

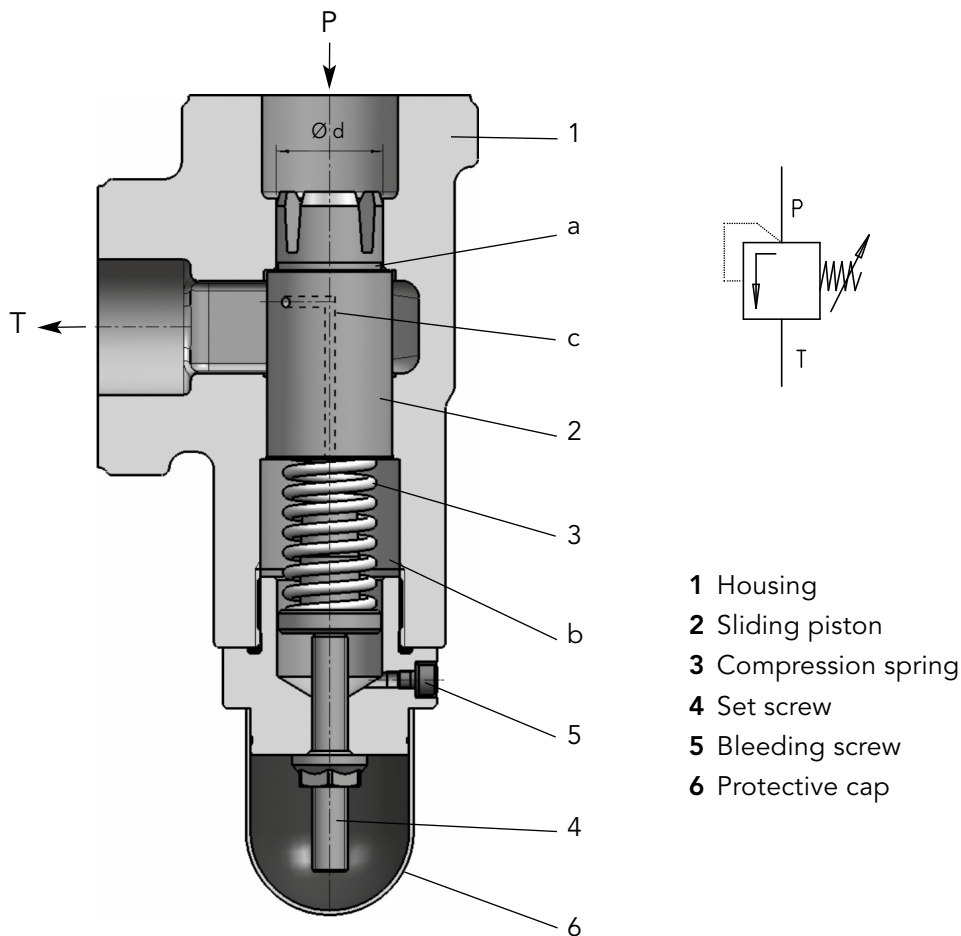
- | Gear Pumps
- | Flow Measurement
- | Hydraulics
- | Valves

Pressure Relief Valves

SPV, SPVF
direct operated



Construction



- 1 Housing
- 2 Sliding piston
- 3 Compression spring
- 4 Set screw
- 5 Bleeding screw
- 6 Protective cap

Description

The pressure relief valve SPV/SPVF is a direct spring sliding piston valve. It is intended for mounting in pipelines and is suitable to safeguard low pressure hydraulic circuits.

The pipe connection is to be effected either by SAE-mounting surfaces (3000 psi) or by Whitworth pipe threads "G".

Notes

- When using strongly aerated media, the valve should preferably be mounted **vertical with the setscrew facing down**.
- The tank connection **T** of the valve must not be exposed to underpressure when subject to flow ($Q > 0$), as in this case the valve cannot be ventilated, possibly resulting in unwanted vibrations and noise. If this is unavoidable, the special solution (S33) provides an alternative.

Valve Construction

The sliding piston **2** is pressed against the annulated area **a** by the compression spring **3**. Thus the pressure connection **P** is separated from the tank connection **T** by sealing the diameter **d**. As soon as the opening pressure **p** is achieved, adjusted by the set screw **4**, the sliding piston **2** releases the fluid flow to the tank connection. The spring chamber **b** is pressure compensated by the bore **c**. When starting-up the valve the spring chamber **b** must be bled by the bleeding screw **5**, (hex. socket width: 4). The pressure relief valves are available in different pressure setting ranges because, due to their springrates, each of the compression springs can only cover a limited pressure setting range.

ATEX

Explosion protection –

Field of application for the pressure relief valves.

The valve is used to secure low pressure hydraulic circuits with various flammable and non-flammable fluids.

They can be used:

- a In Zone 2 (Gas-Ex, Category 3G)
in the explosion groups IIA, IIB and IIC
- b In Zone 22 (Dust-Ex, Category 3D),
in the explosion groups III A and III B
at non-conductive dusts with a minimum
ignition energy >1mJ
- c In Zone 1 (Gas-Ex, Category 2G)
in explosion groups IIA, IIB and IIC
- d In Zone 21 (Dust-Ex, Category 2D)
in the explosion groups III A and III B
at non-conductive dusts with a minimum
ignition energy >1mJ

The qualification for the surface temperature is T4;
for all gases, vapours, mists with an ignition
temperature > 135 °C, the operating materials are not an
ignition source.

In the Dust-Ex area, 135 °C is the reference temperature for
further considerations regarding the safety margin to the
glow temperature, etc. (can only be decided by the opera-
ting company).

The permissible ambient temperature ranges from

– 20 °C ≤ Ta ≤ 60 °C - NBR, CR

– 15 °C ≤ Ta ≤ 60 °C - FKM, HNBR

- Flashpoint, minimum ignition temperature and media-
specific attributes must be complied with by the
operating organisation.

- No not allow any explosive mixture to be present inside
the unit.

Marking according to the Machine Directive 2014/34/EU

Manufacturer	KRACHT GmbH D-58791 Werdohl
Type designation	SPV...
Consignment no.,	
Year of manufacture	xxxxxx/xx-xxx xx.xx
Tech. File Ref.	TRR: 04.02X
Protection type marking	⊕ II 2 GD EEx c IIC (T4) or ⊕ II 2 GD EEx c (T4)

Characteristics

Product name / Nominal size	SPV = NG 10 SPVF = NG 20... 80
Construction	Slide valve / directly-operated (Poppet valve on request)
Mounting	Pipe connection / panel mounting
Pipe connection	Flange connection ISO 6162-1 (SAE J518) Pipe thread ISO 228-1
Dimensions	Pages 8, 10, 11, 12
Weight	Pages 8, 10, 11, 12
Fitting position	any, pressure setting screw below preferred (see page 2)
Housing material	EN-GJL-300 (EN-GJS-400-15)
Type setting	Mechanical Set screw Knob
Accessories	Welding flange SAE (3000 psi) Page 12
Δp -Q-Characteristics	Page 5 and 6
Hydraulic fluids	Hydraulic oils acc. to DIN 51 524/25 (other fluids on request)

Hydraulic Characteristics


Nominal size		10	20/25	32/40	50	80
Max. flow rate Q	l/min	40	90	450	550	800
Nom. working pressure	bar	30	30	25	25	20
Setting range response pressure	$p_{v \min}$	bar	0.5	0.5	0.5	0.5
	$p_{v \max}$	bar	30	40	25	25
Media temperature	NBR	$\vartheta_m = -20^\circ\text{C} \dots 90^\circ\text{C}$ (Design A + E)				
	FKM	$\vartheta_m = -15^\circ\text{C} \dots 150^\circ\text{C}$ (Design C + K)				
	Copper	$\vartheta_m = -20^\circ\text{C} \dots 220^\circ\text{C}$ (Design B + F)				
	Soft iron	$\vartheta_m = -40^\circ\text{C} \dots 220^\circ\text{C}$ (Design D)				
Ambient temperature		$\vartheta_u = -20^\circ\text{C} \dots 60^\circ\text{C}$ (NBR, copper, soft iron)				
		$\vartheta_u = -15^\circ\text{C} \dots 60^\circ\text{C}$ (FKM)				

Viscosity range	ν_{\min}	mm ² /s	1.2
	ν_{\max}	mm ² /s	1000 (standard) higher viscosities on request

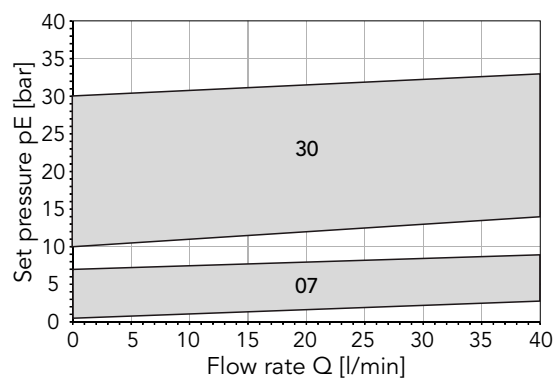
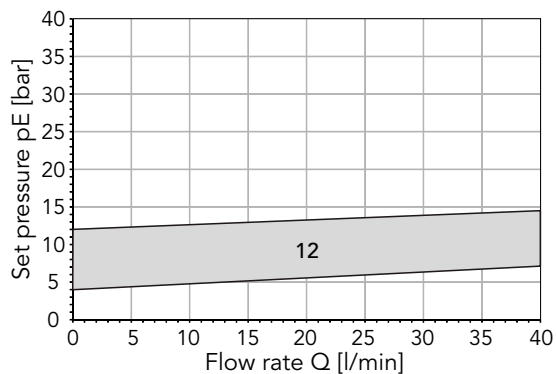
Note:

Metallic protective cap (cap nut) in ATEX version

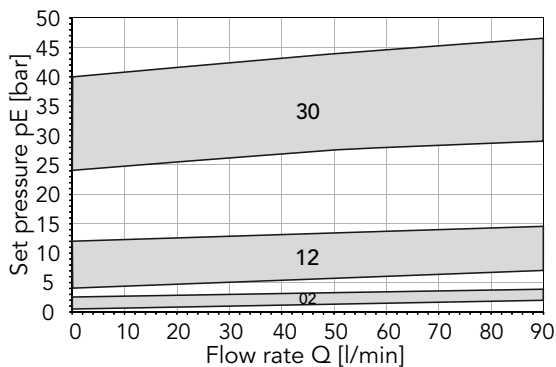
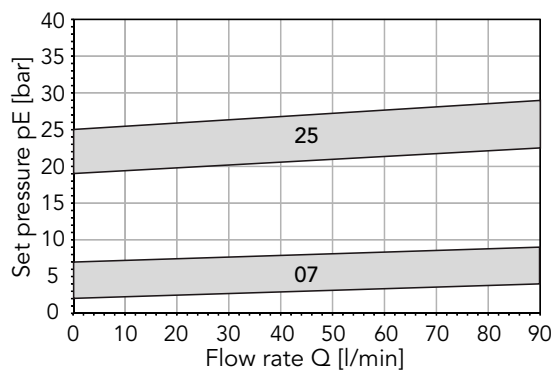
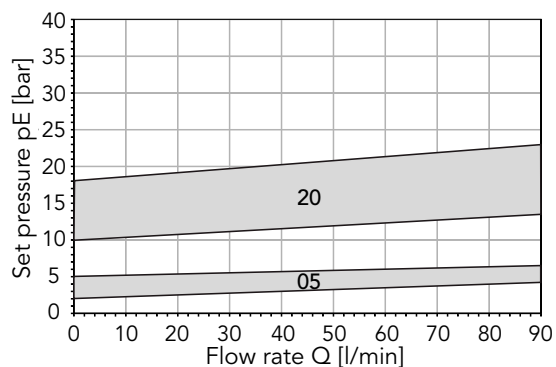
Characteristic Curves $p_E - Q$ Viscosity = 34 mm²/s

 = possible setting range of the pressure stage

SPV 10

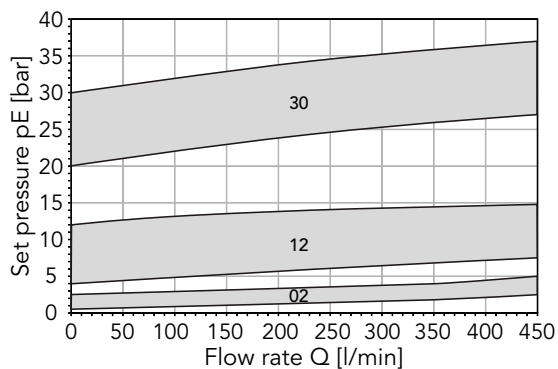
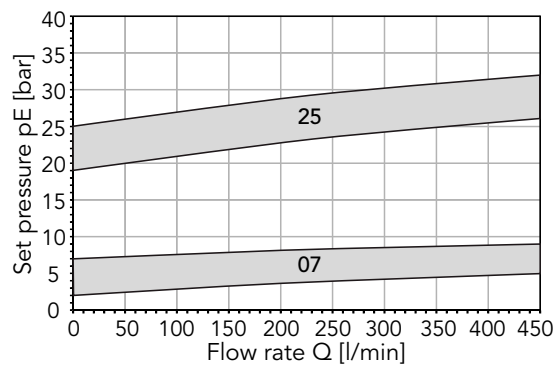
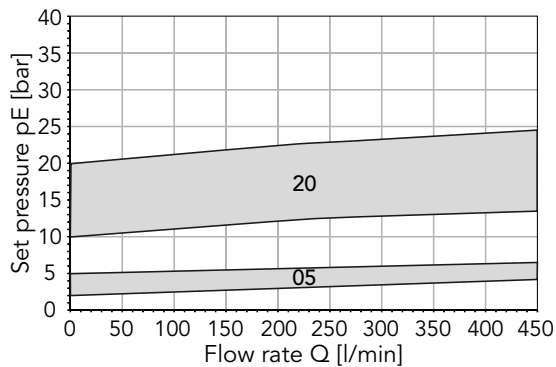


SPVF 20/25

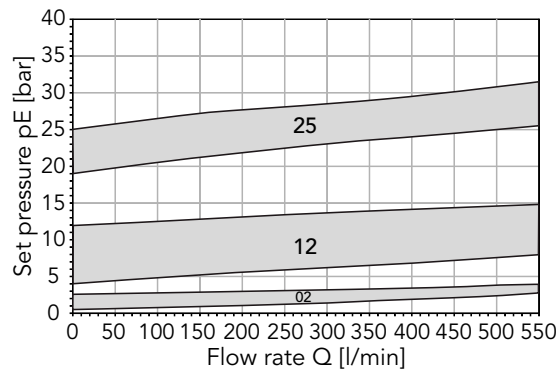
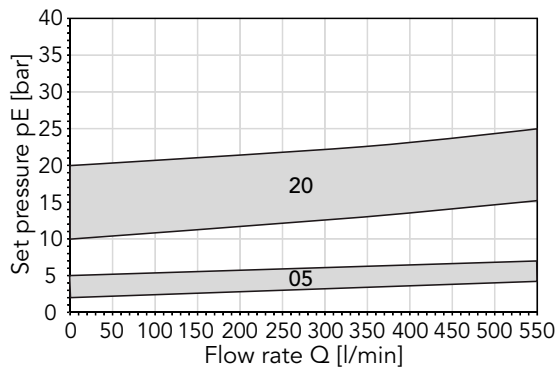


Characteristic Curves $p_E - Q$ Viscosity = 34 mm²/s

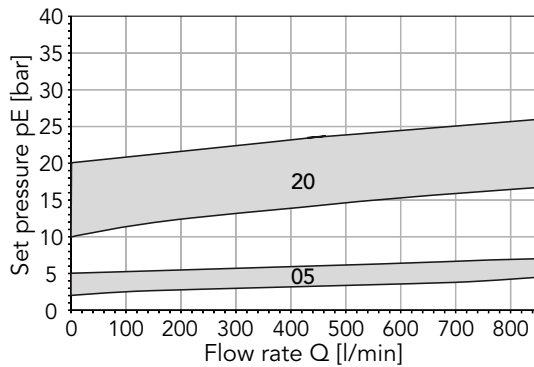
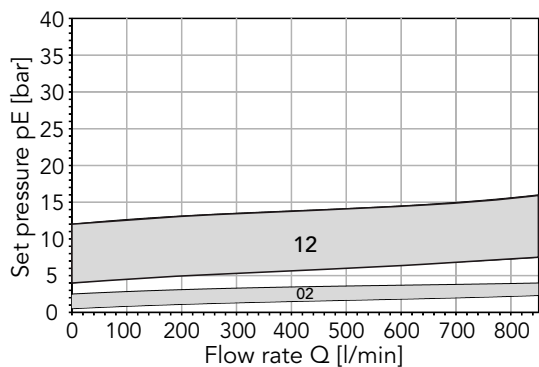
SPVF 32/40



SPVF 50

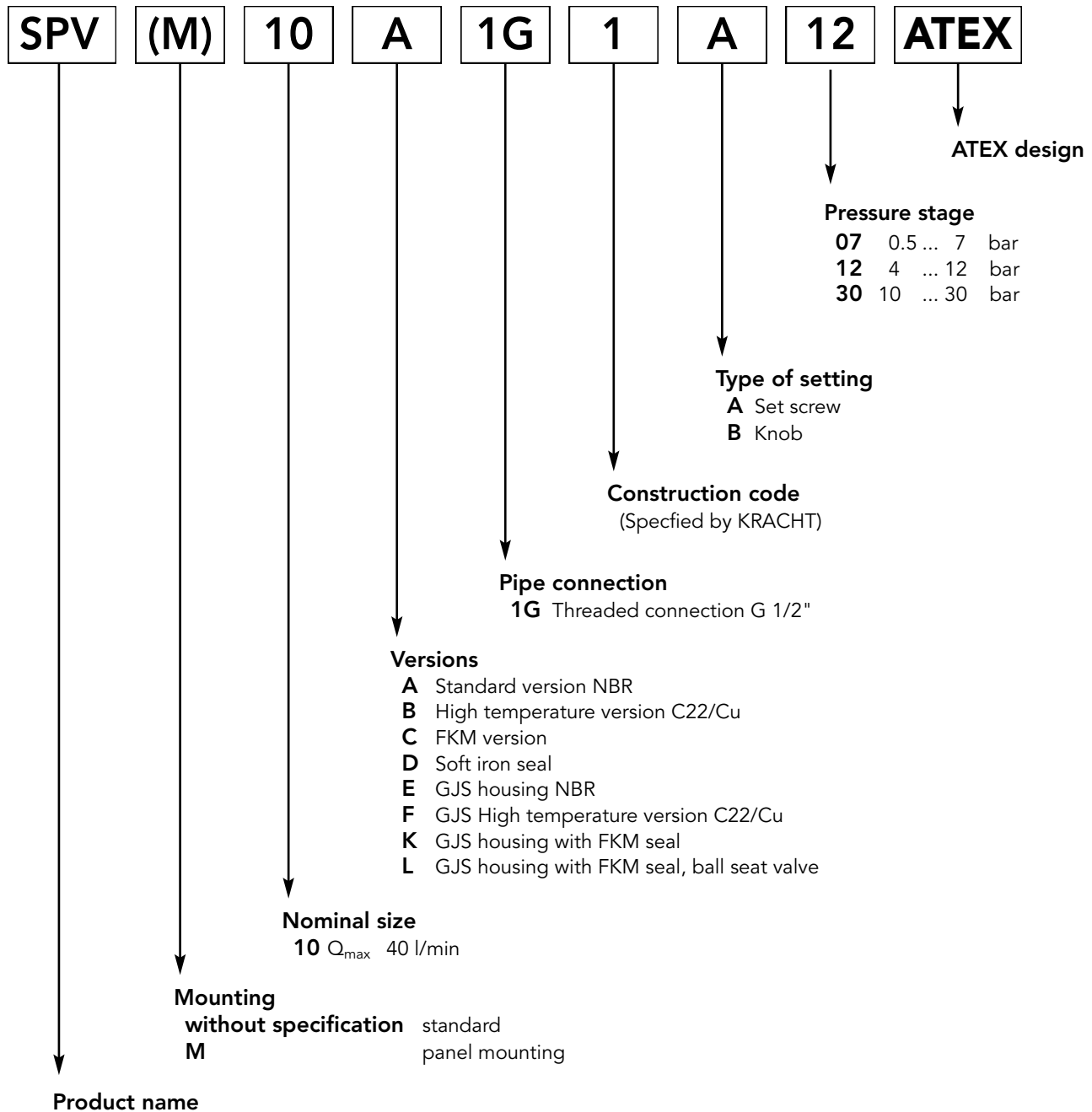


SPVF 80



Type Key

Ordering example NG 10



Ordering example: SPV 10 B1G 1 A 12

Pressure relief valve, directly spring operated, nominal size 10 (Q_{max} 40 l/min), high temperature version (up to +220 °C) with threaded connection G 1/2, pressure setting by set screw, pressure setting range 4 up to 12 bars

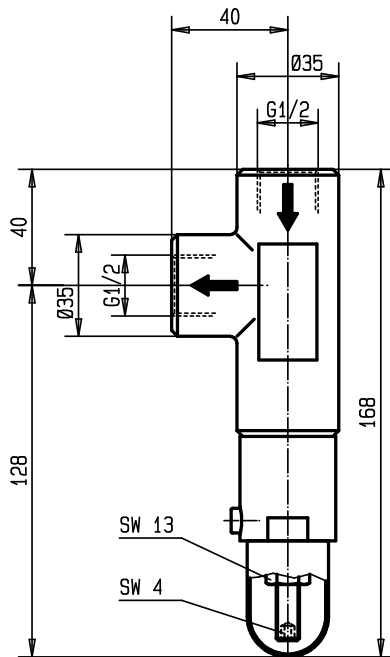
Ordering example: SPVM 10 A1G 1 B 30

Pressure relief valve, directly spring operated for panel mounting, nominal size 10 (Q_{max} 40 l/min), standard version with threaded connection G 1/2, pressure setting by knob, pressure setting range 10 up to 30 bars

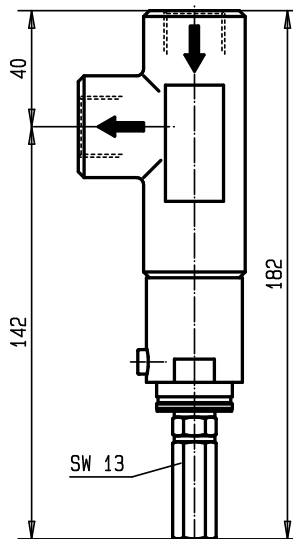
Dimensions (in mm)

Ordering codes

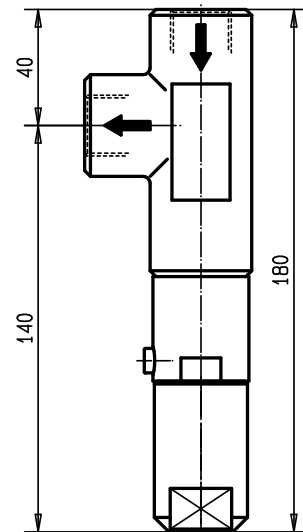
SPV 10
A
C
E
K
L
1G1 A.



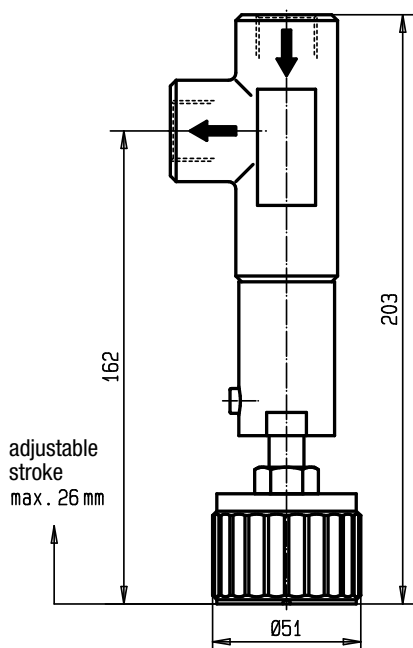
SPV 10
B
D
F
1G1 A.



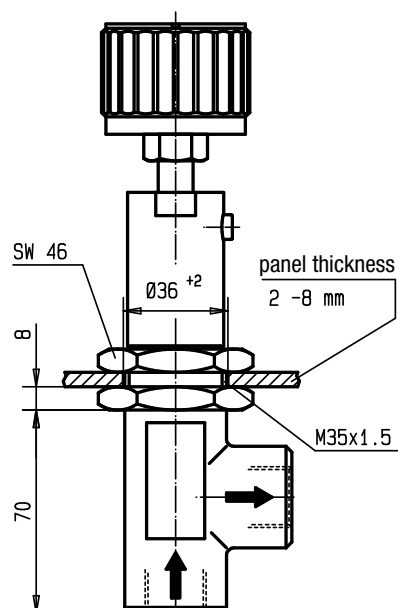
SPV 10
C
E
K
L
A 1G1 A. - ATEX



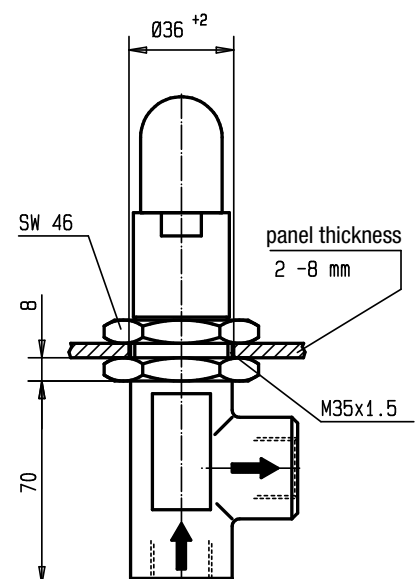
SPV 10
A
C
E
K
L
1G1 B.



SPVM 10
A
C
E
K
L
A 1G1 B.

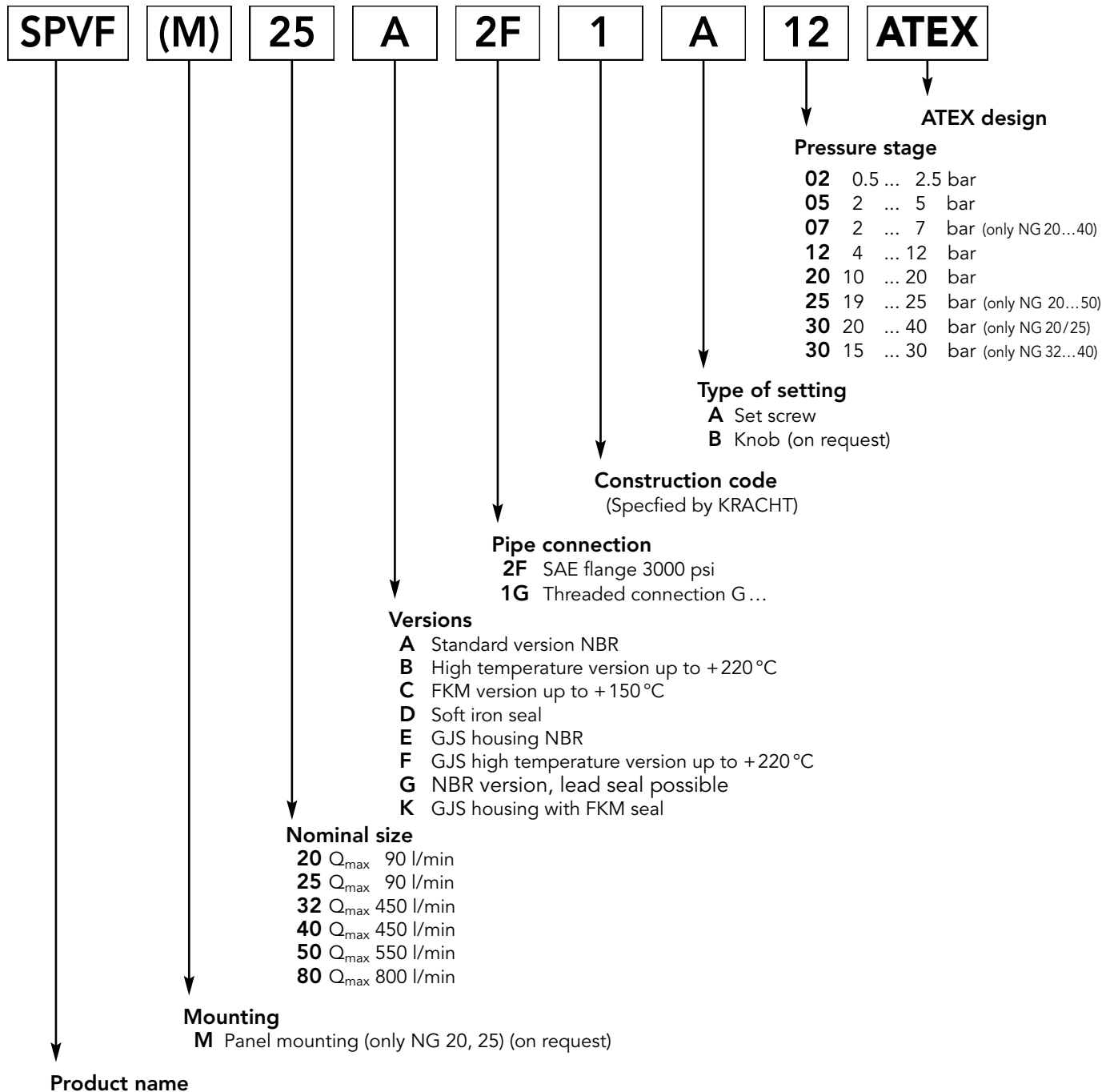


SPVM 10
A
C
E
K
L
A 1G1 A.



Type Key

Ordering example NG 20 ... 80



Ordering example: SPVF 80 A1G 1 A 20

Pressure relief valve, directly spring operated, flange version, nominal size 80 (Q_{max} 800 l/min), standard version with threaded connection G3, pressure setting by set screw, pressure setting range 4 up to 12 bars

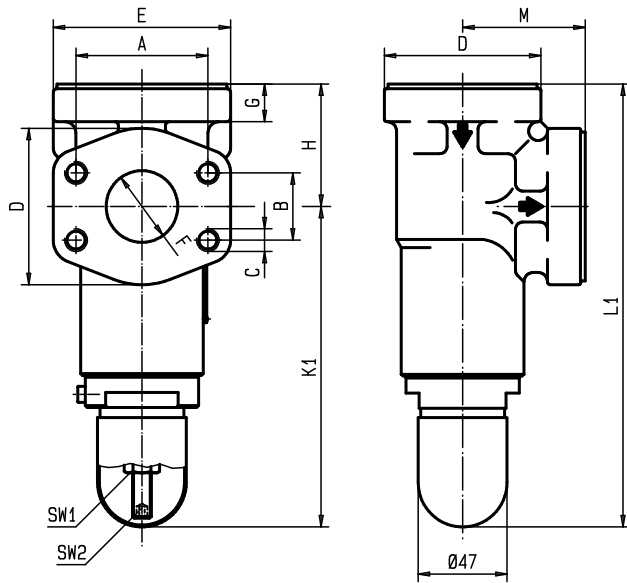
Ordering example: SPVF 40 B2F 1 A 20

Pressure relief valve, directly spring operated, flange version, nominal size 40 (Q_{max} 450 l/min), high temperature version up to +220 °C with SAE mounting surfaces (3000 psi), pressure setting by set screw, pressure setting range 10 up to 20 bars

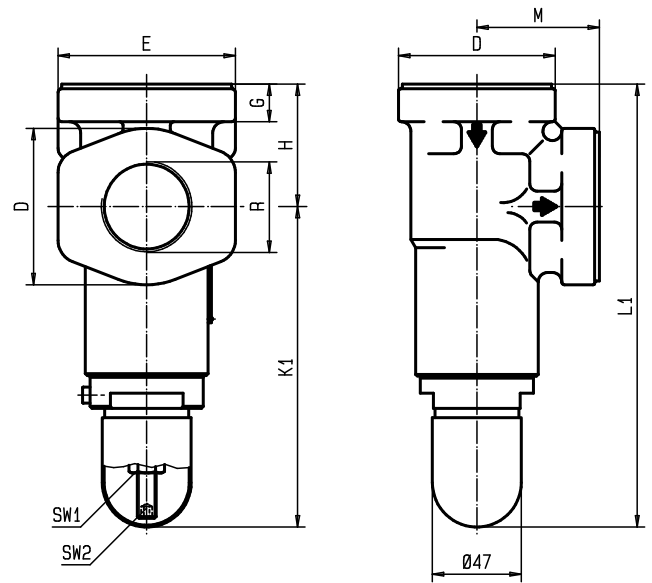
Dimensions (in mm)

Ordering codes

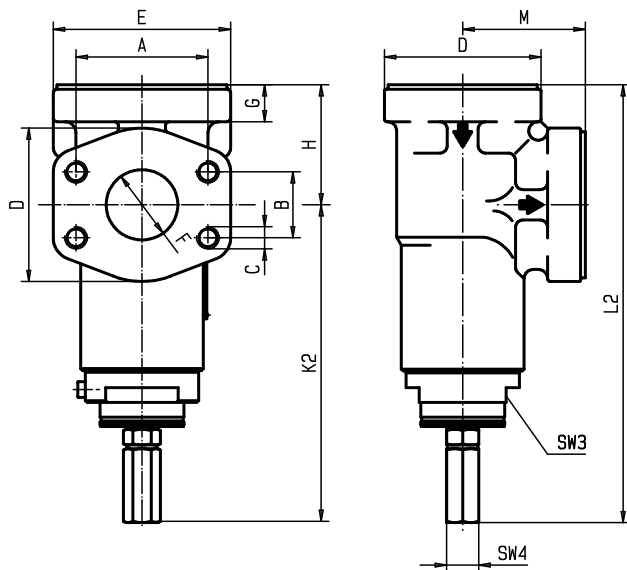
SPVF . $\begin{matrix} A \\ C \\ E \\ K \end{matrix}$ 2F 1 A .



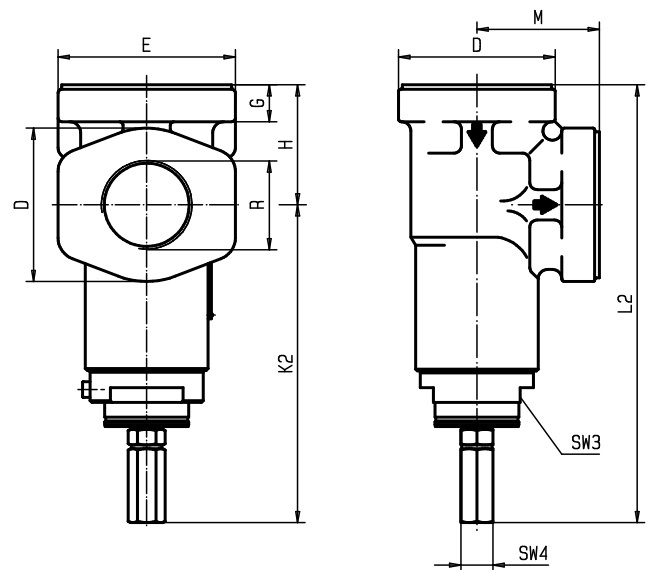
SPVF . $\begin{matrix} A \\ C \\ E \\ K \end{matrix}$ 1G 1 A .



SPVF . $\begin{matrix} B \\ D \\ F \end{matrix}$ 2F 1 A .

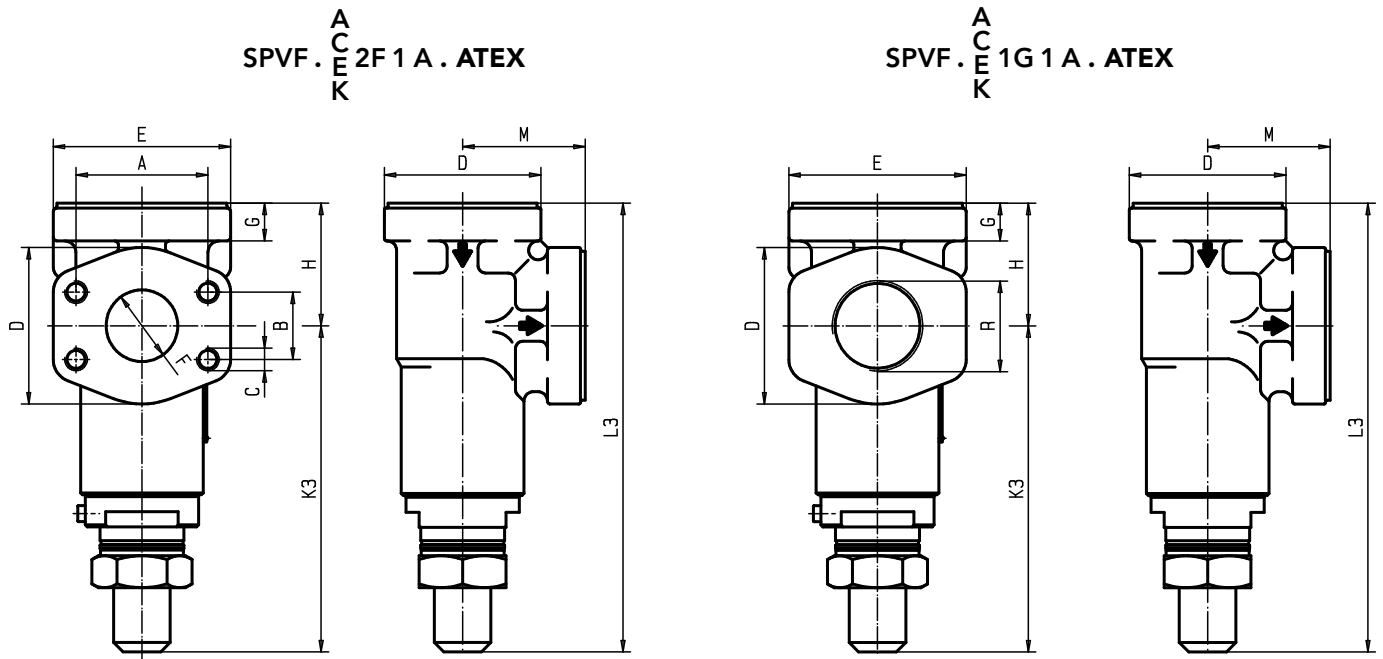


SPVF . $\begin{matrix} B \\ D \\ F \end{matrix}$ 1G 1 A .



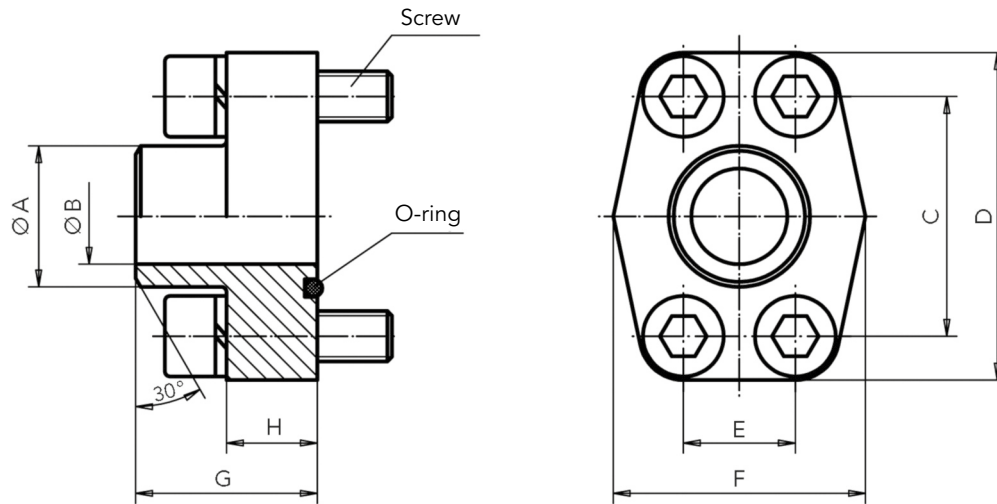
Dimensions (in mm)

Ordering codes



Nom. size	SAE flange	Thread R															Weight					
			A	B	C	D	E	F	G	H	K ₁	K ₂	K ₃	L ₁	L ₂	L ₃	M	SW1	SW2	SW3	SW4	kg
20	3/4"	G 3/4	47.6	22.2	M10	59	70	24	20	50	160	167	169	210	217	219	50	17	5	46	17	3.0
25	1"	G 1	52.4	26.2	M10	59	70	24	20	50	160	167	169	210	217	219	55	17	5	46	17	3.0
32	1 1/4"	G 1 1/4	58.7	30.2	M10	72	79	32	20	65	170	172	174	235	237	239	65	17	5	46	17	5.5
40	1 1/2"	G 1 1/2	69.9	35.7	M12	83	94	38	20	65	170	172	174	235	237	239	65	17	5	46	17	6.0
50	2"	G 2	77.8	42.9	M12	97	102	50.5	20	75	192	209	212	267	284	287	75	19	6	46	19	8.2
80	3"	G 3	106.4	61.9	M16	131	135	79	25	110	190	207	208	300	317	318	110	19	6	-	19	18.5

Accessoires Welding Flange SAE (3000 psi)



SAE flange									Screws 10.9	O-ring	max. working pressure bar	Weight kg
	A	B	C	D	E	F	G	H				
3/4"	28.0	19.0	47.63	65	22.23	50	36	18	M10 x 35	24.99 x 3.53	350	0.46
1"	34.0	25.0	52.37	70	26.19	55	38	18	M10 x 35	32.92 x 3.53	315	0.54
1 1/4"	42.8	32.0	58.72	79	30.18	68	41	21	M10 x 40	37.69 x 3.53	250	0.78
1 1/2"	48.6	38.0	69.85	93	35.71	78	44	25	M12 x 45	47.22 x 3.53	200	1.24
2"	61.0	51.0	77.77	102	42.88	90	45	25	M12 x 45	56.74 x 3.53	200	1.40
3"	92.0	73.0	106.38	134	61.93	124	50	27	M16 x 50	85.32 x 3.53	138	2.54

(Dimensions in mm)

Note

I Gear Pumps

Low and high-pressure gear pumps for lubricating oil, hydraulic, process and test bench applications, fuel and metering systems.



I Flow Measurement

Gear, turbine and screw type flow meters and electronics for volume and flow, metering and consumption in the chemical industry, hydraulic, process and test bench technology.



I Hydraulics

Single and multistage high-pressure gear pumps, gear motors and valves for construction machinery, municipal vehicles, agricultural vehicles, special vehicles and truck bodies.



I Valves

Cetop valves for all requirements stationary and mobile applications. Pressure, switching and stop valves with pipe connection for high flow rates. Special valves.



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