

# Safety Valve

with rubber below, full lift

AT 4546

<b>Dimension range</b> DN 15-150	<b>PN</b> 16	<b>Temperature range</b> -10°C to +150 °C	<b>Material</b> Grey iron/EPDM
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## Range of Application

Safety valve for e.g. low pressure steam boilers and steam vessels.  
Also suitable for water system when large discharging capacity is required.

## 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.  
Valve of grey iron can not be obtained with material certificate type 3 (3.1 certificate)

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.



## Material Specification

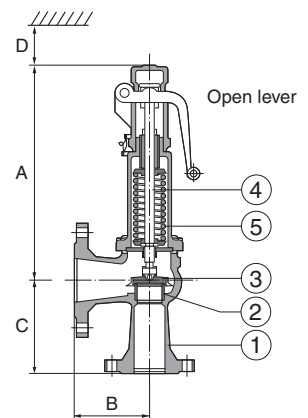
1	Body	0.6025/grey iron GG-25
2	Seat	1.4404/316L
3	Disc	1.4122 + EPDM /hardened stainless steel + EPDM
4	Spindle	1.4021/420
5	Spring	1.1200, 1.8159, 1.7102, 1.4310/carbon steel
6	Guide	0.7040, 1.0501, 1.4104/ ductile iron Gr.60-40-18, SA 216 WCB
7	Bonnet	0.7040/ductile iron Gr.60-40-18l
8	Spring plate (2)	1.0718/steel
9	Adjusting screw	1.4104 PTFE/chrome steel PTFE
10	Lever (3)	0.7040/nodular iron Gr.60-40-18
11	Soft sealing	EPDM
12	Rubber bellow	EPDM



Rubber bellow



Soft sealing disc



## Dimension and Weight

DN Inlet	25	32	40	50	65	80	100
DN Outlet	40	50	65	80	100	125	150
Flow diameter	23	29	37	46	60	74	92
A max	234	331	372	419	529	606	663
B	100	110	115	120	140	160	180
C	105	115	140	150	170	195	220
D	150	200	250	300	350	400	450
Weight	9	12	16	22	32	56	75

Measurements in mm, weight in kg, (3) = open lifting device.

For measurements DN125-150 see AT4541-series

## 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.

Large discharging capacity.

Open lifting device, closed bonnet.

Rubber bellow of EPDM to protect moving parts and spring against dirt and corrosion.

## 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

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 blowdown pressures are required please contact Armatec	

## Pressure and temperature

DN	Max. set pressure bar	Temperature range °C
25-150	10	-10°C to +150

## Soft sealing + rubber bellows

Ethylen (EPDM), max 150°C, for e.g. hot water and low temperature steam.

The disc can be obtained with soft sealing of other elastomers, see How to order

## 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/cm<sup>2</sup> if nothing else is stated.

Nm<sup>3</sup>/h implies "free" capacity air/gas (N=normal) and is equal with m<sup>3</sup>/h if other is not stated.

## Coefficient of discharge steam/gas $\gamma$ d D/G

0,7

Flow diameter  $D_o$ , see table *Dimension and Weight*.

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## Sizing DN20-40

DN Seat Pset bar	20 18 mm			25 23 mm		32 29 mm			40 37 mm			
	Steam	Air	Water	Steam	Water	Steam	Air	Water	Steam	Air	Water	Steam
	0,2	93	110	3544	152	5789	241	287	9200	393	466	15000
0,5	144	177	5011	236	8189	374	460	13000	610	748	21222	943
1	210	263	6789	342	11078	544	684	17667	887	1111	28667	1367
2	336	427	9600	548	15667	870	1108	24889	1411	1800	40556	2189
3	451	580	11778	737	19222	1167	1500	30556	1900	2444	49667	2944
4		728	13556		22111		1889	35222		3067	57333	
5		876	15222		24778		2267	39444		3700	64111	
6		1024	16667		27111		2656	43111		4322	70222	
7		1167	18000		29333		3033	46667		4944	75889	
8		1311	19222		31333		3422	49778		5578	81111	
9		1467	20333		33222		3811	52889		6200	86000	
10		1611	21444		35000		4189	55667		6833	90667	
12		1911	23556		38444		4967	61000		8078	99333	
14		2200	25444		41444		5733	65889		9333	107333	
16		2500	27111		44333		6500	70444		10589	114444	

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 Nm<sup>3</sup>/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.

## Sizing DN50-100

DN Seat Pset bar	50 46 mm			65 60 mm			80 74 mm		100 92 mm	
	Steam	Air	Water	Steam	Air	Water	Air	Water	Air	Water
	0,2	608	720	2311	1033	1222	39333	1856	59889	2878
0,5	943	1156	32778	1600	1967	55667	2989	84778	4622	131111
1	1367	1711	44333	2322	2922	75444	4444	114444	6878	177778
2	2189	2778	62667	3722	4733	106667	7211	162222	11111	251111
3	2944	3778	76788	5011	6433	131111	9789	198889	15111	306667
4		4744	88667		8078	151111	12222	228889	19000	354444
5		5711	99111		9733	168889	14778	256667	22778	396667
6		6689	108556		11333	184444	17222	281111	26667	434444
7		7656	117778		13000	200000	19778	303333	30556	468889
8		8622	125556		14667	213333	22222	324444	34444	501111
9		9589	133333		16222	226667	24778	344444	38333	532222
10		10556	140000		17889	238889	27333	362222	42222	561111
12		12444	153333		21222	261111	32333	397778	49889	614444
14		14333	165556		24556	282222	37333	428889	57667	663333
16		16333	177778		27778	301111	42333	458889	65444	708889

Pset = set pressure

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

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## Sizing DN125-150

DN	125			150		
	98 mm			125 mm		
Säte	Steam	Air	Water	Steam	Air	Water
Pset						
bar						
0,2	2756	3267	105111	4478	5311	171111
0,5	4278	5244	148889	6956	8533	242222
1	6211	7811	201111	10111	12667	327778
2	9933	12556	284444	16111	20556	463333
3	13333	17111	348889	21667	27889	566667
4		21556	402222		35000	654444
5		25889	450000		42222	732222
6		30333	493333		49333	802222
7		34667	532222		56444	865556
8		39111	568889		63667	925556
9		43444	603333		70778	982222
10		47889	636667		77889	1035556
12		56667	696667		92222	1133333
14		65444	753333		106556	1222222
16		74222	804444		120000	1300000

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 Nm<sup>3</sup>/h (free air) at 0°C and atmospheric pressure 1013 mbar(a). Water in kg/h at 20°C.

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## Accessories and Options

Test Gag for blocking the safety valve

Lift stopper

Valve of different materials without rubber bellow, see series AT 4541

Valve of different materials with stainless steel bellow, see series AT 4547

## Installation

Connection	Flanges drilled acc. to
Inlet	DIN EN 1092-1, PN16
Outlet	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. 440 mounted on body.

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

The valve is painted red, unlike other the non stainless valves which are painted blue.

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

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## How to order

### Soft seated safety valve with EPDM rubber bellows

Example: AT 4546D3-5,0-25

AT 4546	D	3	-5,0	-25
Fig. no. AT 4546=grey iron	O-ring D=EPDM  N=Nitrile L=Viton K=Neoprene	Design 2= gas tight cap 3= open lifting device	Set pressure (barg)	DN