

## → Series 851



## ■ MATERIAL



## ■ SPECIFICATION



1/2" – 2"

– 60°C to + 225°C  
depending on version

0,5 – 50 bar

## ■ SUITABLE FOR

|                        |                         |  |
|------------------------|-------------------------|--|
| Liquids                | neutral and non-neutral |  |
| Air, gases and vapours | neutral and non-neutral |  |
| Steam                  |                         |  |

## ■ EXAMPLES OF USE

For the protection of:

- Pressure-vessels/-systems for neutral / non-neutral vapours, gases and liquids
- Steam boilers and steam plants
- Stationary silos and bulk transport vehicles for liquid, granular and powdery goods

taking into account the plant-specific regulations and making use of the suitable valve versions and sealing materials.

- Mechanical engineering
- pump protection
- Apparatus construction and medical technology ( sterilizers, autoclaves )
- shipbuilding and -repair
- Pressure booster systems water- / air-side
- Steam- and industrial-boiler systems

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

## ■ APPROVALS

|                                        |                                      |
|----------------------------------------|--------------------------------------|
| TÜV-Type test approval 666, 684        | D/G, F, F/K/S <sup>1</sup>           |
| EC type examination                    | S/G, L, F/K/S <sup>1</sup>           |
| GOST-R                                 | D/G (S/G), F (L), F/K/S <sup>1</sup> |
| <b>Requirements</b>                    |                                      |
| AD 2000 Data sheet A2                  |                                      |
| TRD 421                                |                                      |
| TRB 801 No. 22 and No. 23 <sup>1</sup> |                                      |
| DIN EN ISO 4126-1                      |                                      |
| PED 97/23/EC                           |                                      |

**Classification society**

|                             |         |
|-----------------------------|---------|
| Germanischer Lloyd          | GL      |
| Lloyd's Register EMEA       | LR EMEA |
| American Bureau of Shipping | ABS     |
| Det Norske Veritas          | DNV     |
| Bureau Veritas              | BV      |

## ■ MATERIALS

| Component          | Material        | DIN EN | ASME   |
|--------------------|-----------------|--------|--------|
| Inlet body         | Gunmetal        | CC499K | CC499K |
| Outlet body        | Gunmetal        | CC499K | CC499K |
| Internal parts     | Brass           | CW614N | CW614N |
| Spring             | Stainless steel | 1.4310 | 302    |
| Bellows (optional) | Bronze          | CW452K | C51900 |

<sup>1</sup>only for versions with bellows

## ■ VALVE VERSION

|           |                                        |                                                                                                                                                                                                                                                                       |
|-----------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>s</b>  | non-gastight version of spring housing | for neutral media without counter pressure.                                                                                                                                                                                                                           |
| <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.                                                                                                   |
| <b>t</b>  | gastight version of spring housing     | for neutral and non-neutral media without counter pressure.<br>The environment is protected from being affected by the medium.<br>Only available without lifting device.                                                                                              |
| <b>tb</b> | gastight version with bellows          | for neutral and non-neutral, flammable, toxic and environmentally hazardous media and/or counter pressure up to 4 bar.<br>Spring, moving parts and the environment are protected from being affected by the medium.<br>Without lifting device. <b>Double gastight</b> |

## ■ MEDIUM

|           |                    |                                                                                       |
|-----------|--------------------|---------------------------------------------------------------------------------------|
| <b>G</b>  | gaseous            | Air, vapours, gases and - depending on safety valve version and seal - also for steam |
| <b>F</b>  | liquid             | The temperature of the medium under atmospheric pressure must not reach boiling point |
| <b>GF</b> | gaseous and liquid | Air, vapours, gases, steam and liquids                                                |

## ■ TYPE OF LIFTING MECHANISM

|          |                                                        |
|----------|--------------------------------------------------------|
| <b>K</b> | Standard with twist-type lifting mechanism             |
| <b>L</b> | Lifting lever                                          |
| <b>O</b> | without lifting device, standard for gastight versions |

## ■ 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) |
| 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      |
| <b>Against surcharge</b> |            |                                           |                                          |
| <b>BSP-Tf / f</b>        |            | Female thread BSP-T / Female thread BSP-P | DIN EN 10226, ISO 7-1 / DIN EN ISO 228-1 |
| <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>NBR</b>               | Nitrile rubber                   | Elastomere moulded seal with metallic support up to 25 bar | -30°C to +130°C |
| <b>EPDM</b>              | Ethylene propylene diene         | Elastomere moulded seal with metallic support up to 25 bar | -40°C to +170°C |
| <b>FKM</b>               | Fluorcarbon                      | Elastomere moulded seal with metallic support up to 25 bar | -20°C to +200°C |
| <b>PTFE</b>              | Polytetrafluoroethylene          | Flat seal up to 25 bar                                     | -60°C to +225°C |
| <b>PTFE+Kohle</b>        | Polytetrafluoroethylene + carbon | Flat seal from 25 bar                                      | -60°C to +225°C |
| <b>Against surcharge</b> |                                  |                                                            |                 |
| <b>FFKM</b>              | Perfluorinated rubber            | Elastomere moulded seal with metallic support up to 25 bar | -10°C to +225°C |
| <b>MD</b>                | Metal-to-metal sealing           | Flat seal                                                  | -60°C to +225°C |

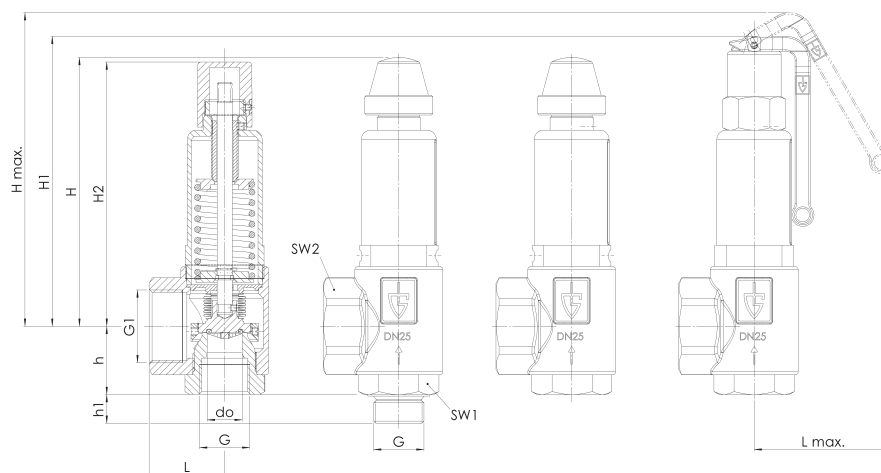
## ■ OPTIONS

Special versions on request.

## ■ NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

| Series 851: 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   | 1/2" (15) | 1" (25) | 1" (25) | 1 1/4" (32) | 1 1/2" (40) | 2" (50)     | 2" (50)     | 2" (50) |
| Installation dimensions in mm                                         | L    | 34        | 40      | 40      | 43          | 50          | 61          | 61          | 61      |
|                                                                       | Lmax | 65        | 65      | 65      | 91          | 92          | 92          | 92          | 92      |
|                                                                       | H    | 79        | 77      | 131     | 138         | 178         | 241         | 241         | 241     |
|                                                                       | H1   | 93        | 91      | 149     | 158         | 192         | 264         | 264         | 264     |
|                                                                       | H2   | 79        | 77      | 131     | 139         | 175         | 241         | 241         | 241     |
|                                                                       | Hmax | 105       | 103     | 164     | 173         | 207         | 277         | 277         | 277     |
|                                                                       | h    | 28        | 30      | 30      | 39          | 45          | 55          | 69          | 74      |
|                                                                       | h1   | 15        | 15      | 15      | 16          | 18          | 20          | 23          | 25      |
|                                                                       | SW1  | 30        | 30      | 30      | 36          | 46          | 55          | 55          | 70      |
|                                                                       | SW2  | -         | 40      | 40      | 50          | 58          | 70          | 70          | 70      |
| Weight                                                                | do   | 15,8      | 15,8    | 15,8    | 18          | 23          | 30          | 30          | 30      |
|                                                                       | kg   | 0,4       | 0,4     | 0,8     | 1,0         | 1,8         | 4,0         | 4,0         | 4,0     |
| Range of adjustment                                                   | bar  | 0,5-25    | 0,5-25  | 25,1-50 | 0,5-50      | 0,5-50      | 0,5-50      | 0,5-50      | 0,5-50  |

## ■ 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    | tb            | GF     | 0              | 25                  | m               | f      | 25              | 40     | FKM  |         | 16,0         | 5        |
| 851    |               |        |                |                     |                 |        |                 |        |      |         |              |          |
| 851    |               |        |                |                     |                 |        |                 |        |      |         |              |          |
| 851    |               |        |                |                     |                 |        |                 |        |      |         |              |          |

In this table you can configure a valve according to your individual requirements (similar to the *example* shown, which should be deleted before you enter your own data). Please complete the table by hand using the abbreviations in this datasheet and then fax it to: +49(0)7141.4889488  
Please do not forget to add your personal data so that our sales team can contact you.

Name \_\_\_\_\_

First Name \_\_\_\_\_

Company \_\_\_\_\_

Telephone \_\_\_\_\_

E-Mail \_\_\_\_\_

| Series 851: Blowing-off rates at approx. 10% above set pressure |     |         |     |      |      |      |      |      |      |      |      |       |      |       |
|-----------------------------------------------------------------|-----|---------|-----|------|------|------|------|------|------|------|------|-------|------|-------|
| Nominal diameter DN                                             |     | 15      |     |      |      | 20   |      |      | 25   |      |      | 32    |      |       |
|                                                                 |     | Bellows |     |      |      |      |      |      |      |      |      |       |      |       |
|                                                                 |     | without |     | with |      |      |      |      |      |      |      |       |      |       |
| Set pressure bar                                                |     | I       | II  | III  | III  | I    | II   | III  | I    | II   | III  | I     | II   | III   |
| Air I<br>Nm³/h                                                  | 0,5 | 56      | 42  | 2,3  | 1,9  | 127  | 96   | 5,4  | 199  | 150  | 8,8  | 353   | 266  | 15,4  |
|                                                                 | 1   | 87      | 69  | 3,1  | 2,5  | 189  | 151  | 7,3  | 291  | 232  | 12,0 | 515   | 411  | 20,8  |
|                                                                 | 1,5 | 113     | 90  | 3,8  | 3,1  | 252  | 200  | 9,0  | 390  | 309  | 14,7 | 683   | 542  | 25,5  |
|                                                                 | 2   | 141     | 111 | 4,4  | 3,6  | 316  | 249  | 10,4 | 489  | 385  | 16,9 | 832   | 656  | 29,4  |
|                                                                 | 2,5 | 165     | 129 | 5,0  | 4,0  | 383  | 300  | 11,6 | 583  | 457  | 18,9 | 1012  | 793  | 32,9  |
| Steam II<br>kg/h                                                | 3   | 189     | 148 | 5,4  | 4,4  | 447  | 349  | 12,7 | 681  | 532  | 20,8 | 1182  | 924  | 36,0  |
|                                                                 | 3,5 | 214     | 166 | 5,9  | 4,7  | 504  | 392  | 13,7 | 768  | 597  | 22,4 | 1333  | 1036 | 38,9  |
| Water III<br>m³/h                                               | 4   | 238     | 184 | 6,3  | 5,0  | 561  | 435  | 14,7 | 855  | 663  | 24,0 | 1484  | 1151 | 41,6  |
|                                                                 | 4,5 | 262     | 203 | 6,7  | 5,3  | 618  | 478  | 15,6 | 942  | 729  | 25,4 | 1635  | 1265 | 44,1  |
|                                                                 | 5   | 286     | 221 | 7,0  | 5,6  | 675  | 521  | 16,4 | 1029 | 794  | 26,8 | 1786  | 1378 | 46,5  |
|                                                                 | 5,5 | 310     | 239 | 7,4  | 5,9  | 732  | 564  | 17,2 | 1116 | 860  | 28,1 | 1937  | 1492 | 48,8  |
|                                                                 | 6   | 335     | 257 | 7,7  | 6,2  | 790  | 608  | 18,0 | 1203 | 926  | 29,3 | 2088  | 1607 | 50,9  |
|                                                                 | 6,5 | 359     | 275 | 8,0  | 6,4  | 847  | 650  | 18,7 | 1290 | 990  | 30,5 | 2239  | 1719 | 53,0  |
|                                                                 | 7   | 383     | 293 | 8,3  | 6,6  | 904  | 692  | 19,4 | 1377 | 1054 | 31,7 | 2390  | 1830 | 55,0  |
|                                                                 | 7,5 | 407     | 311 | 8,6  | 6,9  | 961  | 735  | 20,1 | 1464 | 1119 | 32,8 | 2542  | 1943 | 56,9  |
|                                                                 | 8   | 431     | 329 | 8,9  | 7,1  | 1018 | 777  | 20,8 | 1552 | 1184 | 33,9 | 2693  | 2056 | 58,8  |
|                                                                 | 8,5 | 456     | 347 | 9,2  | 7,3  | 1075 | 820  | 21,4 | 1639 | 1249 | 34,9 | 2844  | 2168 | 60,6  |
|                                                                 | 9   | 480     | 365 | 9,4  | 7,5  | 1132 | 862  | 22,0 | 1726 | 1314 | 35,9 | 2995  | 2281 | 62,4  |
|                                                                 | 9,5 | 504     | 383 | 9,7  | 7,7  | 1190 | 905  | 22,6 | 1813 | 1379 | 36,9 | 3146  | 2392 | 64,1  |
|                                                                 | 10  | 528     | 401 | 9,9  | 7,9  | 1247 | 947  | 23,2 | 1900 | 1443 | 37,9 | 3297  | 2504 | 65,8  |
|                                                                 | 11  | 577     | 437 | 10,4 | 8,3  | 1361 | 1031 | 24,3 | 2074 | 1571 | 39,7 | 3599  | 2727 | 69,0  |
|                                                                 | 12  | 625     | 472 | 10,9 | 8,7  | 1475 | 1115 | 25,4 | 2248 | 1699 | 41,5 | 3902  | 2948 | 72,0  |
|                                                                 | 13  | 674     | 508 | 11,3 | 9,1  | 1590 | 1199 | 26,5 | 2422 | 1827 | 43,2 | 4204  | 3172 | 75,0  |
|                                                                 | 14  | 722     | 544 | 11,8 | 9,4  | 1704 | 1284 | 27,5 | 2596 | 1957 | 44,8 | 4506  | 3396 | 77,8  |
|                                                                 | 15  | 770     | 580 | 12,2 | 9,7  | 1818 | 1368 | 28,4 | 2771 | 2085 | 46,4 | 4808  | 3618 | 80,5  |
|                                                                 | 16  | 819     | 616 | 12,6 | 10,1 | 1932 | 1453 | 29,4 | 2945 | 2214 | 47,9 | 5111  | 3842 | 83,2  |
|                                                                 | 17  | 867     | 650 | 13,0 | 10,4 | 2047 | 1535 | 30,3 | 3119 | 2339 | 49,4 | 5413  | 4059 | 85,7  |
|                                                                 | 18  | 916     | 686 | 13,3 | 10,7 | 2161 | 1619 | 31,1 | 3293 | 2467 | 50,8 | 5715  | 4281 | 88,2  |
|                                                                 | 19  | 964     | 721 | 13,7 | 11,0 | 2275 | 1703 | 32,0 | 3467 | 2594 | 52,2 | 6017  | 4503 | 90,6  |
|                                                                 | 20  | 1013    | 757 | 14,0 | 11,2 | 2390 | 1787 | 32,8 | 3641 | 2723 | 53,6 | 6320  | 4726 | 93,0  |
|                                                                 | 21  | 1061    | 793 | 14,4 | 11,5 | 2504 | 1872 | 33,6 | 3816 | 2852 | 54,9 | 6622  | 4950 | 95,3  |
|                                                                 | 22  | 1109    | 829 | 14,7 | 11,8 | 2618 | 1956 | 34,4 | 3990 | 2981 | 56,2 | 6924  | 5173 | 97,5  |
|                                                                 | 23  | 1158    | 865 | 15,1 | 12,1 | 2732 | 2040 | 35,2 | 4164 | 3109 | 57,5 | 7226  | 5396 | 99,7  |
|                                                                 | 24  | 1206    | 900 | 15,4 | 12,3 | 2847 | 2125 | 35,9 | 4338 | 3238 | 58,7 | 7529  | 5619 | 101,9 |
|                                                                 | 25  | 1255    | 936 | 15,7 | 12,6 | 2961 | 2209 | 36,7 | 4512 | 3366 | 59,9 | 7831  | 5842 | 104,0 |
|                                                                 | 26  | 1303    | -   | 16,0 | 12,8 | 3075 | -    | 37,4 | 4686 | -    | 61,1 | 8133  | -    | 106,0 |
|                                                                 | 27  | 1352    | -   | 16,3 | 13,1 | 3190 | -    | 38,1 | 4860 | -    | 62,3 | 8435  | -    | 108,0 |
|                                                                 | 28  | 1400    | -   | 16,6 | 13,3 | 3304 | -    | 38,8 | 5035 | -    | 63,4 | 8738  | -    | 110,0 |
|                                                                 | 29  | 1449    | -   | 16,9 | 13,5 | 3418 | -    | 39,5 | 5209 | -    | 64,5 | 9040  | -    | 112,0 |
|                                                                 | 30  | 1497    | -   | 17,2 | 13,8 | 3532 | -    | 40,2 | 5383 | -    | 65,6 | 9342  | -    | 113,9 |
|                                                                 | 32  | 1594    | -   | 17,8 | 14,2 | 3761 | -    | 41,5 | 5731 | -    | 67,8 | 9947  | -    | 117,6 |
|                                                                 | 34  | 1691    | -   | 18,3 | 14,7 | 3990 | -    | 42,8 | 6080 | -    | 69,9 | 10551 | -    | 121,2 |
|                                                                 | 36  | 1788    | -   | 18,8 | 15,1 | 4218 | -    | 44,0 | 6428 | -    | 71,9 | 11156 | -    | 124,8 |
|                                                                 | 38  | 1884    | -   | 19,4 | 15,5 | 4447 | -    | 45,2 | 6776 | -    | 73,9 | 11760 | -    | 128,2 |
|                                                                 | 40  | 1981    | -   | 19,9 | 15,9 | 4675 | -    | 46,4 | 7124 | -    | 75,8 | 12365 | -    | 131,5 |
|                                                                 | 42  | 2078    | -   | 20,4 | 16,3 | 4904 | -    | 47,6 | 7473 | -    | 77,6 | 12969 | -    | 134,8 |
|                                                                 | 44  | 2175    | -   | 20,8 | 16,7 | 5132 | -    | 48,7 | 7821 | -    | 79,5 | 13574 | -    | 137,9 |
|                                                                 | 46  | 2272    | -   | 21,3 | 17,0 | 5361 | -    | 49,8 | 8169 | -    | 81,3 | 14178 | -    | 141,0 |
|                                                                 | 48  | 2369    | -   | 21,8 | 17,4 | 5589 | -    | 50,8 | 8518 | -    | 83,0 | 14783 | -    | 144,1 |
|                                                                 | 50  | 2466    | -   | 22,2 | 17,8 | 5818 | -    | 51,9 | 8866 | -    | 84,7 | 15387 | -    | 147,0 |