

Data sheet

## Safety relief valves

### Type SFA 10, SFA 15 and SFA 15-50



The SFA 10 and SFA 15/15-50 are standard, **back pressure dependent** safety relief valves in angle-way execution, specially designed for protection of vessels and other components against excessive pressure.

The valve is designed to meet the strict quality demands and safety requirements for refrigeration installations, specified by the international classification societies.

The spring housing is closed tightly to avoid refrigerant leakage.

The inlet flow diameters of the valves are:

- 6.8 mm (¼ in.) for the SFA 10
  - 13 mm (½ in.) for both SFA 15 and SFA 15-50
- The SFA 15-50 has a 50% reduced capacity compared to SFA 50.

The valves can be ordered with set pressure:

- between 10 and 27 bar (145 and 392 psig) for SFA 10.
- between 10 and 40 bar (145 and 580 psig) for SFA 15/15-50

Standard pressure setting valves having "TÜV Pressure Setting Certificate" with each valve, are also available.

#### Features

- Applicable for the refrigerants HCFC, HFC, R717 (Ammonia), R744 (CO<sub>2</sub>) within a temperature range of -50 °C to 100 °C (-58 °F to 212 °F)
- Easy installation by threaded connections and Union fitted welding nipples
- Wide capacity range
- Stable set-point and reliable resetting
- Leak proof internal and external
- Easy selection by use of Cool selector
- Available with or without TÜV pressure setting certificate
- Classification:  
To get an updated list of certification on the products please contact your local Danfoss Sales Company.

## Technical data

- *Refrigerants*

Applicable for the refrigerants HCFC, HFC, R717 (Ammonia), R744 (CO<sub>2</sub>) within a temperature range of -50 °C to 100 °C (-58 °F to 212 °F) and a set pressure not lower than -30 °C (-22 °F) saturation temperature.

Flammable hydrocarbons are not recommended. For further information please contact your local Danfoss Sales Company.

At static temperatures below -30 °C (-22 °F) the O-ring becomes harder and full tightness of the valve cannot be guaranteed. Above -30 °C (-22 °F) the O-ring will become soft and fully functional again.

Observe for R744 (CO<sub>2</sub>)! Due to above the min set pressure for correct functional valve in R744 (CO<sub>2</sub>) is 27 bar (392 psig), to ensure proper function of the valve in case of a sudden relief.

At static temperatures above 60 °C (140 °F) the lifetime of the O-ring will be gradually reduced, and the valve should be serviced more frequently.

In case the valve has relieved please refer to the SFA 10 installation instruction.

- *Pressure*

*Pressure setting range:*

SFA 10: 10 – 27 bar (145 – 392 psig).

SFA 15/15-50: 10 – 40 bar (145 – 580 psig).

For further information please contact your local Danfoss Sales Company.

Important: The SFA safety relief valve is dependent on the back pressure (if the back pressure is higher than the atmospheric pressure, the opening pressure will be higher than stated set pressure).

- *Pressure setting*

The operating pressure of the plant should be at least 15% below the set pressure and the upstream pressure loss <3% of the valve set pressure. This allows a perfect re-seating of the safety relief valve after having been activated.

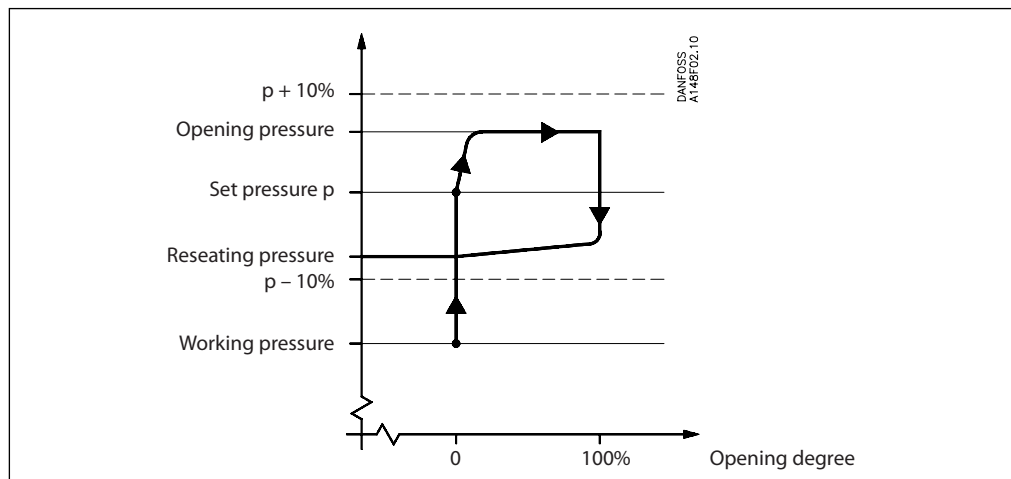
- Special circumstances such as vibrations (which should be avoided) and oscillating pressure may require an increased difference between the operational pressure and the closing pressure.



**Pressure Equipment Directive (PED)**  
 The SFA valves are approved in accordance with the European standard specified in the Pressure Equipment Directive and are CE marked.  
 For further details / restrictions - see Installation guide.

|                       | SFA 10         | SFA 15/15-50      |
|-----------------------|----------------|-------------------|
| <b>Nominal bore</b>   | 6.8 mm (¼ in.) | 13 mm (0.512 in.) |
| <b>Classified for</b> | Fluid group I  |                   |
| <b>Category</b>       | IV             |                   |

**Design**



SFA is designed as a direct loaded safety valve recommended particularly for refrigeration applications. On a rise in pressure above the set pressure, the safety relief valve will initially start opening slightly, to minimize the outlet of

refrigerant. If the pressure continues to increase, the valve will open fully. The safety relief valve will be fully open before the pressure is 10% higher than set pressure, and fully closed before the pressure is 10% below set pressure.

**Connections**

Available with the following connections:

- Outside pipe thread T (ISO 228/1)
- Welding fittings, outlet (EN 10220)

**Housing**

Made of special steel approved for low temperature operation. Spindle, cone, and seat are made of stainless steel, to ensure precise operation even during extraordinary conditions. The gasket of the valve cone is made of a special chloroprene (neoprene) compound.

**Installation**

To ensure exact operation of the safety relief valve it should be installed with the spring housing upwards. When the valve is mounted, it is important to avoid the influence of static, dynamic and thermal stress.

A very precise technique has been applied for the production of the seal. However, this seal can still be damaged, if dirt is blown from the pipe system into the valve.

It is recommended that safety relief valves exhaust into the open air with a U-pipe filled with oil on the discharge branch, to prevent dirt from penetrating into the valve.

In extreme environments it is recommended to use a valve with bellow instead, to protect the valve from refrigerant contaminated with dirt and particles.

It is also recommended that the valves be installed in pairs in conjunction with the double stop valve type DSV10, DSV1 or DSV2. For further information please see the data sheet for DSV.

**Re-calibration/servicing**

In certain countries the authorities demand that the valves are checked at least once a year (see local rules).

**Control/Identification**

After adjustment of the set pressure at Danfoss, the valves are sealed. For that reason Danfoss can only guarantee correct operation, if the seal remains unbroken.

All valves are provided with a metal plate with the following information:

- Flow diameter
- Set pressure
- Date of production
- Production number
- Type approved code.

**Transport/Handling**

The valves are fitted with special protection covers and packed into purpose made transportation cartons.

It is important that the cover remains fitted around the valve until it is installed.

*To ensure the exact and precise operation of the valve it must be handled with care.*

**Capacity**

The design and construction of the safety relief valve has been tested and approved by TÜV. This test comprises control of the function of the valve as well as measuring of the capacity, which is the basis of the curves and tables on the following pages. The values in the table are based on saturated gas.

If e.g. back pressure or superheated gas have to be taken into consideration, the formulas or the Danfoss computation program (Coolselector2™) can be used.

*Table 1.*

| Valve     | Nominal size |        | Flow diameter<br>$d_o$ | Flow area<br>$A_o$    | De-rated, certified<br>coefficient of discharge<br>$K_{dr}$ | Effective<br>discharge area<br>$A_o \times K_{dr}$ |
|-----------|--------------|--------|------------------------|-----------------------|---|--|
|           | Inlet        | Outlet |                        |                       |   |  |
| SFA 10    | 10 mm        | 15 mm  | 6.8 mm                 | 36.3 mm <sup>2</sup>  | 0.85  | 30.9 mm <sup>2</sup>                               |
|           | ¾ in.        | ½ in.  | 0.268 in.              | 0.056 in <sup>2</sup> |   | 0.048 in <sup>2</sup>                              |
| SFA 15    | 15 mm        | 20 mm  | 13 mm                  | 133 mm <sup>2</sup>   | 0.73  | 97 mm <sup>2</sup>                                 |
|           | ½ in.        | ¾ in.  | 0.512 in.              | 0.206 in <sup>2</sup> |   | 0.150 in <sup>2</sup>                              |
| SFA 15-50 | 15 mm        | 20 mm  | 13 mm                  | 133 mm <sup>2</sup>   | 0.39  | 52 mm <sup>2</sup>                                 |
|           | ½ in.        | ¾ in.  | 0.512 in.              | 0.206 in <sup>2</sup> |   | 0.080 in <sup>2</sup>                              |

The discharge capacity of the safety relief valves are based on (ISO 4126-1 / EN 1313 6).

$$q_m = 0.2883 \times C \times A_o \times K_{dr} \times K_b \sqrt{p}$$

$q_m$  Discharge capacity (kg/h).

$C$  Discharge function depending of the actual refrigerant ( $\kappa$ ) see table 2 (-).

$A_o$  Flow area of the safety relief valve (mm<sup>2</sup>).

$K_{dr}$  De-rated coefficient of discharge ( $K_{dr} = K_d \times 0.9$ ), (the  $K_{dr}$  is certified by TÜV) see table 1 (-).

$K_b$  Correction factor for sub-critical flow (-).

$K_b = 1.0$  when the back pressure is lower than approx.  $0.5 \times$  relieving pressure ( $P_b < 0.5 \times p$ ).

For all SFV safety valves  $K_b = 1.0$

$v$  Specific volume of the vapour at the relieving pressure  $p$ . (m<sup>3</sup>/kg).

$p_{set}$  Set pressure, the predetermined pressure at which a pressure relief valve under operation starts to open ( $p_{set}$  is indicated on the metal plate on the safety relief valve). (baraug)

$p_{atm}$  Atmospheric pressure (1 bar).

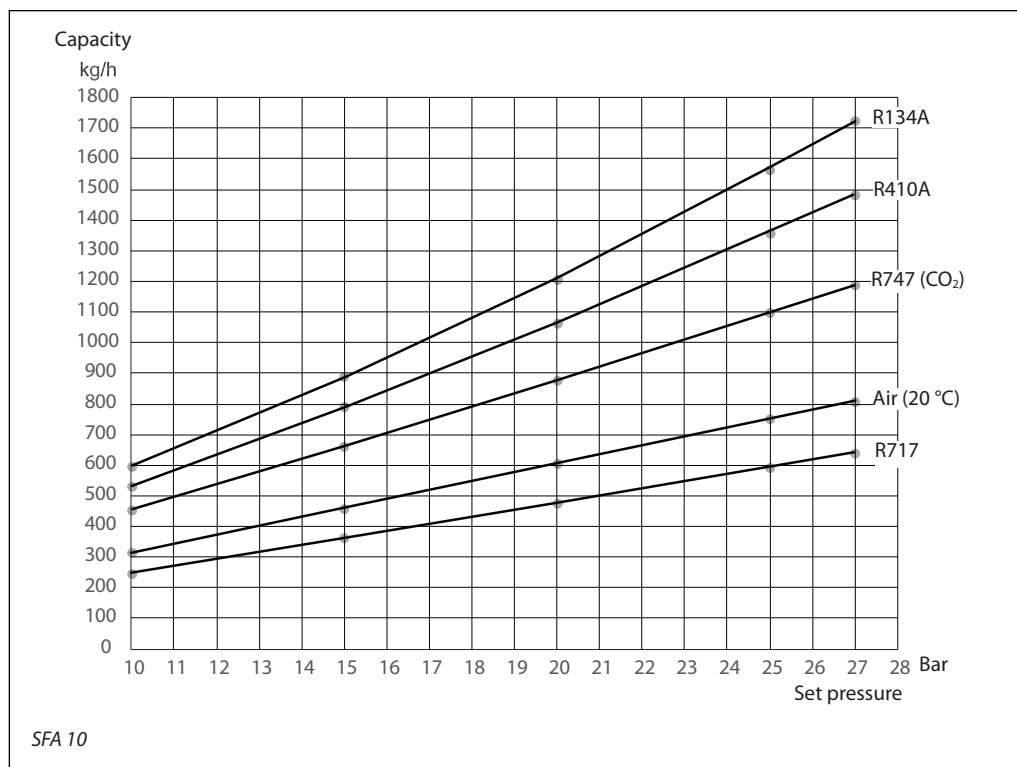
$p$  Relieving pressure,  $p = p_{set} \times 1.1 + P_{atm}$  (bar absolute).

For further details see the above-mentioned ISO or EN standards.

*Table 2. Properties of refrigerants*

| Refrigerant             | Isentropic<br>exponent<br>$\kappa$ | Discharge<br>function<br>$C$ |
|-------------------------|------------------------------------|------------------------------|
| R22                     | 1.17                               | 2.54                         |
| R134a                   | 1.12                               | 2.50                         |
| R404A                   | 1.12                               | 2.49                         |
| R410A                   | 1.17                               | 2.54                         |
| R717 (Ammonia)          | 1.31                               | 2.64                         |
| R744 (CO <sub>2</sub> ) | 1.30                               | 2.63                         |
| Air                     | 1.40                               | 2.70                         |

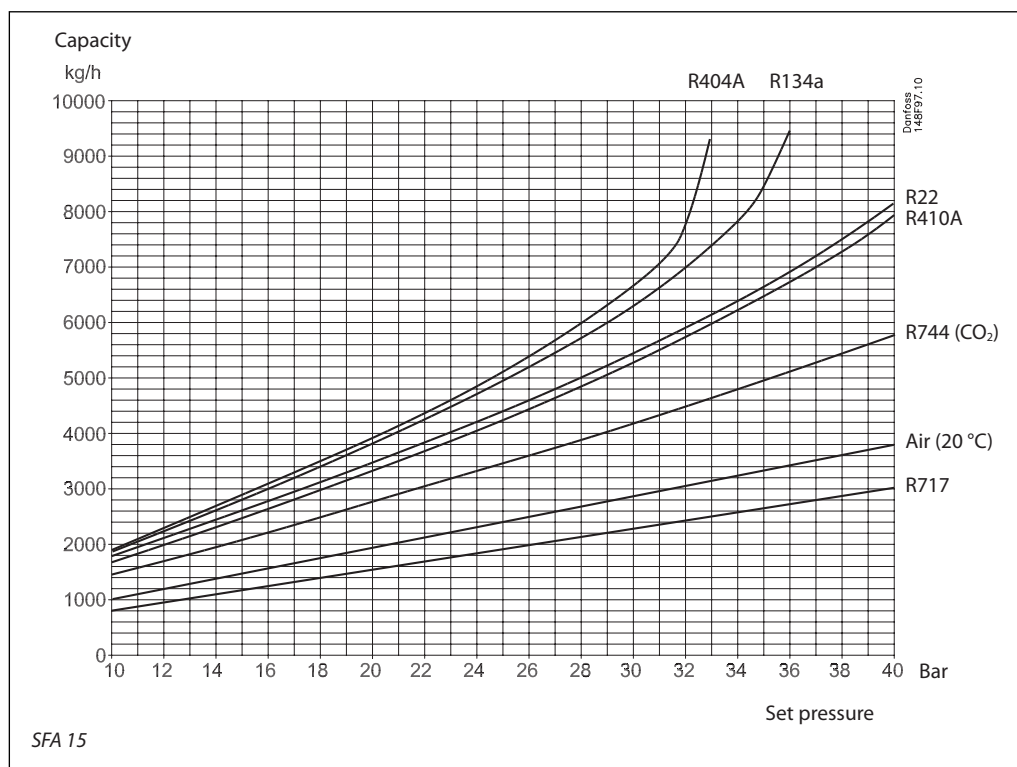
Capacity



Capacity

| Set pressure       | qm             | R134a         | R410A         | R717          | R744 (CO <sub>2</sub> ) | Air (20 °C)   |
|--------------------|----------------|---------------|---------------|---------------|-------------------------|---------------|
| 10 bar<br>145 psig | kg/h<br>lb/min | 595.1<br>22.0 | 533.4<br>19.7 | 248.3<br>9.2  | 453.2<br>16.8           | 315.3<br>11.7 |
| 15 bar<br>218 psig | kg/h<br>lb/min | 889.0<br>32.9 | 791.2<br>29.3 | 361.7<br>13.4 | 662.7<br>24.5           | 460.5<br>17.0 |
| 20 bar<br>290 psig | kg/h<br>lb/min | 1208<br>44.7  | 1064<br>39.4  | 476.8<br>17.6 | 877.6<br>32.5           | 605.8<br>22.4 |
| 25 bar<br>363 psig | kg/h<br>lb/min | 1567<br>58.0  | 1359<br>50.3  | 593.9<br>22.0 | 1099<br>40.7            | 751.0<br>27.8 |
| 27 bar<br>392 psig | kg/h<br>lb/min | 1727<br>63.9  | 1484<br>54.9  | 641.4<br>23.7 | 1190<br>44.0            | 809.1<br>29.9 |

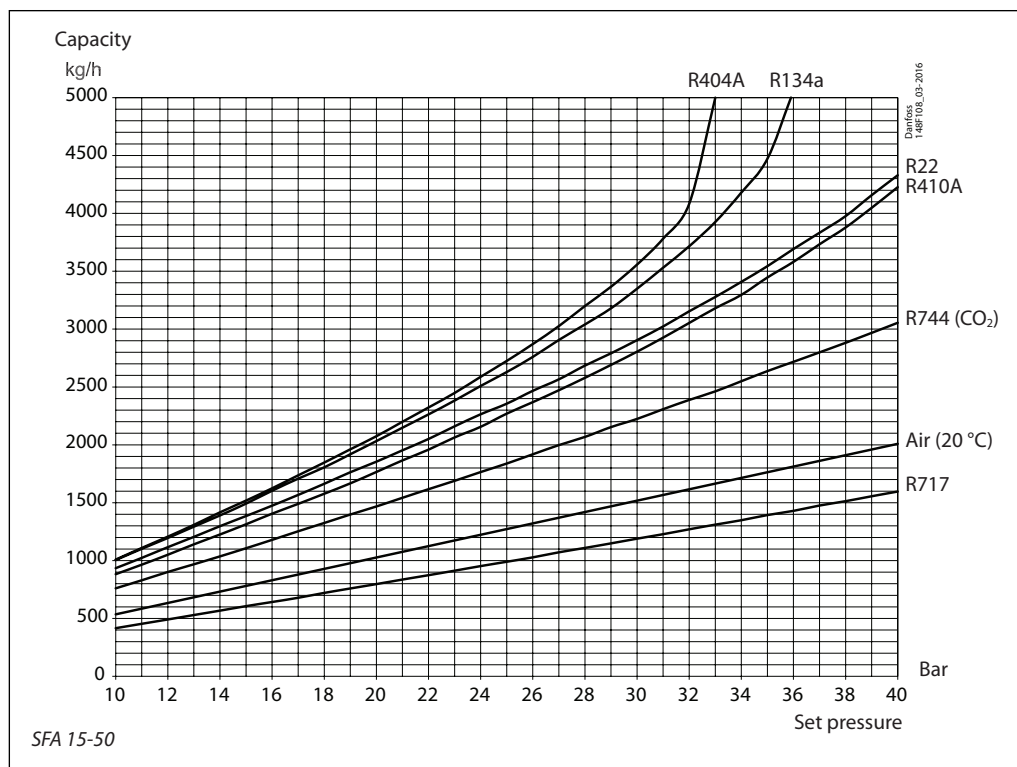
Capacity



Capacity

| Set pressure | qm     | R22  | R134a | R404A | R410A | R717 | R744 (CO <sub>2</sub> ) | Air (20 °C) |
|--------------|--------|------|-------|-------|-------|------|-------------------------|-------------|
| 10 bar       | kg/h   | 1749 | 1881  | 1888  | 1652  | 779  | 1424                    | 1003        |
| 145 psig     | lb/min | 64   | 69    | 69    | 61    | 29   | 52                      | 37          |
| 15 bar       | kg/h   | 2592 | 2793  | 2842  | 2459  | 1135 | 2072                    | 1462        |
| 218 psig     | lb/min | 95   | 103   | 104   | 90    | 42   | 76                      | 54          |
| 20 bar       | kg/h   | 3471 | 3804  | 3883  | 3305  | 1492 | 2747                    | 1922        |
| 290 psig     | lb/min | 128  | 140   | 143   | 121   | 55   | 101                     | 71          |
| 25 bar       | kg/h   | 4409 | 4921  | 5101  | 4248  | 1853 | 3441                    | 2381        |
| 363 psig     | lb/min | 162  | 181   | 187   | 156   | 68   | 126                     | 87          |
| 30 bar       | kg/h   | 5437 | 6269  | 6659  | 5250  | 2227 | 4163                    | 2841        |
| 435 psig     | lb/min | 200  | 230   | 245   | 193   | 82   | 153                     | 104         |
| 35 bar       | kg/h   | 6633 | 8370  |       | 6450  | 2608 | 4936                    | 3301        |
| 508 psig     | lb/min | 244  | 308   |       | 237   | 96   | 181                     | 121         |
| 40 bar       | kg/h   | 8104 |       |       | 7911  | 2989 | 5718                    | 3760        |
| 580 psig     | lb/min | 298  |       |       | 291   | 110  | 210                     | 138         |

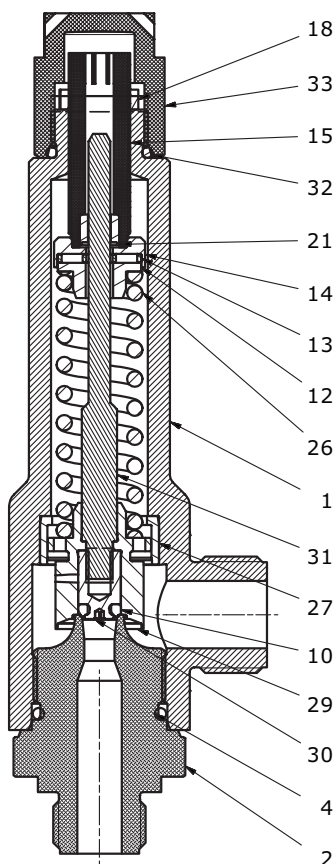
Capacity



Capacity

| Set pressure qm |        | R22  | R134a | R404A | R410A | R717 | R744 (CO <sub>2</sub> ) | Air (20 °C) |
|-----------------|--------|------|-------|-------|-------|------|-------------------------|-------------|
| SFA 15-50       |        |      |       |       |       |      |                         |             |
| 10 bar          | kg/h   | 935  | 1005  | 1009  | 883   | 416  | 761                     | 536         |
| 145 psig        | lb/min | 34   | 37    | 37    | 32    | 15   | 28                      | 20          |
| 15 bar          | kg/h   | 1385 | 1492  | 1519  | 1314  | 607  | 1107                    | 781         |
| 218 psig        | lb/min | 51   | 55    | 56    | 48    | 22   | 41                      | 29          |
| 20 bar          | kg/h   | 1854 | 2033  | 2075  | 1766  | 797  | 1468                    | 1027        |
| 290 psig        | lb/min | 68   | 75    | 76    | 65    | 29   | 54                      | 38          |
| 25 bar          | kg/h   | 2356 | 2629  | 2725  | 2270  | 990  | 1838                    | 1272        |
| 363 psig        | lb/min | 87   | 97    | 100   | 83    | 36   | 68                      | 47          |
| 30 bar          | kg/h   | 2905 | 3349  | 3557  | 2805  | 1190 | 2224                    | 1518        |
| 435 psig        | lb/min | 107  | 123   | 131   | 103   | 44   | 82                      | 56          |
| 35 bar          | kg/h   | 3544 | 4472  |       | 3446  | 1393 | 2637                    | 1763        |
| 508 psig        | lb/min | 130  | 164   |       | 127   | 51   | 97                      | 65          |
| 40 bar          | kg/h   | 4329 |       |       | 4226  | 1597 | 3055                    | 2009        |
| 580 psig        | lb/min | 159  |       |       | 155   | 59   | 112                     | 74          |

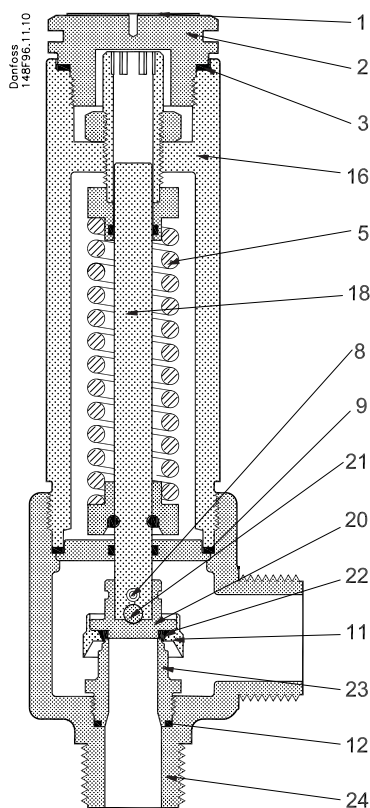
Material specification SFA 10



| No. | Part                          | Material                    | DIN                                     | ISO | ASTM      |
|-----|-------------------------------|-----------------------------|---|-----|-----------|
| 1   | Bonnet long version           | Steel, Carbon               | P285QH                                  |     |           |
| 2   | Inlet body, SFA 10            | Stainless Steel, Austenitic | X5CrNi 18-10                            |     | AISI 304  |
| 4   | O-ring 25.07 x 2.62 CR        | Rubber                      |   |     |           |
| 10  | O-ring 6.02 x 2.62 CR         | Rubber                      |   |     |           |
| 12  | Lower bearing retainer        | Stainless Steel, Austenitic | X8CrNiS18-9                             |     | AISI 303  |
| 13  | Needle roller thrust bearings | Stainless Steel             | SUS304-JIS G4305<br>G102Cr18Mo-GB/T3086 |     | AISI 304  |
| 14  | Top bearing retainer          | Stainless Steel, Austenitic | X8CrNiS18-9                             |     | AISI 303  |
| 15  | Adjusting screw               | Steel                       | 115Mn30                                 |     |           |
| 18  | Locknut SFA 10                | Steel                       | 115Mn30                                 |     |           |
| 21  | Bushing PTFE                  | Polystyrene, High Impact    |   |     |           |
| 26  | Spring                        | Steel                       |   |     |           |
| 27  | Bushing SFA 10                | Stainless Steel             | X2CrNiMo17                              |     | AISI 316L |
| 29  | Cone for SFA 10               | Stainless Steel             | X5CrNi 18-10                            |     | AISI 304  |
| 30  | O-ring Lock screw             | Stainless Steel             | X5CrNi 18-10                            |     | AISI 304  |
| 31  | Spindle SFA 10                | Stainless Steel             | X5CrNi 18-10                            |     | AISI 304  |
| 32  | O-ring 19.30 x 2.40           | Generic                     |   |     |           |
| 33  | Cap on SFA 10                 | Stainless Steel             | X5CrNi 18-10                            |     | AISI 304  |



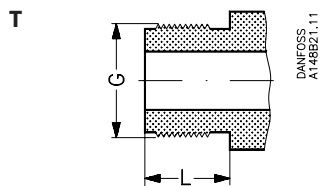
Material specification SFA 15/ SFA 15-50



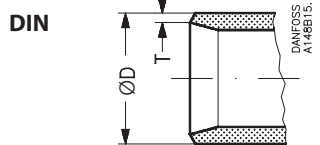
| No. | Part            | Material                           | DIN  | ISO                 | ASTM                          |
|-----|-----------------|------------------------------------|--|---------------------|-------------------------------|
| 1   | Marking label   | Stainless steel                    |  |                     |                               |
| 2   | Threaded plug   | Steel                              |  |                     |                               |
| 3   | Packing washer  | Aluminium<br>(Non-asbestos gasket) |  |                     |                               |
| 5   | Spring          | Steel                              | Class C, DIN17223                          |                     |                               |
| 8   | Split           | Steel                              | 94 ELFORZ                                  |                     |                               |
| 9   | Packing washer  | Aluminium<br>(Non-asbestos gasket) |  |                     |                               |
| 11  | Retainer        | Stainless steel                    | X8CrNiS 18-9                               |                     | AISI 303, A276                |
| 12  | Packing washer  | Aluminium<br>(Non-asbestos gasket) |  |                     |                               |
| 16  | Valve top       | Steel                              | G20Mn5QT<br>Alt. S235JRG2<br>Alt. S355J2G3 | Fe360BFN<br>Fe510D1 | LCC, A352<br>A284C<br>A572-50 |
| 18  | Valve spindle   | Stainless steel                    | X5CrNi 18-10                               |                     | AISI 304, A276                |
| 20  | Valve cone      | Stainless steel                    | X8CrNiS 18-9                               |                     | AISI 303, A276                |
| 21  | Steel ball      | Steel                              |  |                     |                               |
| 22  | Valve cone seal | Cloroprene (Neoprene)              |  |                     |                               |
| 23  | Valve seat      | Stainless steel                    | X8CrNiS 18-9                               |                     | AISI 303, A276                |
| 24  | Valve housing   | Steel                              | G20Mn5QT<br>Alt. P285QH                    |                     | LCC, A352<br>LF2, A350        |

## Data sheet | Safety relief valves, Type SFA 10, SFA 15 and SFA 15-50

### Connections

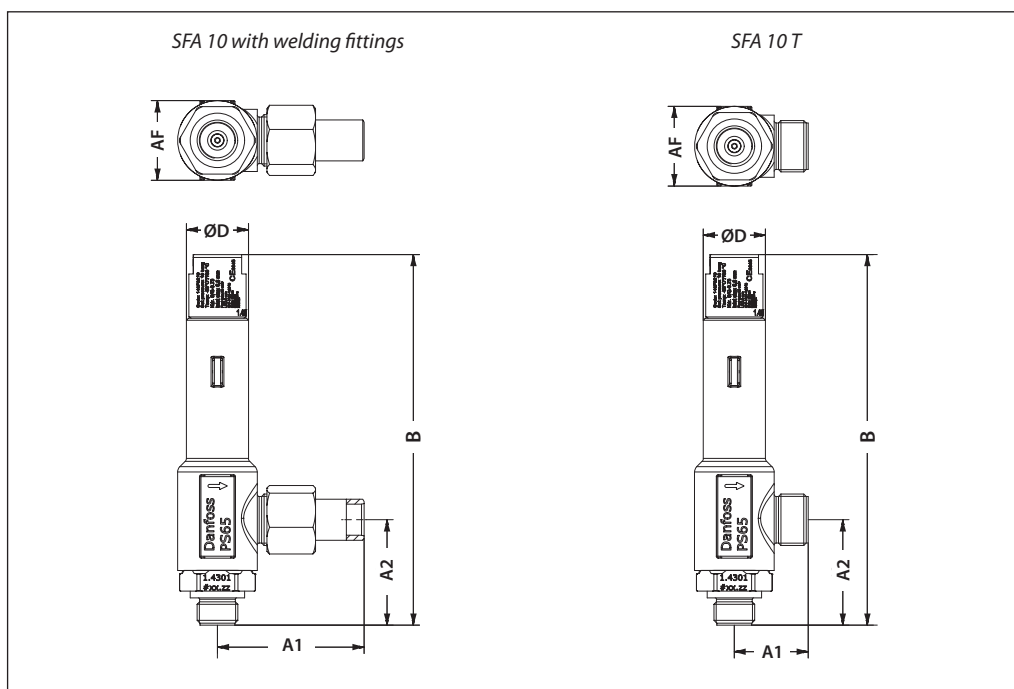


| Type                                      | Size mm | Size in. | Inlet | Outlet |  |  | L mm | L in. |
|---|---------|----------|-------|--------|--|--|------|-------|
| <i>T outside pipe thread, (ISO 228/1)</i> |         |          |       |        |  |  |      |       |
| SFA 10                                    | 10      | 3/8      | G 1/2 | G 3/4  |  |  | 18   | 0.71  |
| SFA 15/15-50                              | 15      | 1/2      | G 3/4 | G 1    |  |  | 15   | 0.59  |



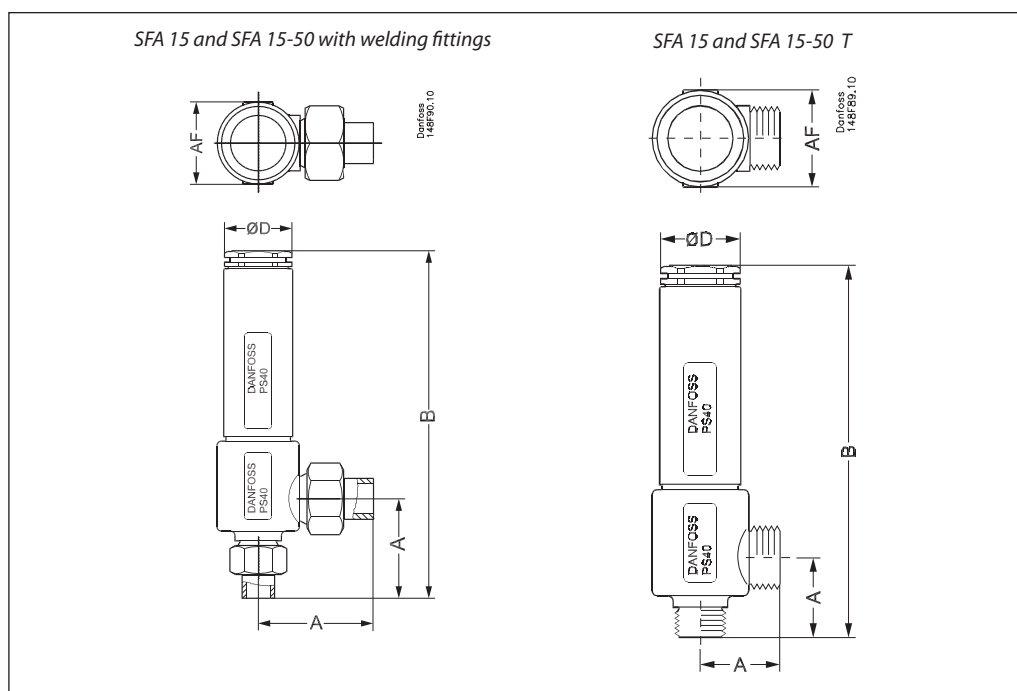
| Type                                | Size mm | Size in. | Inlet (mm) |     | Inlet (in.) |       | Outlet (mm) |     | Outlet (in.) |       |
|-------------------------------------|---------|----------|------------|-----|-------------|-------|-------------|-----|--------------|-------|
|                                     |         |          | OD         | T   | OD          | T     | OD          | T   | OD           | T     |
| <i>Welding fittings, DIN (2448)</i> |         |          |            |     |             |       |             |     |              |       |
| SFA 10                              | 10      | 3/8      | -          | -   | -           | -     | 21.1        | 2.2 | 0.83         | 0.087 |
| SFA 15/15-50                        | 15      | 1/2      | 21.3       | 2.3 | 0.839       | 0.091 | 26.9        | 2.3 | 1.059        | 0.091 |

### Dimensions and weights



| Valve size   |     | A1   | A2   | B    | ØD   | AF   | Weight   |
|--|-----|------|------|------|------|------|----------|
| <i>SFA T, with threaded connections ISO 228/1 pipe threads</i> |     |      |      |      |      |      |          |
| SFA 10 T   | mm  | 38   | 54   | 175  | 32   | 41   | 0.95 kg  |
|  | in. | 1.5  | 2.13 | 6.89 | 1.26 | 1.61 | 2.1 lbs  |
| <i>SFA with welding fittings, DIN 2448</i>                     |     |      |      |      |      |      |          |
| SFA 10   | mm  | 76   | 54   | 175  | 32   | 41   | 1.25 kg  |
|  | in. | 2.99 | 2.13 | 6.89 | 1.26 | 1.61 | 2.31 lbs |

Specified weights are approximate values only.



| Valve size  |           | A          | B           | ØD         | AF         | Weight            |
|---|-----------|------------|-------------|------------|------------|-------------------|
| <i>SFA 15 T, with threaded connections ISO 228/1 pipe threads</i> |           |            |             |            |            |                   |
| SFA 15 and SFA 15-50 T (½ in.)                                    | mm<br>in. | 45<br>1.77 | 210<br>8.27 | 45<br>1.81 | 55<br>2.17 | 2.2 kg<br>4.9 lbs |
| <i>SFA with welding fittings, DIN 2448</i>                        |           |            |             |            |            |                   |
| SFA 15 and SFA 15-50 (½ in.)                                      | mm<br>in. | 83<br>3.27 | 248<br>9.76 | 45<br>1.81 | 55<br>2.17 | 2.5 kg<br>5.5 lbs |

Specified weights are approximate values only.

**Ordering**
*Certified SFA valves with standard set pressure*
*Certified SFA valves with standard set pressure and TÜV pressure setting certificate with each valve*

| Size |     | Type         | Set pressure bar (psig) | Code number     |
|------|-----|--------------|-------------------------|-----------------|
| mm.  | in. |              |                         |                 |
| 10   | 3/8 | SFA 10 T 210 | 10 (145)                | <b>148F4210</b> |
| 10   | 3/8 | SFA 10 T 211 | 11 (160)                | <b>148F4211</b> |
| 10   | 3/8 | SFA 10 T 212 | 12 (174)                | <b>148F4212</b> |
| 10   | 3/8 | SFA 10 T 213 | 13 (189)                | <b>148F4213</b> |
| 10   | 3/8 | SFA 10 T 214 | 14 (203)                | <b>148F4214</b> |
| 10   | 3/8 | SFA 10 T 215 | 10 (218)                | <b>148F4215</b> |
| 10   | 3/8 | SFA 10 T 216 | 16 (232)                | <b>148F4216</b> |
| 10   | 3/8 | SFA 10 T 217 | 17 (247)                | <b>148F4217</b> |
| 10   | 3/8 | SFA 10 T 218 | 18 (261)                | <b>148F4218</b> |
| 10   | 3/8 | SFA 10 T 219 | 19 (276)                | <b>148F4219</b> |
| 10   | 3/8 | SFA 10 T 220 | 20 (290)                | <b>148F4220</b> |
| 10   | 3/8 | SFA 10 T 221 | 21 (305)                | <b>148F4221</b> |
| 10   | 3/8 | SFA 10 T 222 | 22 (319)                | <b>148F4222</b> |
| 10   | 3/8 | SFA 10 T 223 | 23 (334)                | <b>148F4223</b> |
| 10   | 3/8 | SFA 10 T 224 | 24 (348)                | <b>148F4224</b> |
| 10   | 3/8 | SFA 10 T 225 | 25 (363)                | <b>148F4225</b> |
| 10   | 3/8 | SFA 10 T 226 | 26 (377)                | <b>148F4226</b> |
| 10   | 3/8 | SFA 10 T 227 | 27 (392)                | <b>148F4227</b> |

| Size |     | Type         | Set pressure bar (psig) | Code number     |
|------|-----|--------------|-------------------------|-----------------|
| mm.  | in. |              |                         |                 |
| 10   | 3/8 | SFA 10 T 310 | 10 (145)                | <b>148F4310</b> |
| 10   | 3/8 | SFA 10 T 311 | 11 (160)                | <b>148F4311</b> |
| 10   | 3/8 | SFA 10 T 312 | 12 (174)                | <b>148F4312</b> |
| 10   | 3/8 | SFA 10 T 313 | 13 (189)                | <b>148F4313</b> |
| 10   | 3/8 | SFA 10 T 314 | 14 (203)                | <b>148F4314</b> |
| 10   | 3/8 | SFA 10 T 315 | 10 (218)                | <b>148F4315</b> |
| 10   | 3/8 | SFA 10 T 316 | 16 (232)                | <b>148F4316</b> |
| 10   | 3/8 | SFA 10 T 317 | 17 (247)                | <b>148F4317</b> |
| 10   | 3/8 | SFA 10 T 318 | 18 (261)                | <b>148F4318</b> |
| 10   | 3/8 | SFA 10 T 319 | 19 (276)                | <b>148F4319</b> |
| 10   | 3/8 | SFA 10 T 320 | 20 (290)                | <b>148F4320</b> |
| 10   | 3/8 | SFA 10 T 321 | 21 (305)                | <b>148F4321</b> |
| 10   | 3/8 | SFA 10 T 322 | 22 (319)                | <b>148F4322</b> |
| 10   | 3/8 | SFA 10 T 323 | 23 (334)                | <b>148F4323</b> |
| 10   | 3/8 | SFA 10 T 324 | 24 (348)                | <b>148F4324</b> |
| 10   | 3/8 | SFA 10 T 325 | 25 (363)                | <b>148F4325</b> |
| 10   | 3/8 | SFA 10 T 326 | 26 (377)                | <b>148F4326</b> |
| 10   | 3/8 | SFA 10 T 327 | 27 (392)                | <b>148F4327</b> |

*Certified SFA valves with standard set pressure*
*Certified SFA valves with standard set pressure and TÜV pressure setting certificate with each valve*

| Size |     | Type         | Set pressure bar (psig) | Code number     |
|------|-----|--------------|-------------------------|-----------------|
| mm   | in. |              |                         |                 |
| 15   | 1/2 | SFA 15 T 210 | 10 (145)                | <b>148F3210</b> |
| 15   | 1/2 | SFA 15 T 211 | 11 (160)                | <b>148F3211</b> |
| 15   | 1/2 | SFA 15 T 212 | 12 (174)                | <b>148F3212</b> |
| 15   | 1/2 | SFA 15 T 213 | 13 (189)                | <b>148F3213</b> |
| 15   | 1/2 | SFA 15 T 214 | 14 (203)                | <b>148F3214</b> |
| 15   | 1/2 | SFA 15 T 215 | 15 (218)                | <b>148F3215</b> |
| 15   | 1/2 | SFA 15 T 216 | 16 (232)                | <b>148F3216</b> |
| 15   | 1/2 | SFA 15 T 217 | 17 (247)                | <b>148F3217</b> |
| 15   | 1/2 | SFA 15 T 218 | 18 (261)                | <b>148F3218</b> |
| 15   | 1/2 | SFA 15 T 219 | 19 (276)                | <b>148F3219</b> |
| 15   | 1/2 | SFA 15 T 220 | 20 (290)                | <b>148F3220</b> |
| 15   | 1/2 | SFA 15 T 221 | 21 (305)                | <b>148F3221</b> |
| 15   | 1/2 | SFA 15 T 222 | 22 (319)                | <b>148F3222</b> |
| 15   | 1/2 | SFA 15 T 223 | 23 (334)                | <b>148F3223</b> |
| 15   | 1/2 | SFA 15 T 224 | 24 (348)                | <b>148F3224</b> |
| 15   | 1/2 | SFA 15 T 225 | 25 (363)                | <b>148F3225</b> |
| 15   | 1/2 | SFA 15 T 226 | 26 (377)                | <b>148F3226</b> |
| 15   | 1/2 | SFA 15 T 227 | 27 (392)                | <b>148F3227</b> |
| 15   | 1/2 | SFA 15 T 228 | 28 (406)                | <b>148F3228</b> |
| 15   | 1/2 | SFA 15 T 229 | 29 (421)                | <b>148F3229</b> |
| 15   | 1/2 | SFA 15 T 230 | 30 (435)                | <b>148F3230</b> |
| 15   | 1/2 | SFA 15 T 231 | 31 (450)                | <b>148F3231</b> |
| 15   | 1/2 | SFA 15 T 232 | 32 (464)                | <b>148F3232</b> |
| 15   | 1/2 | SFA 15 T 233 | 33 (479)                | <b>148F3233</b> |
| 15   | 1/2 | SFA 15 T 234 | 34 (493)                | <b>148F3234</b> |
| 15   | 1/2 | SFA 15 T 235 | 35 (508)                | <b>148F3235</b> |
| 15   | 1/2 | SFA 15 T 236 | 36 (522)                | <b>148F3236</b> |
| 15   | 1/2 | SFA 15 T 237 | 37 (537)                | <b>148F3237</b> |
| 15   | 1/2 | SFA 15 T 238 | 38 (551)                | <b>148F3238</b> |
| 15   | 1/2 | SFA 15 T 239 | 39 (566)                | <b>148F3239</b> |
| 15   | 1/2 | SFA 15 T 240 | 40 (580)                | <b>148F3240</b> |

| Size |     | Type         | Set pressure bar (psig) | Code number     |
|------|-----|--------------|-------------------------|-----------------|
| mm   | in. |              |                         |                 |
| 15   | 1/2 | SFA 15 T 310 | 10 (145)                | <b>148F3310</b> |
| 15   | 1/2 | SFA 15 T 311 | 11 (160)                | <b>148F3311</b> |
| 15   | 1/2 | SFA 15 T 312 | 12 (174)                | <b>148F3312</b> |
| 15   | 1/2 | SFA 15 T 313 | 13 (189)                | <b>148F3313</b> |
| 15   | 1/2 | SFA 15 T 314 | 14 (203)                | <b>148F3314</b> |
| 15   | 1/2 | SFA 15 T 315 | 15 (218)                | <b>148F3315</b> |
| 15   | 1/2 | SFA 15 T 316 | 16 (232)                | <b>148F3316</b> |
| 15   | 1/2 | SFA 15 T 317 | 17 (247)                | <b>148F3317</b> |
| 15   | 1/2 | SFA 15 T 318 | 18 (261)                | <b>148F3318</b> |
| 15   | 1/2 | SFA 15 T 319 | 19 (276)                | <b>148F3319</b> |
| 15   | 1/2 | SFA 15 T 320 | 20 (290)                | <b>148F3320</b> |
| 15   | 1/2 | SFA 15 T 321 | 21 (305)                | <b>148F3321</b> |
| 15   | 1/2 | SFA 15 T 322 | 22 (319)                | <b>148F3322</b> |
| 15   | 1/2 | SFA 15 T 323 | 23 (334)                | <b>148F3323</b> |
| 15   | 1/2 | SFA 15 T 324 | 24 (348)                | <b>148F3324</b> |
| 15   | 1/2 | SFA 15 T 325 | 25 (363)                | <b>148F3325</b> |
| 15   | 1/2 | SFA 15 T 326 | 26 (377)                | <b>148F3326</b> |
| 15   | 1/2 | SFA 15 T 327 | 27 (392)                | <b>148F3327</b> |
| 15   | 1/2 | SFA 15 T 328 | 28 (406)                | <b>148F3328</b> |
| 15   | 1/2 | SFA 15 T 329 | 29 (421)                | <b>148F3329</b> |
| 15   | 1/2 | SFA 15 T 330 | 30 (435)                | <b>148F3330</b> |
| 15   | 1/2 | SFA 15 T 331 | 31 (450)                | <b>148F3331</b> |
| 15   | 1/2 | SFA 15 T 332 | 32 (464)                | <b>148F3332</b> |
| 15   | 1/2 | SFA 15 T 333 | 33 (479)                | <b>148F3333</b> |
| 15   | 1/2 | SFA 15 T 334 | 34 (493)                | <b>148F3334</b> |
| 15   | 1/2 | SFA 15 T 335 | 35 (508)                | <b>148F3335</b> |
| 15   | 1/2 | SFA 15 T 336 | 36 (522)                | <b>148F3336</b> |
| 15   | 1/2 | SFA 15 T 337 | 37 (537)                | <b>148F3337</b> |
| 15   | 1/2 | SFA 15 T 338 | 38 (551)                | <b>148F3338</b> |
| 15   | 1/2 | SFA 15 T 339 | 39 (566)                | <b>148F3339</b> |
| 15   | 1/2 | SFA 15 T 340 | 40 (580)                | <b>148F3340</b> |

*Certified SFA valves with standard set pressure*

| Size |     | Type            | Set pressure bar (psig) | Code number     |
|------|-----|-----------------|-------------------------|-----------------|
| mm   | in. |                 |                         |                 |
| 15   | ½   | SFA 15-50 T 210 | 10 (145)                | <b>148F4000</b> |
| 15   | ½   | SFA 15-50 T 211 | 11 (160)                | <b>148F4001</b> |
| 15   | ½   | SFA 15-50 T 212 | 12 (174)                | <b>148F4002</b> |
| 15   | ½   | SFA 15-50 T 213 | 13 (189)                | <b>148F4003</b> |
| 15   | ½   | SFA 15-50 T 214 | 14 (203)                | <b>148F4004</b> |
| 15   | ½   | SFA 15-50 T 215 | 15 (218)                | <b>148F4005</b> |
| 15   | ½   | SFA 15-50 T 216 | 16 (232)                | <b>148F4006</b> |
| 15   | ½   | SFA 15-50 T 217 | 17 (247)                | <b>148F4007</b> |
| 15   | ½   | SFA 15-50 T 218 | 18 (261)                | <b>148F4008</b> |
| 15   | ½   | SFA 15-50 T 219 | 19 (276)                | <b>148F4009</b> |
| 15   | ½   | SFA 15-50 T 220 | 20 (290)                | <b>148F4010</b> |
| 15   | ½   | SFA 15-50 T 221 | 21 (305)                | <b>148F4011</b> |
| 15   | ½   | SFA 15-50 T 222 | 22 (319)                | <b>148F4012</b> |
| 15   | ½   | SFA 15-50 T 223 | 23 (334)                | <b>148F4013</b> |
| 15   | ½   | SFA 15-50 T 224 | 24 (348)                | <b>148F4014</b> |
| 15   | ½   | SFA 15-50 T 225 | 25 (363)                | <b>148F4015</b> |
| 15   | ½   | SFA 15-50 T 226 | 26 (377)                | <b>148F4016</b> |
| 15   | ½   | SFA 15-50 T 227 | 27 (392)                | <b>148F4017</b> |
| 15   | ½   | SFA 15-50 T 228 | 28 (406)                | <b>148F4018</b> |
| 15   | ½   | SFA 15-50 T 229 | 29 (421)                | <b>148F4019</b> |
| 15   | ½   | SFA 15-50 T 230 | 30 (435)                | <b>148F4020</b> |
| 15   | ½   | SFA 15-50 T 231 | 31 (450)                | <b>148F4021</b> |
| 15   | ½   | SFA 15-50 T 232 | 32 (464)                | <b>148F4022</b> |
| 15   | ½   | SFA 15-50 T 233 | 33 (479)                | <b>148F4023</b> |
| 15   | ½   | SFA 15-50 T 234 | 34 (493)                | <b>148F4024</b> |
| 15   | ½   | SFA 15-50 T 235 | 35 (508)                | <b>148F4025</b> |
| 15   | ½   | SFA 15-50 T 236 | 36 (522)                | <b>148F4026</b> |
| 15   | ½   | SFA 15-50 T 237 | 37 (537)                | <b>148F4027</b> |
| 15   | ½   | SFA 15-50 T 238 | 38 (551)                | <b>148F4028</b> |
| 15   | ½   | SFA 15-50 T 239 | 39 (566)                | <b>148F4029</b> |
| 15   | ½   | SFA 15-50 T 240 | 40 (580)                | <b>148F4030</b> |

*Certified SFA valves with standard set pressure and TÜV pressure setting certificate with each valve*

| Size |     | Type            | Set pressure bar (psig) | Code number     |
|------|-----|-----------------|-------------------------|-----------------|
| mm   | in. |                 |                         |                 |
| 15   | ½   | SFA 15-50 T 310 | 10 (145)                | <b>148F4100</b> |
| 15   | ½   | SFA 15-50 T 311 | 11 (160)                | <b>148F4101</b> |
| 15   | ½   | SFA 15-50 T 312 | 12 (174)                | <b>148F4102</b> |
| 15   | ½   | SFA 15-50 T 313 | 13 (189)                | <b>148F4103</b> |
| 15   | ½   | SFA 15-50 T 314 | 14 (203)                | <b>148F4104</b> |
| 15   | ½   | SFA 15-50 T 315 | 15 (218)                | <b>148F4105</b> |
| 15   | ½   | SFA 15-50 T 316 | 16 (232)                | <b>148F4106</b> |
| 15   | ½   | SFA 15-50 T 317 | 17 (247)                | <b>148F4107</b> |
| 15   | ½   | SFA 15-50 T 318 | 18 (261)                | <b>148F4108</b> |
| 15   | ½   | SFA 15-50 T 319 | 19 (276)                | <b>148F4109</b> |
| 15   | ½   | SFA 15-50 T 320 | 20 (290)                | <b>148F4110</b> |
| 15   | ½   | SFA 15-50 T 321 | 21 (305)                | <b>148F4111</b> |
| 15   | ½   | SFA 15-50 T 322 | 22 (319)                | <b>148F4112</b> |
| 15   | ½   | SFA 15-50 T 323 | 23 (334)                | <b>148F4113</b> |
| 15   | ½   | SFA 15-50 T 324 | 24 (348)                | <b>148F4114</b> |
| 15   | ½   | SFA 15-50 T 325 | 25 (363)                | <b>148F4115</b> |
| 15   | ½   | SFA 15-50 T 326 | 26 (377)                | <b>148F4116</b> |
| 15   | ½   | SFA 15-50 T 327 | 27 (392)                | <b>148F4117</b> |
| 15   | ½   | SFA 15-50 T 328 | 28 (406)                | <b>148F4118</b> |
| 15   | ½   | SFA 15-50 T 329 | 29 (421)                | <b>148F4119</b> |
| 15   | ½   | SFA 15-50 T 330 | 30 (435)                | <b>148F4120</b> |
| 15   | ½   | SFA 15-50 T 331 | 31 (450)                | <b>148F4121</b> |
| 15   | ½   | SFA 15-50 T 332 | 32 (464)                | <b>148F4122</b> |
| 5    | ½   | SFA 15-50 T 333 | 33 (479)                | <b>148F4123</b> |
| 15   | ½   | SFA 15-50 T 334 | 34 (493)                | <b>148F4124</b> |
| 15   | ½   | SFA 15-50 T 335 | 35 (508)                | <b>148F4125</b> |
| 15   | ½   | SFA 15-50 T 336 | 36 (522)                | <b>148F4126</b> |
| 15   | ½   | SFA 15-50 T 337 | 37 (537)                | <b>148F4127</b> |
| 15   | ½   | SFA 15-50 T 338 | 38 (551)                | <b>148F4128</b> |
| 15   | ½   | SFA 15-50 T 339 | 39 (566)                | <b>148F4129</b> |
| 15   | ½   | SFA 15-50 T 340 | 40 (580)                | <b>148F4130</b> |

**Ordering***Spare parts*

| Type                         | Code number |
|------------------------------|-------------|
| SFA 10/DSV 10 Inspection kit | 148F3068    |
| SFA 10 Repair kit, ≤27 bar   | 148F3069    |
| SFA 15/DSV 1 inspection kit  | 148F3029    |
| Repair kit SFA 15            | 148F3036    |
| Repair kit SFA 15-50         | 148F3150    |

*Accessories*

| Type   | Code number |
|--|-------------|
| DSV/SFA/SFV Non-stick grease                                       | 148F3064    |
| DSV 10 Plug and alu gasket for testing (1 set)                     | 148F3063    |
| Nipples + gaskets set for SFA 10,<br>SFV 15/SFA 15 and SFA 15-50 * | 148F3019    |

\* Weld nipple for SFA 10 inlet (G ½") not available and not included in 148F3019



