Safety & Shut-off Blocks HYDAD

SAF Series Safety & Shut-off Blocks



Description

HYDAC safety and shut-off blocks are designed to protect, shut-off, and discharge hydraulic accumulators or user units. The compact design simplifies the hydraulic system connection and offers the following advantages:

- minimum space compared to individual components
- reduced installation time
- various system connections
- system lockout

Safety & Shut-off Block Features

- 1 pressure relief valve (DB12)
- 2 pressure gauge (optional)
- 3 main shut-off valve
- 4 manual bleed valve
- 5 2-way solenoid operated bleed valve (optional)
- 6 accumulator

Circuit Diagram



Note: When using hydro-pneumatic accumulators for stored hazardous energy, HYDAC recommends the use of its Safety and Shut-off Block (SAF) with solenoid operated bleed valve.

Technical Specifications

Fluids

Mineral oil, hydraulic oil, water glycol, non-flammable fluids (other fluids upon request)

Temperature (for carbon steel) 5° to 180°F (-15° to 80°C)

Maximum Working Pressure up to 5800 psi (400 bar)

Construction

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 bleed valve. In addition, an optional solenoid operated bleed valve allows automatic pressure relief of the accumulator or user unit and therefore relief of the hydraulic system in an emergency or during shut-down. The necessary return line connection is provided in addition to the gauge connection.

Standard Models

Model with manually operated bleed valve

The basic model type "M" contains a manually operated bleed valve for manual pressure release of the accumulator.



Sizes: SAF 10 M SAF 20 M SAF 32 M

Model with solenoid operated bleed valve

In addition to the features of the type "M" block, the type "E" model also contains a solenoid operated bleed valve for automatic pressure release of the accumulator.



Connections

- S Accumulator Connection
- P System Connection
- T Tank Connection
- M1 Gauge Connection

Pressure Relief Valve (DB12)

This valve cannot be set to values in the shaded area



INNOVATIVE FLUID POWER HYDAC 5

Model Code

Model Codes containing RED selections are non-standard items – Contact HYDAC for information and availability Not all combinations are available

| | <u>SAF 20 E 1 6 Y 1 - N 250 C - S 60</u> |
|---|--|
| Series —— SAF | = Safety and Shut-off Block (Replaces older model SAB Blocks) |
| Size of Main S 10 20 32 | = DN 10 = DN 20 = DN 32 |
| /lodel ——— M E | = Manual discharge = Solenoid operated and manual discharge |
| Block Materia | = Carbon Steel |
| eal Material | = FPM (Fluoroelastomer) |
| -Way Solenoi | id Operated Bleed Valve |
| (omit) Y Z | nction = if manual discharge was selected = Normally Open (standard) (WSM06020Y) = Normally Closed (WSM06020Z) |
| Solenoid — (omit) 1 2 | if manual discharge was selected 0.8 AMP @ 24 VDC 0.2 AMP @ 110 VAC - 60 Hz |
| Pressure Relie N 250 N 350 T XXX | ef Valve (HYDAC DB12) = Adjustable up to max pressure of 3625 psi (250 bar) = Adjustable up to max pressure of 5075 psi (350 bar) = Factory set and wire sealed, certified Safety Relief Valve, non-adjustable (xxx is pressure in bar) |
| Connection Ty Threaded | ype (P,T,M1 ports) |
| A C | = BSPP (ISO 228) = SAE (ANSI B 1.1) (standard) |
| Flanged (SAF 3 E F | 32 only) = SAE 2" – 3000 psi (Code 61) = SAE 1-1/2" – 6000 psi (Code 62) |
| | S port, accumulator connection) |
| For Sizes | SAE (connection type C) BSPP (connection type A) S 60 = 1 1/16"-12UN (-12) S 10 = G3/4" |
| 10 & 20 | $\begin{array}{llllllllllllllllllllllllllllllllllll$ |
| For Size 32 | S 620 = 1 5/8"-12UN S 309 = G2" S 630 = 1 7/8"-12UN |
| .ocking Devic | e (if required) |

Safety & Shut-off Blocks HYDAC

Dimensions SAF 10 M/E...C

| Turne | Approximate Weight | | | |
|----------|--------------------|--------|--|--|
| Туре | kg | (lbs.) | | |
| SAF 10 M | 4.2 | (9.3) | | |
| SAF 10 E | 4.6 | (10.1) | | |

Dimensions in millimeters.

Note: for "M" Type block the 2-way directional valve is replaced with a plug



158

Dimensions are for general information only, all critical dimensions should be verified.

SAF 20 M/E...C

| Turne | Approximate Weight | | | |
|----------|--------------------|--------|--|--|
| Туре | kg | (lbs.) | | |
| SAF 20 M | 6.8 | (15.0) | | |
| SAF 20 E | 7.2 | (15.8) | | |

Dimensions in millimeters.

Note: for "M" Type block the 2-way directional valve is replaced with a plug



Dimensions are for general information only, all critical dimensions should be verified.

INNOVATIVE FLUID POWER | HYDAD 55

SAF 32 M/E...C

| Tupo | Approximate Weight | | | |
|----------|--------------------|--------|--|--|
| Туре | kg | (lbs.) | | |
| SAF 32 M | 12.0 | (26.4) | | |
| SAF 32 E | 12.4 | (27.2) | | |

Dimensions in millimeters.

Note: for "M" Type block the 2-way directional valve is replaced with a plug



Dimensions are for general information only, all critical dimensions should be verified.

SAF 32 M/E...E

| Turne | Approximate Weight | | | |
|----------|--------------------|--------|--|--|
| Туре | kg | (lbs.) | | |
| SAF 32 M | 15.0 | (33.1) | | |
| SAF 32 E | 15.4 | (33.9) | | |

*Hexagonal socket head cap screws M12x35 - 8.8 SCHS (HYDAC Part No. 602100) have to be ordered separately

Dimensions in millimeters

Note: for "M" Type block the 2-way directional valve is replaced with a plug



Dimensions are for general information only, all critical dimensions should be verified.

Dimensions SAF 32 M/E...F

| Turne | Approximate Weight | | | |
|----------|--------------------|--------|--|--|
| Туре | kg | (lbs.) | | |
| SAF 32 M | 15.0 | (33.1) | | |
| SAF 32 E | 15.4 | (33.9) | | |

*Hexagonal socket head cap screws M16x55 - 8.8 SCHS (HYDAC Part No. 00601496) have to be ordered separately

Dimensions in millimeters Note: for "M" Type block the 2-way directional valve is replaced with a plug



S Adapters





| Type SAF | Accumulator Type | Adapter | Fig. | Thread | А | В | С | D | E | F |
|--------------|--|---------|------|--------------|----|-----|----|----|----|----|
| SAF 10/20 | SB330-Size 1 / SBO-Size 2 to 3.5 | S 60 | 1 | 1 1/16-12 UN | 32 | 41 | 55 | 14 | 19 | 15 |
| | SBO-Size 1.4, 29 3.5 SK280-100mm bore | S 61 | 1 | 1 5/16-12 UN | 38 | 41 | 55 | 20 | 19 | 15 |
| | SB330-Size 4 to 6 / SB600-Size 1 to 4 | S 62 | 1 | 1 5/8-12 UN | 48 | 66 | 57 | 23 | 19 | 15 |
| | SB330/600-Size 10 to 54 | S 63 | 1 | 1 7/8-12 UN | 54 | 66 | 57 | 23 | 19 | 15 |
| | SBO-Size 0.32 to 1.4 | S 64 | 1 | 3/4-16 UNF | 23 | 41 | 51 | 10 | 15 | 11 |
| SAF 32 | SB330-Size 4 to 6 / SB600-Size 1 to 4 | S 620 | 2 | 1 5/8-12 UN | 48 | 100 | 49 | 22 | 19 | 15 |
| | SB330/600-Size 10 to 54 | S 630 | 2 | 1 7/8-12 UN | 54 | 100 | 49 | 30 | 19 | 15 |

Dimensions In millimeters Dimensions are for general information only, all critical dimensions should be verified.

57

Pressure Drop Charts

Through Main Shut-off Valve



Through Solenoid Valve



Safety & Shut-off Blocks - Spare Parts

Seal Kits & Repair Kits

Repair Kits

| Series | Part Number |
|--------|---------------|
| SAF 10 | 3154715 (FPM) |
| SAF 20 | 3154716 (FPM) |
| SAF 32 | 3154717 (FPM) |

O-Ring (5) Ball Thrust Washer O-Ring (1) Spindle Ball Seals O-Ring (3) Set Screw **Backup Ring** O-Ring Handle O-Ring

Seal Kit (includes parts marked in red)

| Series | Part Number |
|--------|---------------|
| SAF 10 | 3154712 (FPM) |
| SAF 20 | 3154713 (FPM) |
| SAF 32 | 3154714 (FPM) |



Dimensions for Spare Parts

| Item | SAF 10 | SAF 20 | SAF 32 |
|-----------------|-----------------|-----------------|-----------------|
| O-Ring (1) | 10 x 2 | 15 x 2.5 | 20 x 3 |
| O-Ring (2) | 6 x 2 | 6 x 2 | 6 x 2 |
| O-Ring (3) | 21 x 2 | 34 x 2.5 | 53 x 2.5 |
| O-Ring (4) | 18 x 2 | 18 x 2 | 18 x 2 |
| O-Ring (5) | 29.7 x 2.8 | 29.7 x 2.8 | 37.2 x 3 |
| Usit-ring | 18.3 x 21.5 x 1 | 18.3 x 21.5 x 1 | 18.3 x 21.5 x 1 |
| Backup Ring (1) | 23.47 x 2.62 | 23.47 x 2.62 | 23.47 x 2.62 |
| Plug (1) | 7/16-20UNF | 3/4-16UNF | 3/4-16UNF |
| Plug (2) | N/A | N/A | G1/8 |

O-ring dimensions are in mm

Solenoid

| 2-way solenoid operated bleed valve (without coil) | Old 2SV5 | New WSM |
|--|----------|---------|
| Normally Open (for SAFE16Y) | N/A | 3055295 |
| Normally Closed (for SAFE16Z) | N/A | 3055276 |

| Coil Kit for 2-way solenoid operated bleed valve | Old 2SV5 | New WSM |
|--|----------|---------|
| 24 V DC | 715003 | 2083644 |
| 110 V AC | 715033 | 2083645 |

Note: For complete solenoid replacement, both the 2-way solenoid valve and the coil kit are required 2SV5 coils and WSM coils are not interchangeable. When replacing a 2SV5 with a WSM you must also replace the coil with the WSM design.

Spindle Manual Bleed Valve, Repair Kit

| Consists of Spindle, Handle, Ball, O-Ring, and Set Screw | |
|--|---------------|
| Part No. | 2115649 (FPM) |

