon/SFC stainless steel coated	disc - pair STN2	disc - pair carbon/SFC stainless steel coated	disc - pair STN2
15**	102,1	102,1	102,1	102,1
20	102,1	101,9	102,1	102,1
25**	88 (102,1)*	76,1	88 (102,1)*	88 (102,1)*
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

** Size available in Alloy C-276 version

	Upper limits for admissible pressures in bar					
	PN16	PN40	PN100	ANSI150	ANSI 300	ANSI 600
P max. carbon steel / Alloy C-276	16	40	100	19,6	51,1	102,1
P max. stainless steel				19,0	49,6	99,3

Ordering Number System



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

1. Function	2. Body design	3. Body material	4. Security position	5. Actuator	6. Special versions	7. Motor voltages
T GS-motorvalve (type8038)	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 PN10-PN40 H GS3-flangeless design acc. DIN PN100	0 carbon steel 1.0570 / 1.0619 1 stainless steel 1.4404 / 1.4408 5 Alloy C-276	- without 1 Fail Safe Function: Safety position closed in the case of power failure 2 Fail Safe Function: Safety position opened in the case of power failure 3 Fail Safe Function: position in case of power failure according to customer specification	A 2 kN, positionelectronic, IP67 B 5 kN, positionelectronic, IP67 L 2 kN actuator, low temperature version (to -40°C) with positions-electronics, IP67	M to state, if some sections 7 - 19 are quoted	- 100 - 240V 50/60 Hz (Standard) 1 24V AC/DC
8. Stem sealing	9. Sliding disc	10. Fixed disc	11. Kvs-values	12. Characteristic	13. Accessoires	14. Input signal
- PTFE-V-shaped seal, selfadjusting (Standard) 1 additional stainless steel bellow 1.4571 (max. 33 bar pressure)	- carbon material 9 STN2 S SFC	- stainless steel 1.4581, hardchrome plated 1 STN2 (unique-ment avec lac pos. „9“ STN2)	- 100 % (stand.) A red. to 63 % 1 red. to 40 % 2 red. to 16 % 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 %	- lineat 1 equal%	Z to state, if further sections are quoted	- standard 4-20 mA or 2-10 V 3 0-20 mA or 0-10V A binary control 24V DC - 3-points
15. Limit switches	16. Special versions	17. Stroking time	18. Special treatment	19. Feedback	20. Adjustment	21. Special additional version
- without 2 2 limit switches	S other special versions/aces-sory	- standard (2kN=1,5s/mm; 5kN=4s/mm) 1 0,75 s/mm 2 1 s/mm 3 2 s/mm 4 4 s/mm	- Standard 1 for oxygen 2 silicon free	- Standard (at control actuators like control signal)	- Standard death band ±0,2%	- without

Ordering example: 8038/100VTG1 - AM - - - - - Z - 2
 GS3-control valve with motor actuator, DN 100, PN 10/40, Stainless steel, actuator 2 kN, 100 - 240 V 50/60 Hz, PTFE-packing, discs: carbon - stainless steel 1.4571 coated, seat characteristics linear, 2 limit switches

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						Sliding unit: STN2					
	max. admissible pressures for GS3-valves in stainless steel						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	37	32	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						Sliding unit: STN2					
	max. admissible pressures for GS3-valves in stainless steel						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								Sliding unit: STN2							
	max. admissible pressures for GS3-valves in stainless steel								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								Sliding unit: STN2							
	max. admissible pressures for GS3-valves in stainless steel								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								Sliding unit: STN2							
	max. admissible pressures for GS3-valves in stainless steel								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

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	37	32	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	39,8	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	37,6	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	22,0	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	20,0	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

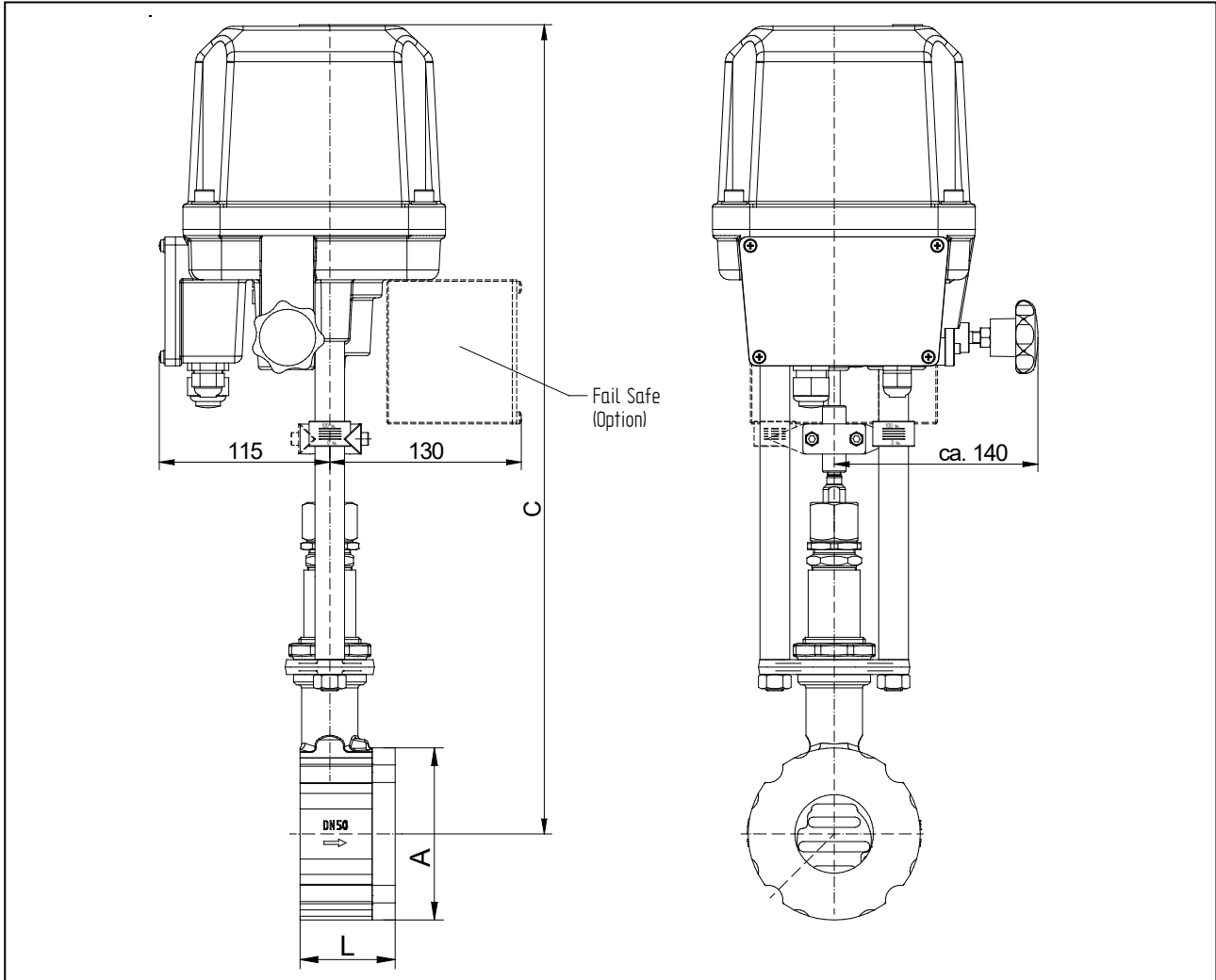
Limitation for SFC-sliding discs: 300°C

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

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