KRACHT®
FLUID TECHNOLOGY AND SYSTEMS

SPV
PRESSURE RELIEF VALVE



EN

KRACHT®

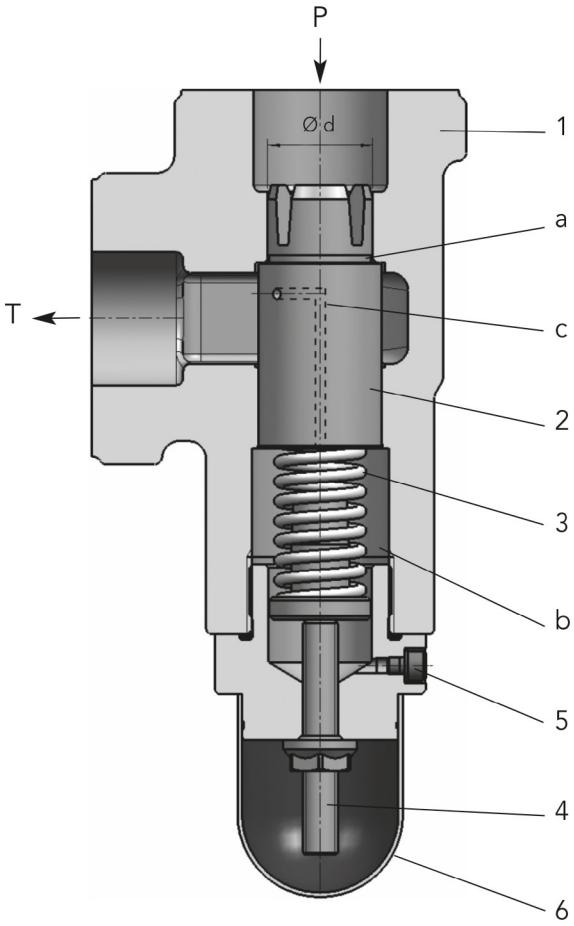
FLUID TECHNOLOGY AND SYSTEMS

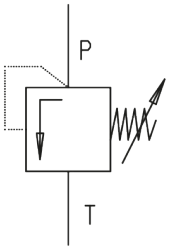
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General

Construction





1 Housing
2 Sliding piston
3 Compression spring
4 Set screw
5 Bleeding screw
6 Protective cap
a Ring surface
b Spring chamber
c Bore hole
d Diameter
P Pressure connection
T Tank connection

Description

The pressure relief valve SPV 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 SAEmounting surfaces or by Whitworth pipe threads.

Notes
When using strongly aerated media, the valve should preferably be mounted vertical with the set screw facing down.
The tank connection T of the valve must not be exposed to underpressure when subject to flow, as in this case the valve cannot be ventilated, possibly resulting in unwanted vibrations and noise. If this cannot be avoided, version 3 „vibration-damped, with damping nozzle“ should be selected under item 10 in the type code.

Function

The sliding piston 2 is pressed against the annular surface a by the compression spring 3 and thus blocks the pressure connection P from the tank connection T via the diameter d. When the opening pressure, set by the adjusting screw 4, is reached, the sliding piston 2 releases the fluid flow to the tank connection. The spring chamber b is relieved through the hole c. When commissioning the valve, the spring chamber b must be vented using the bleeding screw 5. In order to achieve an optimum characteristic curve, the valves are available in several pressure stages for the respective pressure setting ranges.

Technical data

General characteristics

Nominal size	10 · 20 · 25 · 32 · 40 · 50 · 80	
Type of construction	Slide valve – directly operated Seat valve Ball valve	
Mounting type	Pipe installation Flange Panel installation	
Hydraulic connection	Flange connection SAE Pipe thread	(ISO 6162-1 / SAE J518) (ISO 228-1)
Mounting position	Any, pressure adjustment screw at the bottom preferred	
Pressure adjustment type	Mechanical, adjusting screw Mechanical, rotary handle	
Material	Grey cast iron Spheroidal graphite cast iron	EN-GJL-300 EN-GJS-400-15
Pressure fluids	Hydraulic oils acc. to DIN 51 524/25 (other fluids on request)	
Dimensions / Weights	Pages 10 … 12	

Hydraulic characteristics

Nominal size		**10**	**20/25**	**32/40**	**50**	**80**
Maximum flow rate		40 l/min	90 l/min	450 l/min	550 l/min	800 l/min
Nominal pressure		120 bar	120 bar	120 bar	100 bar	80 bar
Setting range / set pressure	**min**	0.5 bar	0.5 bar	0.5 bar	0.5 bar	0.5 bar
	max	30 bar	40 bar	25 bar	25 bar	20 bar
Media temperature	FKM	-15 … 150 °C				
	NBR	-20 … 90 °C				
	Copper	-20 … 220 °C				
	Soft iron	-40 … 220 °C				
Ambient temperature	NBR, Copper	-20 … 60 °C				
	FKM	-15 … 60 °C				
	Soft iron	-40 … 60 °C				
Viscosity		1.2 … 1000 mm^2/s (higher viscosities on request)				
Δp-Q characteristic curves		Pages 8 und 9				

Note:
Metal protective cap (cap nut) for Atex/IECEx version

Type key

SPV	10	V	1	F	1	S	007	S	1	A	/	00.
1	2	3	4	5	6	7	8	9	10	11		12

1 Product	
SPV	Pressure relief valve

2 Nominal size
10 · 20 · 25 · 32 · 40 · 50 · 80

3 Type of construction		
V	Slide valve	
S	Seat valve	
L	Ball valve	(only SPV 10)

4 Housing material		
1	Grey cast iron	EN-GJL-300
2	Spheroidal graphite cast iron	EN-GJS-400-15

5 Sealing material	
F	FKM
N	NBR
K	Copper
W	Soft iron

6 Pressure adjustment type	
1	Adjusting screw, manual
2	Manual rotary handle
3	Adjusting screw, manual, panel installation
4	Rotary handle, manual, panel installation
5	Adjusting screw, sealed

7 Hydraulic connection		
S	Flange connection SAE	(ISO 6162-1)
R	Pipe thread	(ISO 228-1)

8 Pressure stage (pressure setting range)		
002	0.5 … 2.5 bar	
005	2 … 5 bar	
007	0.5 … 7 bar 2 … 7 bar	(SPV 10) (SPV 20 … 40)
012	4 … 12 bar	
020	10 … 20 bar	
025	19 … 25 bar	
030	10 … 30 bar	
040	20 … 40 bar	(only SPV 20/25)
000	Special pressure level	

9 Media temperature		
S	Standard	… 150 °C
H	High temperature	… 220 °C
X	Atex/IECEx	… 80 °C

10 Viscosity / damping		
1	Standard	… 1000 mm^2/s
2	High viscosity	on request
3	Vibration-damped, damping nozzle	

11 Hydraulic control	
A	Without hydraulic control
E	External spring space relief

12 Special number	
00.	On request

Atex/IECEx on request.

Explosion protection version (Atex/IECEx)

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 operating company).

The permissible ambient temperature ranges from
-20 … +60 °C (NBR, Copper, Soft iron)
-15 … +60 °C (FKM)

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

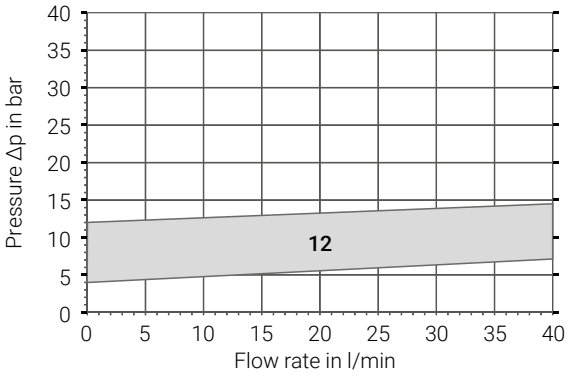
No not allow any explosive mixture to be present inside the unit.

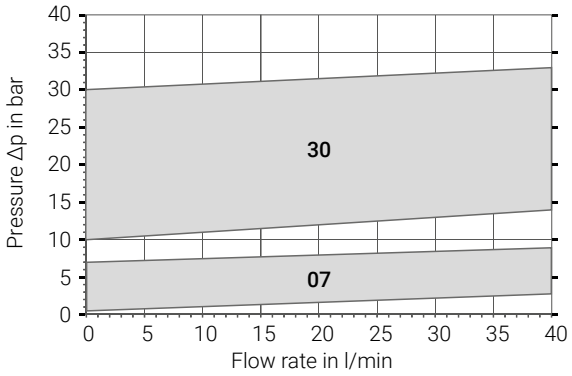
The permissible media temperature ranges from
-20 … +80 °C (NBR, Copper, Soft iron)
-15 … +80 °C (FKM)

Δp-Q characteristic curves

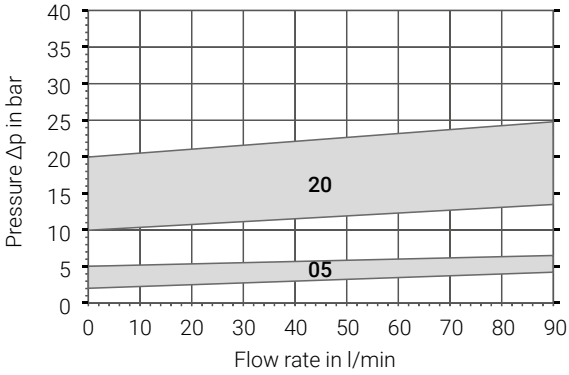
Possible setting range of the pressure stage, viscosity = 34 mm²/s

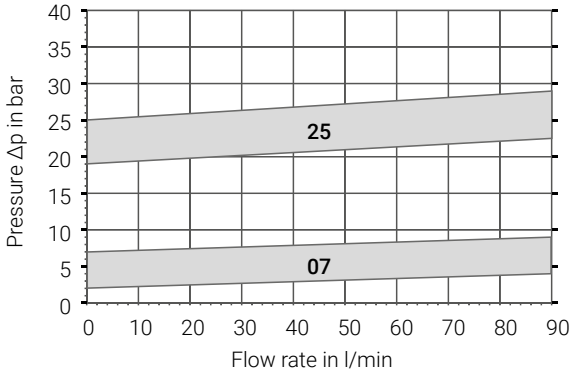
SPV 10

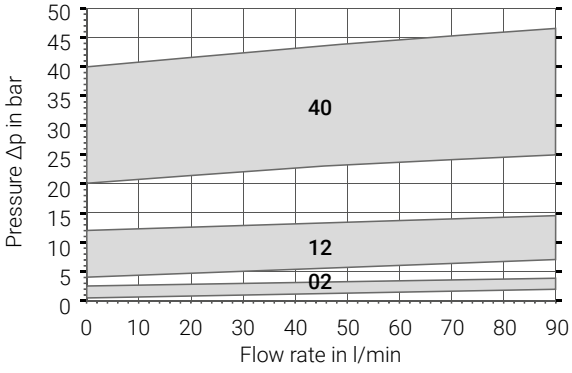




SPV 20/25



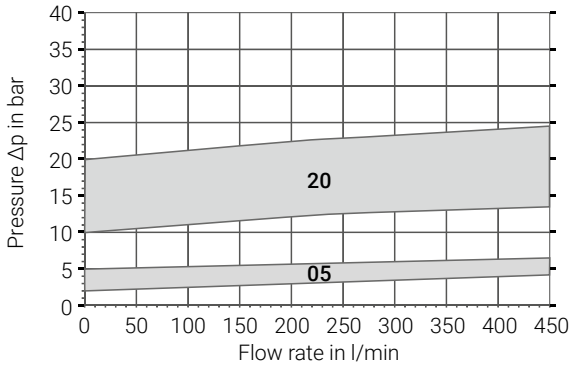


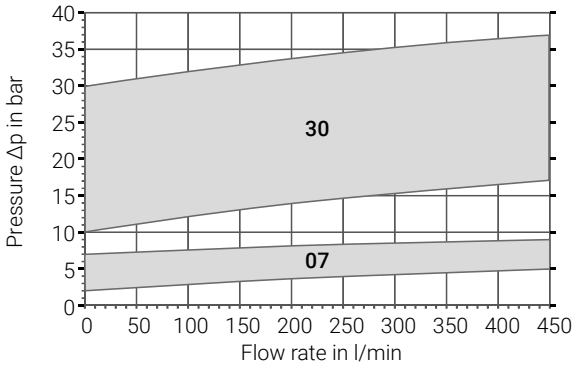


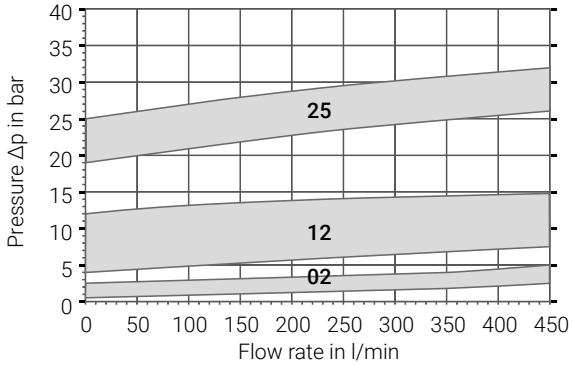
Δp-Q characteristic curves

Possible setting range of the pressure stage, viscosity = 34 mm²/s

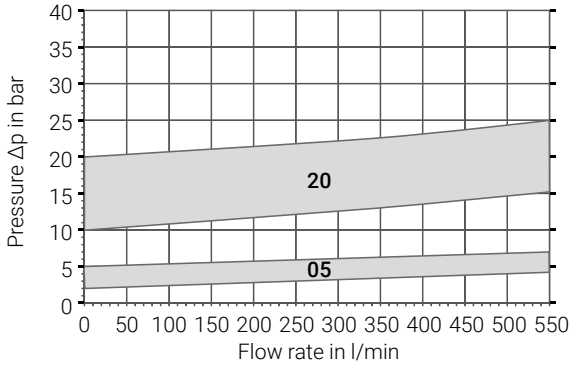
SPV 32/40

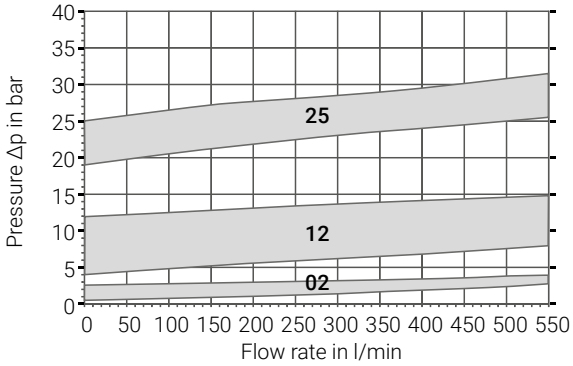




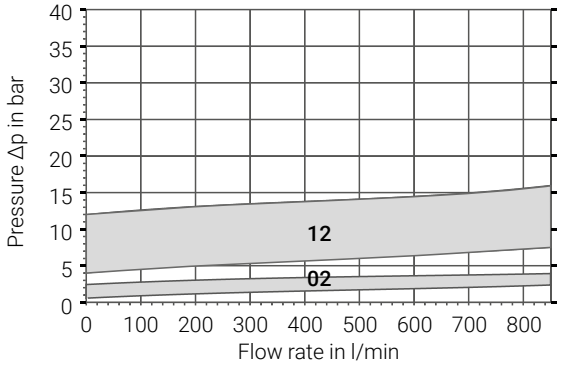


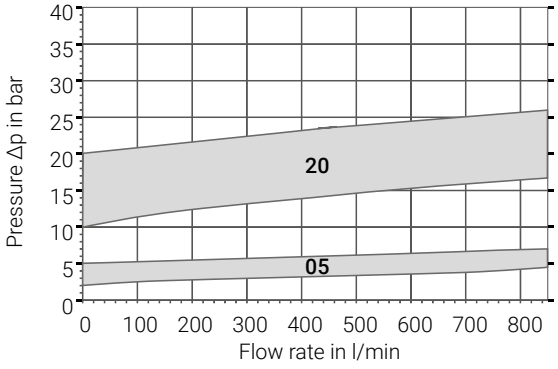
SPV 50





SPV 80

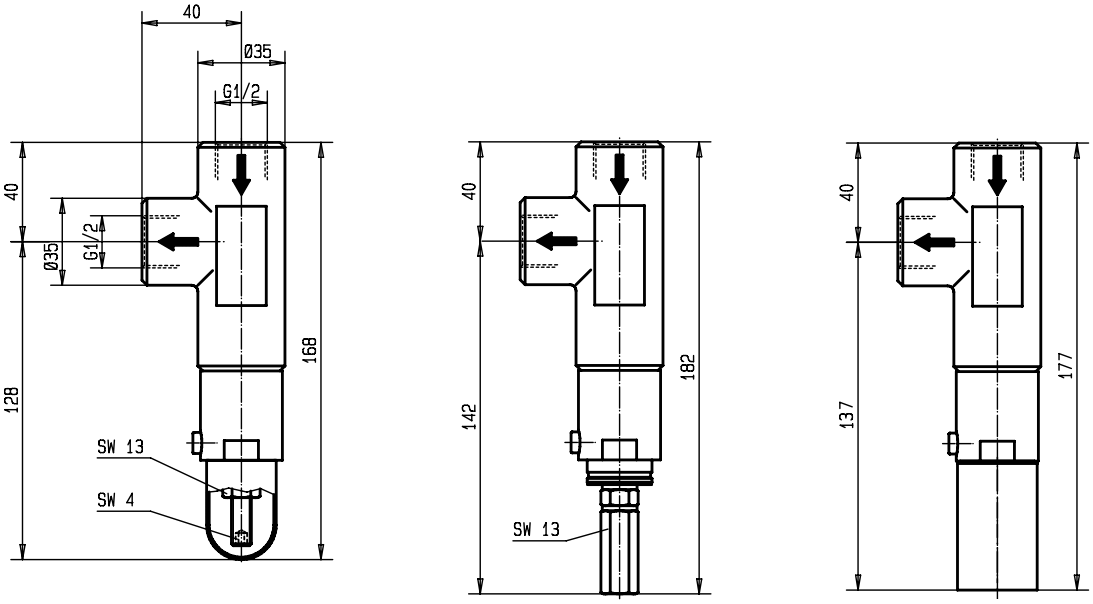




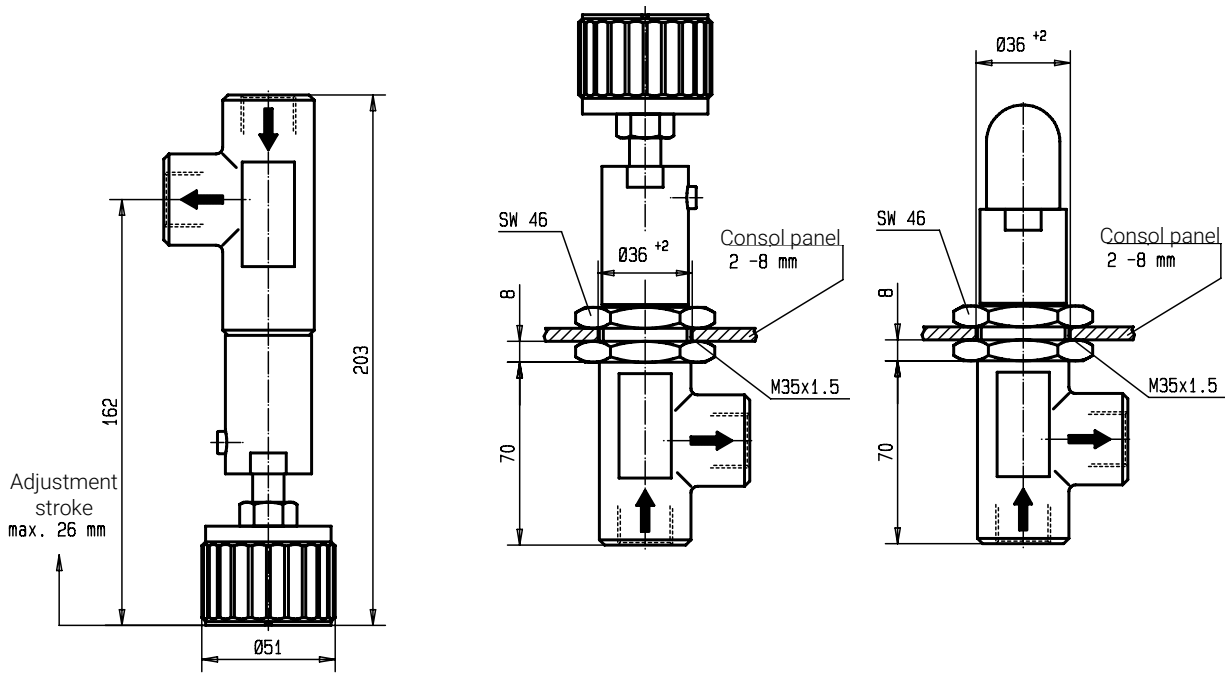
Dimensions / Weights

Nominal size 10

Media temperature	Standard	High temperature	Atex/IECEx
Pressure adjustment type	Adjusting screw	Adjusting screw	Adjusting screw
Hydraulic connection	Pipe thread	Pipe thread	Pipe thread



Media temperature	Standard	Standard	Standard
Pressure adjustment type	Rotary handle	Rotary handle, panel installation	Adjusting screw, panel installation
Hydraulic connection	Pipe thread	Pipe thread	Pipe thread

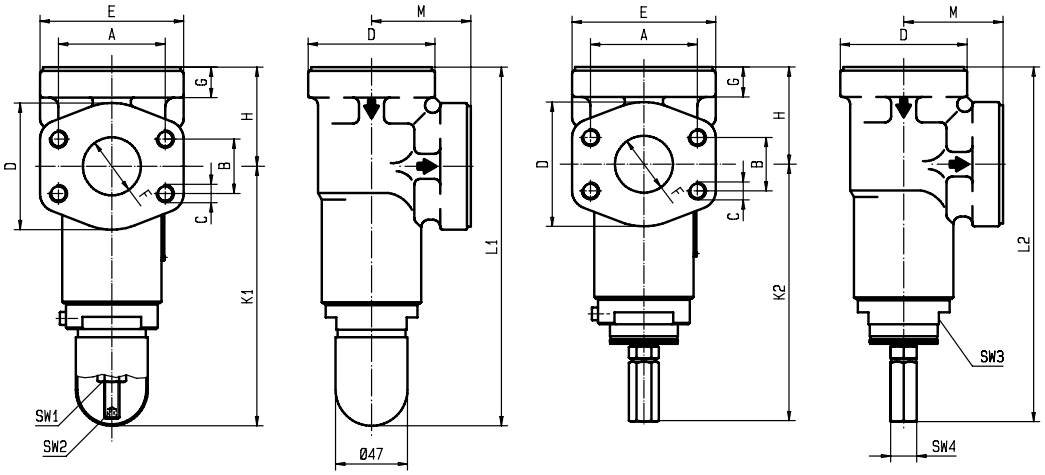


Dimensions in mm / Weight: 0.9 kg

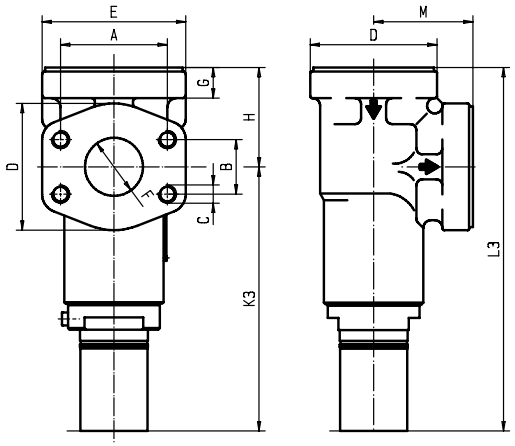
Dimensions / Weights

Nominal size 20 … 80

Media temperature	Standard	High temperature
Pressure adjustment type	Adjusting screw	Adjusting screw
Hydraulic connection	Flange connection SAE	Flange connection SAE



Media temperature	Atex/IECEx
Pressure adjustment type	Adjusting screw
Hydraulic connection	Flange connection SAE

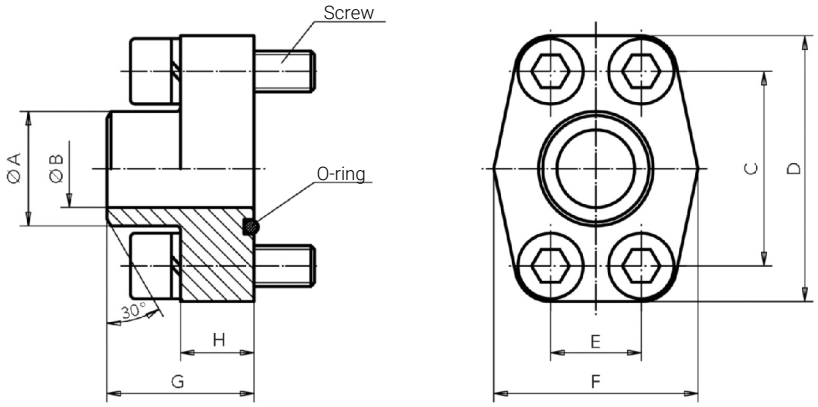


Nominal size	SAE flange	Thread R	A	B	C	D	E	F	G	H	K1	K2	K3	L1	L2	L3	M	Spanner size				Weight
																		SW1	SW2	SW3	SW4	
20	³/₄″	G³/₄	47.6	22.2	M10	59	70	24	20	50	160	167	169	210	217	227	50	17	5	46	17	3.0
25	1″	G1	52.4	26.2	M10	59	70	24	20	50	160	167	169	210	217	227	55	17	5	46	17	3.0
32	1¼″	G1¼	58.7	30.2	M10	72	79	32	20	65	165	172	174	230	237	247	65	17	5	46	17	5.5
40	1½″	G1½	69.9	35.7	M12	83	94	38	20	65	165	172	174	230	237	247	65	17	5	46	17	6.0
50	2″	G2	77.8	42.9	M12	97	102	50.5	20	75	192	209	212	267	284	284	75	19	6	46	19	8.2
80	3″	G3	106.4	61.9	M16	131	135	79	25	110	190	207	208	300	317	315	110	19	6	-	19	18.5

Dimensions in mm / Weight in kg

Accessories

Weld-on flange SAE (ISO 6162-1)



SAE flange	A	B	C	D	E	F	G	H	Screws 10.9	O-ring	Maximum pressure in bar	Weight
3/4"	28.0	19.0	47.63	65	22.23	50	36	18	M10x35	24.99 x 3.53	350	0.46
1"	34.0	25.0	52.37	70	26.19	55	38	18	M10x35	32.92 x 3.53	315	0.54
1 1/4"	42.8	32.0	58.72	79	30.18	68	41	21	M10x40	37.69 x 3.53	250	0.78
1 1/2"	48.6	38.0	69.85	93	35.71	78	44	25	M12x45	47.22 x 3.53	200	1.24
2"	61.0	51.0	77.77	102	42.88	90	45	25	M12x45	56.74 x 3.53	200	1.40
3"	92.0	73.0	106.38	134	61.93	124	50	27	M16x50	85.32 x 3.53	138	2.54

Dimensions in mm / Weight in kg

Notes

Notes

Notes

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