

**455bHL**

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

→ **Series 455bHL**



■ 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



■ 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>b</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. |
|----------|--------------|---|

■ MEDIUM

|          |           |   |
|----------|-----------|---|
| <b>H</b> | Hot water | Flow temperature ≤ 120°C in water heating systems |
|----------|-----------|---|

■ TYPE OF LIFTING MECHANISM

|          |                             |
|----------|-----------------------------|
| <b>L</b> | Standard with lifting lever |
|----------|-----------------------------|

■ AVAILABLE NOMINAL DIAMETERS AND CONNECTION SIZES

| Nominal diameter DN | 15  | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 |
|---------------------|-----|----|----|----|----|----|----|----|-----|
| <b>Inlet</b>        | 15  | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 |
| <b>Outlet</b>       | 25  | ■  |    |    |    |    |    |    |     |
|                     | 32  |    | ■  |    |    |    |    |    |     |
|                     | 40  |    |    | ■  |    |    |    |    |     |
|                     | 50  |    |    |    | ■  |    |    |    |     |
|                     | 65  |    |    |    |    | ■  |    |    |     |
|                     | 80  |    |    |    |    |    | ■  |    |     |
|                     | 100 |    |    |    |    |    |    | ■  |     |
|                     | 125 |    |    |    |    |    |    |    | ■   |
| 150                 |     |    |    |    |    |    |    |    | ■   |

■ TYPE OF CONNECTION INLET / OUTLET FLANGE CONNECTIONS

|                |          |                                       |                           |
|----------------|----------|---------------------------------------|---------------------------|
| <b>FL / FL</b> | Standard | Flange connection / flange connection | DIN EN 1092 / DIN EN 1092 |
|----------------|----------|---------------------------------------|---------------------------|

■ SEALS

|             |                          |   |                 |
|-------------|--------------------------|---|-----------------|
| <b>EPDM</b> | Ethylene propylene diene | Elastomere moulded seal with metallic support | -10°C to +120°C |
|-------------|--------------------------|---|-----------------|

■ OPTIONS

|  |                               |  |
|--|-------------------------------|--|
| Special versions on request.   |                               |  |
| Option G (by table on the next page)<br>Connection for condensate in the outlet body | Order description: <b>A02</b> |  |

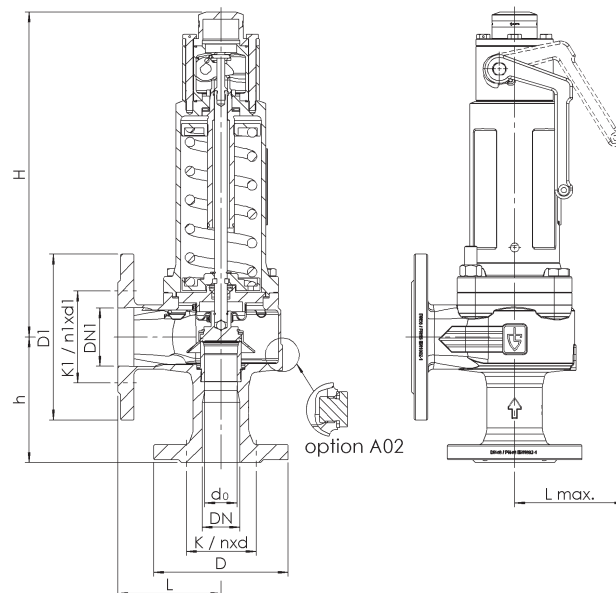
## NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

| 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 | 190 / 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 | 240 / 8x22                   |
|  | H                           | 204       | 204        | 229        | 320        | 363        | 413        | 497        | 556        | 647                          |
|  | Lmax                        | 75        | 85         | 95         | 120        | 130        | 160        | 205        | 215        | 255                          |
|  | G                           | 1/8"      | 1/8"       | 1/4"       | 1/4"       | 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                         |
| Weight   | kg                          | 6,0       | 7,0        | 9,5        | 19,0       | 22,0       | 28,5       | 47,5       | 60,5       | 93,5                         |
|  | 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) <sup>2</sup> |

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

<sup>2</sup>on 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

Copy and send to: [order@goetze-armaturen.de](mailto:order@goetze-armaturen.de).

Order form easily to be found online under the section for each series.

| 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 m<sup>3</sup>/h water see capacity chart **455 on datasheet 2.01**.