

Safety Valve

Full lift

AT 4550

| Dimension range | PN | Temperature range | Material |
|-----------------|----|-------------------|--------------|
| DN 25-100 | 40 | -60°C to +350 °C | Nodular iron |
| DN 200 | 25 | -60°C to +350 °C | Nodular iron |
| DN 20-150 | 40 | -85°C to +450 °C | Steel |
| DN 200 | 25 | -85°C to +450 °C | Steel |

Range of Application

Safety valve for steam.

Not suitable as an over-flow valve.

DN 125 and 150 are not available in nodular iron. Please choose AT 4541 with closed bonnet (see separate leaflet).

Quality Assurance

Approved by TÜV and several other classification authorities.

Fulfils the requirements according to ISO 4126.

Certificate SS-EN 10204, type 2, 3 and from most of the classification authorities.

Type of certificate has to be specified upon ordering.

CE-marking

Meets the requirements in AFS 2016:1 and 2014/68/EU (Pressure Equipment Directive) according to category IV, fluids group 1 and 2.



AT 4550

Material Specification

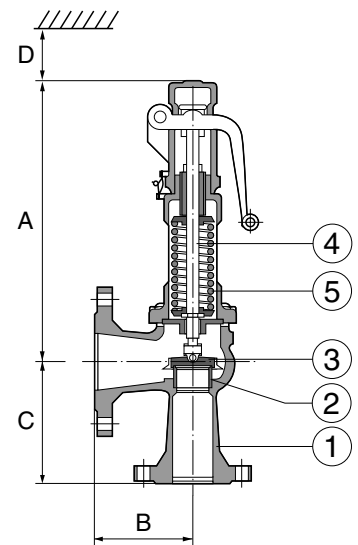
| | | |
|----|-------------------------|-------------------------------------------------------------------|
| 1 | Body | 0.7043/nodular iron Gr.60-40-18 resp. 1.0619/SA 216 WCB/steel |
| 2 | Seat | 1.4404/316L |
| 3 | Disc | 1.4122/hardened stainless steel |
| 4 | Spindle | 1.4021/420 |
| 5 | Spring | 1.1200, 1.8159, 1.7102/carbon steel |
| 5 | Spring (for temp>200°C) | 1.4310/stainless steel |
| 6 | Guide | 1.4104 tenifer/chrome steel tenifer |
| 7 | Bonnet | 0.7040, 0.7043, 1.0619/nodular iron Gr.60-40-18, SA 216 WCB/steel |
| 8 | Spring plate 2 pcs | 1.0718/steel |
| 9 | Adjusting screw | 1.4104 PTFE/chrome steel PTFE |
| 10 | Ball | 1.3541/hardened stainless steel |
| 11 | Lifting device (3) | 1.0718, 0.7043/12L13 or Gr.60-40-18 |

Dimension and Weight

| | | | | | | | | | | | |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| DN Inlet | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 |
| DN Outlet | 40 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 |
| Flow diameter | 18 | 23 | 29 | 37 | 46 | 60 | 74 | 92 | 98 | 125 | 165 |
| A | 219 | 234 | 331 | 372 | 419 | 529 | 606 | 663 | 663 | 798 | 1090 |
| *A with bellows | 252 | 273 | 373 | 410 | 465 | 599 | 665 | 719 | 719 | 856 | 1090 |
| B | 95 | 100 | 110 | 115 | 120 | 140 | 160 | 180 | 200 | 225 | 300 |
| C | 85 | 105 | 115 | 140 | 150 | 170 | 195 | 220 | 250 | 285 | 290 |
| D | 150 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 450 | 450 | 700 |
| Weight | 9 | 9 | 12 | 16 | 22 | 32 | 56 | 75 | 85 | 131 | 285 |
| *Weight with bellows | 9,4 | 10 | 13 | 17 | 24 | 36 | 60 | 83 | 93 | 142 | 289 |

Dimensions in mm, weights in kg.

* For valves with bellows and gas tight bonnets see separate sheet AT4547, 4548



Function and Design

Spring loaded and directly acting safety valve for steam, with full lift opening characteristics.

Not suitable for liquids and gases due to the open bonnet. The function of the open bonnet is to ventilate and cool the spring from the hot steam.

With open lifting device for manual testing.
Metallic seated disc.

Technical Information

Pressure increase

The safety valve is fully open at an overpressure exceeding the set pressure with a maximum of 5 %.

For set pressure lower than 1,0 bar, the overpressure is set pressure + 0,1 bar.
If lower overpressure is requested please contact Armatec.

Blowdown

| | |
|--------|-----------------------------------------------------------------------------|
| Steam: | Max 10% at set pressure > 3,0 barg Max 0,3 bar at set pressure ≤ 3,0 bar |
|--------|-----------------------------------------------------------------------------|

If lower blowdown pressures are required please contact Armatec.

Pressure and temperature

| DN | AT 4550GGG (nodular iron) | | AT 4550 (steel) | |
|-----|---------------------------|-----------------------------|--------------------------|-----------------------------|
| | Set pressure max. bar | Temp. -60°C to +350°C | Set pressure max. bar | Temp. -85°C to +450°C |
| 20 | 29 | | 32 | |
| 25 | 29 | | 32 | |
| 32 | 29 | | 32 | |
| 40 | 29 | | 32 | |
| 50 | 29 | | 32 | |
| 65 | 29 | | 32 | |
| 80 | 29 | | 32 | |
| 100 | 29 | | 32 | |
| 125 | 16 | | 28 | |
| 150 | 16 | | 17(25) | |
| 200 | 20(25) | | 20(25) | |

Pressure and temperatures according to applied standards for each valve material.

Set pressure in paranthesis for valves with a special spring. At temperatures above 200°C the temperature has to be specified in the order, so that a high temperature spring is used.

If other temperatures and pressures limits are requested please contact Armatec.

Soft sealing

AT 4550 is a metallic seated valve.

If a soft-sealed valve is requested please see separate leaflet, AT 4542/4545/4581.

Additional information

Sizing based on submitted data can be performed on request.

Please state: Capacity/power, maximum temperature (for superheated temperature) and set pressure.

For fluids other than steam, see separate leaflet series AT 4541.

Bar implies bar gauge: bar(ö), bar(g), bar(e), atö or kg/cm² if nothing else is stated.

Safety Valve

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Coefficient of performance steam/gas, γ_d D/G

0,7

Coefficient of performance liquids, γ_d F

0,45

Flow diameter (Do), see table Dimension and Weight.

Sizing DN20-100

| DN | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 |
|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Seat | 18 mm | 23 mm | 29 mm | 37 mm | 46 mm | 60 mm | 74 mm | 92 mm |
| Pset | | | | | | | | |
| bar | Steam | Steam | Steam | Steam | Steam | Steam | Steam | Steam |
| 0,2 | 93 | 152 | 241 | 393 | 608 | 1033 | 1567 | 2422 |
| 0,5 | 144 | 236 | 374 | 610 | 943 | 1600 | 2433 | 3767 |
| 1 | 210 | 342 | 544 | 887 | 1367 | 2322 | 3544 | 5478 |
| 2 | 336 | 548 | 870 | 1411 | 2189 | 3722 | 5667 | 8756 |
| 3 | 451 | 737 | 1167 | 1900 | 2944 | 5011 | 7622 | 11778 |
| 4 | 563 | 919 | 1456 | 2378 | 3667 | 6244 | 9511 | 14667 |
| 5 | 674 | 1100 | 1744 | 2844 | 4400 | 7489 | 11333 | 17556 |
| 6 | 784 | 1278 | 2033 | 3311 | 5122 | 8711 | 13222 | 20444 |
| 7 | 896 | 1456 | 2322 | 3778 | 5844 | 9944 | 15111 | 23333 |
| 8 | 1006 | 1633 | 2600 | 4244 | 6567 | 11111 | 16889 | 26222 |
| 9 | 1111 | 1811 | 2889 | 4711 | 7278 | 12333 | 18778 | 29111 |
| 10 | 1222 | 2000 | 3178 | 5178 | 8000 | 13556 | 20667 | 32000 |
| 12 | 1440 | 2356 | 3744 | 6100 | 9433 | 16000 | 24333 | 37667 |
| 14 | 1656 | 2711 | 4322 | 7033 | 10867 | 18444 | 28111 | 43444 |
| 16 | 1878 | 3078 | 4889 | 7967 | 12222 | 20889 | 31778 | 49222 |
| 18 | 2100 | 3433 | 5456 | 8889 | 13667 | 23333 | 35556 | 55000 |
| 20 | 2322 | 3789 | 6033 | 9822 | 15111 | 25778 | 39222 | 60667 |
| 22 | 2544 | 4156 | 6611 | 10756 | 16556 | 28222 | 43000 | 66556 |
| 24 | 2767 | 4522 | 7189 | 11667 | 18000 | 30778 | 46778 | 72333 |
| 26 | 2989 | 4878 | 7767 | 12556 | 19444 | 33222 | 50556 | 78222 |
| 28 | 3211 | 5244 | 8344 | 13556 | 21000 | 35667 | 54333 | 84000 |
| 30 | 3433 | 5611 | 8922 | 14444 | 22444 | 38222 | 58111 | 89889 |
| 32 | 3656 | 5978 | 9511 | 15444 | 23889 | 40667 | 61889 | 95778 |

Pset = set pressure

According to applied standards the value above should be multiplied with the safety factor 0,9.

Saturated steam in kg/h.

Capacities are given for an overpressure of 10% of set pressure.

Contact Armatec for sizing with other fluids etc.

Sizing DN125-200

| DN | 125 | 150 | 200 |
|------|-------|--------|--------|
| Seat | 98 mm | 125 mm | 165 mm |
| Pset | | | |
| bar | Steam | Steam | Steam |
| 0,2 | 2756 | 4478 | 7811 |
| 0,5 | 4278 | 6956 | 12111 |
| 1 | 6211 | 10111 | 17555 |
| 2 | 9933 | 16111 | 28111 |
| 3 | 13333 | 21667 | 37889 |
| 4 | 16667 | 27111 | 47222 |
| 5 | 19889 | 32444 | 56555 |
| 6 | 23222 | 37778 | 65889 |
| 7 | 26444 | 43111 | 75222 |
| 8 | 29778 | 48444 | 84444 |
| 9 | 33000 | 53778 | 93667 |
| 10 | 36222 | 59000 | 102889 |
| 12 | 42778 | 69667 | 121111 |
| 14 | 49333 | 80222 | 138889 |
| 16 | 55889 | 90889 | 157778 |
| 18 | 62333 | 101556 | 176667 |
| 20 | 68889 | 111111 | 195555 |
| 22 | 75444 | 123333 | 214444 |
| 24 | 82111 | 133333 | 232222 |

Pset = set pressure

According to applied standards the value above should be multiplied with the safety factor 0,9.

Saturated steam in kg/h.

Capacities are given for an overpressure of 10% of set pressure.

Contact Armatec for sizing with other fluids etc.

For larger DN and/or higher capacities see separate product data sheet AT 4543-4580, DN 200-400.

Accessories and Options

Test Gag for blocking the safety valve

Lift stopper

Flanges drilled acc. to ANSI.

Back pressure compensating bellows, see separate leaflet AT 4547.

Safety valve with closed bonnet, soft sealed disc or in stainless steel please see separate leaflet series AT 4541.

Supplementary loading system, see AT4505.

Installation

| Connections | Flanges drilled acc. to |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AT 4550GGG (nodular iron) | |
| Inlet/outlet | DN25-80: DIN EN 1092-1, PN40/DIN EN 1092-1, PN16 DN 100-150: DIN EN 1092-1, PN16/DIN EN 1092-1, PN16 DN 200: DIN EN 1092-1, PN25/DIN EN 1092-1, PN10 |

See separate installation and maintenance instruction. See separate installation and maintenance instruction.

Safety Valve

Full lift

AT 4550

| Connections | Flanges drilled acc. to |
|------------------------|-----------------------------------------------------------------------------------------------------|
| AT 4550 (steel) | |
| Inlet/outlet | DN20-130: DIN EN 1092-1, PN40/DIN EN 1092-1, PN16 DN200: DIN EN 1092-1, PN25/DIN EN 1092-1, PN16 |

See separate installation instruction. The valve should be mounted with the bonnet in vertical position.

Maintenance and Spare parts

See separate installation and maintenance instruction.

Marking

Manufacturer, Armatec article number, DN, PN, CE-marking, material and arrow showing the flow direction.

TÜV approval label with manufacturer fig. no. 442 mounted on body.

Set pressure is punched on the outlet flange and on the TÜV approval label.

How to order

| Metal seated safety valve with open bonnet | | | |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----|
| Example: AT 4550-3-18,0-25 | | | |
| AT 4550 | -3 | -18,0 | -25 |
| Fig. nr. AT 4550GGG=nodular iron AT 4550=stål | Design -3=open lifting device V3=open lifting device and bellows -2=cap (no lifting device) V2=cap (no lifting device) and bellows | Set pressure (barg) | DN |