

→ Series 452



■ SUITABLE FOR

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

■ EXAMPLES OF USE

For the protection of:

- pressure tanks and -systems for neutral / non-neutral vapours, gases and liquids
 - steam boilers and steam plants
 - bulk transport vehicles for liquid, granular and dusty goods¹
- Please observe plant-specific regulations and use of appropriate valve version and sealing material.

- chemical plants
- biogas plants
- industrial- and commercial boiler plants
- shipbuilding industry and marine equipment
- secondary areas in the food-, beverage-, pharmaceutical- and cosmetics- industries

Safety valves are set and sealed at the factory.

■ APPROVALS

| | |
|---------------------------------|--------------------------------------|
| TÜV-Type test approval 2007 | D/G, F, F/K/S ¹ |
| EC type examination | S/G, L, F/K/S ¹ |
| TR ZU 032/2013 - TR ZU 010/2011 | D/G (S/G), F (L), F/K/S ¹ |

Requirements

AD 2000 Data sheet A2
TRD 421
TRB 801 No. 22 and No. 23¹
DIN EN ISO 4126-1
PED 2014/68/EU

Classification society

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



■ MATERIAL



■ SPECIFICATION



DN 40 and DN 50 – 60°C to + 400°C depending on version 0,5 – 25 bar

■ MATERIALS

| Component | Material | DIN EN | ASME |
|--------------------|-----------------|--------|--------|
| Inlet body | Stainless steel | 1.4408 | CF8M |
| Outlet body | Stainless steel | 1.4408 | CF8M |
| Internal parts | Stainless steel | 1.4404 | 316 L |
| Spring | Stainless steel | 1.4310 | 302 |
| Bellows (optional) | Stainless steel | 1.4571 | 316 Ti |

¹only for versions with bellows

■ VALVE VERSION

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

■ MEDIUM

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

■ TYPE OF LIFTING MECHANISM

| | |
|----------|-----------------------------|
| L | Standard with lifting lever |
| O | without lifting device |

■ AVAILABLE NOMINAL DIAMETERS AND CONNECTION SIZES

| | | | |
|----------------------------|----|-----------|-----------|
| Nominal diameter DN | | 40 | 50 |
| Inlet | | 40 | 50 |
| Outlet | 65 | ■ | |
| | 80 | | ■ |

■ CONNECTION TYPE INLET / OUTLET FLANGE CONNECTIONS

| | | | |
|----------------|----------|---------------------------------------|---------------------------|
| FL / FL | Standard | Flange connection / flange connection | DIN EN 1092 / DIN EN 1092 |
|----------------|----------|---------------------------------------|---------------------------|

■ SEALS

| | | | |
|--------------------------|--------------------------|---|-----------------|
| NBR | Nitrile rubber | Elastomere moulded seal with metallic support | -30°C to +130°C |
| EPDM | Ethylene propylene diene | Elastomere moulded seal with metallic support | -40°C to +170°C |
| FKM | Fluorocarbon | Elastomere moulded seal with metallic support | -20°C to +200°C |
| PTFE | Polytetrafluoroethylene | Flat seal | -60°C to +225°C |
| Against surcharge | | | |
| FFKM | Perfluorinated rubber | Elastomere moulded seal with metallic support | -10°C to +260°C |
| MD | Metal-to-metal sealing | Flat seal | -60°C to +400°C |

■ OPTIONS

Special versions on request.

Against surcharge

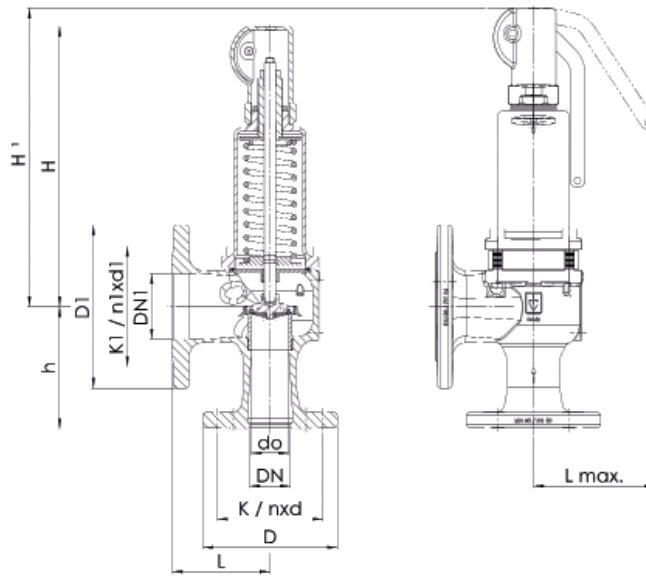
Connection for condensate pipe G 1/4" with sealing plug Order description: **AKL**

■ NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

| Series 452: Connection, installation dimensions, ranges of adjustment | | | |
|---|----------------------|------------|------------|
| Nominal diameter | DN | 40 | 50 |
| Connection DIN EN 1092 | DN / PN | 40 / 40 | 50 / 40 |
| Outlet DIN EN 1092 | DN / PN | 65 / 16 | 80 / 16 |
| Installation dimensions in mm | L | 115 | 120 |
| | Lmax | 150 | 150 |
| | H / H ¹ | 345 / 362 | 345 / 362 |
| | h | 140 | 150 |
| | D | 150 | 165 |
| | D1 | 185 | 200 |
| | K / nxd | 110 / 4x18 | 125 / 4x18 |
| | K1 / n1xd1 | 145 / 4x18 | 160 / 8x18 |
| | do | 37 | 46 |
| Weight | kg / kg ¹ | 17 / 18 | 19 / 20 |
| Range of adjustment | bar | 0,5-25 | 0,5-25 |

¹Details for the version with bellows

■ 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 | | | | |
| 452 | <i>b</i> | <i>G</i> | <i>L</i> | <i>50</i> | FL | FL | <i>50</i> | <i>80</i> | <i>EPDM</i> | | <i>5,0</i> | <i>2</i> |
| 452 | | | | | FL | FL | | | | | | |
| 452 | | | | | FL | FL | | | | | | |
| 452 | | | | | FL | FL | | | | | | |

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 _____

■ CAPACITY TABLE

| Series 452: Blowing-off rates at 10% above set pressure | | | | | | | | |
|---|-------|-------|------|-------|-------|-------|-----|-----|
| Nominal diameter DN | | 40 | | | 50 | | | |
| Set pressure bar | | I | II | III | I | II | III | III |
| Air I | 0,5 | 667 | 503 | 23 | 995 | 750 | 36 | |
| | 1 | 983 | 785 | 32 | 1472 | 1176 | 49 | |
| | 1,5 | 1299 | 1032 | 39 | 1948 | 1547 | 60 | |
| Steam II | 2 | 1615 | 1273 | 45 | 2461 | 1939 | 69 | |
| | 2,5 | 1926 | 1510 | 50 | 2926 | 2294 | 77 | |
| | 3 | 2208 | 1726 | 55 | 3404 | 2661 | 85 | |
| Water III | 3,5 | 2491 | 1937 | 59 | 3839 | 2985 | 91 | |
| | 4 | 2773 | 2151 | 63 | 4275 | 3315 | 98 | |
| | 4,5 | 3056 | 2364 | 67 | 4710 | 3643 | 104 | |
| | 5 | 3338 | 2575 | 71 | 5146 | 3970 | 109 | |
| | 5,5 | 3621 | 2789 | 74 | 5581 | 4299 | 114 | |
| | 6 | 3903 | 3003 | 77 | 6016 | 4629 | 120 | |
| | 6,5 | 4186 | 3212 | 81 | 6452 | 4951 | 124 | |
| | 7 | 4468 | 3420 | 84 | 6887 | 5272 | 129 | |
| | 7,5 | 4751 | 3632 | 86 | 7323 | 5598 | 134 | |
| | 8 | 5033 | 3843 | 89 | 7758 | 5923 | 138 | |
| | 8,5 | 5316 | 4053 | 92 | 8194 | 6247 | 142 | |
| | 9 | 5598 | 4263 | 95 | 8629 | 6570 | 146 | |
| | 9,5 | 5881 | 4472 | 97 | 9064 | 6893 | 150 | |
| | 10 | 6163 | 4681 | 100 | 9500 | 7215 | 154 | |
| | 11 | 6728 | 5097 | 105 | 10371 | 7856 | 162 | |
| | 12 | 7293 | 5511 | 109 | 11241 | 8494 | 169 | |
| | 13 | 7858 | 5928 | 114 | 12112 | 9138 | 176 | |
| | 14 | 8423 | 6348 | 118 | 12983 | 9784 | 183 | |
| | 15 | 8988 | 6763 | 122 | 13854 | 10425 | 189 | |
| | 16 | 9553 | 7181 | 126 | 14725 | 11069 | 195 | |
| 17 | 10118 | 7586 | 130 | 15595 | 11693 | 201 | | |
| 18 | 10683 | 8002 | 134 | 16466 | 12334 | 207 | | |
| 19 | 11248 | 8416 | 138 | 17337 | 12973 | 213 | | |
| 20 | 11813 | 8835 | 141 | 18208 | 13617 | 218 | | |
| 21 | 12378 | 9253 | 145 | 19079 | 14261 | 224 | | |
| 22 | 12943 | 9670 | 148 | 19949 | 14905 | 229 | | |
| 23 | 13508 | 10087 | 151 | 20820 | 15547 | 234 | | |
| 24 | 14073 | 10503 | 155 | 21691 | 16190 | 239 | | |
| 25 | 14638 | 10920 | 158 | 22562 | 16831 | 244 | | |

At temperatures above 220°C the yield strength decrease of the nominal pressure rating must be taken into account.