

## SAF Series

### Safety & Shut-off Blocks



#### Description

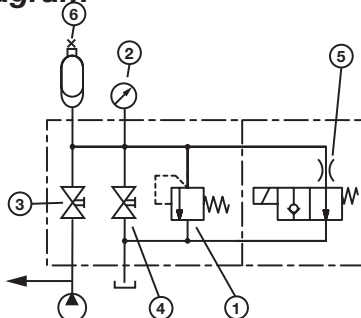
HYDAC safety and shut-off blocks are designed to protect, shut-off, and discharge hydraulic accumulators or user units. The compact design simplifies the hydraulic system connection and offers the following advantages:

- 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)

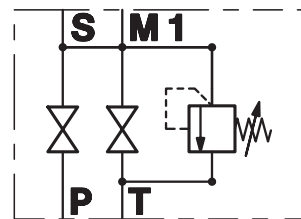
#### Construction

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

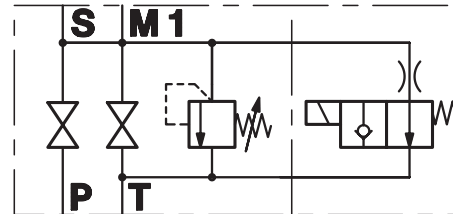
The basic model type "M" contains a manually operated bleed valve for manual pressure release of the accumulator.



**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.



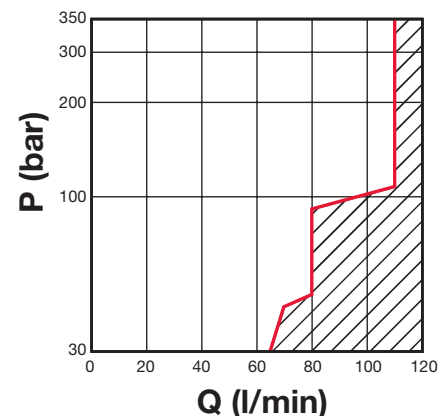
**Sizes:** SAF 10 E  
SAF 20 E  
SAF 32 E

#### 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



## Model Code

Model Codes containing RED selections are non-standard items – Contact HYDAC for information and availability

Not all combinations are available

														SAF	20	E	1	6	Y	1	-	N	250	C	-	S	60	L
<b>Series</b>																												
SAF		= Safety and Shut-off Block <i>(Replaces older model SAB Blocks)</i>																										
<b>Size of Main Shut-off Valve</b>																												
10		= DN 10																										
20		= DN 20																										
32		= DN 32																										
<b>Model</b>																												
M		= Manual discharge																										
E		= Solenoid operated and manual discharge																										
<b>Block Material</b>																												
1		= Carbon Steel																										
<b>Seal Material</b>																												
6		= FPM <i>(Fluoroelastomer)</i>																										
<b>2-Way Solenoid Operated Bleed Valve</b>																												
<b>Operating Function</b>																												
<i>(omit)</i>		= if manual discharge was selected																										
Y		= Normally Open <i>(standard)</i> (WSM06020Y)																										
Z		= Normally Closed (WSM06020Z)																										
<b>Solenoid</b>																												
<i>(omit)</i>		= if manual discharge was selected																										
1		= 0.8 AMP @ 24 VDC																										
2		= 0.2 AMP @ 110 VAC – 60 Hz																										
<b>Pressure Relief Valve</b> <i>(HYDAC DB12)</i>																												
N 250		= Adjustable up to max pressure of 3625 psi (250 bar)																										
N 350		= Adjustable up to max pressure of 5075 psi (350 bar)																										
T XXX		= <b>Factory set and wire sealed, certified Safety Relief Valve, non-adjustable</b> <i>(xxx is pressure in bar)</i>																										
<b>Connection Type (P,T,M1 ports)</b>																												
<b>Threaded</b>																												
A		= BSPP (ISO 228)																										
C		= SAE (ANSI B 1.1) <i>(standard)</i>																										
<b>Flanged</b> <i>(SAF 32 only)</i>																												
E		= SAE 2" – 3000 psi <i>(Code 61)</i>																										
F		= SAE 1-1/2" – 6000 psi <i>(Code 62)</i>																										
<b>S Adapter</b> <i>(for S port, accumulator connection)</i>																												
<i>(required only for safety and shut-off blocks with threaded connection)</i>																												
<b>For Sizes</b>		<b>SAE</b> <i>(connection type C)</i>										<b>BSPP</b> <i>(connection type A)</i>																
		S 60 = 1 1/16"-12UN (-12)										S 10 = G3/4"																
		S 61 = 1 5/16"-12UN (-16)																										
		S 62 = 1 5/8"-12UN (-20)										S 11 = G1"																
		S 63 = 1 7/8"-12UN (-24)										S 12 = G1 1/4"																
<b>For Size</b>		S 64 = 3/4"-16UNF (-8)										S 13 = G2"																
<b>For Size</b>		S 620 = 1 5/8"-12UN										S 309 = G2"																
		S 630 = 1 7/8"-12UN																										
<b>Locking Device</b> <i>(if required)</i>																												
L		= Locking device																										

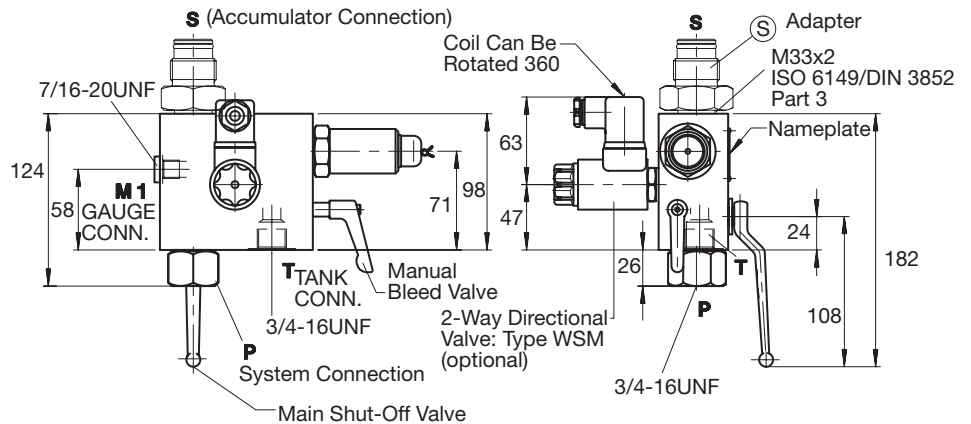
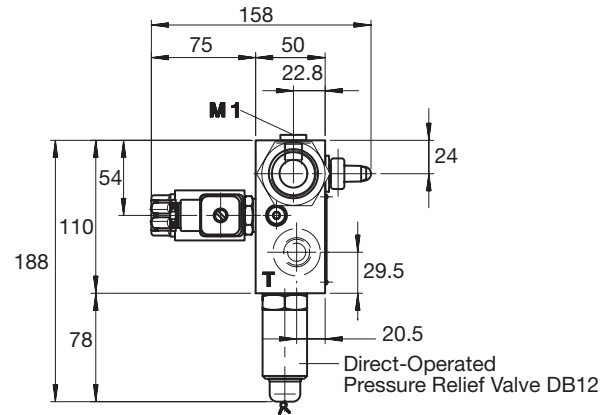
## Dimensions

### SAF 10 M/E...C

Type	Approximate Weight	
	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



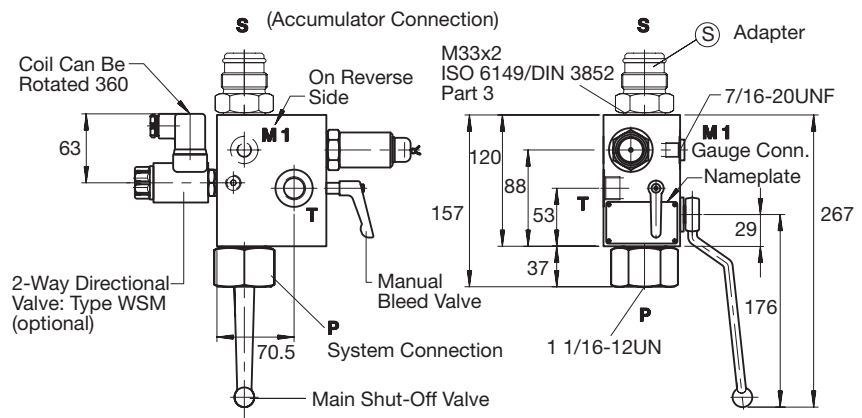
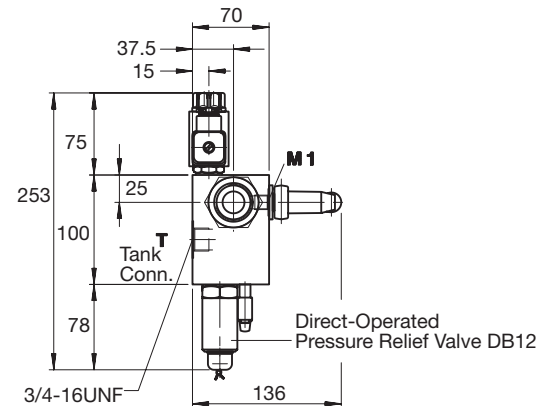
Dimensions are for general information only, all critical dimensions should be verified.

### SAF 20 M/E...C

Type	Approximate Weight	
	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



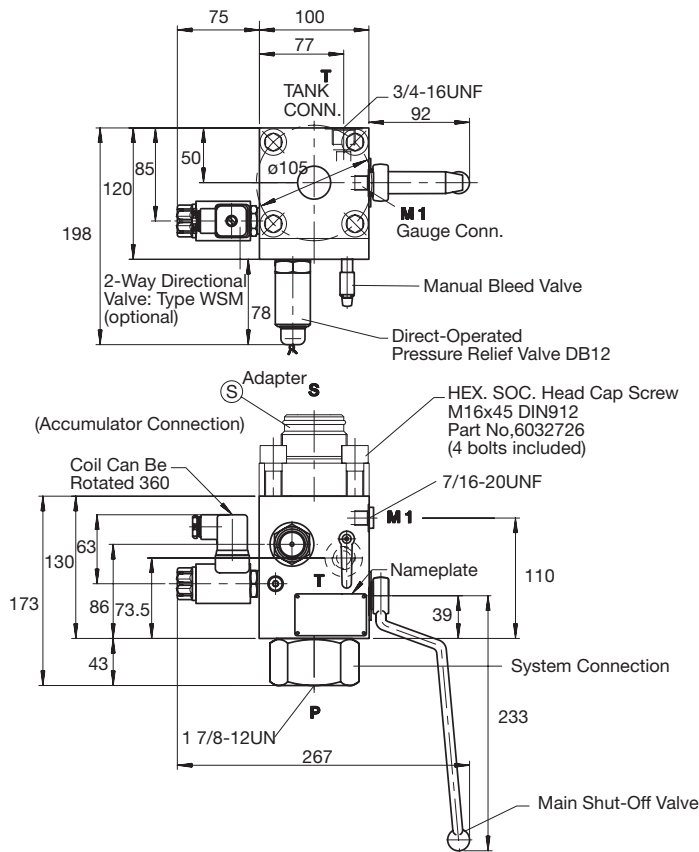
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## SAF 32 M/E...C

Type	Approximate Weight	
	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.

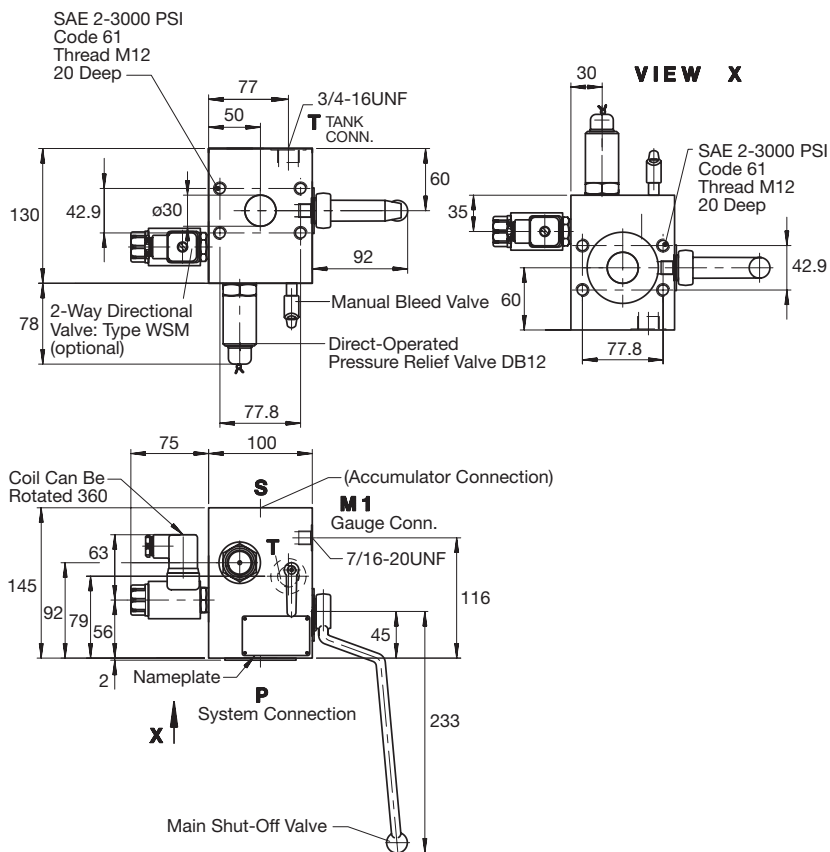
## SAF 32 M/E...E

Type	Approximate Weight	
	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,  
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## Dimensions

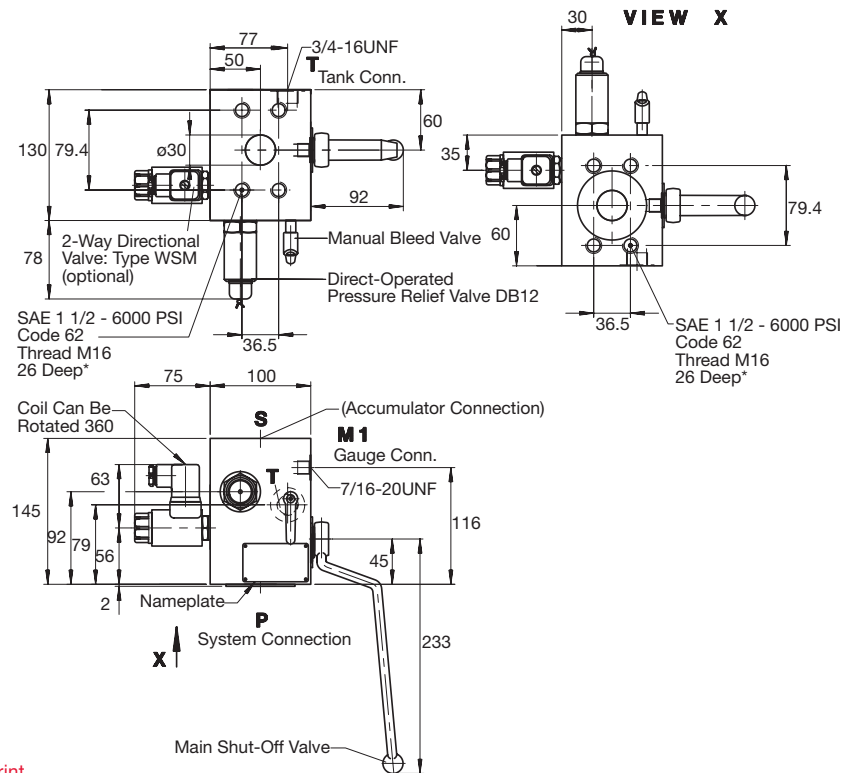
### SAF 32 M/E...F

Type	Approximate Weight	
	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



Dimensions are for general information only,  
all critical dimensions should be verified by requesting a certified print.

## S Adapters

Fig. 1

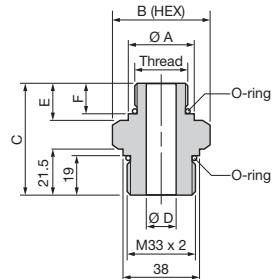
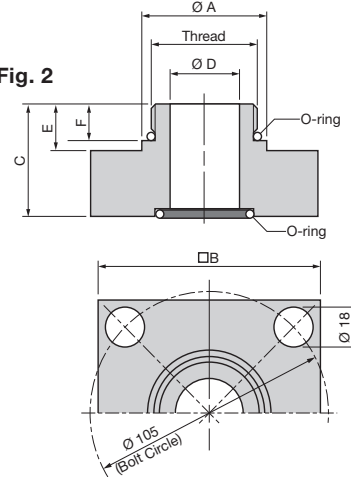


Fig. 2



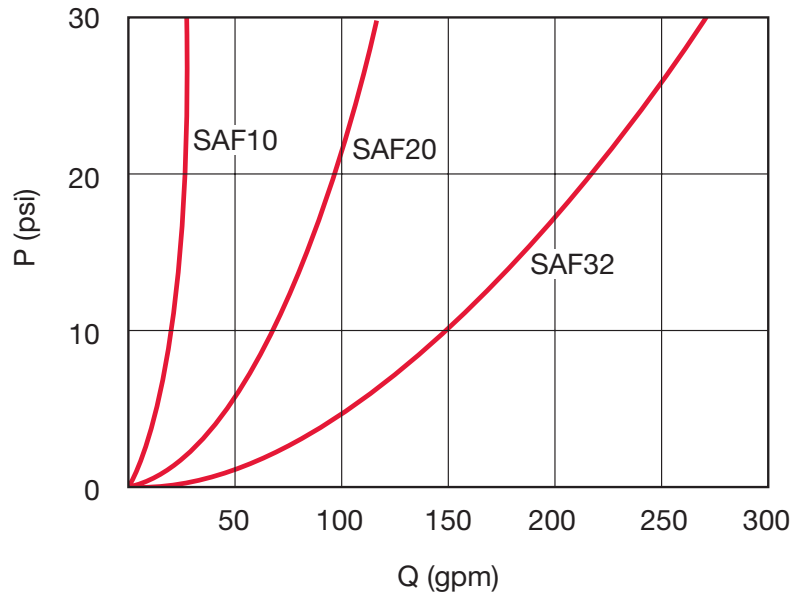
Type SAF	Accumulator Type	Adapter	Fig.	Thread	A	B	C	D	E	F
SAF 10/20	SB330-Size 1 / SBO-Size 2 to 3.5	S 60	1	1 1/16-12 UN	32	41	55	14	19	15
	SBO-Size 1.4, 29 3.5 SK280-100mm bore	S 61	1	1 5/16-12 UN	38	41	55	20	19	15
	SB330-Size 4 to 6 / SB600-Size 1 to 4	S 62	1	1 5/8-12 UN	48	66	57	23	19	15
	SB330/600-Size 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

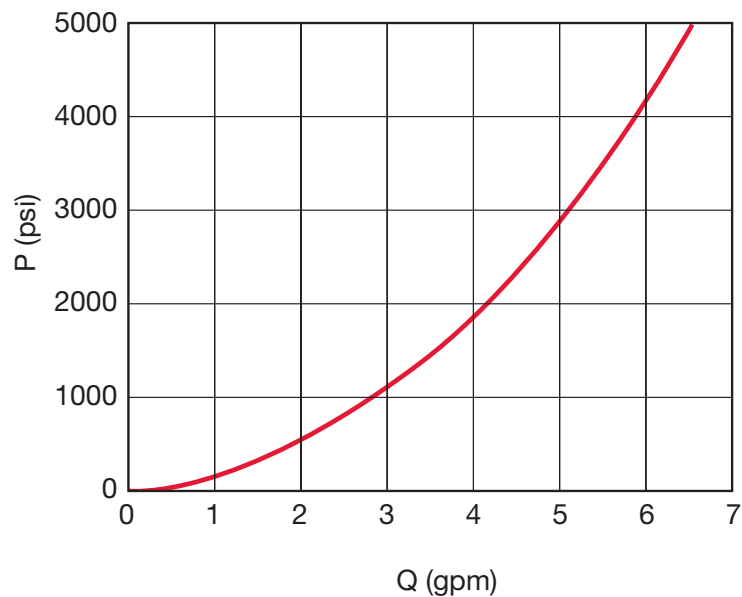
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## Pressure Drop Charts

### Through Main Shut-off Valve



### Through Solenoid Valve

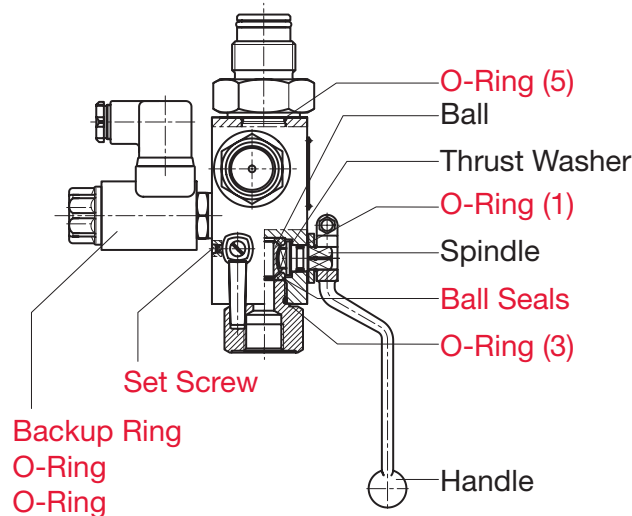


## Safety & Shut-off Blocks - Spare Parts

### Seal Kits & Repair Kits

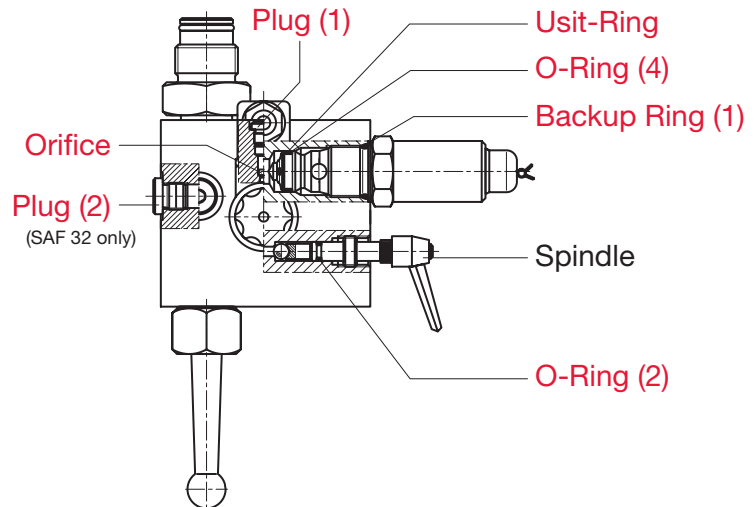
#### Repair Kits

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



#### 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 SAF...E16Y)	N/A	3055295
Normally Closed (for SAF...E16Z)	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)
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