

GS 1 series - DN 15 up to DN 150

Pneumatic Control Valve for the 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
- 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-values

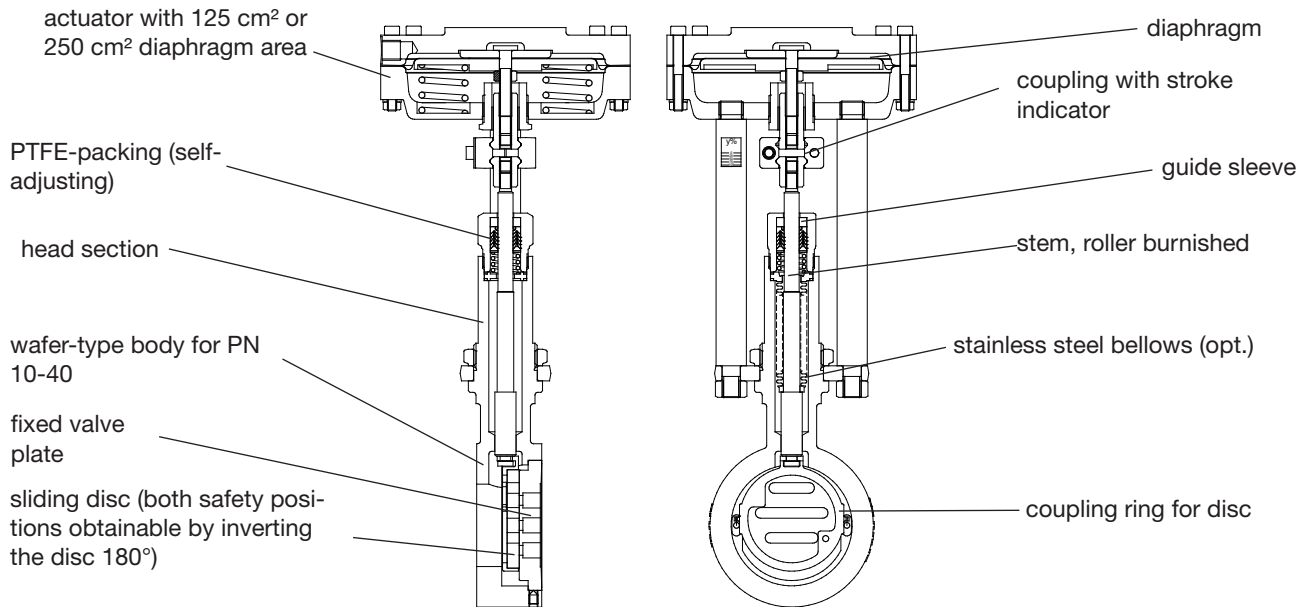


Technical Information

| | | | |
|-------------------------------|--|--------------------|-------------------|
| Body design | flangeless, wafer-type construction dimensions acc. DIN-EN 558-1 series 20 for flanges acc. DIN EN 1092-1 form B more versions see on data-sheet 8020-GS3 | | |
| Nominal sizes | DN 15 to DN 150 | | |
| Nominal pressure | PN 40, DIN 2401 also for flanges PN 10 to PN 25 | | |
| Media temperature | carbon steel body | -10°C up to +350°C | |
| | stainless steel body | -60°C up to +350°C | |
| Ambient temperature* | standard diaphragm | -30°C up to +100°C | |
| | silicone diaphragm | -50°C up to +100°C | |
| Rangeability / Characteristic | 40 : 1 linear / 80 : 1 equal percentage | | |
| Leakage ** | Disc pair Carbon-stainless steel | Disc pair SFC | Disc pair STN2 |
| % of Kvs | < 0,0001 | < 0,0005 | < 0,001 |
| IEC 60534-4 | IV-S1 | IV-S1 | IV |
| EN 12266-1 | D | E | E |
| Packing leakage | tested according to TA-Luft as defined in DIN EN ISO 15848-1 and VDI 2440 | | |

* Please consider the limitation of use of the positioner!

** With DN15 with reduction of less than 25%, different leakage rates possible.
Kvs-values see data sheet 8001.



Options

- bellows (stainless steel)
- positioner
 - pneumatic
 - electro-pneumatic
 - electro-pneumatic for hazardous location use (EEX ib II C T5/T6)
- limit switches
- position feedback
- manual handwheel

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
SFC - stainless steel

| Diaphragm area | 125 cm ² | | | | | 250 cm ² | | | | |
|---------------------|---|------------|------------|------------|------------|---------------------|------------|------------|------------|------------|
| Spring range (bar) | 0.2 to 1.0 | 1.0 to 2.0 | 1.5 to 3.0 | 1.8 to 3.8 | 2.1 to 4.5 | 0.2 to 1.0 | 0.8 to 1.4 | 1.2 to 2.2 | 1.5 to 2.7 | 1.7 to 3.2 |
| Supply air (bar) | 1,2 | 2,8 | 4,2 | 5,2 | 6,0 | 1,2 | 2,1 | 3,2 | 4,0 | 4,6 |
| DN | Admissible differential pressures in bar (see pressure diagram for GS-Valves) | | | | | | | | | |
| 15 | 4,4 | 40 | 40 | 40 | 40 | 18,9 | 40 | 40 | 40 | 40 |
| 20 | 3,8 | 40 | 40 | 40 | 40 | 16,4 | 40 | 40 | 40 | 40 |
| 25 | 3,2 | 40 | 40 | 40 | 40 | 13,7 | 40 | 40 | 40 | 40 |
| 32 | 2,6 | 40 | 40 | 40 | 40 | 11,3 | 40 | 40 | 40 | 40 |
| 40 | 2,0 | 40 | 40 | 40 | 40 | 8,5 | 40 | 40 | 40 | 40 |
| 50 | - | 36 | 40 | 40 | 40 | 5,8 | 40 | 40 | 40 | 40 |
| 65 | - | 29 | 40 | 40 | 40 | 4,9 | 40 | 40 | 40 | 40 |
| 80 | - | 17 | 26 | 33 | 39 | 3,1 | 30 | 40 | 40 | 40 |
| 100 | - | 10 | 16 | 20 | 24 | - | 18 | 25 | 25 | 25 |
| 125 | - | 6,5 | 10 | 13 | 15 | - | 12 | 16 | 16 | 16 |
| 150 | - | 5 | 7,5 | 9 | 11 | - | 8,5 | 13 | 16 | 16 |
| Springconfiguration | D | 2 | 3 | 4 | 5 | D | 2 | 3 | 4 | 5 |

 Standard

Disc pair: STN 2

| Diaphragm area | 125 cm ² | | | | | 250 cm ² | | | | |
|---------------------|---|------------|------------|------------|------------|---------------------|------------|------------|------------|------------|
| Spring range (bar) | 0.2 to 1.0 | 1.0 to 2.0 | 1.5 to 3.0 | 1.8 to 3.8 | 2.1 to 4.5 | 0.2 to 1.0 | 0.8 to 1.4 | 1.2 to 2.2 | 1.5 to 2.7 | 1.7 to 3.2 |
| Supply air (bar) | 1,2 | 2,8 | 4,2 | 5,2 | 6,0 | 1,2 | 2,1 | 3,2 | 4,0 | 4,6 |
| DN | Admissible differential pressures in bar (see pressure diagram for GS-Valves) | | | | | | | | | |
| 15 | 3,1 | 40 | 40 | 40 | 40 | 13,4 | 40 | 40 | 40 | 40 |
| 20 | 2,4 | 40 | 40 | 40 | 40 | 10,3 | 40 | 40 | 40 | 40 |
| 25 | 1,8 | 40 | 40 | 40 | 40 | 7,7 | 40 | 40 | 40 | 40 |
| 32 | 1,3 | 38 | 40 | 40 | 40 | 5,7 | 40 | 40 | 40 | 40 |
| 40 | 0,9 | 23 | 27 | 27 | 27 | 3,9 | 27 | 27 | 27 | 27 |
| 50 | - | 13 | 20 | 25 | 30 | 2,4 | 23 | 35 | 40 | 40 |
| 65 | - | 10 | 16 | 20 | 24 | 2,0 | 18 | 28 | 34 | 38 |
| 80 | - | 6 | 9 | 11 | 14 | 1,2 | 10 | 16 | 19 | 22 |
| 100 | - | 3,5 | 5,5 | 7 | 8,5 | - | 6,5 | 10 | 12 | 13 |
| 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

The quoted pilot pressure must be available as a minimum value for use without a positioner. If a positioner is applied the pilot pressure is determined by the adjustment of the positioner. The standard adjustment value is 4 bar gauge. The spring configuration D enables the use of the control valve without positioner in line with a restricted control capacity. In this case the valve can be driven by a controller with a standard signal of 0.2 to 1.0 bar.

Applications limits for GS1-Valves

PN 40

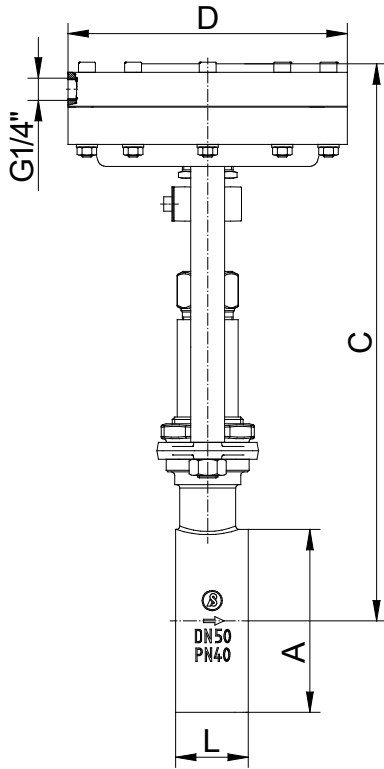
| DN | Sliding unit: carbon/SFC - stainless steel, coated | | | | | | Sliding unit: carbon - STN2 | | | | | |
|---------|--|-------|-------|-------|-------|-------|--|-------|-------|-------|-------|-------|
| | max. admissible pressures for GS1-valves | | | | | | max. admissible pressures for GS1-valves | | | | | |
| | 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 - 25 | 40 | 36 | 31 | 28 | 26 | 24 | 40 | 36 | 31 | 28 | 26 | 24 |
| 32 | 40 | 36 | 31 | 28 | 26 | 24 | 40 | 36 | 31 | 28 | 25 | 22 |
| 40 | 40 | 36 | 31 | 28 | 26 | 24 | 26 | 25 | 24 | 19 | 16 | 14 |
| 50 | 40 | 36 | 31 | 28 | 26 | 24 | 40 | 36 | 31 | 28 | 26 | 24 |
| 65 | 40 | 36 | 31 | 28 | 26 | 24 | 37 | 35 | 31 | 27 | 22 | 19 |
| 80 | 40 | 36 | 31 | 28 | 26 | 24 | 22 | 20 | 19 | 16 | 13 | 11 |
| 100 | 24 | 23 | 22 | 19 | 17 | 16 | 13 | 12 | 12 | 9 | 8 | 6 |
| 125 | 16 | 15 | 14 | 13 | 11 | 10 | 8 | 8 | 7 | 6 | 5 | 4 |
| 150 | 16 | 16 | 16 | 16 | 14 | 13 | 10 | 10 | 9 | 7 | 6 | 5 |

Limitation for SFC-sliding discs: 300°C

Materials

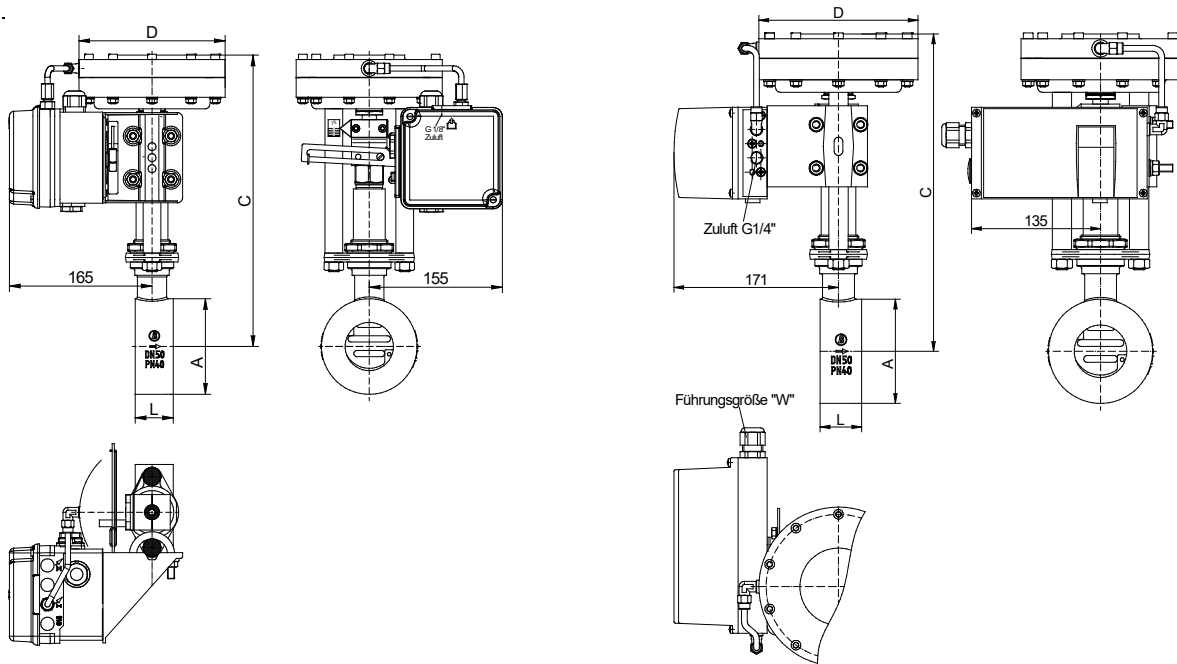
| | | |
|-------------------|--|----------------------------------|
| Body | Carbon steel 1.0619 | Stainless steel 1.4581 or 1.4408 |
| Diaphragm housing | Aluminium KTL coated | |
| Packing | PTFE (Carbon filled), spring 1.4310 | |
| Actuating stem | Stainless steel 1.4571, roller burnished | |
| Bellows | Stainless steel 1.4571 | |
| Fixed disc | Stainless steel 1.4571, coated | STN2-disc |
| Sliding disc | Special carbon material or SFC | STN2-disc |
| Coupling ring | Stainless steel 1.4571 | |

Dimensions and Weights



| DN | A mm | C mm | Ø D for actuator | | L mm | Weight (Kg) for actuator | | Stroke mm |
|-----|---------|---------|---------------------|-----|---------|-----------------------------|------|--------------|
| | | | 125 | 250 | | 125 | 250 | |
| 15 | 53 | 305 | 165 | 222 | 33 | 5,9 | 8,1 | 6 |
| 20 | 62 | 310 | 165 | 222 | 33 | 6 | 8,2 | 6 |
| 25 | 72 | 315 | 165 | 222 | 33 | 6,2 | 8,4 | 6 |
| 32 | 82 | 320 | 165 | 222 | 33 | 6,5 | 8,7 | 6 |
| 40 | 92 | 325 | 165 | 222 | 33 | 6,7 | 8,9 | 6 |
| 50 | 108 | 335 | 165 | 222 | 43 | 7,9 | 10,1 | 8 |
| 65 | 127 | 345 | 165 | 222 | 46 | 8,7 | 10,9 | 8 |
| 80 | 142 | 355 | 165 | 222 | 46 | 9,3 | 11,5 | 8 |
| 100 | 164 | 365 | 165 | 222 | 52 | 10,5 | 12,7 | 8,5 |
| 125 | 194 | 380 | 165 | 222 | 56 | 12,7 | 14,9 | 8,5 |
| 150 | 219 | 395 | 165 | 222 | 56 | 14,2 | 16,4 | 8,5 |

Dimensions in mm



with pneumatic positioner

with electropneumatic positioner