

→ Series 455bHL

455bHL

Safety valves made of stainless steel, angle-type with flange connections



■ SUITABLE FOR

Hot water



■ EXAMPLES OF USE

Full-lift safety valve for the protection of:

- thermostatically protected closed-circuit water heating systems with flow temperatures of up to 120°C for all static heights or rated output above 350 kW according to TRD 721, DIN 4751 and DIN EN 12828.

Should the thermostatic limiting and control unit fail, the safety valve has to blow-off the total heating output of the boiler as hot water and steam. As these valves are completely made of metal, they can also be installed at high environmental or radiation temperatures.

- heating systems for building technology and industrial applications
- co-generation plants (CHP)
- biogas plants
- district heating transfer stations, building sub-stations

■ CHARACTERISTICS

- maintenance-friendly construction
- replaceable seat
- Replaceable flat seal
- freely rotatable spindle-taper connection
- full metal design for high ambient or radiation temperatures
- extensive range of spare parts, see spare parts flange safety valves
- vertical and horizontal installation position possible

Safety valves are set and sealed at the factory.

■ APPROVALS

TÜV Type test approval 2094 D/G/H

EU type examination D/G/H

TR ZU 032/2013 - TR ZU 010/2011 D/G/H

Requirements

TRD 721
AGFW 505
DIN 4751 Part 2
DIN EN 12828
DIN EN ISO 4126-1
PED 2014/68/EU
UK PESR 2016 No. 1105



■ MATERIAL



■ SPECIFICATION



DN 15 to DN 100 – 10°C to + 120°C 0,5 – 25 bar depending on version

■ MATERIALS

Component	Material	DIN EN	ASME
Inlet body	Stainless steel	1.4408	CF8M
Valve seat	Stainless steel	1.4404	316 L
Internal parts	Stainless steel	1.4404	316 L
Spring	Stainless steel	1.4310	302
Bellows	Elastomere	EPDM	

b	with bellows	for neutral and non-neutral media without counter pressure. Spring, moving parts and the environment are protected from being affected by the medium.
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■ MEDIUM

H	Hot water	Flow temperature ≤ 120°C in water heating systems
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■ TYPE OF LIFTING MECHANISM

L	Standard with lifting lever
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■ AVAILABLE NOMINAL DIAMETERS AND CONNECTION SIZES

Nominal diameter DN	15	20	25	32	40	50	65	80	100
Inlet	15	20	25	32	40	50	65	80	100
Outlet	25	■							
	32		■						
	40			■					
	50				■				
	65					■			
	80						■		
	100							■	
	125								■
150									■

■ TYPE OF CONNECTION INLET / OUTLET FLANGE CONNECTIONS

FL / FL	Standard	Flange connection / flange connection	DIN EN 1092 / DIN EN 1092
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■ SEALS

EPDM	Ethylene propylene diene	Elastomere moulded seal with metallic support	-10°C to +120°C
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■ OPTIONS

Special versions on request.		
Option G (by table on the next page) Connection for condensate in the outlet body	Order description: A02	

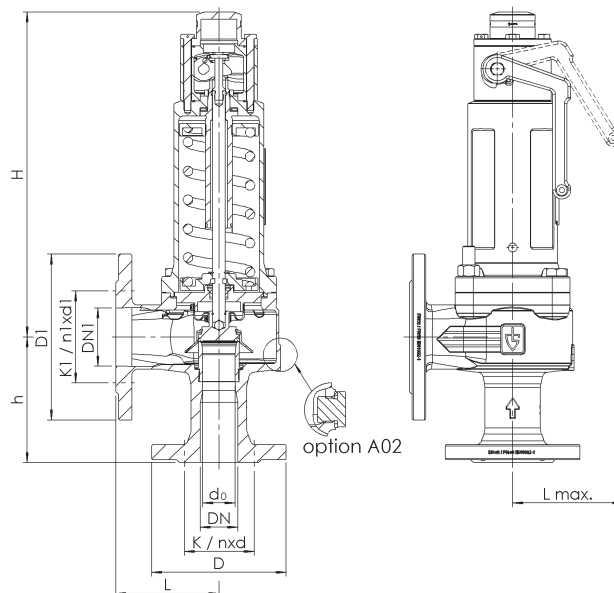
NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

Series 455bHL: Connection, installation dimensions, ranges of adjustment											
Nominal diameter	DN	15	20	25	32	40	50	65	80	100	
Connection DIN EN 1092-2	DN / PN	15 / 40	20 / 40	25 / 40	32 / 40	40 / 40	50 / 40	65 / 40	80 / 40	100 / 40	
Outlet DIN EN 1092-2	DN1 / PN	25 / 16	32 / 16	40 / 16	50 / 16	65 / 16	80 / 16	100 / 16	125 / 16	150 / 16	
Installation dimensions in mm	L	80	95	100	110	115	120	140	160	180	
	h	90	85	105	115	140	150	170	195	220	
	D	95	105	115	140	150	165	185	200	235	
	K / nxd	65 / 4x14	75 / 4x14	85 / 4x14	100 / 4x18	110 / 4x18	125 / 4x18	145 / 8x18	160 / 8x18	168 / 8x22	
	D1	115	140	150	165	185	200	220	250	285	
	K1 / n1xd1	85 / 4x14	100 / 4x18	110 / 4x18	125 / 4x18	145 / 8x18	160 / 8x18	180 / 8x18	210 / 8x18	218 / 8x22	
	H	204	204	229	320	363	413	497	556	647	
	Lmax	75	85	95	120	130	160	205	215	255	
	G	1/4"	1/4"	1/4"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
	$\alpha_w / K_{dr} (D/G)^1$		0,72	0,74	0,74	0,74	0,74	0,74	0,74	0,74	0,74
Weight	do	15,0	18,0	22,5	29,3	36,0	45,0	59,0	72,0	90,0	
	kg	6,0	7,0	9,5	19,0	22,0	28,5	47,5	60,5	93,5	
Range of adjustment	bar	0,5 - 15	0,5 - 25	0,5 - 25	0,5 - 25	0,5 - 25	0,5 - 25	0,5 - 25	0,5 - 25	0,5 - 22,5 (25 ²)	

¹Flow coefficients for blow-off pressures < 3,0 bar: Please refer to the Flow Coefficients Chart.

²on request

MAIN DIMENSIONS, INSTALLATION DIMENSIONS



INDIVIDUAL SELECTION / VALVE CONFIGURATION

Series	Valve version	Medium	Lifting device	Nominal diameter DN	Connection type		Connection size		Seal	Options	Set pressure	Quantity
					Inlet	Outlet	Inlet	Outlet				
455	b	H	L	40	FL	FL	40	65	EPDM		4,5	3
455	b	H	L	50	FL	FL	50	80	EPDM	A02	3,5	1
455	b	H	L		FL	FL			EPDM			
455	b	H	L		FL	FL			EPDM			

ENQUIRY

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Series 455bHL: Blowing-off rates at 10% above set pressure											
Nominal diameter DN		15		20		25		32		40	
		d0 = 15 mm		d0 = 18 mm		d0 = 22,5 mm		d0 = 29,3 mm		d0 = 36 mm	
Set pressure bar		I	II	I	II	I	II	I	II	I	II
Heating I	0,5	60	92	80	142	130	221	220	375	340	566
	1	80	133	120	199	190	311	320	527	480	796
kW	1,5	110	178	160	261	250	407	420	690	640	1042
	2	130	219	190	318	300	497	510	843	770	1272
Steam II	2,5	150	255	220	375	350	586	590	994	890	1501
	3	180	291	250	431	390	673	670	1141	1010	1723
kg/h	3,5	200	327	280	484	440	757	750	1283	1130	1937
	4	220	363	310	537	480	840	820	1424	1240	2150
	4,5	240	399	340	590	530	923	900	1565	1360	2362
	5	250	435	370	644	570	1006	970	1705	1470	2574
	5,5	270	471	390	696	620	1088	1050	1845	1580	2786
	6	290	506	420	749	660	1171	1120	1985	1690	2997
	6,5	310	542	450	802	700	1253	1190	2125	1800	3207
	7	330	577	480	855	750	1335	1270	2264	1910	3418
	7,5	350	613	500	907	790	1417	1340	2403	2020	3628
	8	370	648	530	960	830	1499	1410	2543	2120	3839
	8,5	390	684	560	1012	870	1582	1480	2682	2230	4049
	9	410	719	580	1065	910	1664	1550	2821	2340	4259
	9,5	420	755	610	1117	950	1746	1620	2960	2440	4469
	10	440	790	640	1170	1000	1828	1690	3099	2550	4678
	11	480	861	690	1274	1080	1991	1830	3376	2760	5096
	12	510	931	740	1379	1160	2154	1960	3653	2960	5514
	13	550	1002	790	1483	1240	2317	2100	3930	3170	5932
	14	580	1073	840	1588	1310	2481	2230	4208	3370	6352
	15	620	1143	890	1692	1390	2644	2360	4484	3560	6768
	16	650	1214	940	1797	1470	2807	2490	4760	3760	7186
	17	690	1284	990	1901	1540	2970	2620	5037	3950	7604
	18	720	1355	1040	2005	1620	3133	2750	5312	4150	8020
	19	750	1425	1080	2110	1690	3296	2870	5590	4340	8438
	20	790	1496	1130	2214	1770	3460	3000	5867	4520	8857
	21	820	1567	1180	2319	1840	3623	3120	6144	4710	9275
	22	850	1637	1230	2423	1910	3786	3250	6421	4900	9693
	23	880	1708	1270	2528	1990	3949	3370	6697	5090	10111
	24	910	1778	1320	2632	2060	4112	3490	6974	5270	10528
	25	950	1849	1360	2736	2130	4276	3610	7251	5450	10946

Series 455bHL: Blowing-off rates at 10% above set pressure									
Nominal diameter DN		50		65		80		100	
		d0 = 45 mm		d0 = 59 mm		d0 = 72 mm		d0 = 90 mm	
Set pressure bar		I	II	I	II	I	II	I	II
Heating I	0,5	530	885	910	1522	1360	2266	2120	3540
	1	750	1244	1290	2139	1930	3185	3010	4977
kW	1,5	990	1628	1710	2799	2540	4168	3970	6513
	2	1200	1988	2070	3417	3080	5089	4810	7952
Steam II	2,5	1390	2345	2390	4031	3560	6003	5570	9380
	3	1580	2692	2710	4628	4030	6893	6300	10770
kg/h	3,5	1760	3026	3020	5202	4500	7747	7030	12105
	4	1940	3359	3330	5774	4960	8599	7750	13436
	4,5	2120	3690	3640	6344	5420	9448	8470	14762
	5	2290	4022	3940	6914	5870	10296	9180	16088
	5,5	2470	4352	4240	7482	6320	11142	9870	17410
	6	2640	4683	4540	8049	6760	11987	10560	18730
	6,5	2810	5012	4840	8615	7200	12830	11250	20047
	7	2980	5341	5130	9181	7640	13672	11940	21363
	7,5	3150	5669	5420	9746	8070	14513	12610	22677
	8	3320	5998	5710	10310	8500	15354	13280	23991
	8,5	3490	6327	6000	10875	8930	16196	13950	25306
	9	3650	6655	6280	11440	9360	17037	14620	26620
	9,5	3820	6983	6560	12004	9780	17876	15280	27932
	10	3980	7310	6840	12566	10190	18714	15930	29240
	11	4310	7962	7400	13688	11030	20384	17230	31850
	12	4630	8616	7960	14812	11850	22058	18520	34465
	13	4950	9269	8500	15934	12660	23730	19780	37078
	14	5260	9925	9040	17061	13460	25407	21030	39699
	15	5560	10576	9570	18180	14240	27074	22260	42303
	16	5870	11228	10100	19302	15040	28744	23490	44913
	17	6180	11881	10620	20424	15820	30416	24720	47525
	18	6480	12531	11140	21540	16580	32079	25910	50123
	19	6780	13185	11650	22664	17350	33753	27100	52738
	20	7070	13839	12150	23789	18100	35428	28280	55356
	21	7370	14493	12660	24913	18860	37101	29460	57971
	22	7660	15146	13170	26036	19610	38773	30640	60583
	23	7950	15798	13660	27157	20350	40443	31800	63192
	24	8230	16449	14160	28277	21080	42111	32940	65798
	25	8520	17102	14640	29399	21810	43782	34070	68410

In order to achieve the highest possible heating output, up to three valves per system can be installed.

To protect indirectly heated heat generators in accordance with DIN 4751 Part 2 the safety valves have to be rated for the flow rate of the expansion water. For the valid blow-off capacities in m³/h water see capacity chart **455 on datasheet 2.01**.