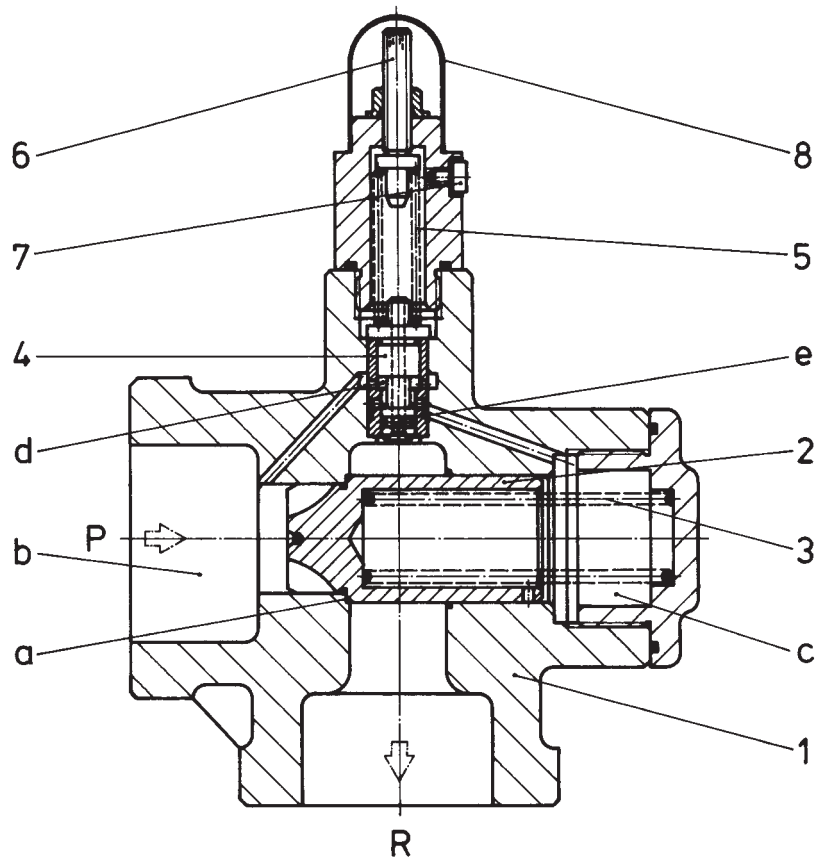
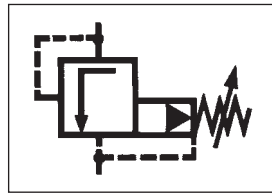




**Pressure Relief Valves HV, HVF**  
pilot operated

# Construction of the Pressure Relief Valves HV, HVF

Symbol



- |                        |                      |
|------------------------|----------------------|
| 1 Housing              | 5 Compression Spring |
| 2 Main Sliding Piston  | 6 Set Screw          |
| 3 Compression Spring   | 7 Bleeding Screw     |
| 4 Pilot Sliding Piston | 8 Protective Cap     |

## Description

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The pilot operated, sliding piston Pressure Relief Valve HV/HVF is intended for inline mounting and is suitable to safeguard mean pressure hydraulic circuits up to 160 bars. The pipe connection is to be effected either by SAE-Mounting Surfaces (3000 psi) or by Whitworth Pipe Threads "G". Due to the design principle of sliding piston piloting the valve is also suitable for higher viscosities.

## Valve Construction:

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### Main Valve Stage

The Main Sliding Piston **2** is pressed against the Annulated Area **a** by the Compression Spring **3**. The Valve Chamber **b** located before the Main Sliding Piston **2** as well as the Valve Chamber **c** to be found behind the Main Sliding Piston **2** are directly connected with the pilot valve.

### Pilot Valve

The Pilot Sliding Piston **4** is loaded by the Compression Spring **5** and is balanced by the operating pressure  $p$  acting on the Annulated Area **d**. As soon as the spring force is exceeded by the operating pressure  $p$  the connection behind the Main Sliding Piston **2** is blocked and the Valve Chamber **c** is then connected with the reservoir via the Bore **e** within the Pilot Sliding Piston **4**. In this way it is guaranteed that, as soon as the set pressure is reached, the Main Sliding Piston **2** releases the oil flow to the reservoir without any vibrations maintaining the operating pressure as adjusted by the Set Screw **6**. The Spring chamber of the pilot valve can be bled by the Bleeding Screw **7** provided the valve is installed in vertical fitting position i.e. with the pressure setting arrangement up.

# Characteristics

## Characteristics acc. to VDI 3267

### Pressure Relief Valve

pilot operated

Nom. Size:	10	25	40	50	80
Max. Flow Capacity:	50	120	350	500	750 l/min
Nom. Operating Pressure:	160	160	160	80	80 bars

### General Characteristics

Construction:	Sliding Piston Relief Valve
Mounting:	Inline
Pipe Connection:	SAE-Flange (3000 psi) Whitworth Pipe Thread "G"
Dimensions:	Pages 7, 9, 10 and 11
Weight:	Pages 7, 9, 10 and 11
Fitting Position:	Set Screw up

Perm. Ambient Temp.:	$\vartheta_{u \min} = -20 \text{ }^{\circ}\text{C}$
	$\vartheta_{u \max} = +60 \text{ }^{\circ}\text{C}$

## Hydraulic Characteristics

Nominal Size:	10	25	40	50	80	
Press. Setting Ranges:	$p_{v \min}$	1	1	1	1	1 bar
	$p_{v \max}$	160	160	160	80	80 bars
Fluid Temp. Range:	$\vartheta_{m \min}$	$= -20 \text{ }^{\circ}\text{C}$				
	$\vartheta_{m \max}$	$= +80 \text{ }^{\circ}\text{C}$				
Viscosity Range:	$v_{\min}$	$= 13 \text{ mm}^2/\text{s}$				
	$v_{\max}$	$= 600 \text{ mm}^2/\text{s}$				
$\Delta p$ -Q-Characteristics:	Page 5					
Hydraulic Fluids:	Hydraulic Oils acc. to DIN 51 524/25 other fluids on request					

## Type of Pressure Setting

mechanical	Set Screw Knob
------------	-------------------

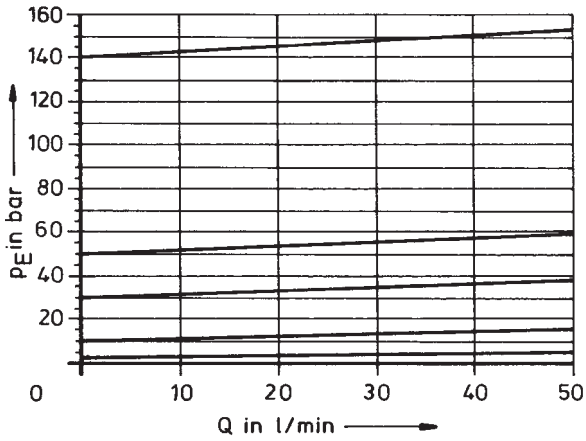
## Accessories

Welding Flange SAE (3000 psi)	Page 11
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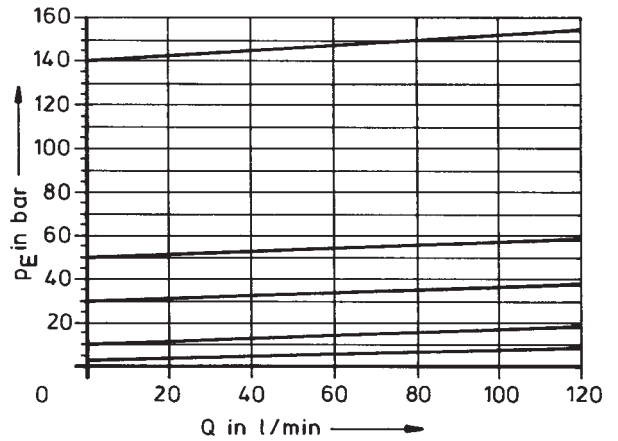
# Characteristic Curves

$\Delta p = f(Q)$   
 Viscosity = 34 mm<sup>2</sup>/s

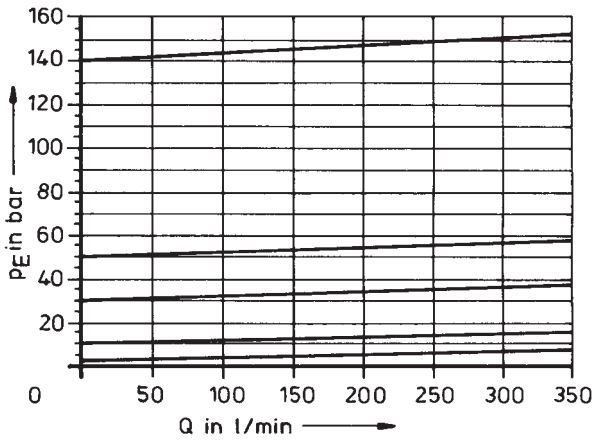
HV 10



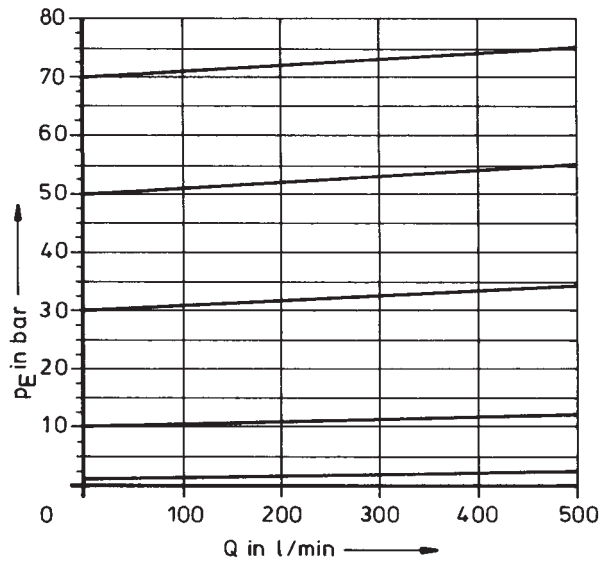
HVF 25



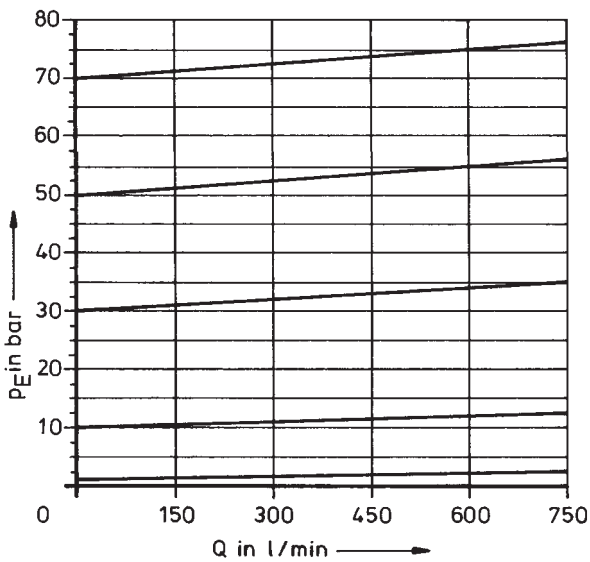
HVF 40



HVF 50



HVF 80

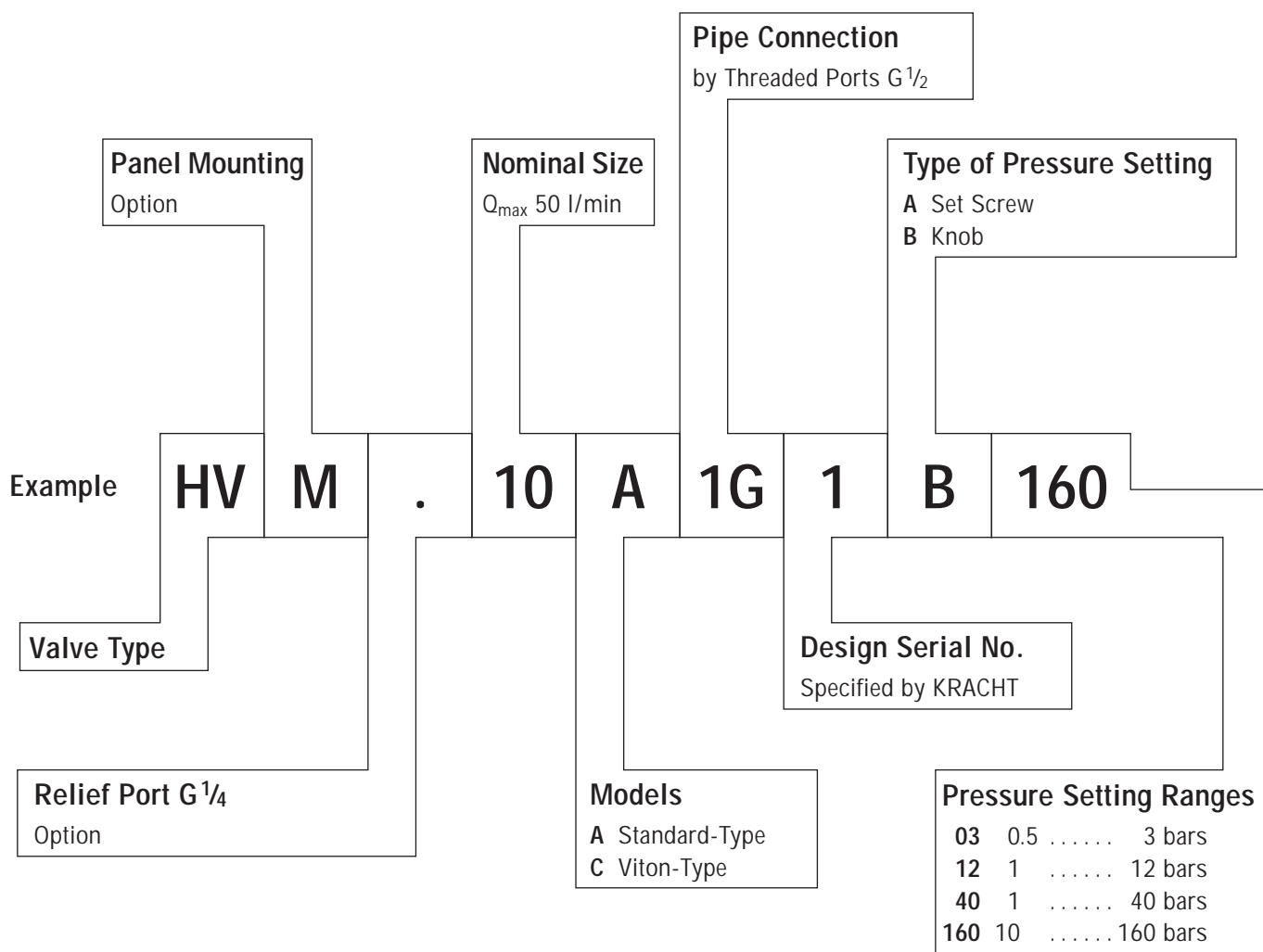


# Type Key

## Nominal Size 10

### Pressure Relief Valve

pilot operated

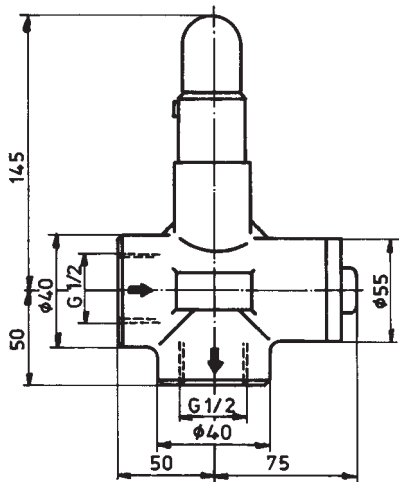


**means:**

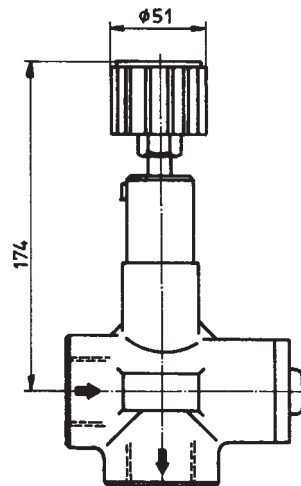
Pressure Relief Valve, Pilot Operated. For Panel Mounting, Nominal Size 10 ( $Q_{max}$  50 l/min), Standard Type, with Threaded Ports G<sup>1</sup>/<sub>2</sub>, Pressure Setting by Knob, Pressure Setting Range: 10 up to 160 bars

# Dimensions

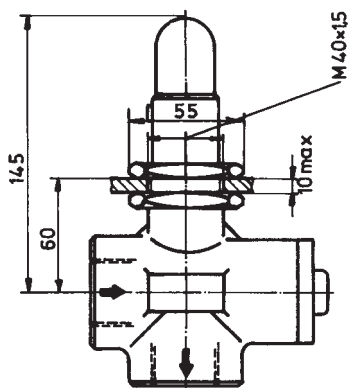
Ordering Code HV 10 A 1G 1 A .



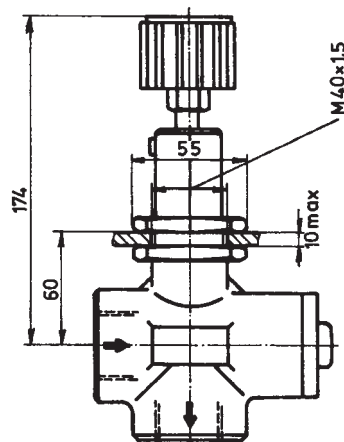
Ordering Code HV 10 A 1G 1 B .



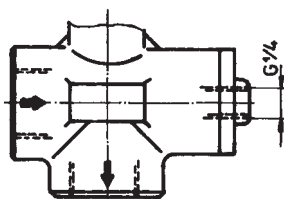
Ordering Code HVM 10 A 1G 1 A .



Ordering Code HVM 10 A 1G 1 B .



Ordering Code HVE 10 A 1G 1 . .  
HVME 10 A 1G 1 . .



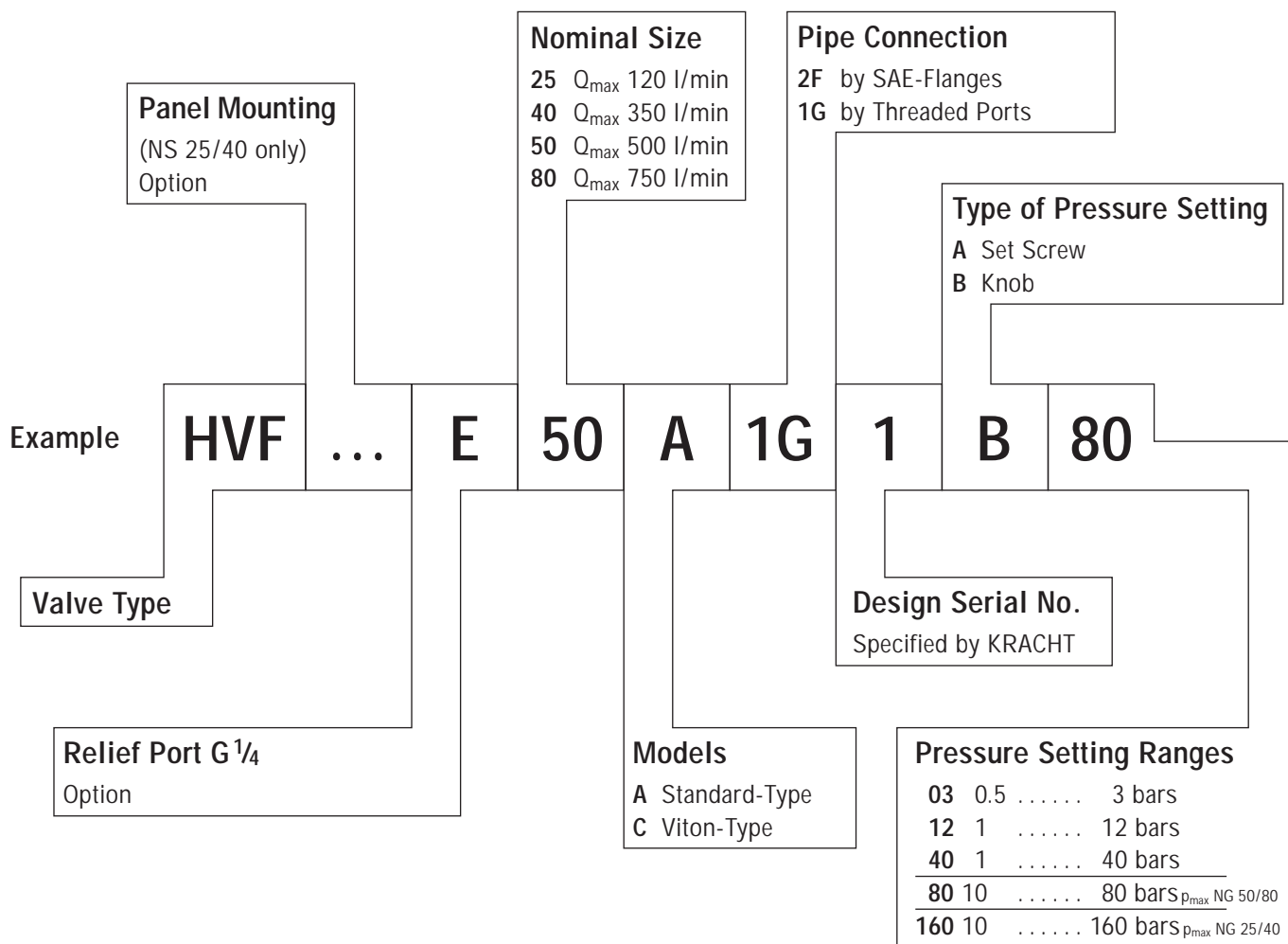
Weight 2.5 kg

# Type Key

## Nominal Size 25...80

### Pressure Relief Valve

pilot operated, flange type



**means:**

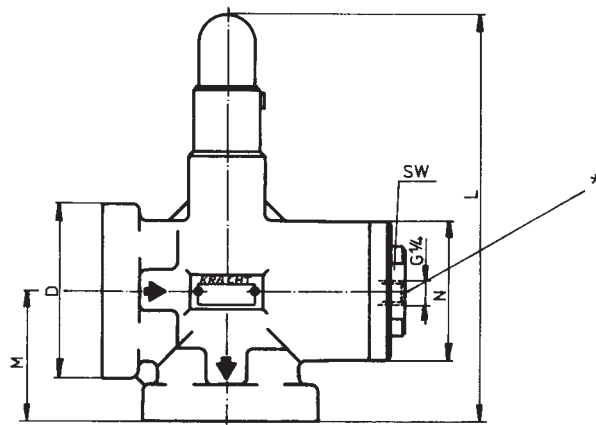
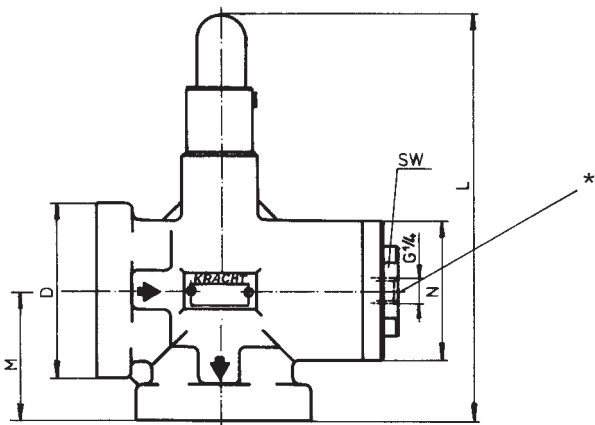
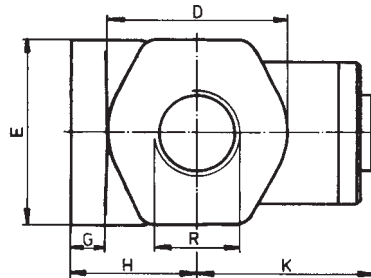
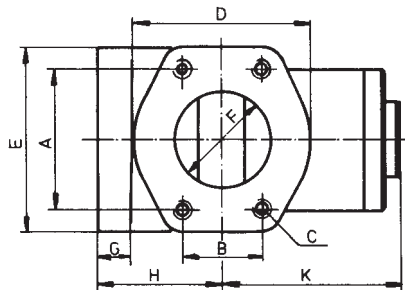
Pressure Relief Valve, Pilot Operated. Flange Type with Relief Port G<sup>1/4</sup>. Nominal Size 50 ( $Q_{max}$  500 l/min), Standard Type, with Threaded Ports, Pressure Setting by Knob, Pressure Setting Range: 10 up to 80 bars



# Dimensions

Ordering Code HVF . . 2F 1 A .

Ordering Code HVF . . 1G 1 A .



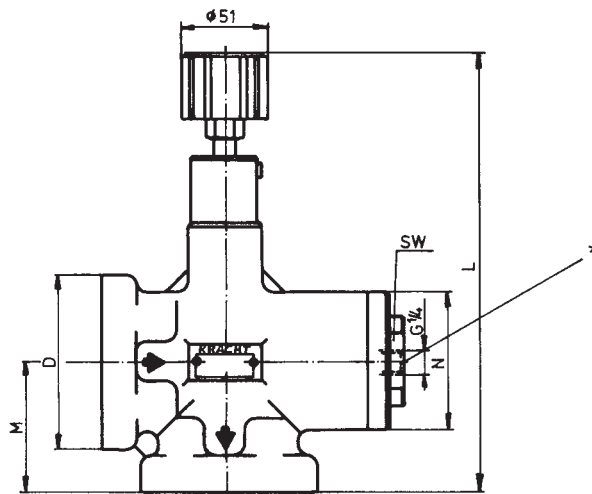
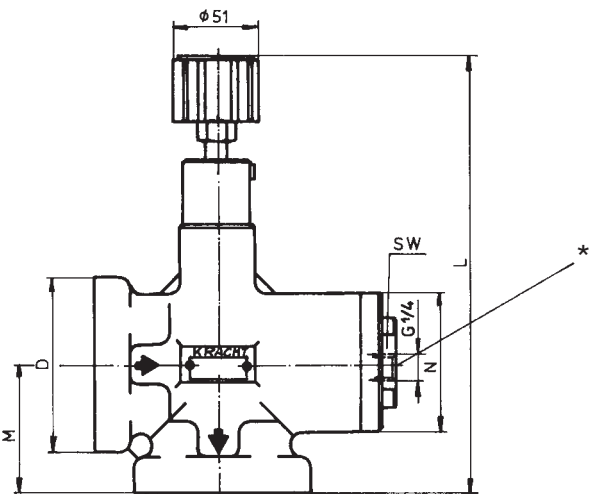
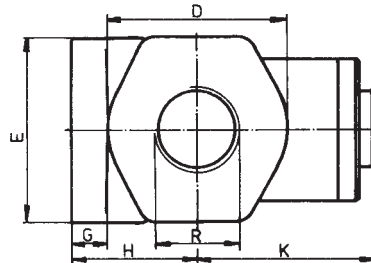
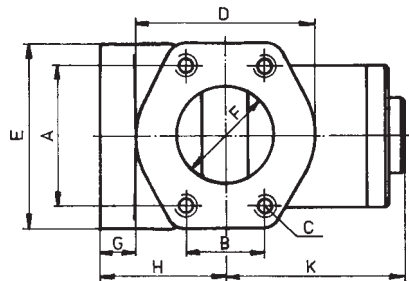
\* Relief Port for Type HVFE

Nom. size	SAE Flange	Thread R													Wrench Size	Weight kg
			A	B	C	D	E	F	G	H	K	L	M	N		
25	1"	G 1	52.4	26.2	M 10	59	70	26	20	50	75	200	55	Ø 55	24	3.4
40	1 1/2"	G 1 1/2	69.9	35.7	M 12	83	94	39	20	65	95	220	65	Ø 75	36	6.7
50	2"	G 2	77.8	42.9	M 12	97	102	50	20	75	105	240	75	Ø 90	30	10.9
80	3"	G 3	106.4	61.9	M 16	131	135	78	25	110	125	280	110	Ø 105	40	18.1

# Dimensions

Ordering Code HVF . . 2F 1 B .

Ordering Code HVF . . 1G 1 B .



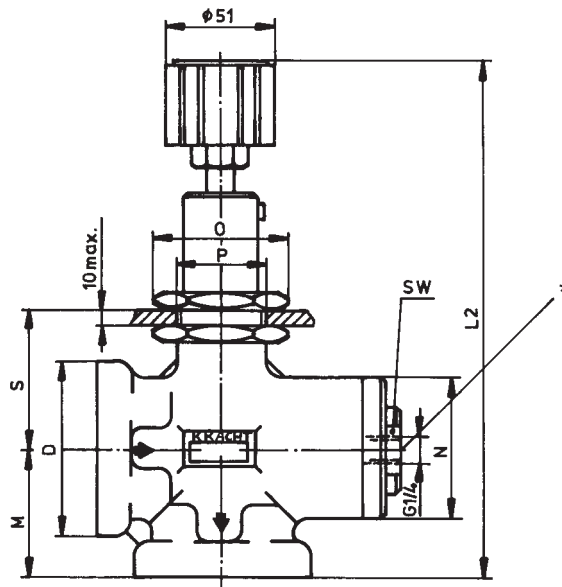
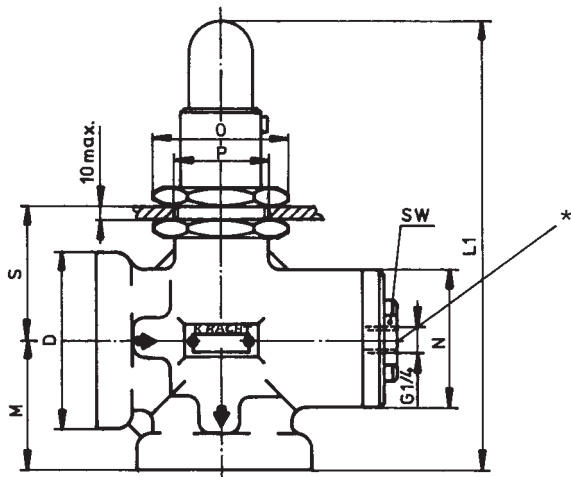
\* Relief Port for Type HVFE

Nom. Size	SAE Flange	Thread R													Wrench Size	Weight kg
			A	B	C	D	E	F	G	H	K	L	M	N		
25	1"	G 1	52.4	26.2	M 10	59	70	26	20	50	75	229	55	Ø 55	24	3.4
40	1 1/2"	G 1 1/2	69.9	35.7	M 12	83	94	39	20	65	95	246	65	Ø 75	36	6.7
50	2"	G 2	77.8	42.9	M 12	97	102	50	20	75	105	266	75	Ø 90	30	10.9
80	3"	G 3	106.4	61.9	M 16	131	135	78	25	110	125	306	110	Ø 105	40	18.1

# Dimensions

Ordering Code HVFM . . 2F 1 A .  
HVFM . . 1G 1 A .

Ordering Code HVFM . . 2F 1 B .  
HVFM . . 1G 1 B .



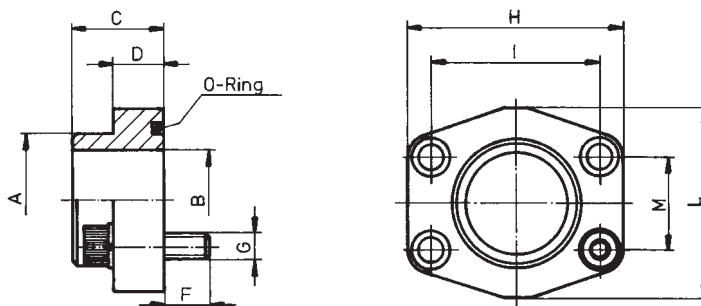
\* Relief Port for Type HVFE

Nom. Size	SAE Flange	Thread R															Wrench Size	P	Weight kg	
			A	B	C	D	E	F	G	H	K	L <sub>1</sub>	L <sub>2</sub>	M	N	O				S
25	1"	G 1	52.4	26.2	M 10	59	70	26	20	50	75	200	229	55	∅ 55	55	60	24	M 40 x 1.5	3.4
40	1 1/2"	G 1 1/2	69.9	35.7	M 12	83	94	39	20	65	95	220	246	65	∅ 75	55	60	36	M 40 x 1.5	6.7

Drawing for Dimensions A, B, C, E, F, G, H, K see Page 10

## Accessories / Ordering Code HVFM 40 A 2F 1 A 60 + 2 x CFS 106-ST

### Welding Flange SAE (3000 psi)



Ordering Code	SAE Flange											O-Ring	Weight kg
		A	B	C	D	F	G	H	I	L	M		
CFS 102-ST	1"	34.5	25	38	18	14	M 10	71	52.4	53	26.2	4131	0.6
CFS 106-ST	1 1/2"	48.6	38	44	25	18	M 12	94	70	77	35.7	4187	1.2
CFS 108-ST	2"	61	50	45	25	18	M 12	103	77.8	89	42.9	4225	1.5
CFS 112-ST	3"	89	73	50	27	23	M 16	135	106.4	124	62	4337	2.7

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