

## → Series 851bH

**851bH**

Safety valves made of  
gunmetal, angle-type with  
threaded connections

### ■ SUITABLE FOR

Hot water



### ■ EXAMPLES OF USE

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.

- closed-circuit solar heating plants according DIN 4757-1 und 2 with flow temperatures up to 120°C for all static heights.

- district heating sub-stations, district heating building substations and domestic systems suitable for connection to a hot water district heating network according to DIN 4747-1 and AGFW 505.

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

**Safety valves are set and sealed at the factory.**

### ■ APPROVALS

TÜV Type test approval 665 D/G/H

EU type examination D/G/H

TSG ZF001-2006 D/G/H

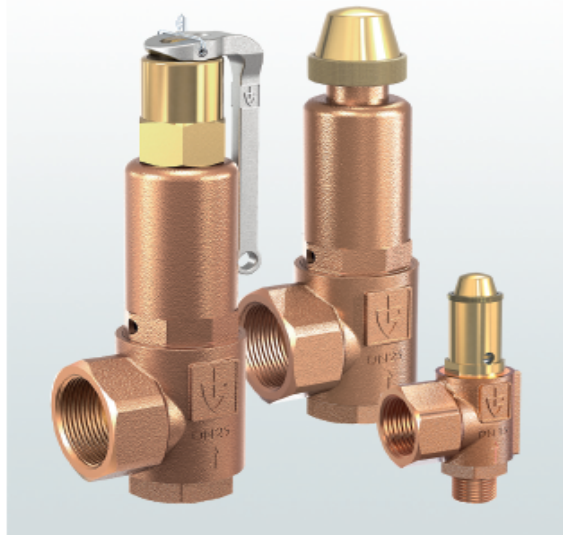
TR ZU 032/2013 - TR ZU 010/2011 D/G/H

#### Requirements

|                            |                   |
|----------------------------|-------------------|
| TRD 721                    | DIN EN 12828      |
| AGFW 505                   | DIN EN ISO 4126-1 |
| DIN 4751 Part 2            | PED 2014/68/EU    |
| DIN 4747 Part 1            | SWKI HE301-01     |
| DIN 4757 Part 1 and Part 2 |                   |

#### Classification society

|                                       |         |
|---------------------------------------|---------|
| DNV                                   | DNV     |
| Lloyd's Register EMEA                 | LR EMEA |
| American Bureau of Shipping           | ABS     |
| Bureau Veritas                        | BV      |
| Russian Maritime Register of Shipping | RS      |



### ■ MATERIAL



### ■ SPECIFICATION



1/2" – 2"



– 10°C to + 120°C



0,5 – 25 bar

### ■ MATERIALS

| Component      | Material        | DIN EN | ASME   |
|----------------|-----------------|--------|--------|
| Inlet body     | Gunmetal        | CC499K | CC499K |
| Outlet body    | Gunmetal        | CC499K | CC499K |
| Internal parts | Brass           | CW617N | CW617N |
| Spring         | Stainless steel | 1.4310 | 302    |
| Bellows        | Bronze          | CW452K | C51900 |

**Series 851bH ■ VALVE VERSION**

|          |              |                                                                                                                                                                     |
|----------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>b</b> | with bellows | for neutral and non-neutral media and/or counter pressure up to 4 bar.<br>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>K</b> | Standard with twist-type lifting mechanism |
| <b>L</b> | Lifting lever                              |

**■ AVAILABLE NOMINAL DIAMETERS AND CONNECTION SIZES**

| Nominal diameter DN |             | 15        | 20        | 25      | 32          |                     |
|---------------------|-------------|-----------|-----------|---------|-------------|---------------------|
| Inlet               |             | 1/2" (15) | 3/4" (20) | 1" (25) | 1 1/4" (32) | 1 1/2" (40) 2" (50) |
| Outlet              | 1/2" (15)   |           |           |         |             |                     |
|                     | 3/4" (20)   |           |           |         |             |                     |
|                     | 1" (25)     | ■         |           |         |             |                     |
|                     | 1 1/4" (32) |           | ■         |         |             |                     |
|                     | 1 1/2" (40) |           |           | ■       |             |                     |
|                     | 2" (50)     |           |           |         | ■           | ■                   |

**■ TYPE OF CONNECTION INLET / OUTLET THREADED CONNECTIONS**

|                                                |            |                                           |                                          |
|------------------------------------------------|------------|-------------------------------------------|------------------------------------------|
| <b>f / f</b>                                   | Standard   | Female thread BSP-P / Female thread BSP-P | DIN EN ISO 228-1 / DIN EN ISO 228-1      |
| <b>m / f</b>                                   | On request | Male thread BSP-P / Female thread BSP-P   | DIN EN ISO 228-1 / DIN EN ISO 228-1      |
| Against surcharge                              |            |                                           |                                          |
| <b>BSP-Tm / f</b>                              |            | Male thread BSP-T / Female thread BSP-P   | DIN EN 10226, ISO 7-1 / DIN EN ISO 228-1 |
| Further connection types available on request. |            |                                           |                                          |

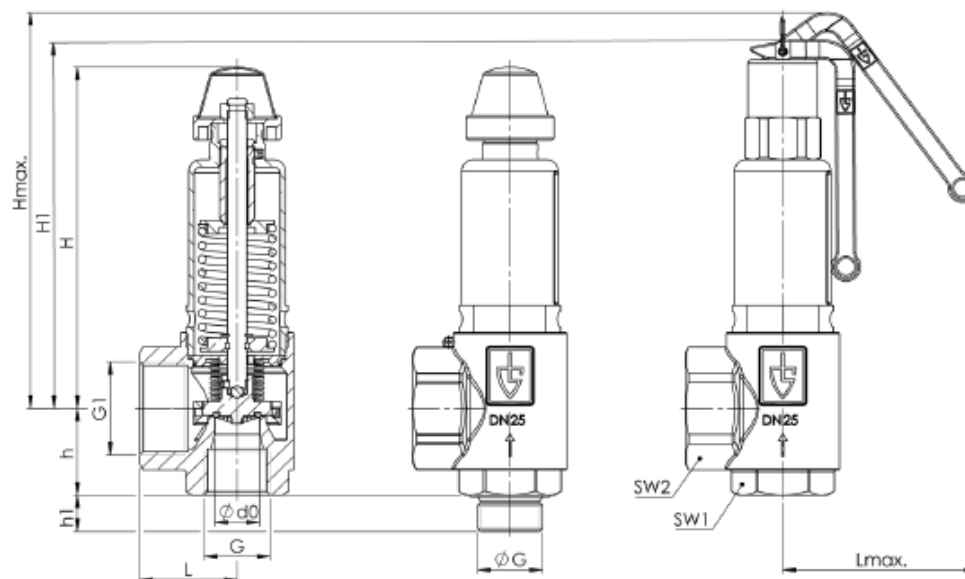
**■ SEALS**

|             |                          |                                                            |                 |
|-------------|--------------------------|------------------------------------------------------------|-----------------|
| <b>EPDM</b> | Ethylene propylene diene | Elastomere moulded seal with metallic support up to 25 bar | -10°C to +120°C |
|-------------|--------------------------|------------------------------------------------------------|-----------------|

## NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

| Series 851bH: Connection, installation dimensions, ranges of adjustment |      |           |             |             |             |             |         |
|-------------------------------------------------------------------------|------|-----------|-------------|-------------|-------------|-------------|---------|
| Nominal diameter                                                        | DN   | 15        | 20          | 25          | 32          |             |         |
| Connection DIN EN ISO 228                                               | G    | 1/2" (15) | 3/4" (20)   | 1" (25)     | 1 1/4" (32) | 1 1/2" (40) | 2" (50) |
| Outlet DIN EN ISO 228                                                   | G1   | 1" (25)   | 1 1/4" (32) | 1 1/2" (40) | 2" (50)     | 2" (50)     | 2" (50) |
| Installation dimensions in mm                                           | L    | 40        | 43          | 50          | 61          | 61          | 61      |
|                                                                         | Lmax | 65        | 91          | 92          | 92          | 92          | 92      |
|                                                                         | H    | 77        | 138         | 178         | 241         | 241         | 241     |
|                                                                         | H1   | 91        | 158         | 192         | 264         | 264         | 264     |
|                                                                         | Hmax | 103       | 173         | 207         | 277         | 277         | 277     |
|                                                                         | h    | 30        | 39          | 45          | 55          | 69          | 74      |
|                                                                         | h1   | 15        | 16          | 18          | 20          | 23          | 25      |
|                                                                         | SW1  | 30        | 36          | 46          | 55          | 55          | 70      |
|                                                                         | SW2  | 40        | 50          | 58          | 70          | 70          | 70      |
|                                                                         | d0   | 15,8      | 18          | 23          | 30,3        | 30,3        | 30,3    |
| Weight                                                                  | kg   | 0,4       | 1,0         | 1,8         | 4,0         | 4,0         | 4,0     |
| Range of adjustment                                                     | bar  | 0,5-25    | 0,5-25      | 0,5-25      | 0,5-25      | 0,5-25      | 0,5-25  |

## 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 |      |         |              |          |
| 851    | b             | H      | K              | 25                  | f               | f      | 25              | 40     | EPDM |         | 4,5          | 5        |
| 851    | b             | H      | L              | 32                  | f               | f      | 40              | 50     | EPDM |         | 5,0          | 2        |
| 851    | b             | H      |                |                     |                 |        |                 |        | EPDM |         |              |          |
| 851    | b             | H      |                |                     |                 |        |                 |        | EPDM |         |              |          |

■ CAPACITY TABLE ACC. TO ISO 4126-1 / AD2000 A2

| Series 851bH: Blowing-off rates at 10% above set pressure |     |     |     |      |      |      |      |      |      |
|-----------------------------------------------------------|-----|-----|-----|------|------|------|------|------|------|
| Nominal diameter DN                                       |     | 15  |     | 20   |      | 25   |      | 32   |      |
| Set pressure bar                                          |     | I   | II  | I    | II   | I    | II   | I    | II   |
| Heating I<br>kW                                           | 0,5 | 27  | 42  | 62   | 96   | 96   | 150  | 171  | 266  |
|                                                           | 1   | 44  | 69  | 95   | 151  | 146  | 232  | 258  | 411  |
|                                                           | 1,5 | 56  | 90  | 124  | 200  | 192  | 309  | 336  | 542  |
| Steam II<br>kg/h                                          | 2   | 68  | 111 | 152  | 249  | 236  | 385  | 401  | 656  |
|                                                           | 2,5 | 79  | 129 | 182  | 300  | 277  | 457  | 481  | 793  |
|                                                           | 3   | 89  | 148 | 210  | 349  | 320  | 532  | 555  | 924  |
|                                                           | 3,5 | 99  | 166 | 234  | 392  | 357  | 597  | 619  | 1036 |
|                                                           | 4   | 109 | 184 | 258  | 435  | 393  | 663  | 682  | 1151 |
|                                                           | 4,5 | 119 | 203 | 282  | 478  | 430  | 729  | 746  | 1265 |
|                                                           | 5   | 129 | 221 | 305  | 521  | 465  | 794  | 808  | 1378 |
|                                                           | 5,5 | 139 | 239 | 329  | 564  | 501  | 860  | 870  | 1492 |
|                                                           | 6   | 149 | 257 | 352  | 608  | 537  | 926  | 931  | 1607 |
|                                                           | 6,5 | 159 | 275 | 375  | 650  | 571  | 990  | 992  | 1719 |
|                                                           | 7   | 168 | 293 | 397  | 692  | 605  | 1054 | 1051 | 1830 |
|                                                           | 7,5 | 178 | 311 | 420  | 735  | 640  | 1119 | 1111 | 1943 |
|                                                           | 8   | 187 | 329 | 442  | 777  | 674  | 1184 | 1170 | 2056 |
|                                                           | 8,5 | 197 | 347 | 465  | 820  | 708  | 1249 | 1229 | 2168 |
|                                                           | 9   | 206 | 365 | 487  | 862  | 742  | 1314 | 1287 | 2281 |
|                                                           | 9,5 | 215 | 383 | 508  | 905  | 775  | 1379 | 1345 | 2392 |
|                                                           | 10  | 225 | 401 | 530  | 947  | 808  | 1443 | 1402 | 2504 |
|                                                           | 11  | 243 | 437 | 573  | 1031 | 873  | 1571 | 1516 | 2727 |
|                                                           | 12  | 261 | 472 | 615  | 1115 | 938  | 1699 | 1628 | 2948 |
|                                                           | 13  | 279 | 508 | 658  | 1199 | 1002 | 1827 | 1739 | 3172 |
|                                                           | 14  | 296 | 544 | 699  | 1284 | 1066 | 1957 | 1849 | 3396 |
|                                                           | 15  | 314 | 580 | 740  | 1368 | 1127 | 2085 | 1957 | 3618 |
|                                                           | 16  | 331 | 616 | 781  | 1453 | 1190 | 2214 | 2065 | 3842 |
|                                                           | 17  | 348 | 650 | 820  | 1535 | 1250 | 2339 | 2169 | 4059 |
|                                                           | 18  | 364 | 686 | 860  | 1619 | 1311 | 2467 | 2274 | 4281 |
|                                                           | 19  | 381 | 721 | 899  | 1703 | 1370 | 2594 | 2378 | 4503 |
|                                                           | 20  | 398 | 757 | 938  | 1787 | 1430 | 2723 | 2482 | 4726 |
|                                                           | 21  | 414 | 793 | 978  | 1872 | 1490 | 2852 | 2586 | 4950 |
|                                                           | 22  | 431 | 829 | 1017 | 1956 | 1549 | 2981 | 2689 | 5173 |
|                                                           | 23  | 447 | 865 | 1055 | 2040 | 1608 | 3109 | 2791 | 5396 |
|                                                           | 24  | 463 | 900 | 1093 | 2125 | 1666 | 3238 | 2891 | 5619 |
|                                                           | 25  | 479 | 936 | 1131 | 2209 | 1723 | 3366 | 2990 | 5842 |

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 851bHF on datasheet 9.9