Type 3353 Angle Seat Valve

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 with an angle seat body and a soft-seated flat plug with:

- 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 seal
- 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 1.4408, nominal pressure PN 40

Pneumatic piston actuator with either 30 or 60 cm² effective area (63 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 with microswitches, optionally 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 with G ⅛ for direct attachment to the actuator (double nipple required for mounting) in DN 15 (NPS ½), 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*

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Principle of operation

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

Fail-safe position

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

Fail-close (FA/NC):
The valve is closed upon air supply failure.

Fail-open (FE/NO):
The valve is opened upon air supply failure.

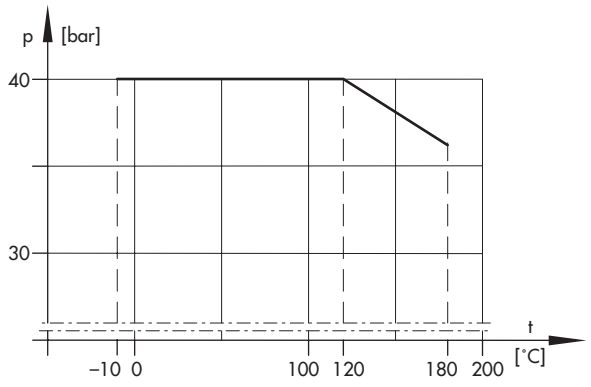


Fig. 3: *Pressure-temperature diagram*

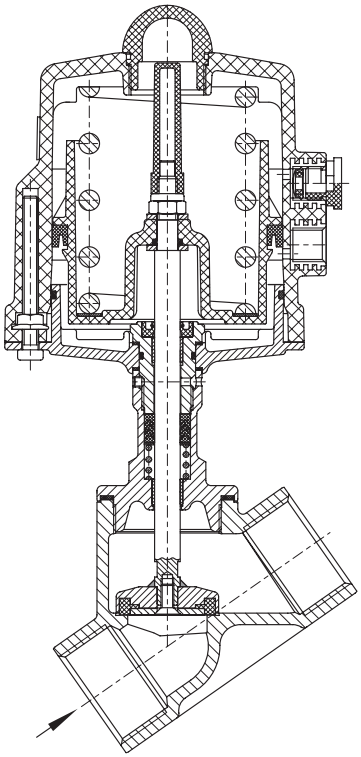


Fig. 4: *Type 3353 Angle Seat Valve*
Actuator with fail-safe action: fail-close

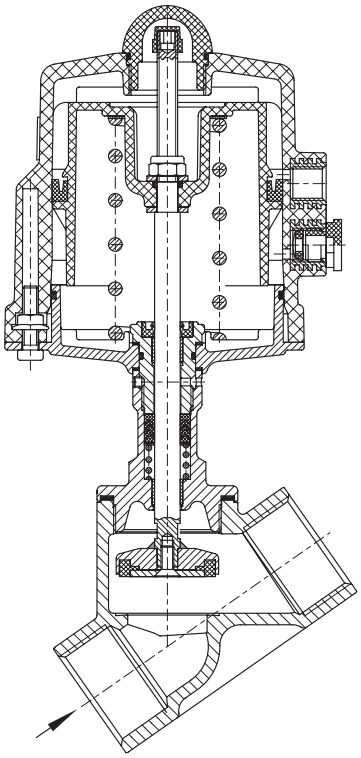


Fig. 5: *Type 3353 Angle Seat Valve*
Actuator with fail-safe action: fail-open

Table 1: *Technical data for Type 3353 Angle Seat Valve*

Nominal sizes	**DN 15 to 50 · NPS ½ to 2**
Material	1.4408
Type of end connections	Welding ends · Female thread
Nominal pressure	PN 40
Seat/plug seal	Soft seal
Characteristic	Quick opening
Actuator	30 cm² (Ø = 63 mm) or 60 cm² (Ø = 90 mm)
Permissible signal pressure	Minimum as listed in Table 4.1 and Table 4.2 · Maximum 8 bar
Signal pressure connection	G ¼
Temperature range	
Perm. medium temperature	–10 to 180 °C
Perm. ambient temperature	–10 to 60 °C
Permissible flow velocity	
Max. velocity at the valve outlet	Liquids: 3 m/s · Gases: 0.3 Mach

Table 2: *Materials*

Valve body	**Cast stainless steel · 1.4408**
Connecting piece	1.4408
Actuator stem	1.4404
Flat plug	1.4404
Seal	PTFE, glass fiber reinforced
Packing	PTFE/carbon, spring-loaded
Actuator	
Cover	PA 66, glass fiber reinforced
Piston	PA 66, glass fiber reinforced
Base	1.4408

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 Ø	mm	20		31		48	
Travel	mm	15					

Table 4: *Permissible differential pressures for Type 3353 Angle Seat Valve*
Specifications for the standard version have a gray background.

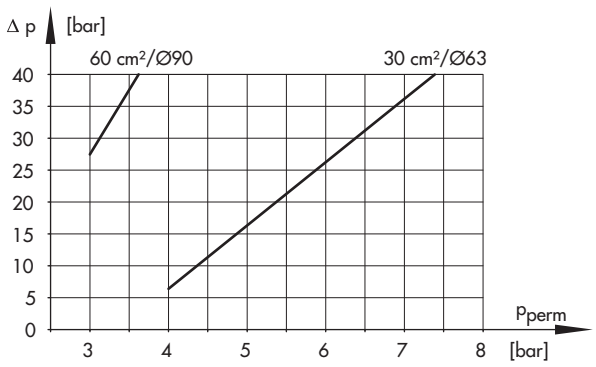
Table 4.1: *Version FA/NC with fail-safe position: fail-close*

Valve size	**DN**	**15 · 20**	**25 · 32**	**40 · 50**
	NPS	**½ · ¾**	**1 · 1¼**	**1½ · 2**
Actuator Actuator area	Signal pressure in bar	Δp		
30 cm²	5.0	20	10	4
60 cm²	3.8	40	16	6
	5.4	–	25	10

Table 4.2: *Version FE/NO with fail-safe position: fail-open · Allocation according to nominal size and actuator size*
Required actuators and signal pressures to close the valve at the specified differential pressure.

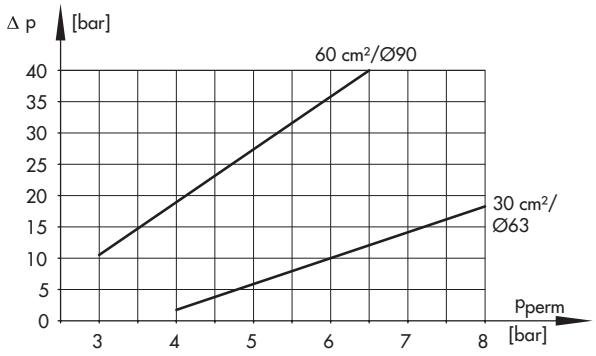
Nominal size	**DN (NPS)**	**15** (½) · **20** (¾)
Actuator effective area	Signal pressure in bar	Δp
30 cm² (Ø = 63 mm)	4	6
	5	16
	6	26
	7	36
	8	40
60 cm² (Ø = 90 mm)	3	27
	4	40

Valve DN 15 (NPS ½) · DN 20 (NPS ¾)



Nominal size	**DN (NPS)**	**25** (1) · **32** (1¼)
Actuator effective area	Signal pressure in bar	Δp
30 cm² (Ø = 63 mm)	5	6
	6	10
	7	14
	8	18
60 cm² (Ø = 90 mm)	3	11
	4	19
	7	40

Valve DN 25 (NPS 1) · DN 32 (NPS 1¼)



Nominal size	**DN (NPS)**	**40** (1½) · **50** (2)
Actuator effective area	Signal pressure in bar	Δp
30 cm² (Ø = 63 mm)	5	2
	6	4
	7	5
	8	7
60 cm² (Ø = 90 mm)	3	4
	4	7
	5	11
	6	14
	7	18
	8	21

Valve DN 40 (NPS 1½) · DN 50 (NPS 2)

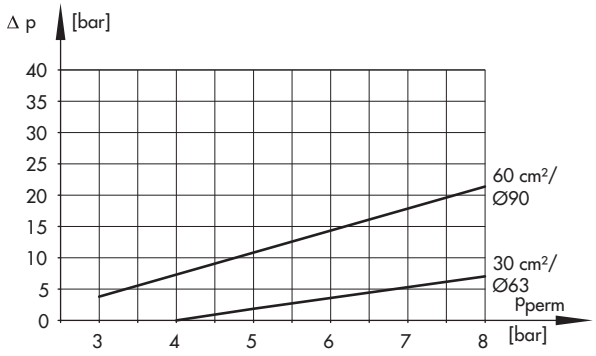


Table 5: *Dimensions in mm and weights in kg*

Table 5.1: *Version with female thread*

Nominal size	**DN** (NPS)	**15** (½)	**20** (¾)	**25** (1)	**32** (1¼)	**40** (1½)	**50** (2)
Face-to-face dimension L	mm	65	75	90	110	120	150
End-to-end length L1	mm	170	175	197	205	210	226
Height including actuator H	mm	193	194	211	212	224	226
Body connection	G	G ½	G ¾	G 1	G 1¼	G 1½	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 5.2: *Version with welding ends according to ISO 4200, DIN 11850 Series 2 and ISO 2037*

Nominal size	**DN** (NPS)	**15** (½)	**20** (¾)	**25** (1)	**32** (1¼)	**40** (1½)	**50** (2)
Face-to-face dimension L	mm	100	120	150	160	180	190
End-to-end length L1	mm	187	197	227	218	230	241
Height H including actuator	mm	197	199	214	223	230	229
Welding ends according to ISO 4200							
Ø-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							
Ø-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							
Ø-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 5.3: *Pneumatic piston actuator*

Version Effective area/ piston Ø		30 cm²/Ø 63 mm	60 cm²/Ø 90 mm	
			One spring	Two springs
Housing ØD	mm	100	127	
Signal pressure connection		G ¼		
Weight	kg	1.35	2.2	2.75

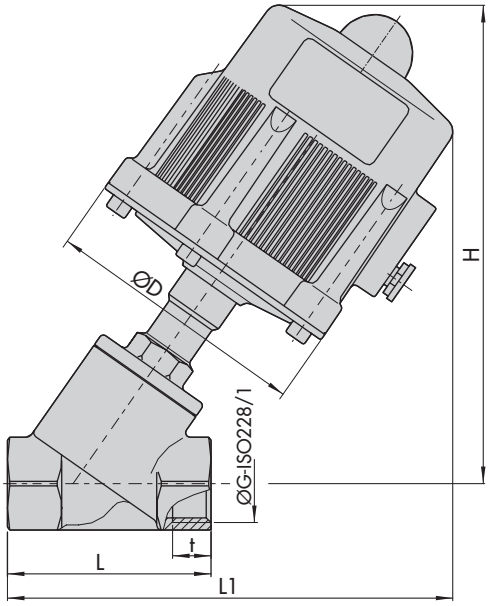


Fig. 6: *Type 3353 Angle Seat Valve with female thread*

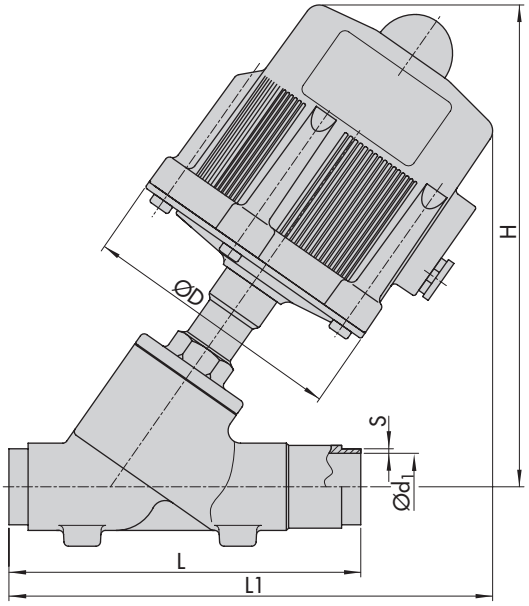


Fig. 7: *Type 3353 Angle Seat Valve with welding ends*

Ordering text

The following specifications are required on ordering:

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 acc. to ISO 4200
- ❑ welding ends acc. to DIN 11850
- ❑ welding ends acc. to ISO 2037

Pneumatic actuator

Effective area/piston Ø
- ❑ 30 cm²/Ø 63 mm
- ❑ 60 cm²/Ø 90 mm, one spring
- ❑ 60 cm²/Ø 90 mm, two springs

Fail-safe position
- ❑ fail-close (FA)
- ❑ fail-open (FE)

Additional equipment

Limit switch
- ❑ electric, fail-close
- ❑ electric, fail-open
- ❑ inductive, fail-close
- ❑ inductive, fail-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

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