

Angle Seat Valve

Type 3353



Application

On/off valve with pneumatic piston actuator

Nominal size DN 15 to 50 (NPS ½ to 2)

Nominal pressure PN 40

Temperature range -10 to 180 °C

Globe valve equipped with an angle seat body and a flat plug with soft sealing

- Pneumatic piston actuator
- Stainless steel body

Permissible media

- Water
- Air
- Neutral gases and liquids
- Oils
- Steam up to 180 °C
- Corrosive media

Easy serviceability and low price due to

- Replaceable soft sealing
- Safe relief of the actuator springs without having to use a spring clamping device

Version

Angle seat valve in nominal sizes DN 15 to 50 (NPS ½ to 2), body made of stainless steel 1.4581 or 1.4408, nominal pressure PN 40

Pneumatic piston actuator with either 30 or 60 cm² effective area (63 mm or 90 mm piston diameter)

Type 3353 · Angle seat valve, end connections with female thread (Fig. 1) or with welding ends according to ISO 4200, DIN 11850 Series 2 or ISO 2037

Accessories

- Type 4740 Limit Switch with inductive proximity switches or microswitches, optional with 3/2-way solenoid valve (max. 7 bar, Fig. 2)
- Fixture for holding proximity switches with M12 thread
- Limit switch with inductive proximity switches for spring-to-close or spring-to-open version
- NAMUR adapter to attach a solenoid valve
- 3/2-way solenoid valve G ⅛ for direct attachment to the actuator (double nipple required for mounting) in DN 1.5; 0 to 12 bar; 24 V DC or 230 V AC, optional silencer
- Double nipple G ⅛ x G ¼ detachable, brass



Fig. 1 · Type 3353 Angle Seat Valve with pneumatic actuator
End connections with female thread



Fig. 2 · Type 4740 Limit Switch with optional solenoid valve
on a Type 3353 Angle Seat Valve

Principle of operation

The process medium flows through the valve from below the plug in the direction indicated by the arrow (flow-to-open). The position of the valve plug determines the cross-sectional area of flow between the seat and the plug.

Fail-safe position

Depending on how the springs are arranged in the pneumatic actuator (Figs. 4 and 5), the valve has two fail-safe positions effective upon air supply failure.

Valve CLOSED (normally closed by the spring force):

The valve is closed upon air supply failure.

Valve OPEN (normally open by the spring force):

The valve is opened upon air supply failure.

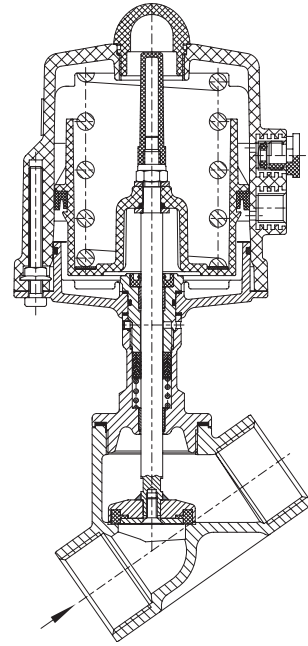


Fig. 4 · Type 3353 Angle Seat Valve
Actuator with fail-safe action: Valve CLOSED

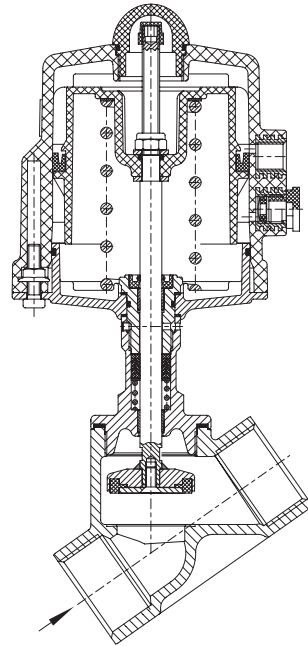


Fig. 5 · Type 3353 Angle Seat Valve
Actuator with fail-safe action Valve OPEN

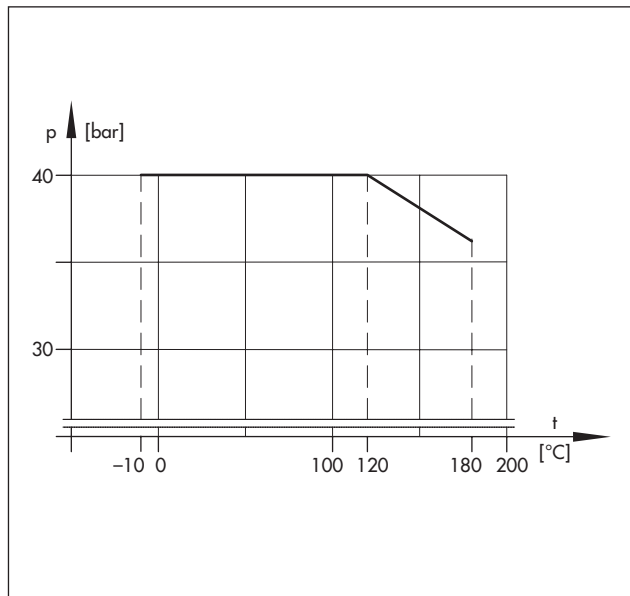


Fig. 3 · Pressure-temperature diagram

Table 1 · Technical data for Type 3353 Angle Seat Valve

| | |
|-----------------------------------|--|
| Nominal sizes | DN 15 to 50 · NPS ½ to 2 |
| Material | 1.4581 |
| Type of end connections | Female thread · Welding ends |
| Nominal pressure | PN 40 |
| Seat/plug sealing | Soft sealing |
| Characteristic | Quick opening |
| Actuator | |
| | 30 cm ² (∅ = 63 mm) or 60 cm ² (∅ = 90 mm) |
| Permissible signal pressure | Minimum as per Tables 4a and 4b · Maximum 8 bar |
| Signal pressure connection | G ¼ |
| Temperature range | |
| Permissible medium temperature | -10 ... 180 °C |
| Permissible ambient temperature | -10 ... 60 °C |
| Permissible flow velocity | |
| Max. velocity at the valve outlet | Liquids: 3 m/s · Gases: 0.3 Mach |

Table 2 · Materials

| | |
|------------------|--------------------------------------|
| Valve body | Stainless cast steel · 1.4581/1.4408 |
| Connecting piece | 1.4581/1.440 |
| Actuator stem | 1.4571 |
| Flat plug | 1.4571 |
| Sealing ring | PTFE, glass-fiber reinforced |
| Packing | PTFE/carbon, spring-loaded |
| Actuator | |
| Cover | PA 66, glass-fiber reinforced |
| Bonnet | PA 66, glass-fiber reinforced |
| Base | 1.4581 |

Table 3 · Overview: Nominal sizes, valve coefficients and seat diameters

| Nominal size | DN (NPS) | 15 (½) | 20 (¾) | 25 (1) | 32 (1¼) | 40 (1½) | 50 (2) |
|------------------|-----------------|--------|--------|--------|---------|---------|--------|
| Flow coefficient | K _{VS} | 5 | 9 | 17 | 23 | 40 | 52 |
| Seat ∅ | mm | 20 | | 31 | | 48 | |
| Travel | mm | 15 | | | | | |

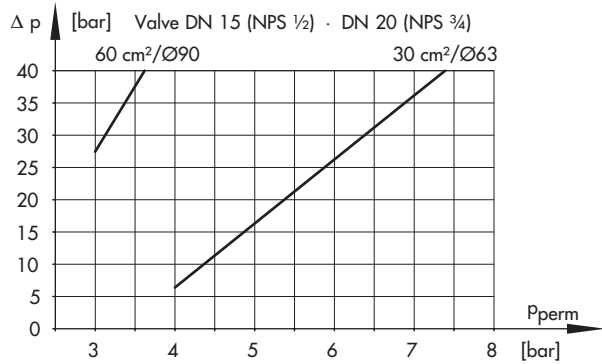
Table 4 · Permissible differential pressures for Type 3353 Angle Seat Valve · Standard version * with dark gray background

Table 4a · Normally closed (NC) with fail-safe position: Valve CLOSED

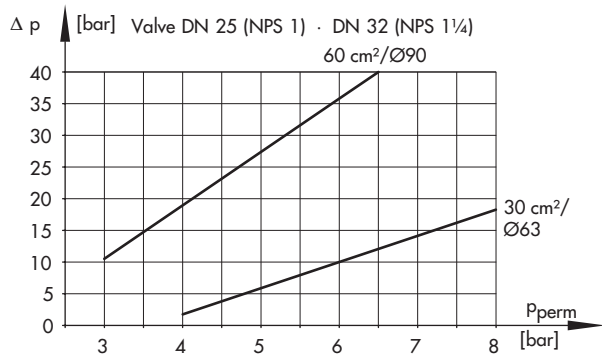
| Nominal size | | DN (NPS) | 15 (1/2) · 20 (3/4) | 25 (1) · 32 (1 1/2) | 40 (1 1/2) · 50 (2) |
|--------------------|--------------------|------------------------|---------------------|---------------------|---------------------|
| Effective area | Actuator | Signal pressure in bar | Δp | | |
| | Force | | | | |
| 30 cm ² | 720 N | 4.0 | 17* | 6 | 2 |
| 60 cm ² | 1440 N (1 spring) | 3.8 | 40 | 16* | 6 |
| | 2160 N (2 springs) | 5.4 | – | 25 | 10* |

Table 4b · Normally open (NO) with fail-safe position: Valve OPEN · Division according to nominal size and actuator size
Required actuators and signal pressures to close the valve at the specified differential pressure

| Nominal size DN (NPS) | | 15 (1/2) · 20 (3/4) |
|--|------------------------|---------------------|
| Actuator Eff. area | Signal pressure in bar | Δp |
| 30 cm ² * ($\varnothing=63$ mm) | 4 | 6 |
| | 5 | 16 |
| | 6 | 26 |
| | 7 | 36 |
| | 8 | 40 |
| 60 cm ² ($\varnothing=90$ mm) | 3 | 27 |
| | 4 | 40 |



| Nominal size DN (NPS) | | 25 (1) · 32 (1 1/4) |
|--|------------------------|---------------------|
| Actuator Eff. area | Signal pressure in bar | Δp |
| 30 cm ² ($\varnothing=63$ mm) | 5 | 6 |
| | 6 | 10 |
| | 7 | 14 |
| | 8 | 18 |
| 60 cm ² * ($\varnothing=90$ mm) | 3 | 11 |
| | 4 | 19 |
| | 7 | 40 |



| Nominal size DN (NPS) | | 40 (1 1/2) · 50 (2) |
|--|------------------------|---------------------|
| Actuator Eff. area | Signal pressure in bar | Δp |
| 30 cm ² ($\varnothing=63$ mm) | 5 | 2 |
| | 6 | 4 |
| | 7 | 5 |
| | 8 | 7 |
| 60 cm ² * ($\varnothing=90$ mm) | 3 | 4 |
| | 4 | 7 |
| | 5 | 11 |
| | 6 | 14 |
| | 7 | 18 |
| | 8 | 21 |

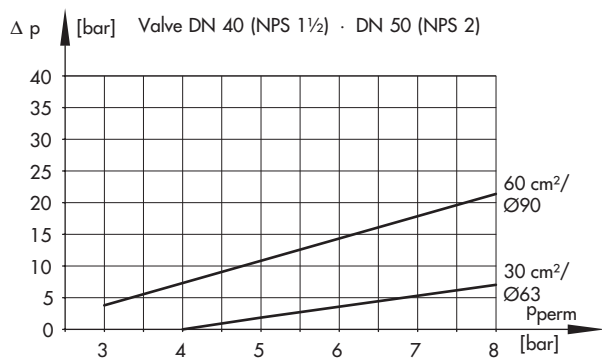


Table 5 · Dimensions in mm and weights in kg
Table 5a · Version with female thread

| Nominal size | DN (NPS) | 15 (1/2) | 20 (3/4) | 25 (1) | 32 (1 1/4) | 40 (1 1/2) | 50 (2) |
|------------------------|-------------|----------|----------|--------|------------|------------|--------|
| Installation length L | mm | 65 | 75 | 90 | 110 | 120 | 150 |
| Overall length L1 | mm | 170 | 175 | 197 | 205 | 210 | 226 |
| Height inc. actuator H | mm | 193 | 194 | 211 | 212 | 224 | 226 |
| Body thread | G | G 1/2 | G 3/4 | G 1 | G 1 1/4 | G 1 1/2 | G 2 |
| Thread length t | mm | 15 | 16 | 19 | 22 | 22 | 26 |
| Valve weight | kg | 0.28 | 0.33 | 0.64 | 0.8 | 1.3 | 1.9 |

Table 5b · Version with welding ends according to ISO 4200, DIN 11850 R2, ISO 2037

| Nominal size | DN (NPS) | 15 (1/2) | 20 (3/4) | 25 (1) | 32 (1 1/4) | 40 (1 1/2) | 50 (2) |
|--|-------------|----------|----------|--------|------------|------------|--------|
| Installation length L | mm | 100 | 120 | 150 | 160 | 180 | 190 |
| Overall length L1 | mm | 187 | 197 | 227 | 218 | 230 | 241 |
| Height H inc. actuator | mm | 197 | 199 | 214 | 223 | 230 | 229 |
| Welding ends according to ISO 4200 | | | | | | | |
| ∅d1 connection | mm | 18.1 | 23.7 | 29.7 | 38.4 | 44.3 | 55.1 |
| Wall thickness s | mm | 1.6 | | 2 | | 2.6 | |
| Welding ends according to DIN 11850 Series 2 | | | | | | | |
| ∅d1 connection | mm | 16 | 20 | 26 | 32 | 38 | 50 |
| Wall thickness s | mm | 1.5 | | 1.5 | | 1.5 | |
| Welding ends according to ISO 2037 | | | | | | | |
| ∅d1 connection | mm | 15.2 | 19.3 | 22.6 | 31.3 | 35.6 | 48.6 |
| Wall thickness s | mm | 1 | | 1.2 | | 1.2 | |
| Valve weight | kg | 0.28 | 0.33 | 0.64 | 0.8 | 1.3 | 1.9 |

Table 5c · Pneumatic piston actuator

| Version | Effective area/ Piston ∅ | 30 cm ² / ∅ 63 mm | 60 cm ² / ∅ 90 mm | |
|----------------------------|-----------------------------|------------------------------|------------------------------|-----------|
| | | | 1 spring | 2 springs |
| Housing ∅D | mm | 100 | 127 | |
| Signal pressure connection | | G 1/4 | | |
| Weight | kg | 1.35 | 2.2 | 2.75 |

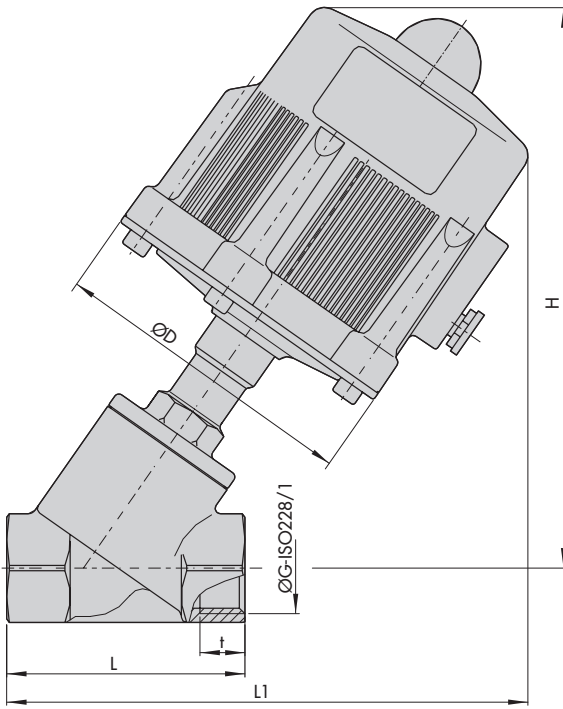


Fig. 6 · Type 3353 Angle Seat Valve with female thread

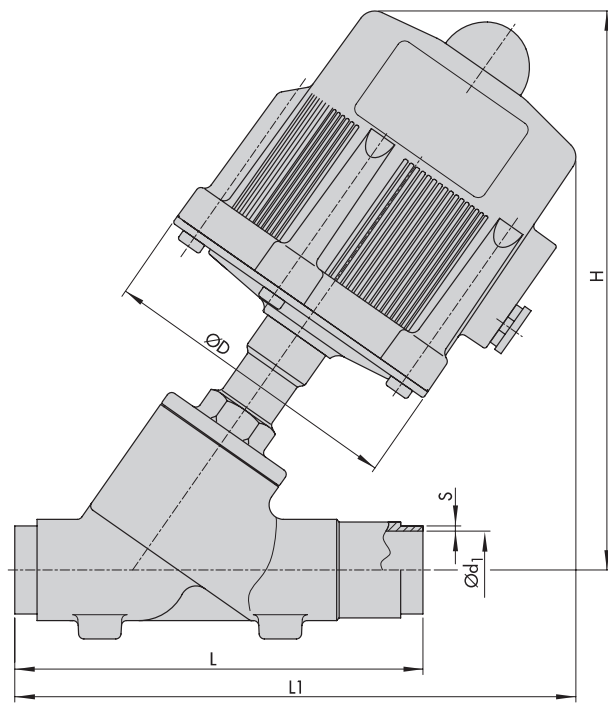


Fig. 7 · Type 3353 Angle Seat Valve with welding ends

Ordering text

The following specifications are required on ordering the valve:

Operational data (for sizing performed by SAMSON)

- Medium
 - Water
 - Steam
 - Neutral gas
e.g. air, nitrogen
 -
- Flow rate max.....
- Inlet pressure p_1 ... bar
- Outlet pressure p_2 ... bar or
- Differential pressure Δp ... bar
- Temperature T_1 ... °C

Type 3353 Angle Seat Valve

- Nominal size DN/NPS ...
- Valve coefficient K_{vs} ...
- End connections
 - Female thread
 - Welding ends ISO 4200
 - Welding ends DIN 11850
 - Welding ends ISO 2037

Pneumatic actuator

- Effective area/piston \varnothing
 - 30 cm²/63 mm
 - 60 cm²/90 mm, 1 spring
 - 60 cm²/90 mm, 2 springs
- Fail-safe position
 - Valve CLOSED
 - Valve OPEN

Additional accessories

- Limit switch
 - Electric, for valve CLOSED
 - Electric, for valve OPEN
 - Inductive, for valve CLOSED
 - Inductive, for valve OPEN
- Fixture for holding proximity switches
- NAMUR adapter
- 3/2-way solenoid valve and double nipple
 - 24 V DC
 - 230 V AC
- Silencer and fitting for solenoid valve

Specifications subject to change without notice.

