

Safety Valve

full lift

AT 4585, 4586, 4587, 4588,
4589

Dimension range	PN	Temperature range	Material
G3/4-G1	200	-85°C to +400°C	Steel
G3/4-G1	700	-270°C to +400 °C	Stainless steel

Range of Application

Safety valve for protection of pressure vessels and piping systems with liquids, air, gases and steam.

Not suitable as overflow valve.

For medium capacities.

Large pressure- and temperature range.

Quality Assurance

Approved by TÜV and several other classification authorities.

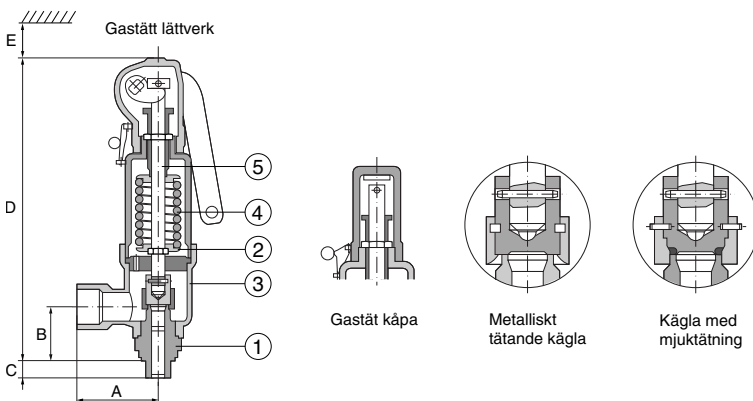
Fulfills the requirements according to ISO 4126.

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.



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Material Specification

			AT 4585A, 4586A	AT 4587A, 4588A	AT 4589A (heavy duty design)
1	Inlet body with seat	stainless steel	1.4404	1.4404	1.4404 stellited
2	Outlet body	steel	1.0619		
		stainless steel		1.4408	1.4408
3	Disc	stainless steel	1.4122	1.4404	1.4404
4	Spindle	stainless steel	1.4021	1.4404	1.4404
5	Spring	spring steel	1.1200, 1.8159, 1.7102	1.4310	1.4310
6	Guide	stainless steel	1.4104	1.4404	1.4404
7	Bonnet	steel	1.0460/steel		
		stainless steel		1.4404	1.4404
8	Spring plate 2pcs	steel	1.0718		
		stainless steel		1.4404	1.4404
9	Adjusting screw	stainless steel	1.4104 PTFE	1.4404 PTFE	1.4404 PTFE
10a	Cap (2)	steel	1.0460		
		stainless steel		1.4404	1.4404
10b	Lifting device (4)	steel	1.0460		
		stainless steel		1.4404	1.4404
*11	Soft seal AT4586A, 4587A				

*See head line **Soft sealing**

Dimension and Weight

Connection inlet	G 3/4	G 1
Connection outlet	G 1	G 1 1/2
Flow diameter	6/9/13	17,5
A	75	75
B	52	56
C	16	18
D	282	283
E	150	150
Weight	2,6	3

Dimensions in mm, weight in kg.

Function and Design

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

For liquids, the safety valve has normal opening characteristics.

With lifting device for manual testing or with gas tight cap.

If possible, a soft sealing disc should be used since it has better tightness and is easier to renovate.

Technical Information

Overpressure

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

Max 10 % for liquids, when the valve has standard opening characteristics.

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

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Steam/air/gases:	Max 10% at set pressure \geq 3,0 bar Max 0,3 bar at set pressure $<$ 3,0 bar
Liquids:	Max 20% at set pressure \geq 3,0 bar Max 0,6 bar at set pressure $<$ 3,0 bar
If lower blowing down is requested please contact Armatec.	

Pressure and temperature

Fig. no	Flow diameter		Max. set pressure	Temp. range
	DN	mm	bar	°C
AT 4585A	20	9	250*	-85°C to +400°C
	20	13	200	-85°C to +400°C
	25	17,5	100	-85°C to +400°C
AT 4586A	20	9	250*	-10° to **
	20	13	200	-10° to **
	25	17,5	100	-10° to **
AT 4587A	20	9	250*	-10° to **
	20	13	200	-10° to **
	25	17,5	100	-10° to **
AT 4588A	20	9	250*	-200°C to +400°C
	20	13	200	-200°C to +400°C
	25	17,5	100	-200°C to +400°C
AT 4589A	20	6	700 ¹⁾	-270°C to +300°C
	20	6	630 ²⁾	-270°C to +300°C
	20	9	400 ³⁾	-270°C to +300°C

** Depends on the material of the soft seal. See **Soft Sealing**

1) Liquids, 2) Gases, 3) Liquids and gases

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

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

Soft sealing

Temperature range soft sealed safety valves; AT 4586A, AT 4587A	
Soft seal	Common applications
EPDM	Water, low temperature steam (max 4 bar), some aggressive fluids, silicone. Max 150°C. No oils. Standard for AT4586A
Viton	High temperatures, mineral oils, silicone, ozone, several aggressive fluids. Max 180°C. Not hot water/steam. Standard for AT4587A
Nitrile rubber	Hydraulic oil, vegetable and animal oils. Max 110°C.
Neoprene	Paraffin, refrigerants. Max 100°C.
See also Pressure and temperature	

Additional information

Sizing based on submitted data can be performed on request.

Please state: Fluid, density (for liquids), capacity/power, maximum temperature and set pressure

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

Nm³/h implies "free" capacity air/gas (N=normal) and is equal with m³/h if other is not stated.

Coefficient of performance steam/gases η_d D/G

Flow diameter 6 mm metal seated: 0,81

Flow diameter 9 mm: 0,83

Flow diameter 13 mm: 0,81

Flow diameter 17,5 mm: 0,79

Coefficient of discharge liquids η_d F

Flow diameter 6 mm metal seated: 0,7

Flow diameter 9 mm: 0,61

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Flow diameter 13 mm metal seated: 0,53

Flow diameter 13 mm soft seated: 0,61

Flow diameter 9 mm: 0,52

Flow diameter Do, see Dimension and Weight

Sizing metal seated valve - AT 4585A, AT 4588A, AT 4589A

DN Seat Pset bar	20 (G 3/4) 6 mm			20 (G 3/4) 9 mm			20 (G 3/4) 13 mm			25 (G 1) 17,5 mm		
	Steam	Air	Water	Steam	Air	Water	Steam	Air	Water	Steam	Air	Water
	0,2	-	-	-	-	-	-	57	68	2178	91	109
0,5	-	-	-	-	-	-	88	108	3078	144	178	5478
1	-	-	-	-	-	-	127	159	4167	213	268	7411
2	-	-	-	98	124	3256	201	256	5900	351	447	10489
3	-	-	-	133	172	2878	272	350	7222	481	618	12889
4	-	-	-	167	216	4600	340	439	8344	600	777	14778
5	-	-	-	200	260	5144	407	529	9322	719	934	16556
6	-	-	-	232	303	5633	473	618	10211	837	1092	18111
8	-	-	-	298	391	6511	607	797	11778	1072	1400	21000
10	158	211	3711	363	479	7278	740	977	13222	1300	1722	23444
15	228	308	4544	527	699	8911	1071	1422	16111	1889	2511	28667
20	299	403	5244	690	919	10289	1400	1867	18667	2478	3300	33111
25	370	500	5866	854	1133	11556	1733	2311	20889	3067	4089	37111
30	442	596	6422	1020	1356	12556	2067	2756	22889	3667	4878	40556
40	587	789	7422	1344	1789	14556	2756	3656	26333	4878	6467	46889
50	736	983	8288	1689	2233	16222	3456	4544	29444	6111	8044	52444
60	888	1178	9088	2044	2667	17778	4167	5444	32333	7367	9622	57444
80	1200	1566	10488	2767	3556	20556	5644	7233	37333	9989	12778	66333
100	1533	1944	11666	3544	4433	23000	7211	9022	41667	12667	15889	74111
150	2455	2911	14333	5656	6622	28222	11444	13444	51111	-	-	-
200	-	3877	16555	-	8822	32556	-	17889	59000	-	-	-
250	-	4844	18555	-	11022	36333	-	-	-	-	-	-
300	-	5811	20300	-	13222	39889	-	-	-	-	-	-
350	-	6777	21800	-	15333	43000	-	-	-	-	-	-
400	-	7744	23400	-	17556	46000	-	-	-	-	-	-
500	-	9666	26200	-	-	-	-	-	-	-	-	-
630	-	12200	29400	-	-	-	-	-	-	-	-	-
700	-	-	31000	-	-	-	-	-	-	-	-	-

Pset = set pressure

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

Saturated steam in kg/h. Air in Nm³/h (free air) at 0°C and atmospheric pressure 1013 mbar(a). Water in kg/h at 20°C.

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

Contact Armatec for sizing with other fluids etc.

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Sizing soft seated valve - AT 4586A, AT 4587A

DN Seat Pset bar	20 (G 3/4) 9 mm			20 (G 3/4) 13 mm			25 (G 1) 17,5 mm		
	Steam	Air	Water	Steam	Air	Water	Steam	Air	Water
	0,5	42	52	1700	103	128	3544	144	178
1	61	77	2300	136	171	4800	213	268	7411
2	98	124	3256	204	260	6789	351	447	10489
3	133	172	3989	272	350	8311	481	618	12889
4	167	216	4600	340	439	9600	600	777	14778
5	-	260	5144	-	529	10733	-	934	16556
6	-	303	5633	-	618	11778	-	1092	18111
8	-	391	6511	-	797	13556	-	1400	21000
10	-	479	7278	-	977	15222	-	1722	23444
15	-	699	8911	-	1422	18556	-	2511	28667
20	-	919	10289	-	1867	21444	-	3300	33111
25	-	1133	11556	-	2311	24000	-	4089	37111
30	-	1356	12556	-	2756	26333	-	4878	40556
40	-	1789	14556	-	3656	30333	-	6467	46889
50	-	2233	16222	-	4544	33889	-	8044	52444
60	-	2667	17778	-	5444	37222	-	9622	57444
80	-	3556	20556	-	7233	42889	-	12778	66333
100	-	4433	23000	-	9022	48000	-	15889	74111
150	-	6622	28222	-	13444	58778	-	-	-
200	-	8822	32556	-	17889	67889	-	-	-
250	-	11022	36333	-	-	-	-	-	-
300	-	13222	39889	-	-	-	-	-	-
350	-	15333	43000	-	-	-	-	-	-

Pset = set pressure

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

Saturated steam in kg/h. Air in Nm³/h (free air) at 0°C and atmospheric pressure 1013 mbar(a). Water in kg/h at 20°C.

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

Contact Armatec for sizing with other fluids etc.

Accessories and Options

Heating jacket

Flanged connections, NPT-threads, stellite seal, Kalrez soft seal.

Test Gag for blocking the safety valve

Lift stopper

Delivery acc. to ASME Sec VIII, Div 1 including "UV-stamp" and certificate 3.1

Installation

Connection	Thread
Inlet	male threads G 3/4 or G 1
Outlet	female threads G 1 or G 1 1/2

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. 459/462 mounted on body.

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

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How to order

Metal seated safety valve

Example: AT 4585-4-10,0-20

AT 4585	-4	-10,0	-20
Fig. no. AT 4585 = nodular iron AT 4588 = stainless steel AT 4589 = stainless steel (Heavy duty design)	Design -2 = gas tight cap -4 = gas tight lifting device	Set pressure (barg)	DN 20 25

Soft seated safety valve

Example: AT 4587A-L4-10,0-20

AT 4587	L	4	-10,0	-20
Fig. no. AT 4586A=steel AT 4587A=stainless steel	O-ring *D=EP-DM **L=Viton K=Neo-pren N=Nitril	Design 2=gas-tight bonnet 4=gas-tight lifting device V2=gas-tight bonnet + stainless steel bellows V4=gas-tight lifting device + stainless steel bellows	Set pressure (barg)	D N 20 25

* Standard for AT 4586A.

** Standard for AT 4587A.

Rätten till ändringar utan föregående meddelande förbehålls.
Armatec ansvarar inte för eventuella tryckfel eller missförstånd.
Dokumentet får kopieras endast i sin helhet.