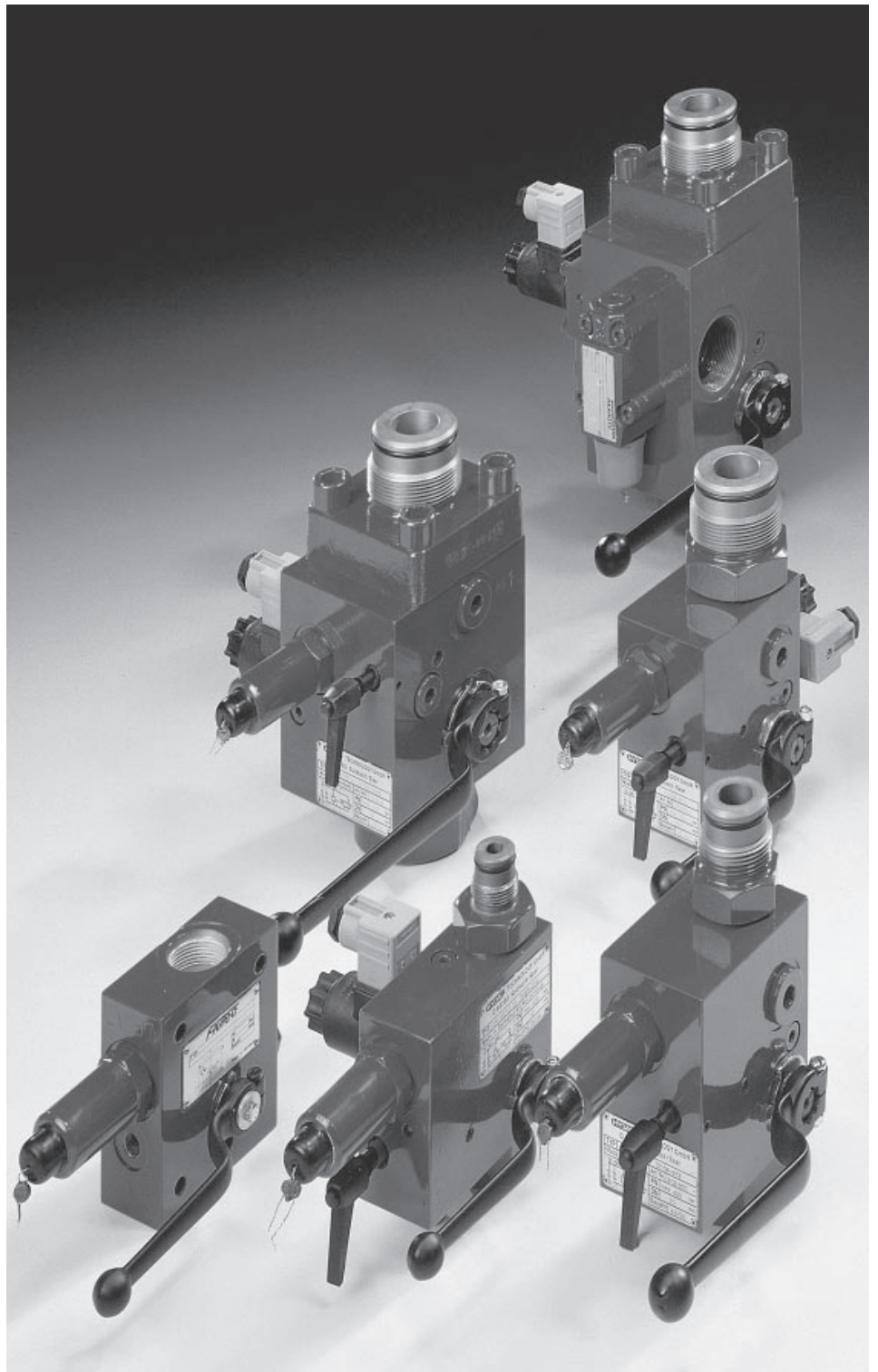


HYDAC

INTERNATIONAL

Safety and Shut-off Block

SAF/DSV



HYDAC SAFETY AND SHUT-OFF BLOCK

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1. DESCRIPTION OF SAF

1.1. GENERAL

The HYDAC safety and shut-off block is used to shut off and discharge hydraulic accumulators or user units. It complies with relevant German safety standards and inspection requirements.

- DIN 24552
- safety regulations on pressure vessel equipment
- technical regulations with regard to pressure vessels TRB 403/404

① Safety valve to prevent excess pressure.

The Hydac pressure relief valve DB12 is used on the SAF series. This is a direct-operated pressure relief valve in seat valve construction with excellent opening and closing properties. The pressure-set and lead-sealed version of the DB12 conforms to all the requirements of AD notice A2 and the safety regulations on pressure vessel equipment. The cracking pressure is set by the TÜV.

② Pressure gauge

③ Shut-off valve

④ Pressure release valve

⑤ Connection for test gauge

These devices are combined in a compact, space-saving HYDAC safety and shut-off block. The following devices are also available:

⑥ Solenoid-operated pressure release valve.

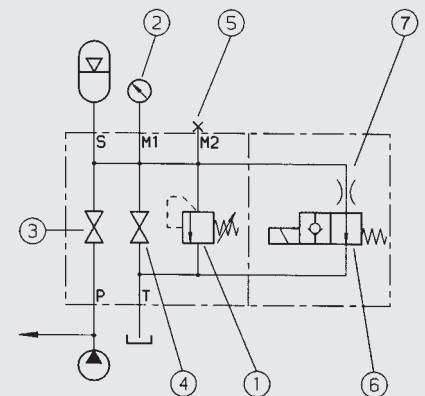
⑦ Throttle

The compact combination of elements considerably simplifies the connection of an accumulator or user unit to the hydraulic system and provides the following advantages:

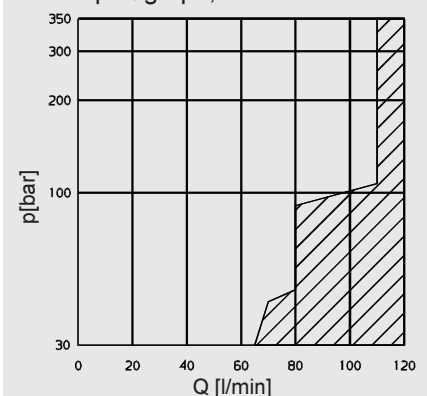
- Minimum of space, maintenance and installation required. As all the individual units are combined in one block, considerably fewer pipe fittings are necessary for installation.
- Considerable reduction in installation time
- All types of connections for all accumulator systems and makes are available - imperial and metric connections as well as manifold mounted and weld nipple connections.
- Additional valves such as pilot-operated check valves, flow control valves and combined flow control and check valves can be fitted to the system connection P.



Circuit diagram



DB 12 p-Q graph, see ① above



This valve cannot be set to values in the shaded area.

1.2. CONSTRUCTION

The SAF safety and shut-off block consists of a valve block, a built-in HYDAC pressure relief valve, a main shut-off valve and a manually operated pressure release valve, and the necessary gauge connections are provided in addition to the tank connection. In addition an optional solenoid-operated 2-way directional valve allows automatic pressure relief of the accumulator or user unit and therefore of the hydraulic system in an emergency or during shut-down.

1.3. CONNECTIONS

The safety and shut-off block has the following connections:

- S – Accumulator connection
- P – Pipe connection (pump)
- T – Tank connection
- M1 – Test gauge connection
G ½ - ISO 228
(G ¼ for SAF 10)
- M2 – Gauge connection
G ¼ - ISO 228

1.4. TECHNICAL SPECIFICATIONS

1.4.1 Fluids

Mineral oils, hydraulic oils, non-flam fluids (other fluids on request)

1.4.2 Permissible working temperature

-10 °C to +80 °C
(ambient temperature on "E" version limited to -10 °C to +40 °C)

1.4.3 Max. operating pressure

400 bar

1.4.4 Model with solenoid-operated pressure relief

TYPE OF OPERATION

Solenoid-operated by means of pressure-tight, oil-immersed, single stroke solenoids in accordance with VDE 0580. Actuating solenoid with plug to DIN 43650, standard for general industrial applications, available for 24 V DC and 230 V AC.

TYPE OF VOLTAGE

DC solenoid

When connected to AC voltage, the necessary DC voltage is produced by means of a bridge rectifier connector.

VOLTAGE TOLERANCE

-5 % to +10 %

NOMINAL CURRENT

Depending on the nominal voltage

24 V DC 1.04 A

230 V AC 0.13 A

POWER CONSUMPTION

$p_{20} = 26 \text{ W}$

SWITCH-ON TIME

100 % = continuous operation

SWITCHING TIME

Depending on symbol, pressure across the individual ports and flow rate,

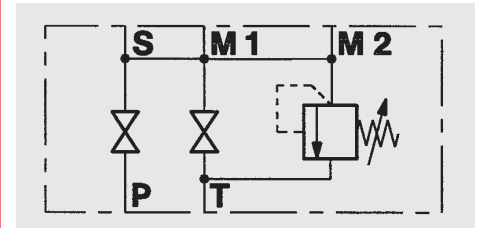
switch-on time = approx. 25 ms,

switch-off time = approx. 35 ms

1.5. STANDARD MODELS

1.5.1 Model with manually operated pressure release valve

The basic model Safety and Shut-off Block has a manually operated pressure release valve, code "M", and a direct-operated pressure relief valve.



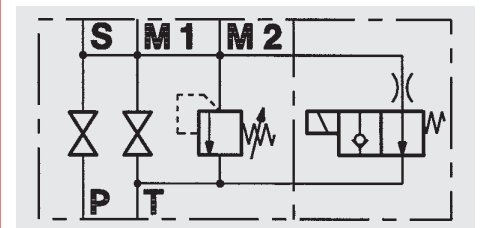
Sizes: SAF 10 M

SAF 20 M

SAF 32 M

1.5.2 Model with solenoid-operated pressure relief

The "E" model Safety and Shut-off Block contains a solenoid-operated 2-way directional valve (open when de-energised) for automatic pressure relief of the accumulator and the hydraulic system.



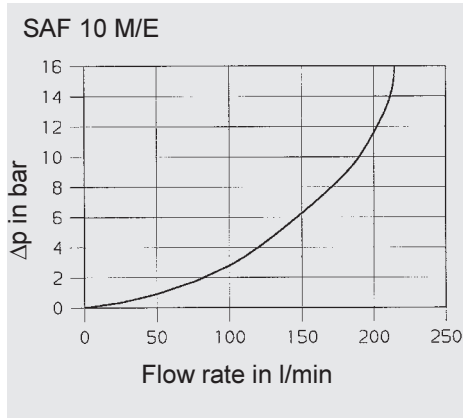
Sizes: SAF 10 E

SAF 20 E

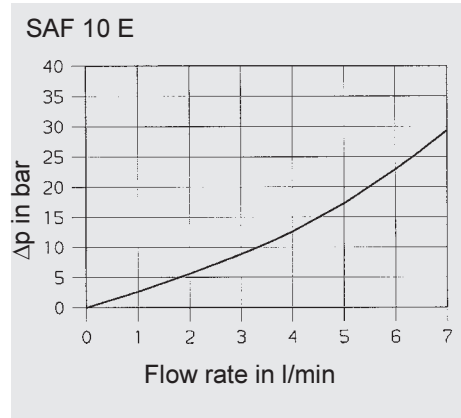
SAF 32 E

1.6. Δp -Q GRAPHS FOR SAF
with DB 12 pressure relief valve

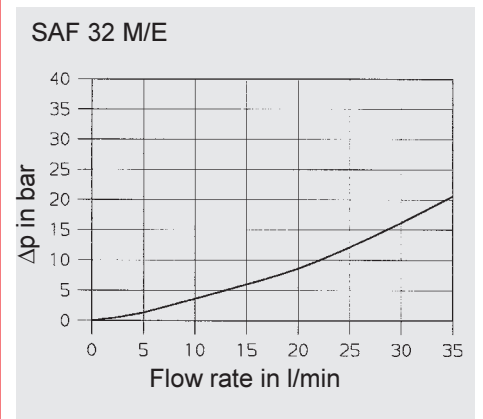
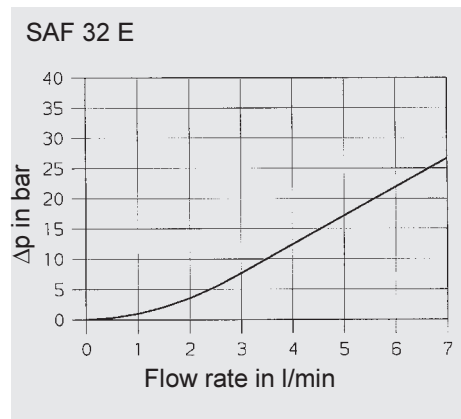
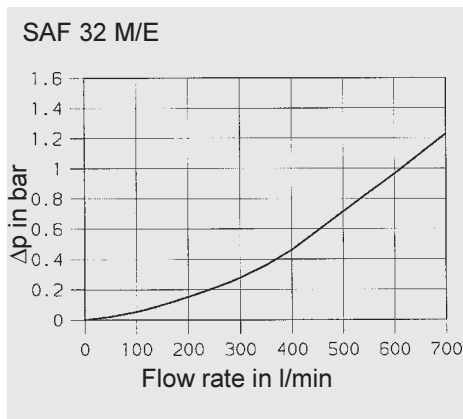
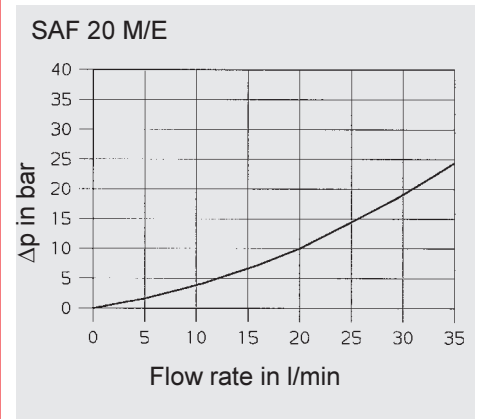
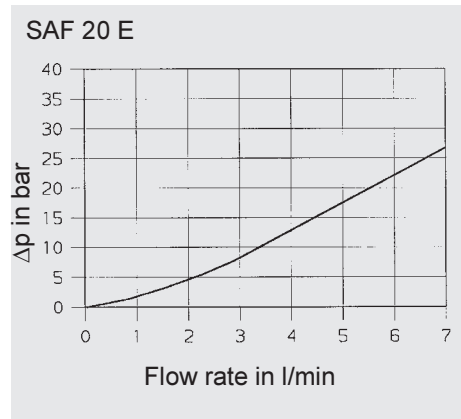
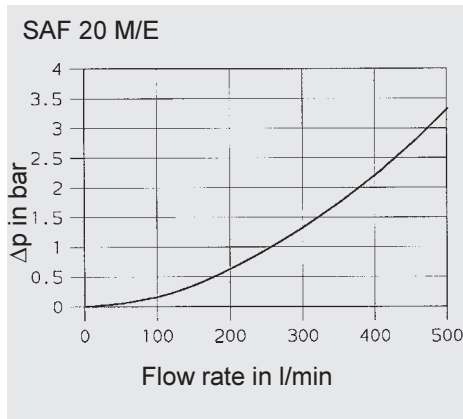
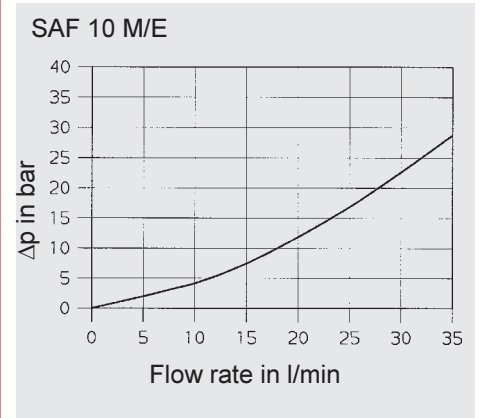
1.6.1 Flow from the pump to the
accumulator



1.6.2 Flow from the accumulator via
the solenoid-operated pressure
release valve to the tank



1.6.3 Flow from the accumulator via
the pressure release valve to
the tank



measured at:
 $v = 32 \text{ mm}^2/\text{s}$
 $t_{oil} = 40 \text{ }^\circ\text{C}$
 operating pressure = 400 bar

2. MODEL CODE FOR SAF

(also order example)

SAF 20 E 1 2 Y 1 T 210 A -S 13

Safety and shut-off block

Series SAF

Size of main shut-off valve

- 10 = DN 10
- 20 = DN 20
- 32 = DN 32

Discharge

- M = Manual discharge
- E = Solenoid-operated and manual discharge

Block material

- 1 = Carbon steel
- 2 = 1.4021 (stainless steel 304)
- 3 = 1.4571 (stainless steel 316)
- 7 = Other

Seal material (elastomer)

- 2 = NBR (Perbunan)
- 5 = EPDM
- 6 = FPM (Viton)
- 7 = Other

For solenoid-operated discharge with manual override

- Y = Open when de-energised (2-way directional valve 2SV5E2Y)
- Z = Closed when de-energised (2-way directional valve 2SV5E2Z)

Type of voltage – seat valve

- 1 = 24 V DC
- 2 = 110 - 115 V AC
- 3 = 220 - 230 V AC
- 6 = 120 V AC
- 7 = Other

Pressure relief valve

- T... = TÜV approval (lead-sealed)
- N... = Adjustable using Allen key ¹⁾

Pressure setting

e.g. 210 bar

Threaded connections to

- A = ISO 228 (BSP)
- B = metric O-ring seal to ISO 6149¹⁾
- C = ANSI B1.1 (UNF, O-ring seal to SAE)¹⁾
without M2-gauge connection

Adaptor

to accumulator (see point 6.1.)
e.g. S13 = ISO 228 - G 2A

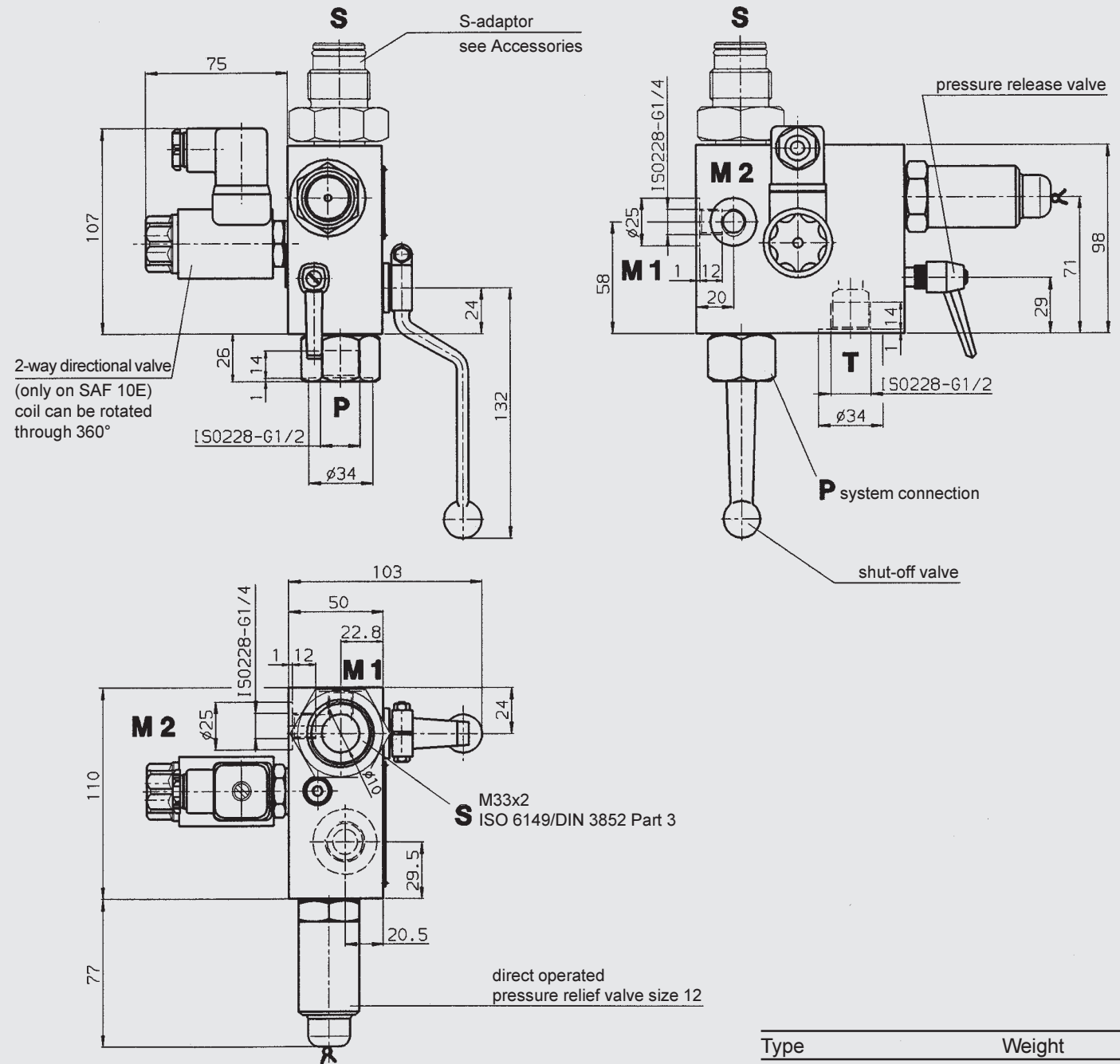
Accessories

(When ordering please give full details)
e.g. Shut-off valve for pressure gauges
(see point 6.2.)

¹⁾ on request

3. DIMENSIONS

3.1. SAF 10 SAFETY AND SHUT-OFF BLOCK SIZE 10

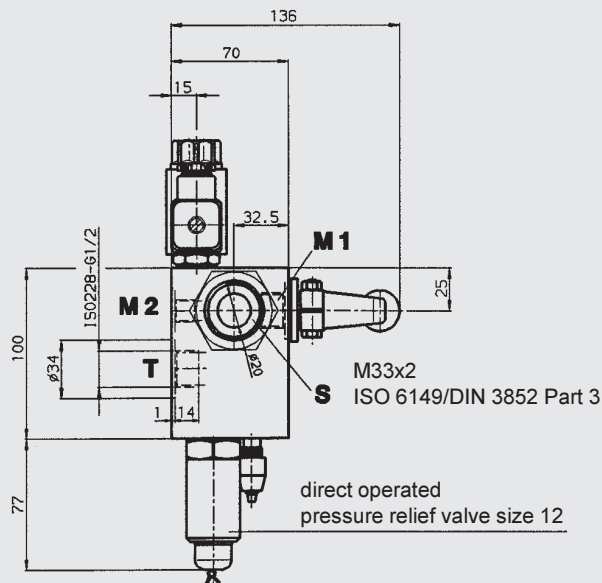
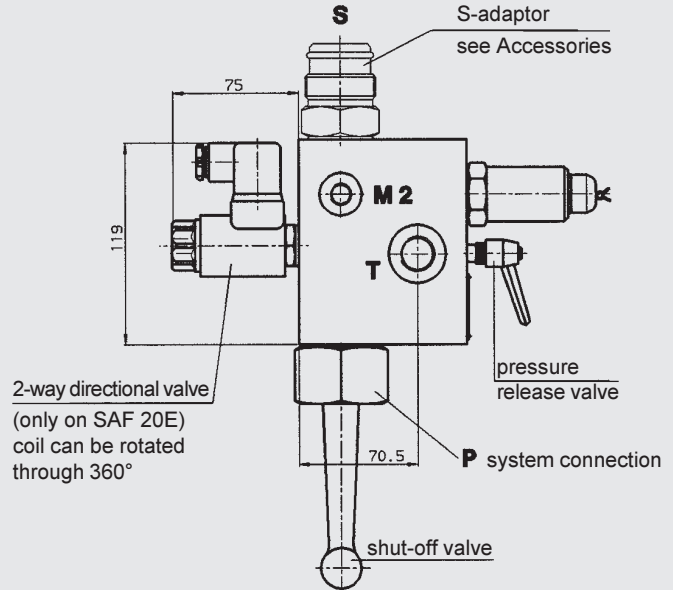
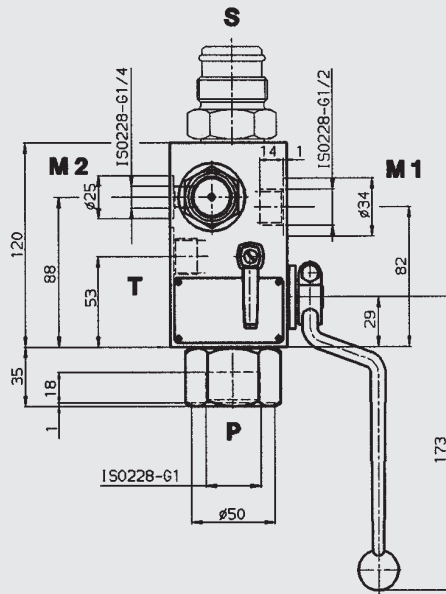


| Type | Weight |
|-------------|--------|
| SAF 10 M... | 4.2 kg |
| SAF 10 E... | 4.6 kg |

SAF10 standard models

| Model | Stock no. | Model | Stock no. |
|---------------|-----------|-----------------|-----------|
| SAF10M12T400A | 2121582 | SAF10E12Y1T400A | 2125858 |
| SAF10M12T350A | 2122208 | SAF10E12Y1T350A | 2122210 |
| SAF10M12T330A | 2121236 | SAF10E12Y1T330A | 2122211 |
| SAF10M12T315A | 2121121 | SAF10E12Y1T315A | 2122212 |
| SAF10M12T300A | 2121354 | SAF10E12Y1T300A | 2122213 |
| SAF10M12T250A | 2121353 | SAF10E12Y1T250A | 2122214 |
| SAF10M12T210A | 2121346 | SAF10E12Y1T210A | 2121662 |
| SAF10M12T200A | 2121351 | SAF10E12Y1T200A | 2122215 |
| SAF10M12T150A | 2121345 | SAF10E12Y1T150A | 2122216 |
| SAF10M12T100A | 2121344 | SAF10E12Y1T100A | 2122041 |
| SAF10M12T070A | 2121350 | SAF10E12Y1T070A | 2122217 |
| SAF10M12T050A | 2122207 | SAF10E12Y1T050A | 2122218 |
| SAF10M12T035A | 2121349 | SAF10E12Y1T035A | 2122219 |

3.2. SAF 20 SAFETY AND SHUT-OFF BLOCK SIZE 20

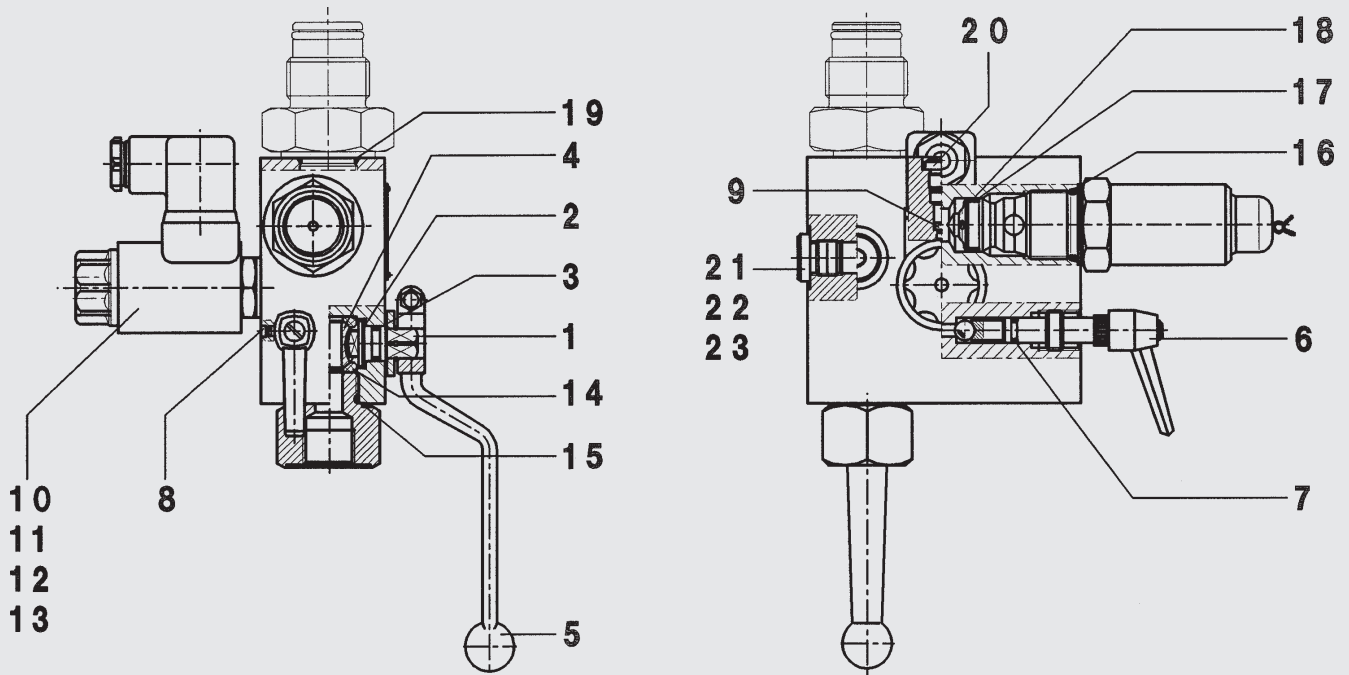


| Type | Weight |
|-------------|--------|
| SAF 20 M... | 6.8 kg |
| SAF 20 E... | 7.2 kg |

SAF20 standard models

| Model | Stock no. | Model | Stock no. |
|---------------|-----------|-----------------|-----------|
| SAF20M12T400A | 2120317 | SAF20E12Y1T400A | 2121022 |
| SAF20M12T350A | 2120434 | SAF20E12Y1T350A | 2121979 |
| SAF20M12T330A | 2120323 | SAF20E12Y1T330A | 2120394 |
| SAF20M12T315A | 2120324 | SAF20E12Y1T315A | 2120833 |
| SAF20M12T300A | 2120332 | SAF20E12Y1T300A | 2120836 |
| SAF20M12T250A | 2120432 | SAF20E12Y1T250A | 2120851 |
| SAF20M12T210A | 2120319 | SAF20E12Y1T210A | 2120320 |
| SAF20M12T200A | 2120325 | SAF20E12Y1T200A | 2120835 |
| SAF20M12T150A | 2120330 | SAF20E12Y1T150A | 2120832 |
| SAF20M12T100A | 2120401 | SAF20E12Y1T100A | 2120369 |
| SAF20M12T070A | 2120326 | SAF20E12Y1T070A | 2120849 |
| SAF20M12T050A | 2122172 | SAF20E12Y1T050A | 2121000 |
| SAF20M12T035A | 2120281 | SAF20E12Y1T035A | 2122220 |

4. SPARE PARTS FOR SAF



| SAF block | SAF 10 M SAF 10 E | SAF 20 M SAF 20 E | SAF 32 M SAF 32 E |
|---|--------------------------------|---|---|
| Description | Item | Dimensions | |
| Repair kit | Stock no. | Stock no. | Stock no. |
| consists of: | 2122238 (NBR) 2122240 (FPM) | 2122242 (NBR) 2122244 (FPM) | 2122246 (NBR) 2122248 (FPM) |
| Spindle | 1 | | |
| Disc | 2 | | |
| O-ring | 3 | 10 x 2 | 15 x 2,5 |
| Ball | 4 | | 20 x 3 |
| Switching handle | 5 | | |
| Spindle | 6 | | |
| O-ring | 7 | | 6 x 2 |
| Set screw | 8 | M 4x6 | M 4x10 |
| Slip-in orifice | 9 | | |
| O-ring | 11 | | 17 x 2 |
| Support ring | 12 | | 11.7 x 15 x 1 |
| O-ring | 13 | | 11 x 2 |
| Sealing cup | 14 | | |
| O-ring | 15 | 21 x 2 | 34 x 2.5 |
| O-ring | 16 | | 23.47 x 2.62 |
| Support ring | 17 | | 18.3 x 21.5 x 1 |
| O-ring | 18 | | 18 x 2 |
| O-ring | 19 | 29.7 x 2.8 | 29.7 x 2.8 |
| Blanking plug | 20 | G 1/8 | G 1/8 |
| | 21 | G 1/4 | G 1/4 |
| | 22 | - | G 3/8 |
| | 23 | - | G 1/2 |
| 2-way directional valve, complete (for "E" version only) | 10 | Stock no. 2115443 (2SV5E2Y-open when de-energised) 2117453 (2SV5E2Z-closed when de-energised) 277645 | |
| Blanking plug, complete (converts "E" version to "M" version) | | | |
| Seal kit consists of: Items 3, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 | | Stock no. 2121699 (NBR) 2121701 (FPM) | Stock no. 2121703 (NBR) 2121705 (FPM) |
| Spindle repair kit consists of items 6, 7, 8 | | Stock no. 2115648 (NBR) 2115649 (FPM) | Stock no. 2121707 (NBR) 2121709 (FPM) |

5. DESCRIPTION OF DSV 10

5.1. GENERAL

DSV 10 as a low cost alternative to the SAF 10

The 3-way safety block DSV 10 is used to shut off and discharge hydraulic accumulators or user units. It complies with relevant German safety standards and inspection requirements, in accordance with

- UVV VBG 17
- DIN 24552
- safety regulations on pressure vessel equipment
- technical regulations with regard to pressure vessels TRB 403/404.

The pressure relief valve is set by the manufacturer, adjustable or checked and set by the TÜV, as per order details.

There are four different models:

- DSV 10 M
Manual discharge
Standard L-ball
- DSV 10 M - T-ball
Manual discharge
T-ball, accumulator drain
- DSV 10 EY
Manual / solenoid-operated discharge
Open when de-energised
- DSV 10 EZ
Manual / solenoid-operated discharge
Closed when de-energised

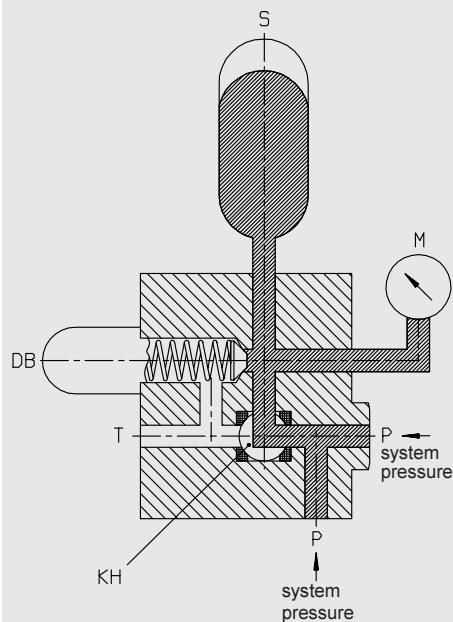
The essential difference compared to the SAF10 lies in the shut-off and discharge function of the DSV10. On request we can supply other models to cover nearly all applications, e.g. for aggressive media.

On request we can supply test certifications to EN 10204 and quality test certificates to DIN 55350, Part 18.

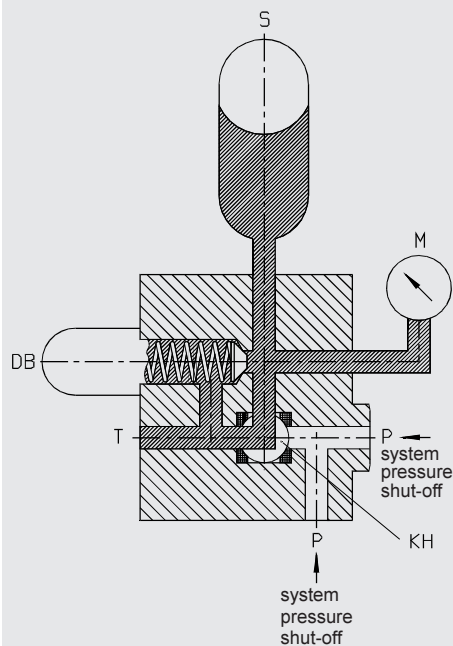
5.2. CONSTRUCTION

The DSV 3-way safety block consists of a valve block with a built-in Hydac pressure relief valve and a shut-off valve. It has ports for the pump, pressure gauge, tank and accumulator. In addition an optional solenoid-operated 2-way directional valve allows automatic discharge of the accumulator or user unit.

Accumulator operation



Shutting off the system pressure and simultaneously discharging the accumulator



| | |
|----|---------------------------|
| P | Pump port |
| S | Accumulator |
| KH | Change-over ball valve |
| DB | Pressure relief valve |
| M | Pressure gauge connection |
| T | Tank port |

The DSV 10 can be used as a cost-effective alternative to the SAF 10. Unlike the SAF 10, the DSV 10 shuts off when discharging simultaneously to the tank.

5.3. PORTS

The DSV has the following ports:

- S - Accumulator port (M33x2 DIN 3852 Part 3)
- P - Inline port (G 3/8 and G 1/2)
- T - Tank port (G 1/4)
- M - Pressure gauge port (G 1/4)

5.4. FUNCTION

When the accumulator is in operation the change-over ball valve connects the pump port with the accumulator. At the same time the accumulator is monitored for pressure via the built-in pressure relief valve.

By switching over the ball valve, the pump port is shut off leakage-free on the inlet side and the accumulator is discharged simultaneously to the tank.

During switching all three ports (P, S and T) are momentarily interconnected (negative switching overlap). If a solenoid-operated 2-way directional seat valve is fitted, automatic discharge is possible (e.g. in the event of a power failure or breakdown).

5.5. NOTES

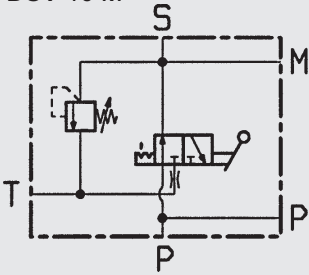
Ball valves are not designed to be used as flow control valves; therefore they should always be either fully open or fully closed, to avoid damaging the sealing cups.

To ensure correct functioning, pressure and temperature specifications must be observed.

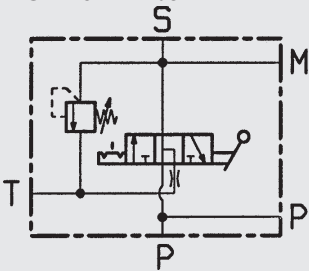
5.6. TECHNICAL SPECIFICATIONS

5.6.1 Symbols

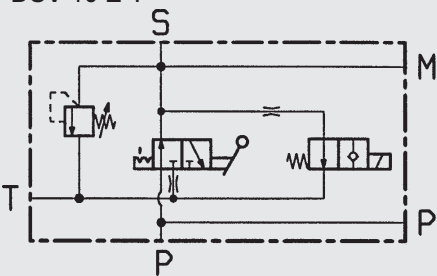
DSV 10 M



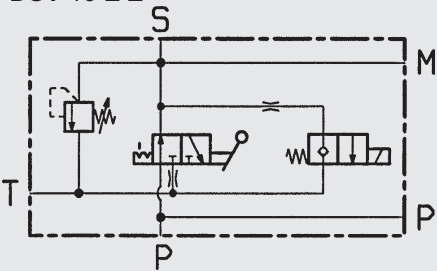
DSV 10 M-T-ball



DSV 10 E Y



DSV 10 E Z



5.6.2 Type of construction

Ball valve isolating device

Pressure relief valve is direct-operated as a cone seat valve

Seat valve is pilot-operated

5.6.3 Materials

Housing and locking screw in steel, surface protection: phosphate-plated

Ball in steel, hard-chromed

Pressure relief valve and seat valve in high tensile steel, closing element in hardened and polished steel, wear-resistant, surface protection: phosphate-plated

Ball seal in high quality synthetic material (POM)

Soft seals in Perbunan (NBR)

Clamped handle SW 09, cranked, in red anodised aluminium

5.6.4 Mounting position

Optional

5.6.5 Operating fluids

Mineral oil to DIN 51524, Part 1 and Part 2

(Other media on request)

VISCOSITY RANGE:

Min. 10 mm²/s

Max. 380 mm²/s

FILTRATION:

Max. permissible contamination level of the operating fluid to NAS 1638, Class 10.

We therefore recommend a filter with a minimum retention rate of $\beta_{20} \geq 100$.

The fitting of filters and the regular replacement of filter elements guarantees correct operation, reduces wear and tear and increases the service life.

5.6.6 Permissible operating temperature

-10 °C to +80 °C

(Ambient temperature for "E" version is limited to -10 °C to +40 °C)

5.6.7 Maximum operating pressure

350 bar

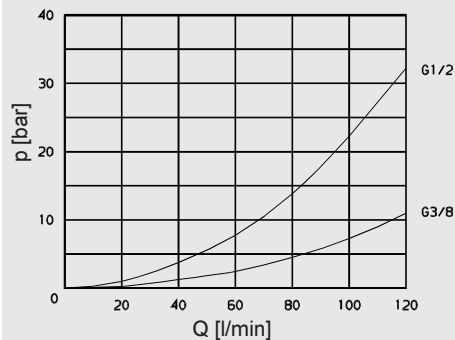
5.6.8 $\Delta p - Q$ graph

measured at

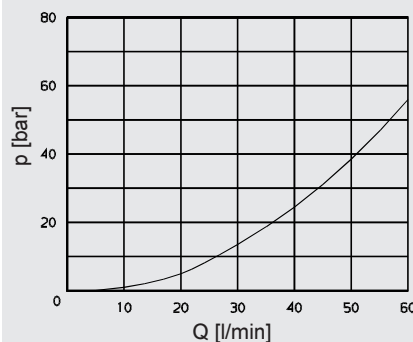
$t_{oil} = 50 \text{ °C}$

$v = 30 \text{ mm}^2/\text{s}$

Flow rate from P to S



Flow rate from S to T



5.6.9 Model with solenoid-operated pressure relief

TYPE OF OPERATION

Solenoid-operated by means of pressure-tight, oil-immersed, single-stroke solenoids in accordance with VDE 0580. Actuating solenoid with plug to DIN 43650, standard for general industrial applications, available for 24 V DC and 230 V AC.

TYPE OF VOLTAGE

DC solenoid

When connected to AC voltage the necessary DC voltage is produced by means of a bridge rectifier connector.

VOLTAGE TOLERANCE

-5 % to +10 %

NOMINAL CURRENT

Dependent on the nominal voltage

24 V DC 1.04 A

230 V AC 0.13 A

POWER CONSUMPTION

$p_{20} = 26 \text{ W}$

SWITCH-ON TIME

100 % = continuous operation

SWITCHING TIME

Depending on symbol, pressure across the individual ports and flow rate,

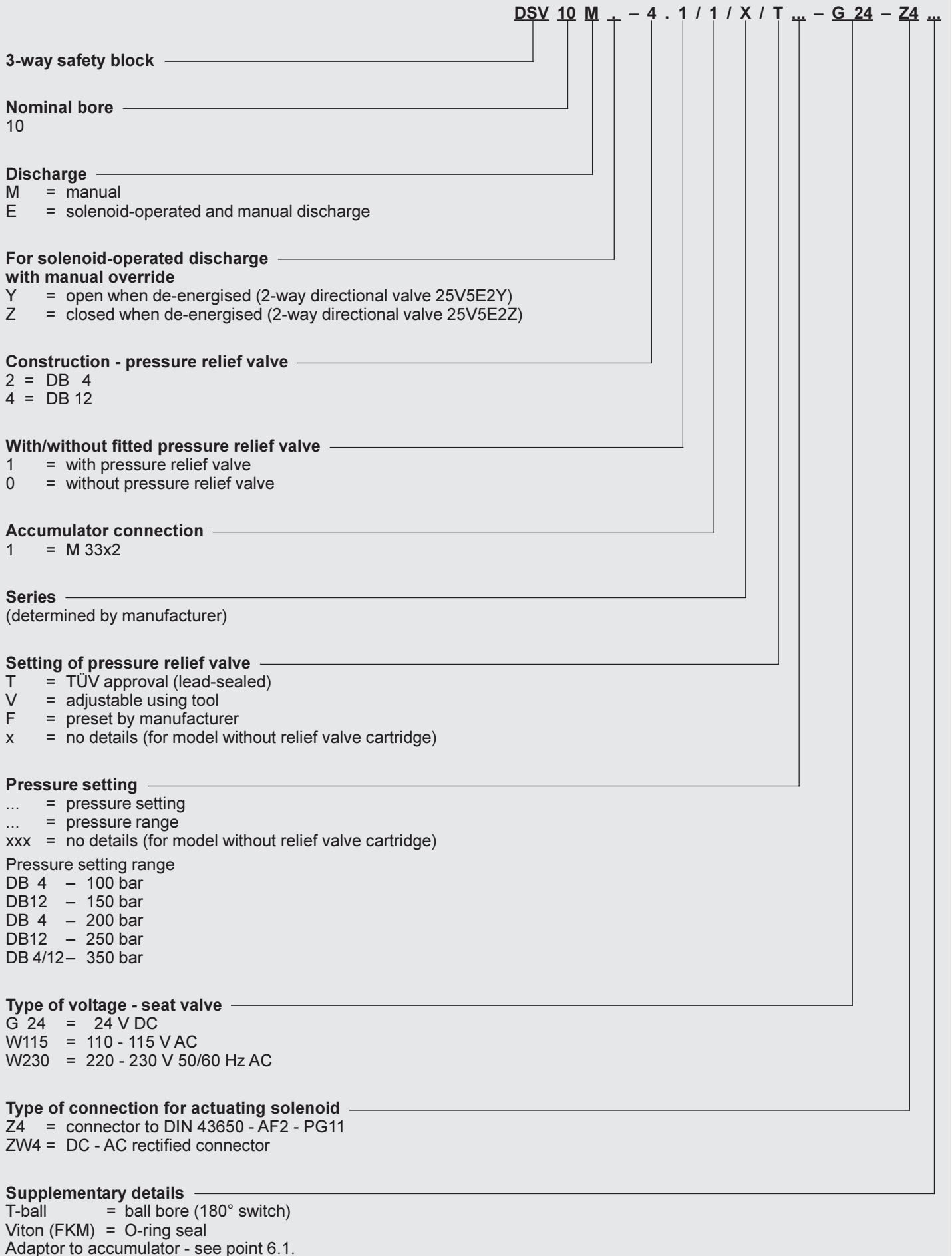
switch-on time = approx. 25 ms

switch-off time = approx. 35 ms

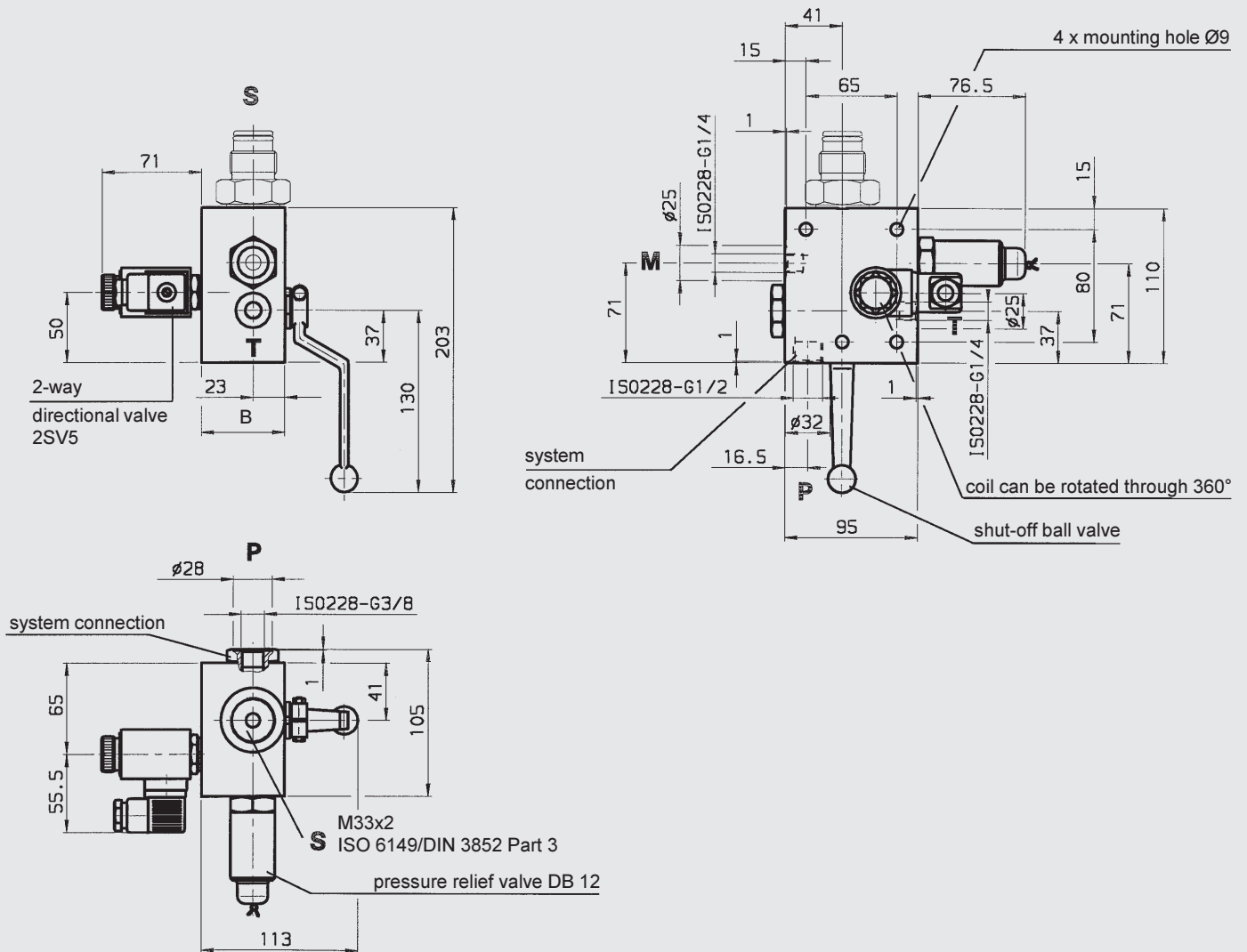
5.7. SPARE PARTS

Please see brochure no. E 5.251, Flutec 3-way safety block.

5.8. MODEL CODE FOR DSV 10
(also order example)



5.9. DIMENSIONS
DSV 10 3-way safety block



| Type | B[mm] | Weight |
|-------------|-------|--------|
| DSV 10 M... | 45 | 3.5 kg |
| DSV 10 E... | 60 | 3.9 kg |

DSV10 standard models

| Model | Stock no. | Model | Stock no. |
|-----------------------|-----------|-------------------------------|-----------|
| DSV-10-M-4.0/1/X/XXXX | 555999 | DSV-10-EY-4.0/1/X/XXXX-G24-Z4 | 557367 |
| DSV-10-M-4.1/1/X/T035 | 555968 | DSV-10-EY-4.1/1/X/T035-G24-Z4 | 555980 |
| DSV-10-M-4.1/1/X/T050 | 555969 | DSV-10-EY-4.1/1/X/T050-G24-Z4 | 555981 |
| DSV-10-M-4.1/1/X/T070 | 555970 | DSV-10-EY-4.1/1/X/T070-G24-Z4 | 555982 |
| DSV-10-M-4.1/1/X/T100 | 555971 | DSV-10-EY-4.1/1/X/T100-G24-Z4 | 555983 |
| DSV-10-M-4.1/1/X/T150 | 555972 | DSV-10-EY-4.1/1/X/T150-G24-Z4 | 555984 |
| DSV-10-M-4.1/1/X/T200 | 555973 | DSV-10-EY-4.1/1/X/T200-G24-Z4 | 555985 |
| DSV-10-M-4.1/1/X/T210 | 555974 | DSV-10-EY-4.1/1/X/T210-G24-Z4 | 555986 |
| DSV-10-M-4.1/1/X/T250 | 555975 | DSV-10-EY-4.1/1/X/T250-G24-Z4 | 555987 |
| DSV-10-M-4.1/1/X/T300 | 555976 | DSV-10-EY-4.1/1/X/T300-G24-Z4 | 555988 |
| DSV-10-M-4.1/1/X/T315 | 555977 | DSV-10-EY-4.1/1/X/T315-G24-Z4 | 555989 |
| DSV-10-M-4.1/1/X/T330 | 555978 | DSV-10-EY-4.1/1/X/T330-G24-Z4 | 555990 |
| DSV-10-M-4.1/1/X/T350 | 555979 | DSV-10-EY-4.1/1/X/T350-G24-Z4 | 555991 |

6. ACCESSORIES

6.1. ADAPTORS FOR SAF/DSV10

to connect the safety and shut-off block with the accumulator

6.1.1 Adaptor for standard bladder accumulator

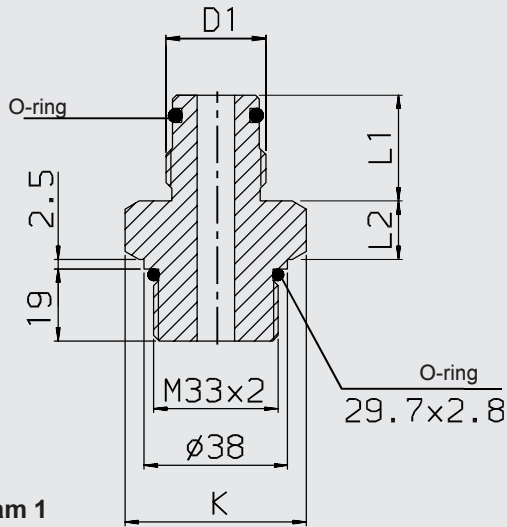


Diagram 1

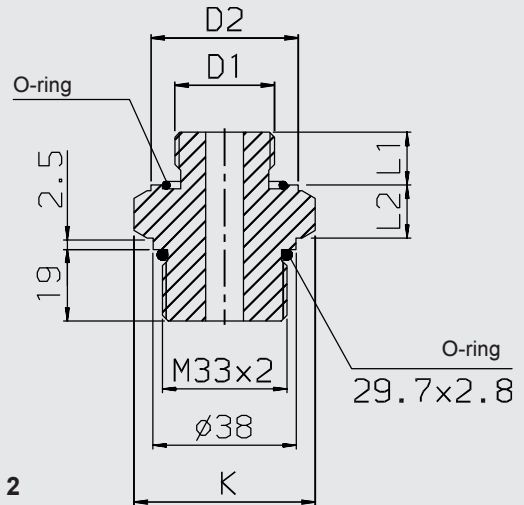


Diagram 2

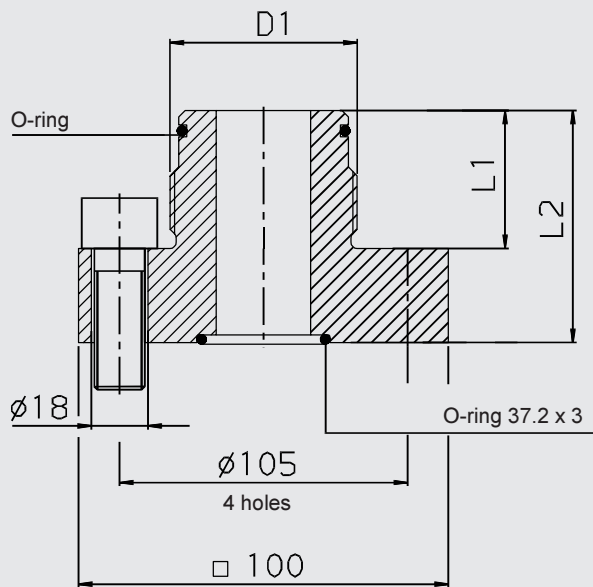


Diagram 3

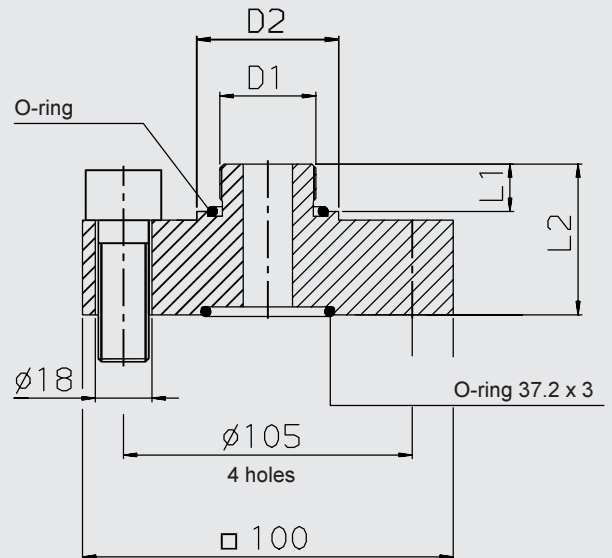


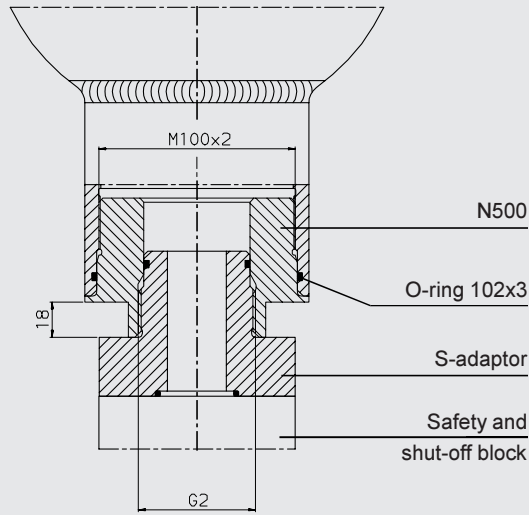
Diagram 4

| Model | Accumulator type | D1 Thread | Adaptor | Stock no. ² NBR/C-steel | Diag. no. | K SW | L1 (mm) | L2 (mm) | D2 (mm) | O-ring |
|---------------------|-----------------------------|------------------------------------|--------------------|---------------------------------------|--------------|---------|------------|------------|------------|--------|
| SAF 10/20 DSV 10 | SB 330/400 - 0.5 to 1 l | G 3/4 A | S 10 | 369479 | 1 | 41 | 28 | 15.5 | | 17x3 |
| | SB 550/600 - 1 to 5 l | G 1 A | S 11 | 372750 | | 46 | 34 | 16.5 | | 22x3 |
| | SB 330/400 - 2.5 to 5 l | G 1 1/4 A | S 12 | 369480 | | 37 | | | 30x3 | |
| | SB 330/400 - 10 to 50 l | G 2 A | S 13 | 369481 | | 65 | 44 | 20.5 | | 48x3 |
| | SB 440/500/600 - 10 to 50 l | | | | | | | | | |
| | | Connection with metric fine thread | M 30x1.5 | S 20 | 369482 | 2 | 41 | 15 | 17.5 | 40 |
| | M 40x1.5 | | S 21 | 369483 | 55 | | 20 | 20.5 | 54 | 43x3 |
| | M 50x1.5 | | S 22 | 369484 | 65 | | 20 | 20.5 | 64 | 53x3 |
| SAF 32 | SB 330/400 - 0.5 to 1 l | G 3/4 A | S 305 ¹ | 366723 | 3 | | 28 | 58 | | 17x3 |
| | SB 550/600 - 1 to 5 l | G 1 A | S 306 ¹ | 2102855 | | | 34 | 64 | | 22x3 |
| | SB 330/400 - 2.5 to 5 l | G 1 1/4 A | S 307 ¹ | 366724 | | | 37 | 67 | | 30x3 |
| | SB 330/400/600 - 10 to 50 l | G 2 A | S 309 ¹ | 366715 | 4 | | 44 | 74 | | 48x3 |
| | SB 440/500 - 10 to 50 l | | S 308 ¹ | 376813 | | | | 115 | | |
| | | Connection with metric fine thread | M 30x1.5 | S 330 ¹ | 366735 | 4 | | 15 | 47 | 45 |
| | M 40x1.5 | | S 340 ¹ | 366736 | | | 20 | 51 | 60 | 43x3 |
| | M 50x1.5 | | S 350 ¹ | 366737 | | | | | 75 | 53x3 |

¹ Adaptor supplied with 4 off int. hex. screws M 16x45 (stock no. 615924). Tightening torque 175 Nm.

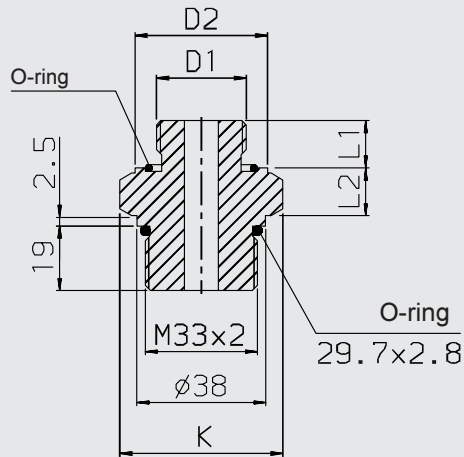
² Others on request

6.1.2 Adaptor for low pressure bladder accumulator



| Model | Accumulator type | Adaptor | Stock no. ¹ NBR/C-steel | Corresponding S - adaptor | Stock no. ¹ NBR/C-steel |
|----------------------|------------------|---------|---------------------------------------|------------------------------|---------------------------------------|
| SAF 10/20 and DSV 10 | SB35 | N500 | 367229 | S 13 | 369481 |
| SAF 32 | 2.5 to 50 l | N500 | 367229 | S 309 | 366715 |

6.1.3 Adaptor for diaphragm accumulator



| Model | Accumulator type | D1 Thread | Stock no. ¹ NBR/C-steel | Adaptor | K SW | L1 (mm) | L2 (mm) | D2 (mm) | O-ring |
|----------|---------------------------|--------------|---------------------------------------|---------|---------|------------|------------|------------|--------|
| SAF10/20 | SBO...E-0.075 to 1.4 l | G 1/2 A | 369485 | S 30 | 41 | 14 | 17.5 | 33 | 22x3 |
| | SBO...A6-0.1 to 210-1.3 l | | | | | | | | |
| DSV10 | SBO...E-2.0 to 3.5 l | G 3/4 A | 369486 | S 31 | 41 | 16 | 17.5 | 40 | 28x3 |
| | SBO...A6-400-1.3 to 4 l | | | | | | | | |

¹ Others on request

6.1.4 Adaptor for piston accumulator

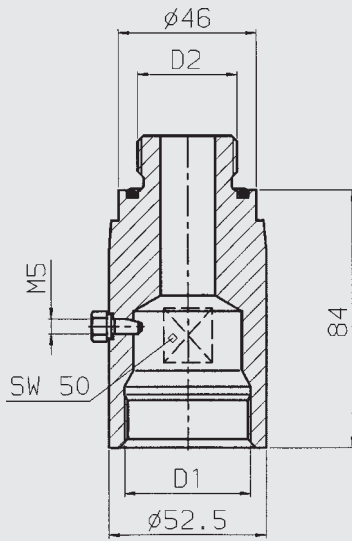


Diagram 5

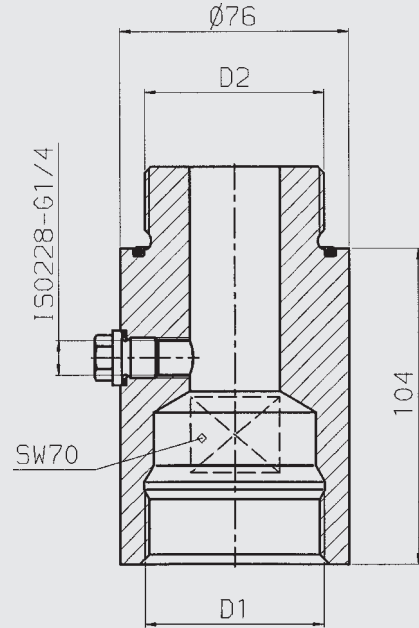
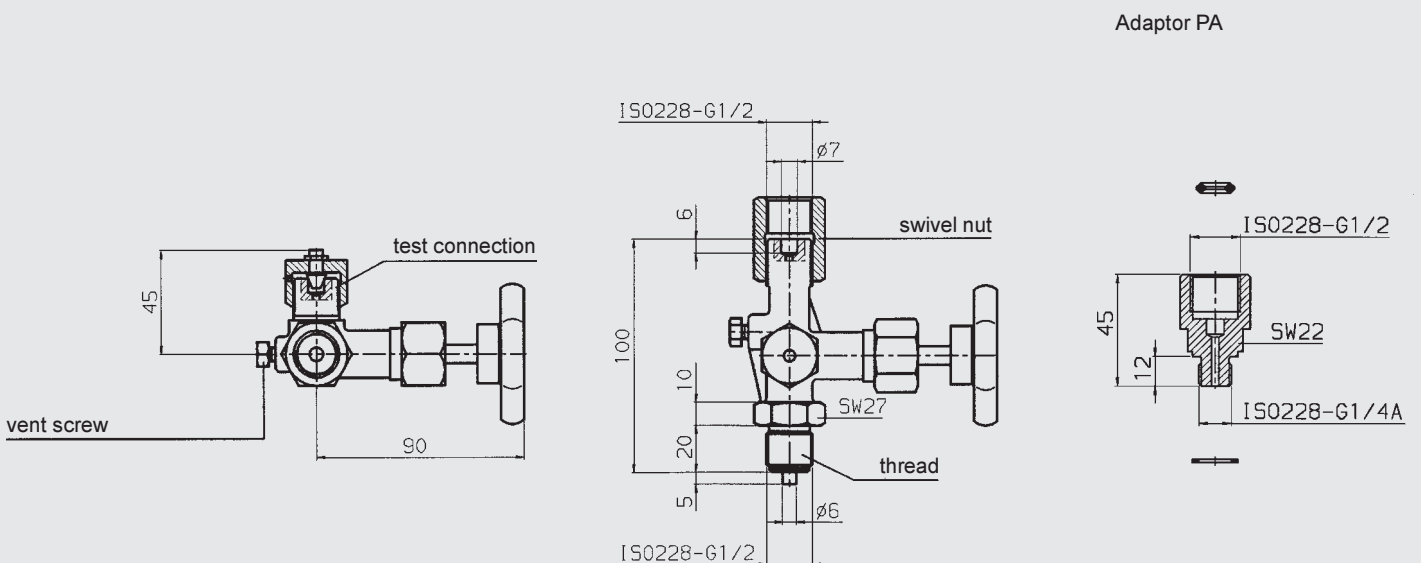


Diagram 6

| Model | Accumulator type | Adaptor | Stock no. ¹ NBR/C-steel | Diag. no. | D1 (mm) | D2 (mm) | O-ring | Corresponding S-adaptor | Stock no. ¹ NBR/C-steel |
|-----------|------------------------|---------|---------------------------------------|--------------|------------|------------|--------|----------------------------|---------------------------------------|
| SAF 10/20 | SK210/350 - 2.5 to 7.5 | K 406 | 2107672 | 5 | G 1 1/4 | G 1 | 35x3 | S 12 | 369480 |
| DSV 10 | SK210/350 - 10 to 45 | K 408 | 374931 | 6 | G 2 | G 1 1/2 | 53x3 | S 13 | 369481 |
| SAF 32 | SK210/350 - 50 to 120 | K 409 | 374933 | | | G 2 | 62x3 | S 309 | 366715 |

¹ Others on request

6.2 SHUT-OFF VALVE FOR PRESSURE GAUGES

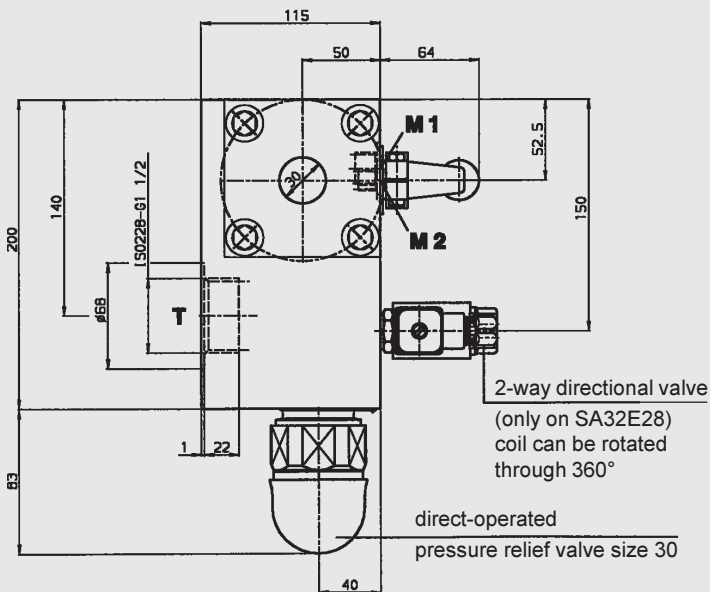
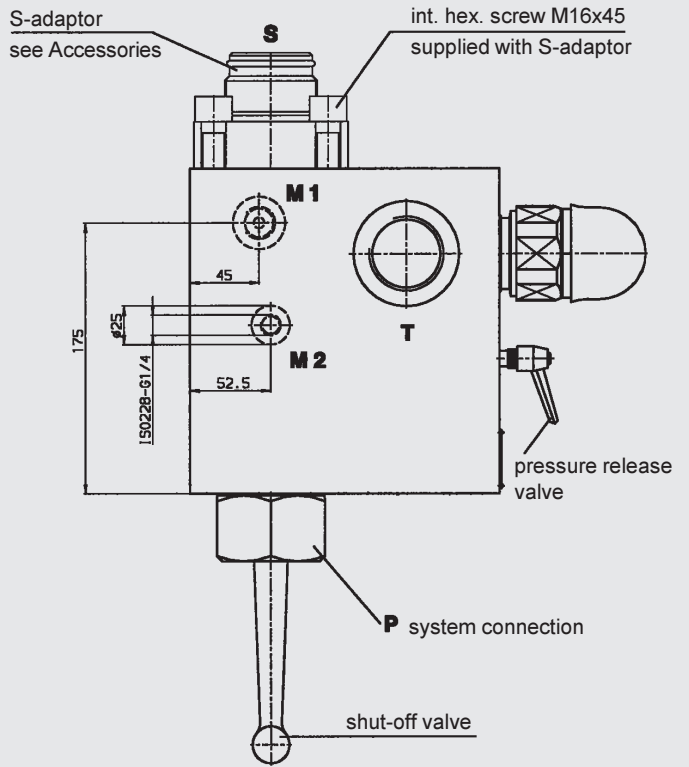
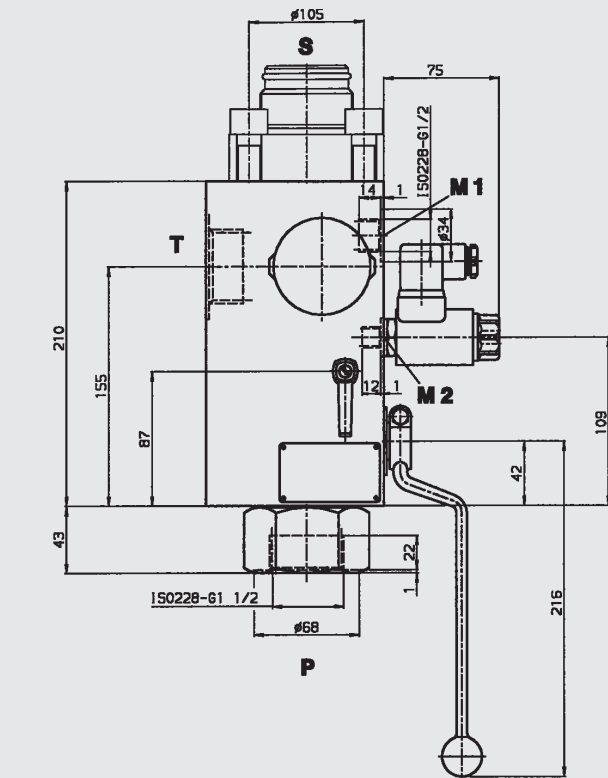


Consisting of shut-off valve AG (stock no. 611 903) with vent screw, swivel nut, thread and test connection to DIN 16271 as well as adaptor PA with seals (stock no. 370754).

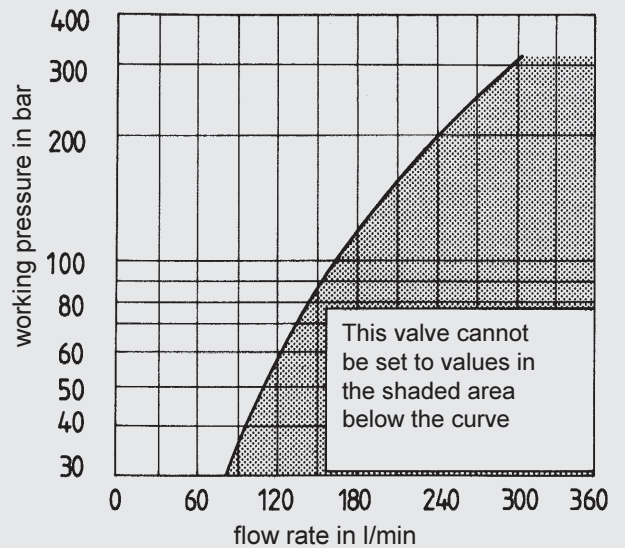
7. SPECIAL MODELS

7.1. TYPE SA 32 M (E) 28

with direct operated pressure relief valve size 30
(max. working pressure 315 bar)



Direct-operated pressure relief valve size 30



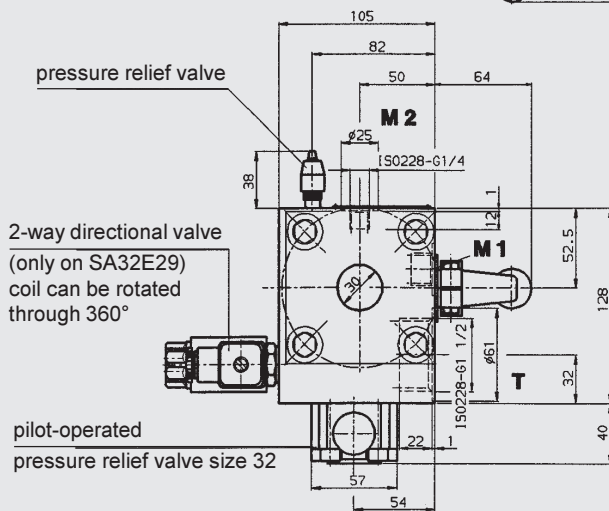
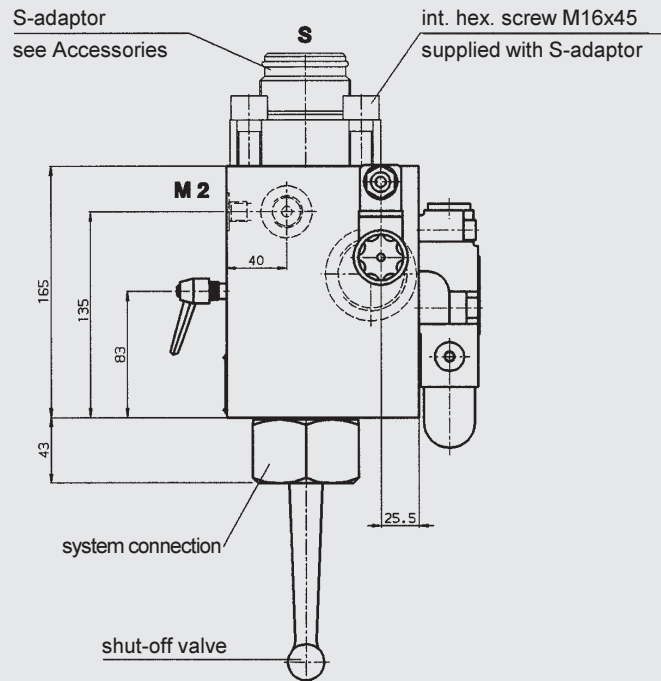
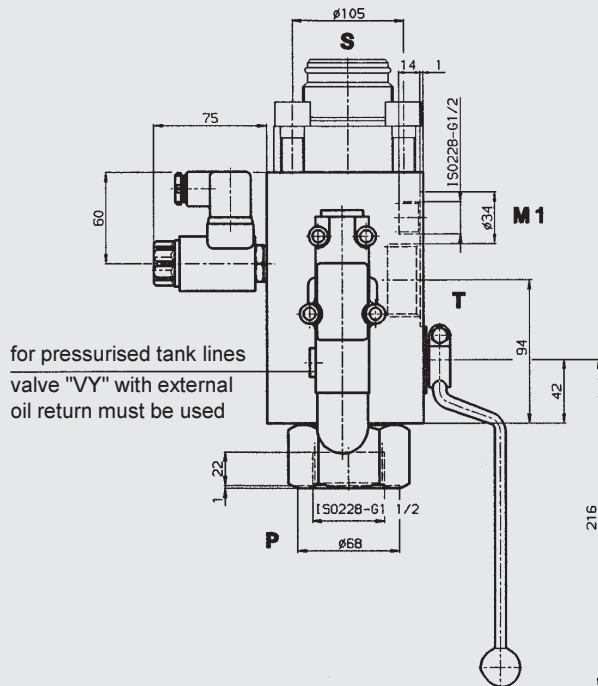
Two different models of the 2-way directional valve are available:

2SV5E2Y
(open when de-energised)

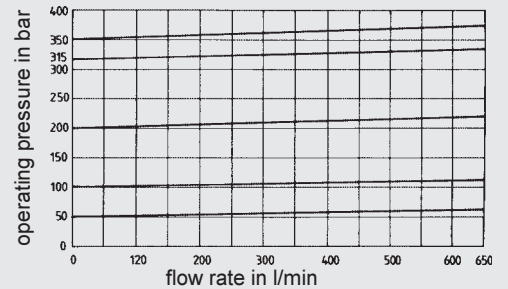
2SV5E2Z
(closed when de-energised)

| Type | Weight |
|---------------|--------|
| SA 32 M 28... | 38 kg |
| SA 32 E 28... | 39 kg |

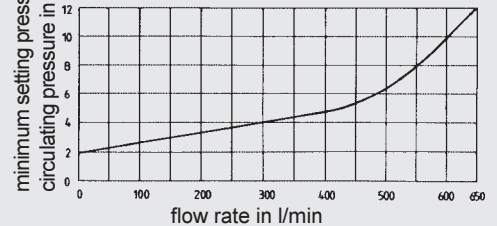
7.2 TYPE SA 32 M (E) 29
with pilot-operated pressure relief valve
(max. working pressure 330 bar)



Pilot-operated
pressure relief valve size 32



Lowest setting pressure in bar



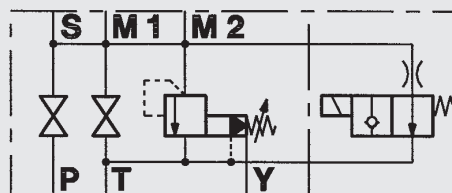
The safety and shut-off block SA 32 M(E) 29 is equipped with a pilot-operated pressure relief valve (size 32) for high flow rates (up to 600 l/min). For unpressurised tank lines, valve type "V" can be used, for pressurised tank lines, valve type "VY" with external oil return must be used.

Connections: P, T, M-thread ISO 228 (corresponds to DIN 259)

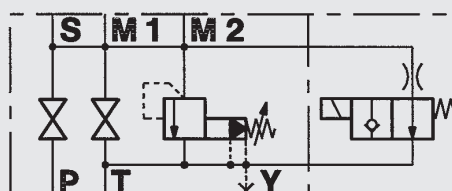
Two different models of the 2-way directional valve are available:

- 2SV5E2Y (open when de-energised)
- 2SV5E2Z (closed when de-energised)

SA 32 E 29 TV Y



SA 32 E 29 TV



| Type | Weight |
|---------------|---------|
| SA 32 M 29... | 22.5 kg |
| SA 32 E 29... | 23.5 kg |

7.3. SAFETY AND SHUT-OFF BLOCK FOR HIGH FLOW RATE

The basic design of the shut-off block is the same as the standard model.

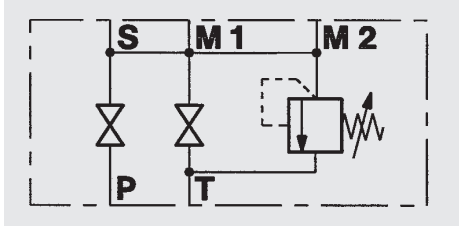
Technical specifications:

Type: SA50M60T...

Size: DN 50

Max. working pressure: 315 bar

Direct-operated
pressure relief valve size 30



7.4. SAFETY AND SHUT-OFF BLOCK FOR FRONT PANEL MOUNTING

The safety and shut-off block consists of a valve block, a built-in pressure relief valve, a main shut-off valve and a manually operated pressure release valve.

This block is mounted on a front panel with 3 M8 screws. Ports "P" and "T" are situated on the mounting side.

Advantages:

The compact design means that the block occupies a minimum of space and ensures minimum maintenance.

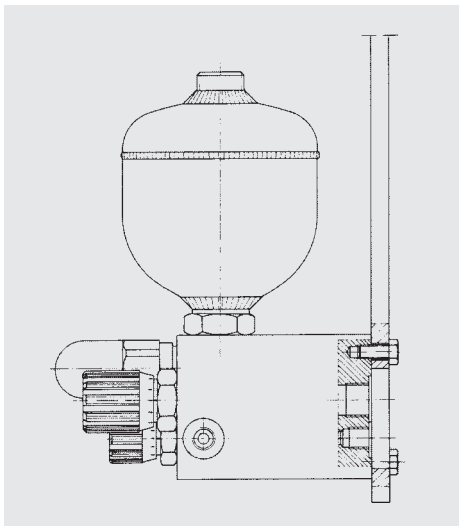
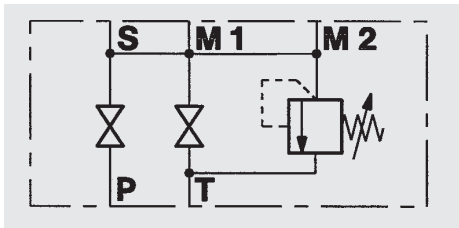
Technical specifications:

Type: SA 6M10T...

Size: DN 10

Max. working pressure: 350 bar

Direct-operated
pressure relief valve size 6



7.5. SAFETY AND SHUT-OFF BLOCK WITH 2-WAY CARTRIDGE VALVE (LOGIC ELEMENT OR LOGISTOR)

This safety and shut-off block consists of a valve block, a built-in pressure relief valve and a solenoid-operated 2-way cartridge valve which replaces the main shut-off valve.

According to the type of signal present, the oil flow from "P" to "S" is either closed or open.

Advantages:

In addition to its compact construction, this model is capable of rapid switching to control the oil flow.

Technical specifications:

Type: SA20A50T...

Size: DN 20

Max. working pressure: 210 bar

Direct-operated
pressure relief valve size 20

Type: SA32A50T...

Size: DN30

Max. working pressure: 210 bar

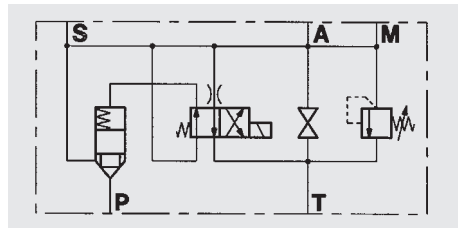
Direct-operated
pressure relief valve size 30

Type: SA40A50T...

Size: DN40

Max. working pressure: 210 bar

Direct-operated
pressure relief valve size 30



8. NOTE

All details in this brochure are subject to technical modifications.

For further technical details and dimensions on safety and shut-off blocks see technical information.