

Modular distribution valve

Construction

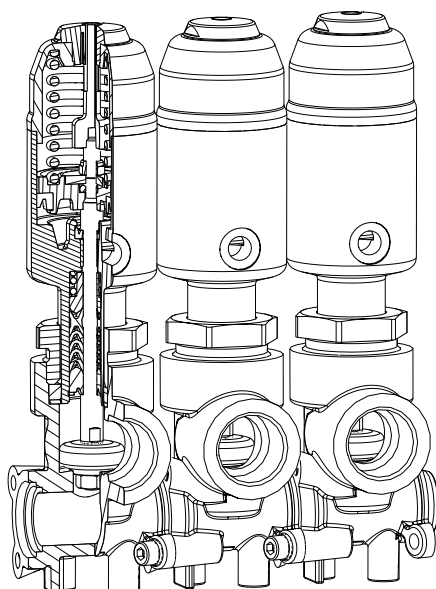
The modular GEMÜ 553 distribution valve comprises various globe valve modules. These can be equipped with manual or pneumatic operators. The downstream media is isolated using a PTFE seal. The valve spindle is sealed by a self-adjusting gland packing. This provides a low-maintenance and reliable valve spindle seal even after an extended period of operation. The wiper ring that is installed upstream of the gland packing also protects this against contamination and damage. The individual modules can be easily connected using screws. The seal on the connection flange and between the individual valve bodies has an FPM O-ring.

Advantages

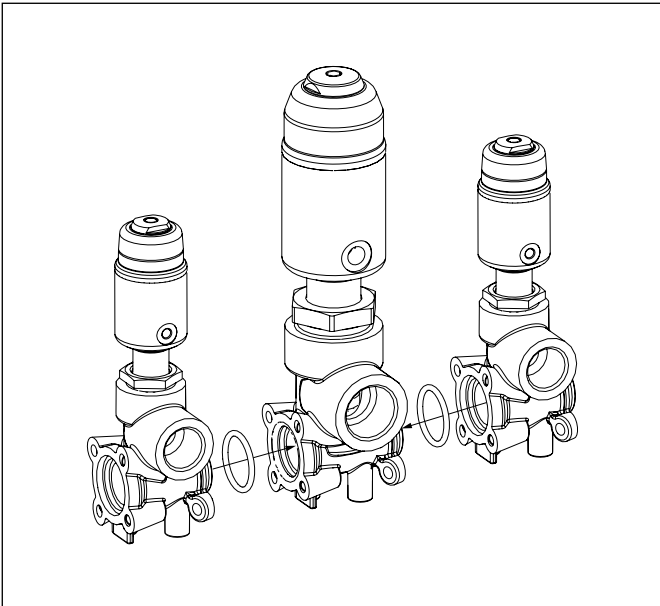
- Modular valve for distribution, mixing and collection applications
- Freely extendable
- Simple adaptation options
- Versatile range of accessories
- Simple integration of sensors
- Outlets can be arranged in 90° steps
- Compact design
- Operators can be easily replaced
- Filters or separation of media can be easily integrated



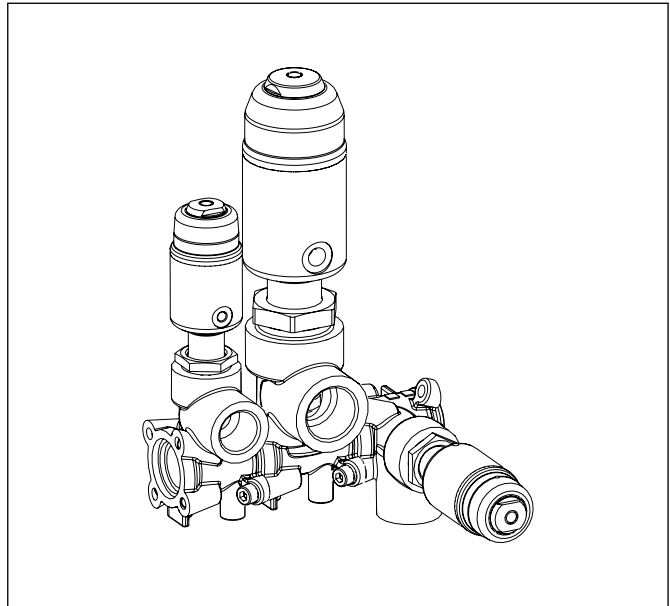
Sectional view



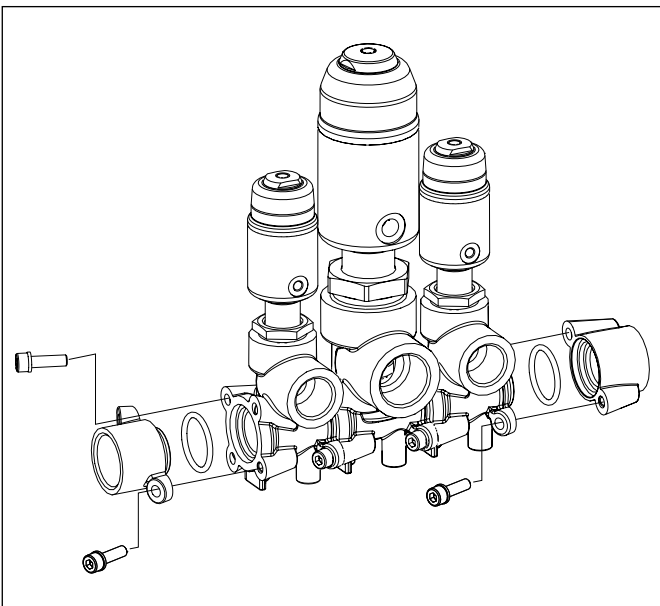
Functional description



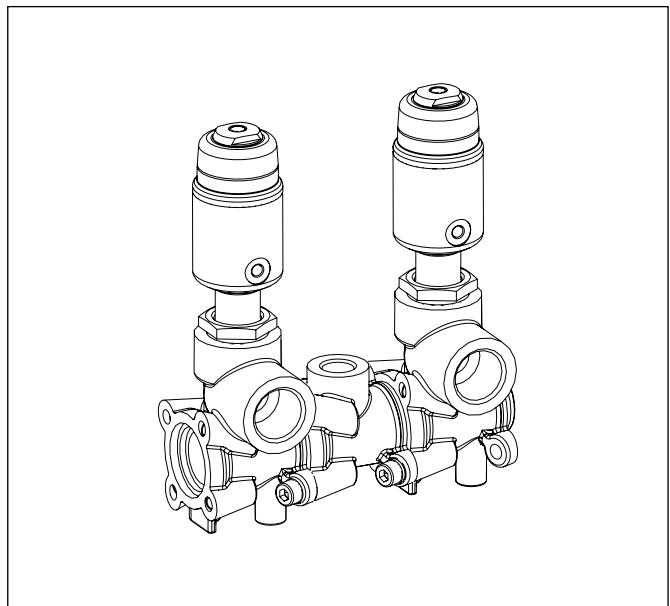
The GEMÜ 553 modular distribution valve comprises various globe valves which are mounted to form a single unit.



The position of the valves can be changed in 90° steps.

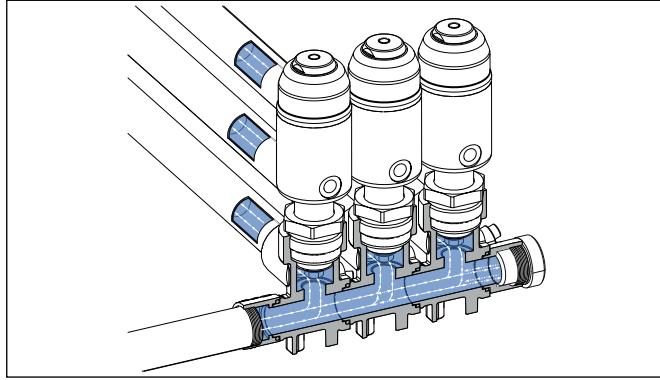


Connection modules are available for integration into the plant.



Additional sensor systems can also be integrated into the block. An extensive range of accessories for the valves is available for automation (see chapter on accessories).

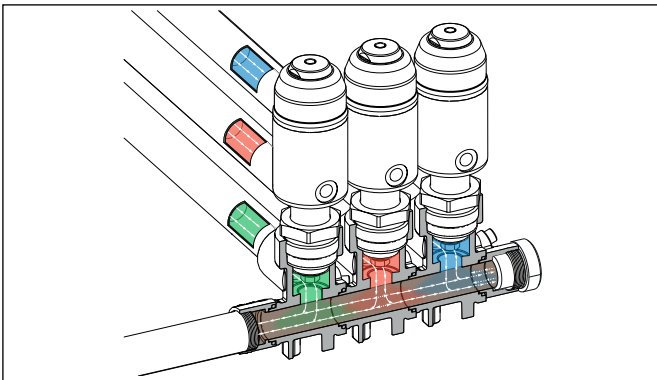
Functions



Distributing function:

Medium from the supply can be distributed to several consumers.

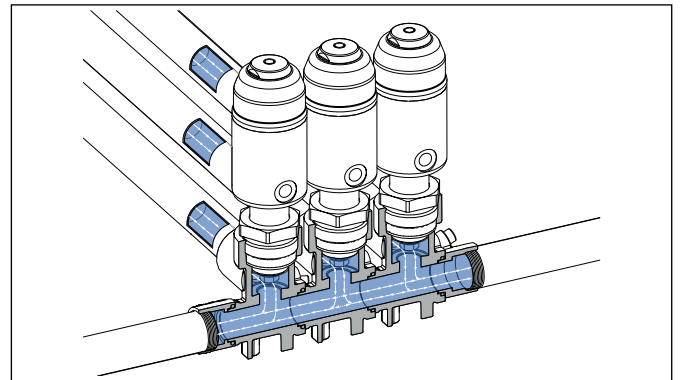
To be used: Operator version 0GS, 0GM, 1GS, 1GP, 2GS



Mixing function:

Media can be mixed together (e.g. hot and cold water).

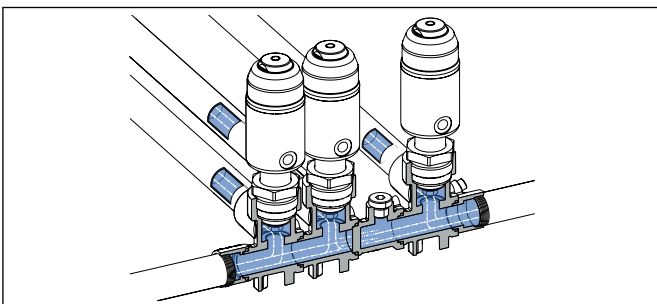
To be used: Operator version 0MS, 0MM, 1MS, 1MP



Collecting function:

The medium of several consumers can be collected as a back flow.

To be used: Operator version 0MS, 0MM, 1MS, 1MP

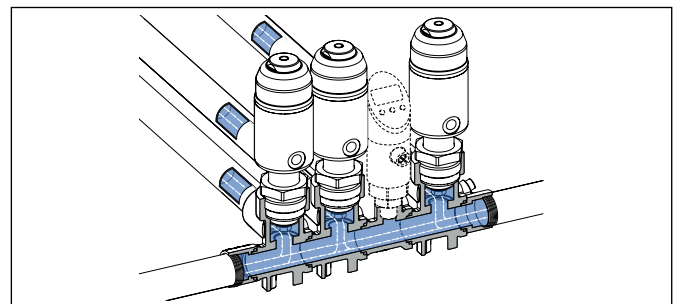


Separation of media:

The distribution valve can be interrupted at one or more optional points to separate out media.

This enables two media to be controlled independently of each other.

Module to be used: Media separator plate



Process value measurement (pressure / temperature):

One or more sensors can be integrated into the distribution valve at an optional point.

Module to be used: Sensor mounting

Technical data

Working medium

Corrosive, inert, gaseous and liquid media which have no negative impact on the physical and chemical properties of the body and seal material.

| | |
|--------------------------------|------------------------------|
| Media temperature | |
| PTFE seat, FPM O-ring code 5F | -10 to 180 °C |
| PTFE seat, EPDM O-ring code 5E | -10 to 100 °C |
| Max. permissible viscosity | 600 mm ² /s (cSt) |

Control medium (only for pneumatic actuators)

Inert gases

Max. permissible temperature of control medium 60 °C

| | | |
|------------------|-----------------|-----------------------|
| Operator version | Piston diameter | Filling volume |
| 0GS / 0MS | ø 28 mm | 0.006 dm ³ |
| 1GS / 1MS | ø 42 mm | 0.025 dm ³ |
| 1GP / 1MP | ø 50 mm | 0.05 dm ³ |
| 2GS | ø 60 mm | 0.084 dm ³ |

Ambient conditions

Ambient temperature max. 60 °C

Maximum permissible seat leakage rate / Open-Closed-Valve

| Seat seal | Standard | Test procedure | Leakage rate | Test medium |
|-----------|----------------|----------------|--------------|-------------|
| PTFE | DIN EN 12266-1 | P12 | A | air |

Control pressure (only for pneumatic actuators) [bar]

C.f. 1 Normally closed (NC) / Flow direction: under the seat

| Operator version | |
|------------------|---------|
| 0GS | 4 - 8 |
| 1GS, 2GS | 4 - 8 |
| 1GP | 4.8 - 7 |

C.f. 1 Normally closed (NC) / Flow direction: over the seat

| | |
|---------------|------------|
| OMS, 1MS, 1MP | max. 7 bar |
|---------------|------------|

C.f. 2 Normally open (NO) / C.f. 3 Double acting (DA)

Flow direction: under the seat

For values see diagram page 3

Maximum operating pressure [bar]

| Operator version | Seat diameter E | Seat diameter G |
|---|-----------------|-----------------|
| C.f. 0 Manually operated / Flow direction: optional | | |
| 0GM / 0MM | 25 | - |
| C.f. 1 Normally closed (NC) / Flow direction: under the seat | | |
| 0GS | 10 | - |
| 1GS | - | 10 |
| 1GP | - | 12 |
| 2GS | - | 22 |
| C.f. 1 Normally closed (NC) / Flow direction: over the seat | | |
| OMS | 10 | - |
| 1MS | - | 10 |
| 1MP | - | 10 |

All pressures are gauge pressures. When the flow is over the seat (M), there may be the danger of water hammer with liquid media!

Kv values [m³/h]

| | Seat diameter E | Seat diameter G |
|-------------------------------|-----------------|-----------------|
| Kv values [m ³ /h] | 2.0 | 5.0 |

Kv values determined acc. to DIN EN 60534.

The Kv values for other product configurations (e.g. other connections or body materials) may differ.

Pressure / temperature correlation for angle seat globe valve bodies

| Connection code | Material code | Max. allowable pressure (barg) at temperature °C * | | | |
|-----------------|---------------|--|------|------|------|
| | | RT | 100 | 150 | 180 |
| 1, 3D | 37 | 25.0 | 23.8 | 21.4 | 19.9 |

* The valves can be used down to -10 °C

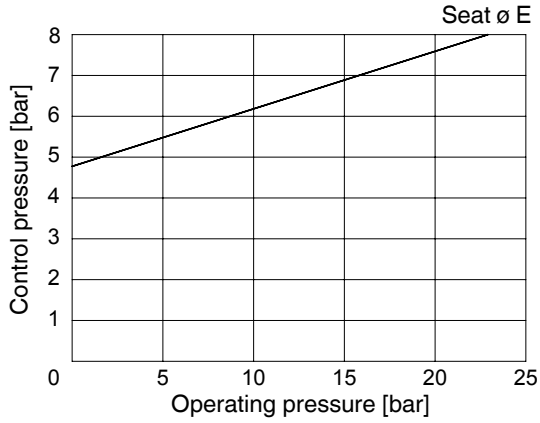
RT = room temperature

All pressures are gauge pressures.

Operating pressure / Control pressure characteristics (only for pneumatic actuators)

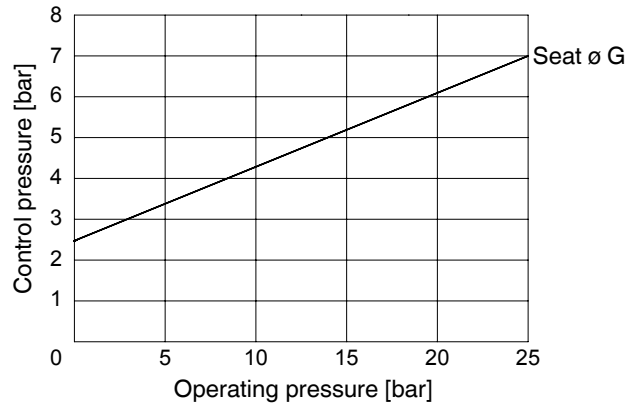
Operator version 0GS C.f. 2 Normally open (NO) C.f. 3 Double acting (DA)

Min. control pressure dependent on operating pressure
(Flow direction: under the seat)



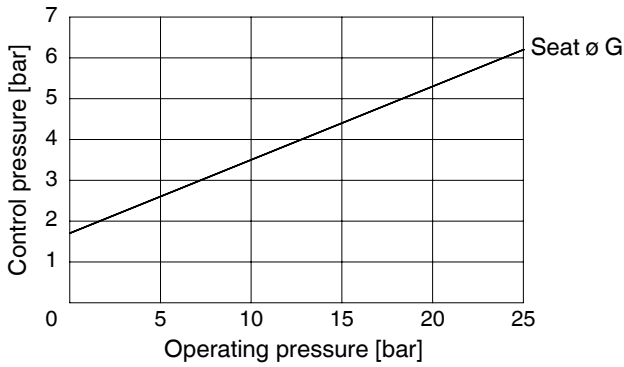
Operator version 1GS C.f. 2 Normally open (NO) C.f. 3 Double acting (DA)

Min. control pressure dependent on operating pressure
(Flow direction: under the seat)



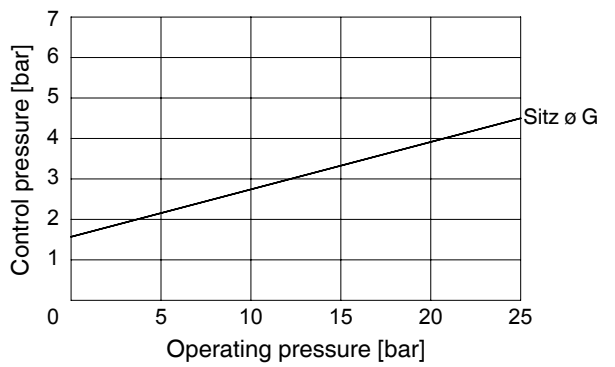
Operator version 1GP C.f. 2 Normally open (NO) C.f. 3 Double acting (DA)

Min. control pressure dependent on operating pressure
(Flow direction: under the seat)

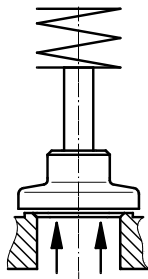


Operator version 2GS C.f. 2 Normally open (NO) C.f. 3 Double acting (DA)

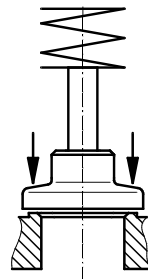
Min. control pressure dependent on operating pressure
(Flow direction: under the seat)



Flow direction



Distributing function
Flow under the seat



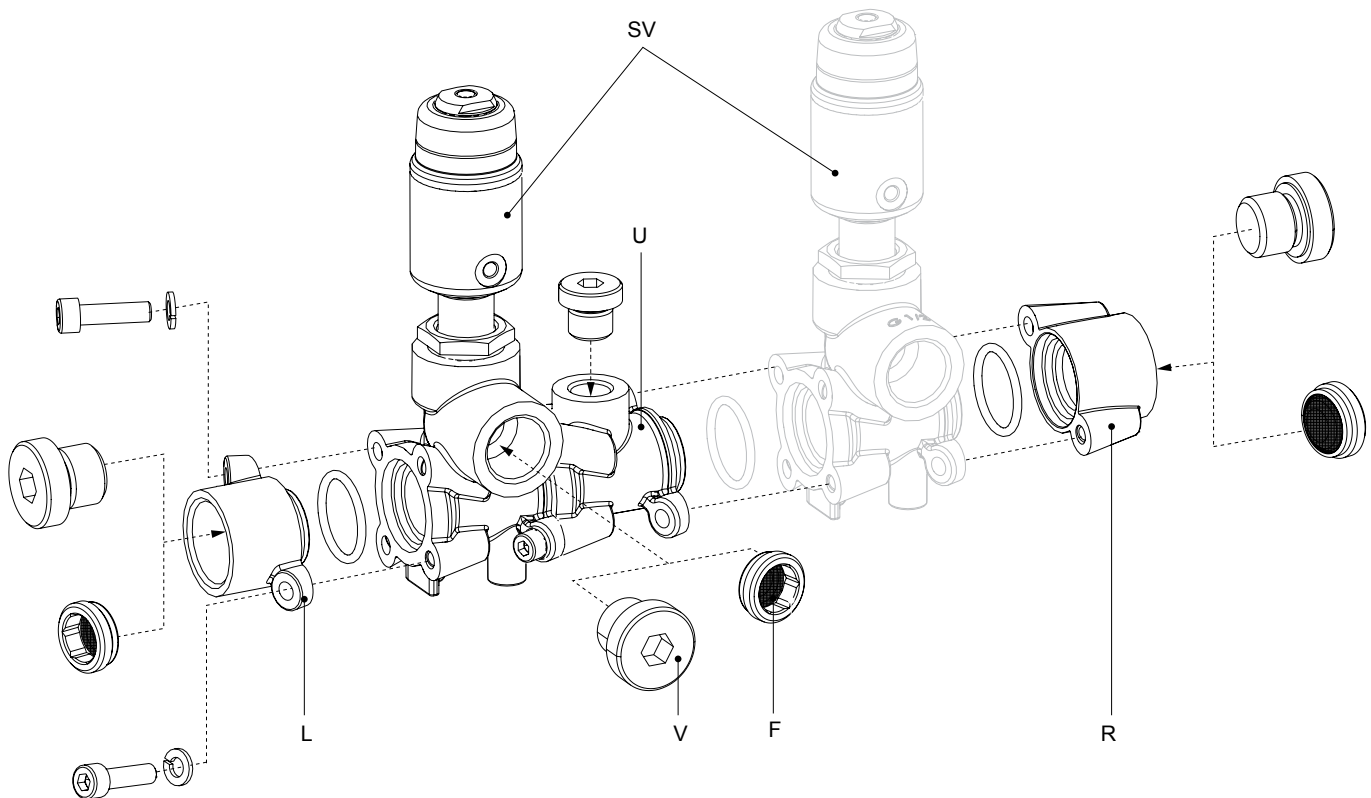
Collecting or mixing function
Flow over the seat

Availability table for GEMÜ 553

| | DN | Connection size | Operator size | Control function | Flow direction | Seat diameter | Length |
|--|----|-----------------|---------------|------------------|----------------|---------------|----------------|
| Pneumatic stainless steel actuator design code S | 15 | 1/2" NPT, G 1/2 | 0 | 1, 2, 3 1 | G M | E E | S S |
| | 20 | 3/4" NPT, G 3/4 | 1 | 1, 2, 3 1 | G M | G G | S, L* S, L* |
| Pneumatic plastic actuator design code P | 20 | 3/4" NPT, G 3/4 | 1 | 1, 2, 3 | G | G | L |
| | | | | 1 | M | G | L |
| Manual operator design code M | 15 | 1/2" NPT, G 1/2 | 0 | 0 | G, M | E | S |
| Pneumatic stainless steel actuator design code S | 20 | 3/4" NPT, G 3/4 | 2 | 1, 2, 3 | G | G | L |

* Special length for attaching extended accessories (see pages 14 and 15)

Connection designations / Construction



| | |
|----|-------------------------|
| L | Connection module left |
| V | Threaded plug |
| F | Filter |
| R | Connection module right |
| U | Universal module |
| SV | Globe valve |

Order data - Globe valve (SV)

| Body configuration | Code |
|--------------------|------|
| Multi-port | M |

| Connection | Code |
|------------------------------|------|
| Threaded sockets DIN ISO 228 | 1 |
| Threaded sockets NPT | 3D |

| Valve body material | Code |
|----------------------------|------|
| 1.4408, Investment casting | 37 |

| Seal material | Code |
|---------------------------------|------|
| PTFE seat, EPDM O-ring | 5E |
| PTFE seat, FPM O-ring | 5F |
| Other seal materials on request | |

| Control function | Code |
|---|------|
| Manually operated with handwheel lock nut | 0 |
| Normally closed (NC) | 1 |
| Normally open (NO) | 2 |
| Double acting (DA) | 3 |

Operator version

| Operator size | Code |
|-----------------|------|
| Operator size 0 | 0 |
| Operator size 1 | 1 |
| Operator size 2 | 2 |

| Flow direction | Code |
|----------------|------|
| Under the seat | G |
| Over the seat | M |

| Version | Code |
|---|------|
| Pneumatically operated, stainless steel | S |
| Pneumatically operated, plastic | P |
| Manually operated, plastic handwheel | M |

| Pipe train diameter | Code |
|---------------------|------|
| 20 mm | 20 |

| Seat diameter | Code |
|---------------|------|
| 10 mm | E |
| 15 mm | G |

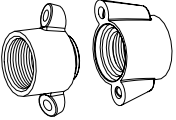
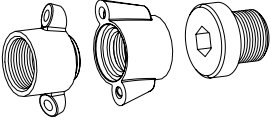
| Length | Code |
|--------|------|
| Short | S |
| Long | L |

| Order example (Single valve) | 553 | 20 | M | 1 | 37 | 5F | 1 | 1GS | 20 | G | S |
|------------------------------|-----|----|---|---|----|----|---|-----|----|---|---|
| Type | 553 | | | | | | | | | | |
| Nominal size | | 20 | | | | | | | | | |
| Body configuration (code) | | | M | | | | | | | | |
| Connection (code) | | | | 1 | | | | | | | |
| Valve body material (code) | | | | | 37 | | | | | | |
| Seal material (code) | | | | | | 5F | | | | | |
| Control function (code) | | | | | | | 1 | | | | |
| Operator version (code) | | | | | | | | 1GS | | | |
| Pipe train diameter (code) | | | | | | | | | 20 | | |
| Seat diameter (code) | | | | | | | | | | G | |
| Length (code) | | | | | | | | | | | S |

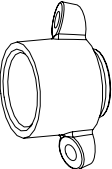
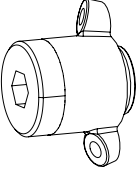

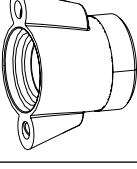
Ordering note: Valves are supplied as single valves due to the versatile modular options.
All globe valves are supplied with connecting components (O-ring and screws).

Accessories

Order data - Connection kits

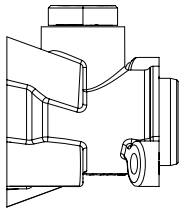
| Connection kit for double-sided feed | | Order description |
|---|---|----------------------|
|  | Connection flange L and connection flange R with threaded socket G 3/4 to DIN ISO 228, without threaded plug | 553 20SAT 1 37 F 20 |
| | Connection flange L and connection flange R with threaded socket 3/4" NPT, without threaded plug | 553 20SAT 3D 37 F 20 |
| Connection kit for one-sided feed | | |
|  | Connection flange L and connection flange R with threaded socket G 3/4 to DIN ISO 228, with threaded plug (with FPM seal) | 553 20SAV 1 37 F 20 |
| | Connection flange L and connection flange R with threaded socket 3/4" NPT, with threaded plug (without sealing material) | 553 20SAV 3D 37 F 20 |

Order data - Connection modules (L, R)

| Single modules | Order description | |
|---|--|----------------------|
|  | Connection module L with threaded socket G 3/4 to DIN ISO 228, without threaded plug | 553 20AFL 1 37 F 20 |
| | Connection module L with threaded socket 3/4" NPT, without threaded plug | 553 20AFL 3D 37 F 20 |
|  | Blanking flange L with threaded socket G 3/4 to DIN ISO 228, with threaded plug (sealed with FPM gasket) | 553 20BFL 1 37 F 20 |
| | Blanking flange L with threaded socket 3/4" NPT, with threaded plug (without sealing material) | 553 20BFL 3D 37 F 20 |
|  | Connection module R with threaded socket G 3/4 to DIN ISO 228, without threaded plug | 553 20AFR 1 37 F 20 |
| | Connection module R with threaded socket 3/4" NPT, without threaded plug | 553 20AFR 3D 37 F 20 |
|  | Blanking flange R with threaded socket G 3/4 to DIN ISO 228, with threaded plug (sealed with FPM gasket) | 553 20BFR 1 37 F 20 |
| | Blanking flange R with threaded socket 3/4" NPT, with threaded plug (without sealing material) | 553 20BFR 3D 37 F 20 |

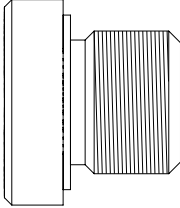
All connection modules and kits are supplied with connecting components (O-ring and screws).

Order data - Universal module (U)

| Universal module | | Order description |
|--|--|-------------------|
|  <p>For function see page 3</p> | Media separator plate design with threaded plug (sealed with FPM gasket) | 553 MT 1 37 F 20 |
| | Sensor mounting design with G 1/4 adaption thread, with threaded plug (sealed with FPM gasket) | 553 SA 1 37 F 20 |

All universal modules are supplied with connecting components (O-ring and screws).

Order data - Threaded plugs (V)

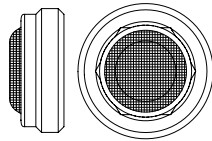
| Threaded plugs | | Order description |
|---|---|-------------------|
|  | G 1/4 for universal module (including FPM gasket) | 553 8VS 1 37 F |
| | G 1/2 for valves with operator size 0 (including FPM gasket) | 553 15VS 1 37 F |
| | 1/2" NPT for valves with operator size 0 (without sealing material) | 553 15VS 3D 37 |
| | G 3/4 for connection modules L or R and valves with operator size 1 (including FPM gasket) | 553 20VS 1 37 F |
| | 3/4" NPT for connection modules L or R and valves with operator size 1 (without sealing material) | 553 20VS 3D 37 |

Note! It is not possible to use a filter and a threaded plug at the same connection.

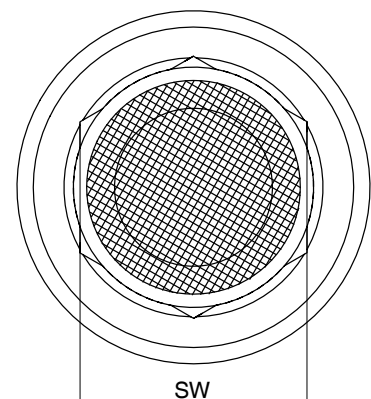
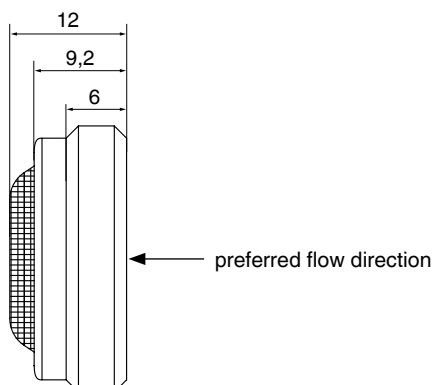
Order data - Filter (F)

For highly polluted media, the valves must be protected against large particles by suitable filters. Screw-in basket filters can be used in this instance, for example.

Caution! Available thread length is shortened accordingly, and Kv values are reduced. The max. pressure differential is 10 bar.

| Filter (mesh size 100 µm) | | Order description |
|---|--|-------------------|
|  | G 1/2 for valves with operator size 0 SW 12 | 553 15FS 1 37* |
| | G 3/4 for connection modules L or R and valves with operator size 1 SW 17 | 553 20FS 1 37* |

* on request

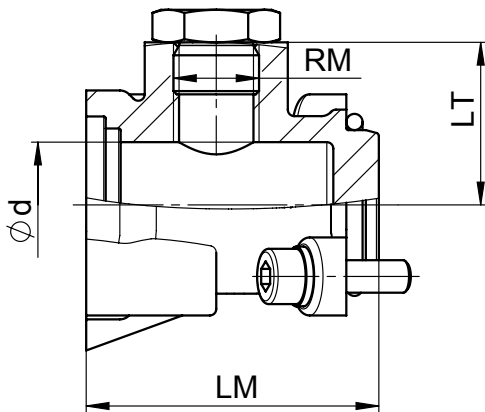


Dimensions [mm]

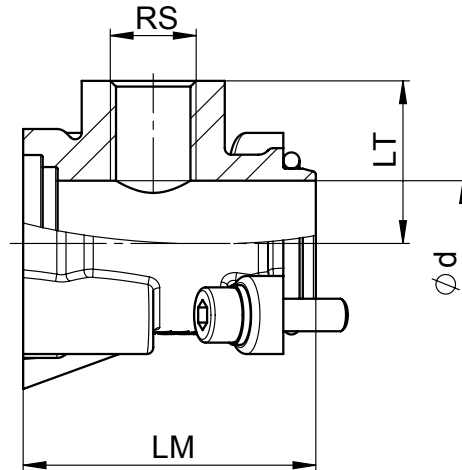
Universal module

| Universal module | RM | RS | ϕd | LM | LT | Weight [kg] |
|-------------------------|-------|-------|----------|----|----|-------------|
| Media separator plate | G 1/4 | - | 19.3 | 45 | 25 | 0.25 |
| Sensor mounting bracket | - | G 1/4 | 19.3 | 45 | 25 | 0.23 |

Media separator plate

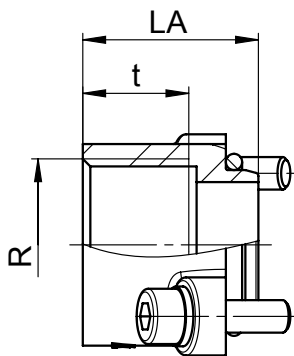


Sensor mounting

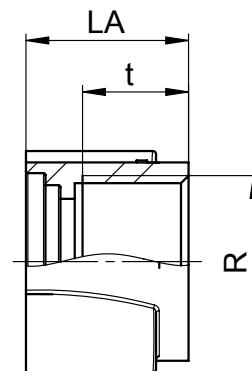


Unions

| Union | Connection | R | t | LA | Weight [kg] |
|-------|------------|-------|----------|------|-------------|
| left | L | G 3/4 | 3/4" NPT | 16.3 | 0.11 |
| right | R | G 3/4 | 3/4" NPT | 16.3 | 0.11 |



left
L



right
R

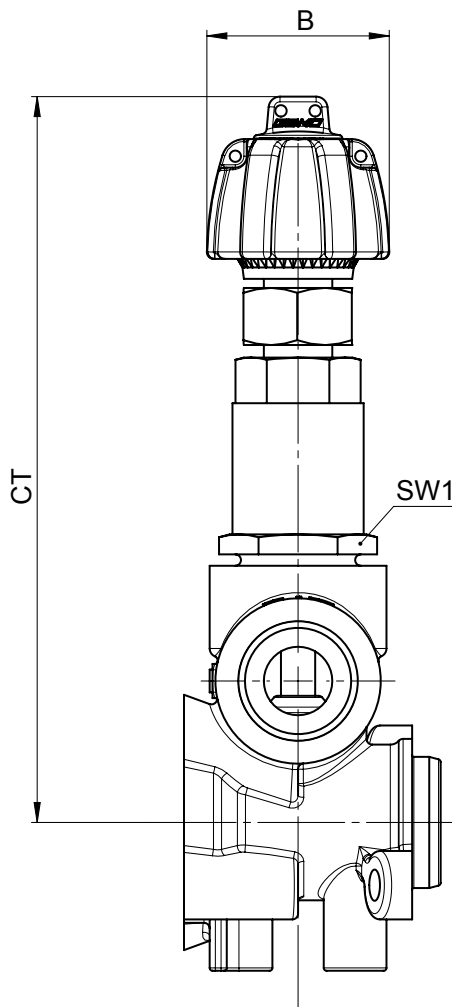
Dimensions [mm]

Operator dimensions - Manually operated valve

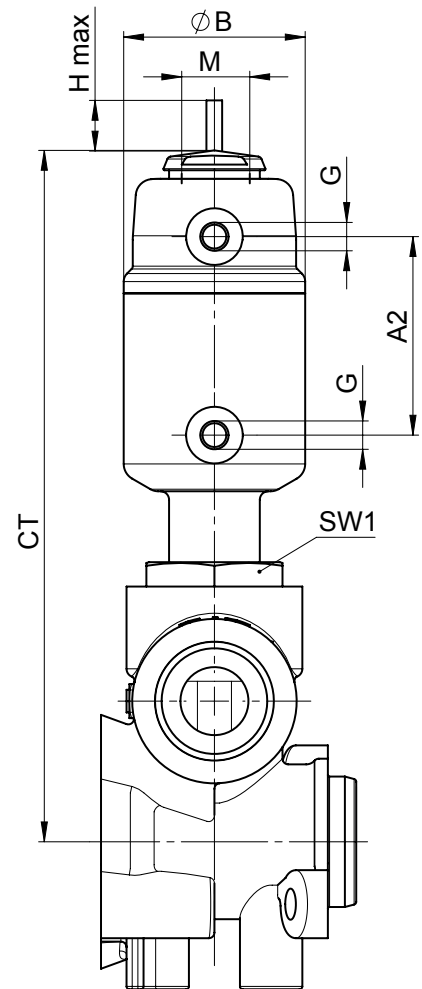
| Operator version | $\varnothing B$ | CT | SW1 | Weight [kg] |
|------------------|-----------------|-----|-----|-------------|
| 0GM / 0MM | 32 | 134 | 24 | 0.30 |

Operator dimensions - Pneumatically operated valve

| Operator version | $\varnothing B$ | M | H max | G | A2 | CT | SW1 | Weight [kg] |
|------------------|-----------------|-------|-------|-------|------|-----|-----|-------------|
| 0GS / 0MS | 32 | M12x1 | 6 | M5 | 35.4 | 122 | 24 | 0.25 |
| 1GS / 1MS | 46 | M16x1 | 12 | G 1/8 | 53.0 | 175 | 36 | 0.67 |
| 1GP / 1MP | 72 | M16x1 | 14 | G 1/4 | 70.0 | 207 | 36 | 0.90 |
| 2GS | 63 | M16x1 | 22 | G 1/8 | - | - | 36 | 0.97 |



Manually operated

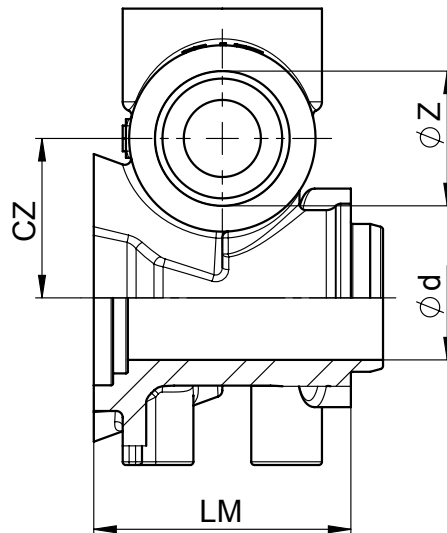
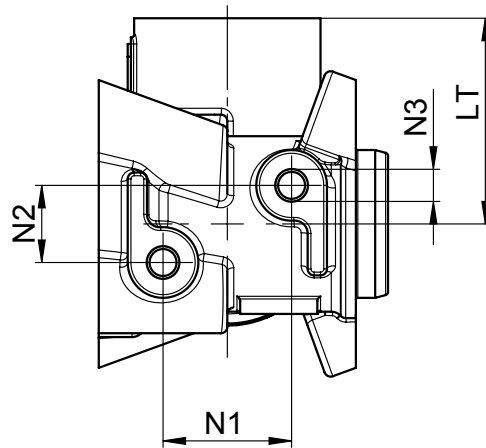


Pneumatically operated

Body dimensions [mm]

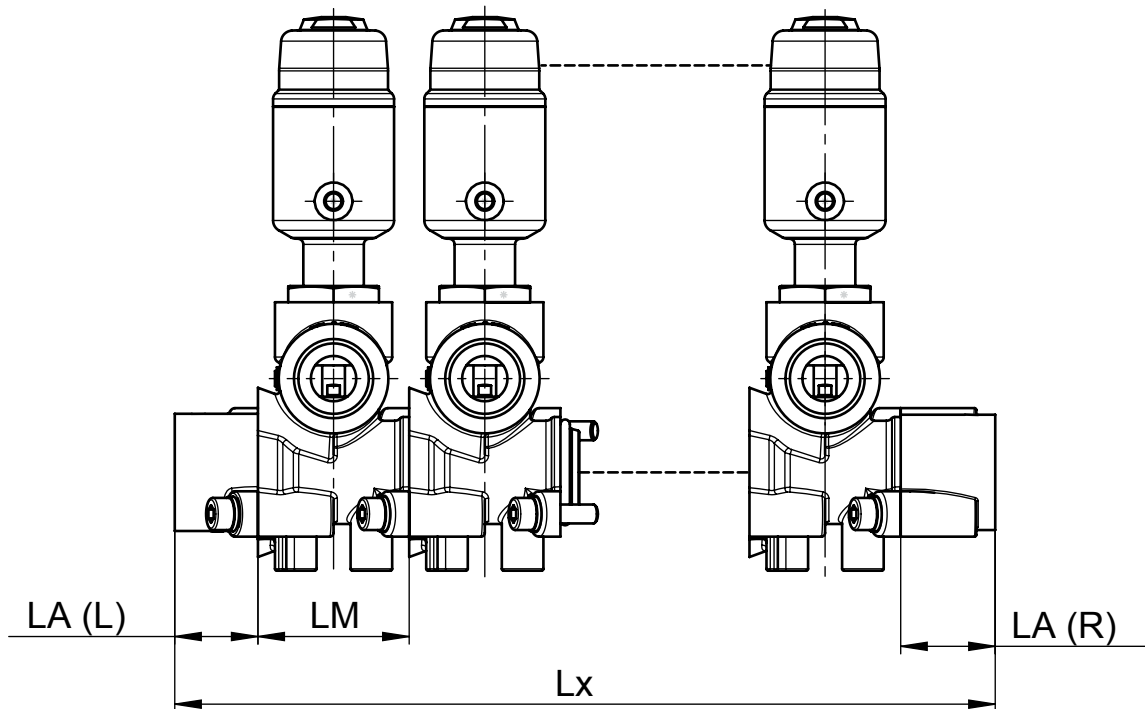
Body module

| Operator version | DN | Length | ϕd | CZ | ϕZ | | LM | N1 | N2 | N3 | LT | Weight [kg] |
|-------------------------------|----|--------|----------|------|----------|----------|----|----|----|----|----|-------------|
| 0GS / 0MS 0GM / 0MM | 15 | S | 19,3 | 24.8 | G 1/2 | 1/2" NPT | 40 | 20 | 12 | M5 | 32 | 0.34 |
| 1GS / 1MS | 20 | S | | 26.8 | G 3/4 | 3/4" NPT | 48 | | | | 36 | 0.48 |
| 1GP / 1MP 1GS / 1MS 2GS | 20 | L | | 26.8 | G 3/4 | 3/4" NPT | 74 | | | | 36 | 0.55 |



Body dimensions [mm]

| Valve block | | | | | | | | | | | | | | |
|-------------------------------|--------|----|----|----|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Operator version | Length | LM | LA | | Length Lx | | | | | | | | | |
| | | | L | R | 1x | 2x | 3x | 4x | 5x | 6x | 7x | 8x | 9x | 10x |
| 0GS / 0MS 0GM / 0MM | S | 40 | 22 | 25 | 87 | 127 | 167 | 207 | 247 | 287 | 327 | 367 | 407 | 447 |
| 1GS / 1MS | S | 48 | 22 | 25 | 95 | 143 | 191 | 239 | 287 | 335 | 383 | 431 | 479 | 527 |
| 1GP / 1MP 1GS / 1MS 2GS | L | 74 | 22 | 25 | 121 | 195 | 269 | 343 | 417 | 491 | 565 | 639 | 713 | 787 |



Note:

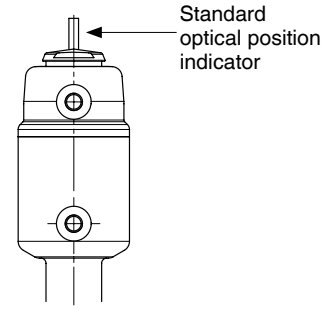
The overall length Lx applies for combination with identical valves.
For the combination with different valves, the overall length Lx is calculated from LA (L), the respective valve block LM and LA (R).



Accessories

The pneumatically operated valves are equipped with an optical position indicator as standard indicating the OPEN or CLOSED valve position *).

It is possible to use the adaption thread for other directly mounted accessories, too.




*) Only control function 1 Normally closed






| Operator version | 0GS, 0MS | 1GS, 1MS | | 1GP, 1MP | 2GS |
|--|----------|----------|---------|----------|---------|
| Length | S | S | L | L | L |
| Add-on dimension of body | 40 mm | 48 mm | 74 mm | 74 mm | 74 mm |
| Actuator housing | Ø 32 mm | Ø 46 mm | Ø 46 mm | Ø 72 mm | Ø 63 mm |
| Optical position indicators | | | | | |
| 1300  | X | X | X | X | X |
| Electrical position indicators | | | | | |
| 1200 | X | X | X | X | X |
| 1215  | X | X | X | X | X |
| 1230  | - | - | X | X | X |
| 1231  | - | - | X | X | X |
| 1232  | - | - | X | X | X |
| 1234  | X | - | - | - | - |
| 1235  | - | - | X | X | X |

| Operator version | 0GS, 0MS | 1GS, 1MS | | 1GP, 1MP | 2GS |
|--------------------------|----------|----------|---------|----------|---------|
| Length | S | S | L | L | L |
| Add-on dimension of body | 40 mm | 48 mm | 74 mm | 74 mm | 74 mm |
| Actuator housing | Ø 32 mm | Ø 46 mm | Ø 46 mm | Ø 72 mm | Ø 63 mm |



Electrical position indicators

| | | | | | | |
|----------------------------|---|---|---|---|---|---|
| 1236 |  | - | - | X | X | X |
| 4242 |  | - | - | X | X | X |
| 4242 Compact version K1 |  | - | X | X | X | X |


Combi switchboxes

| | | | | | | |
|----------------------------|---|---|---|---|---|---|
| 4222 |  | - | - | - | - | X |
| 4242 |  | - | - | X | X | X |
| 4242 Compact version K1 |  | - | X | X | X | X |

Pilot valve manifolds

| | | |
|------|---|---|
| 0322 |  | <p>Due to the compact design width of the valve block, direct mounting of some pilot valves is restricted. In this instance, we recommend externally fitted pilot valves which are connected to the individual actuators.</p> |
| 0326 |  | |

Sensor system (pressure transducer and pressure switch)

| | | |
|------|---|---|
| 3140 |  | In connection with universal module (preferably Electrical connection code M) |
|------|---|---|

X = combination possible ~ = combination only possible with restrictions - = combination not possible

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Should there be any doubts or misunderstandings, the German version of this data sheet is the authoritative document!

Subject to alteration · 07/2020 · 88435687