

Pressure-limiting valve and pre-load valve type MVG, MVE and MVP

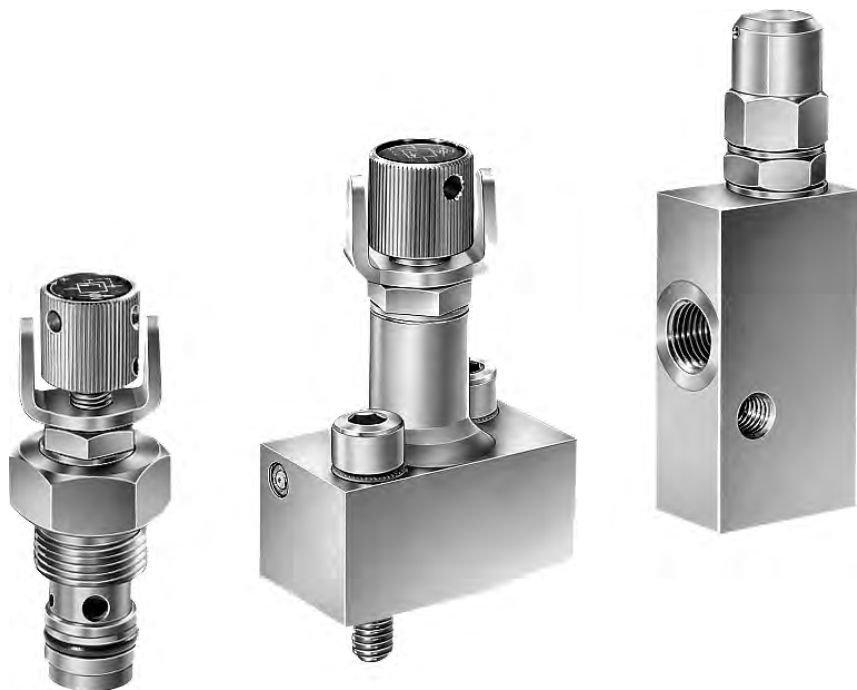
Product documentation



Directly controlled

Operating pressure p_{\max} : 700 bar

Flow rate Q_{\max} : 8 lpm



© by HAWE Hydraulik SE.

The forwarding and reproduction of this document, as well as the use and communication of its contents, are forbidden unless expressly permitted.

Any breach or infringement will result in liability for damages.

All rights reserved concerning patent or utility model application.

Contents

1	Overview of pressure-limiting valve and pre-load valve type MVG, MVE and MVP.....	4
2	Available versions, main data.....	5
3	Parameters.....	7
3.1	General.....	7
4	Dimensions.....	9
5	Installation, operation and maintenance information.....	11
5.1	Designated use.....	11
5.2	Assembly information.....	11
5.3	Operating instructions.....	12
5.4	Maintenance information.....	12
5.5	Valve setting.....	13
6	Appendix.....	14
6.1	Typical application examples.....	14

1 Overview of pressure-limiting valve and pre-load valve type MVG, MVE and MVP

Pressure-limiting valves and sequence valves are types of pressure control valves. Pressure-limiting valves safeguard the system against excessive system pressure or limit the operation pressure. Sequence valves generate a constant pressure difference between the inlet and outlet flow. Type MV is a directly controlled valve that is damped as standard.

Features and benefits:

- Operating pressures up to 700 bar
- Various adjustment options
- Numerous configurations

Intended applications:

- General hydraulic systems
- Test benches
- Hydraulic tools



Figure 1: Valve for pipe connection type MVG



Figure 2: Valve for manifold mounting type MVP



Figure 3: Screw-in valve type MVE

2 Available versions, main data

Circuit symbol:

MVG, MVP, MVE

Pressure-limiting valve

Fixed



Adjustable



or

Sequence valve

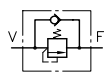
Fixed



MVGC

Sequence valve

Fixed only



Order coding example:

MVE 14 M	R	- 120
----------	---	-------

Pressure setting (see also note for Table 1)

Adjustability Table 2 Adjustability

Basic type and size Table 1 Basic type and size

Table 1 Basic type and size

Basic type and size	Pressure range (bar)	Flow rate (lpm)	Connection type	Brief description
MVG 13 H	20 ... 700	5	Valve for pipe connection: Ports P and R = G 1/4 (BSPP)	Valve for one flow direction (working direction)
MVG 13 M	20 ... 450			
MVG 14 H	10 ... 400	8	Valve for manifold mounting: For dimension drawing see Chapter 4, "Dimensions"	
MVG 14 M	0 ... 200			
MVG 14 N	0 ... 50			
MVP 13 H	20 ... 700	5	Valve for manifold mounting: For dimension drawing see Chapter 4, "Dimensions"	
MVP 13 M	20 ... 450			
MVP 14 H	10 ... 400	8	Screw-in valve: For mounting hole see Chapter 4, "Dimensions"	
MVP 14 M	0 ... 200			
MVP 14 N	0 ... 50			
MVE 13 H	20 ... 700	5	Screw-in valve: For mounting hole see Chapter 4, "Dimensions"	
MVE 13 M	20 ... 450			
MVE 14 H	10 ... 400	8	Valve for pipe connection: Ports F and V = G 1/4 (BSPP)	
MVE 14 M	0 ... 200			
MVE 14 N	0 ... 50			
MVGC 14 M	0 ... 200			Valve for two flow directions (working direction and free return flow)
MVGC 14 N	0 ... 50			


Note
Pressure setting

- If there is no pressure specification, the factory settings are:

MV.. 13 H	400 bar
MV.. 14 H	400 bar
MV.. 14 M	200 bar
MV.. 14 N	30 bar

Table 2 Adjustability

Coding	Description
No designation	Series, fixed (tool adjustable)
R	Manually adjustable; not for type MVGC
F	Pin head; not for type MVGC

3 Parameters

3.1 General

General data

Description	Pressure-limiting valve
Design	Cone-seated valve
Model	According to type
Material	Steel; nitrided valve housing, electrogalvanised sealing nuts and connection block, hardened and ground functional inner parts Steel; valve housing galvanized zinc plated; hardened and ground functional inner parts
Installation position	As desired
Hydraulic fluid	Hydraulic oil conforming DIN 51 524 part 1 to 3; ISO VG 10 to 68 conforming DIN 51 519 Viscosity limits: min. approx. 4, max. approx. 1500 mm ² /s opt. operation approx. 10... 500 mm ² /s. Also suitable are biologically degradable pressure fluids types HEPG (Poly-alkylenglycol) and HEES (Synth. Ester) at service temperatures up to approx. +70°C.
Cleanliness level	ISO 4406 <u>21/18/15...19/17/13</u>
Temperatures	Ambient: approx. -40 ... +80°C, Fluid: -25 ... +80°C, Note the viscosity range! Permissible temperature during start: -40°C (observe start-viscosity!), as long as the service temperature is at least 20K higher for the following operation. Biologically degradable pressure fluids: Observe manufacturer's specifications. By consideration of the compatibility with seal material not over +70°C.

Weight

Type	
MVG	= 0.3 kg
MVP	= 0.3 kg
MVE	= 0.1 kg
MVGC	= 0.3 kg

Characteristic curves

Viscosity during measurements
approx. 60 mm²/s

Δp -Q characteristics

Type MVG 14 N

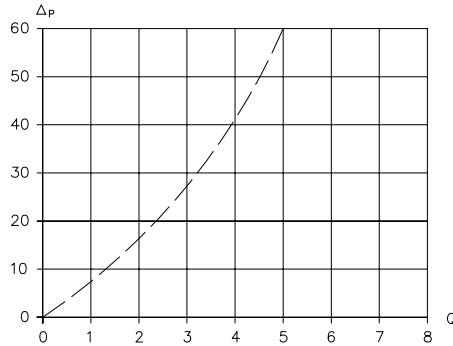


Figure 4: Δp flow resistance (bar); Q flow rate (lpm)

Type MVG 14 M

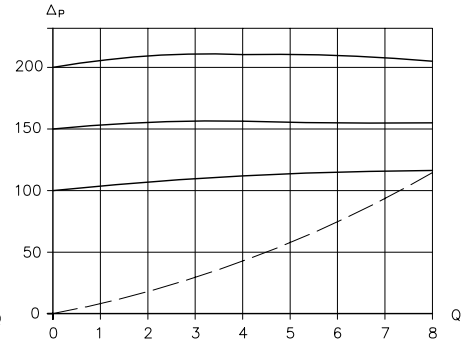


Figure 5: Δp flow resistance (bar); Q flow rate (lpm)

Type MVG 14 H

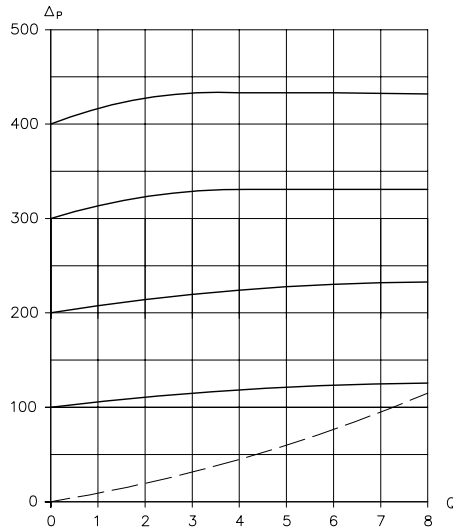


Figure 6: Δp flow resistance (bar); Q flow rate (lpm)

Type MVG 13 H

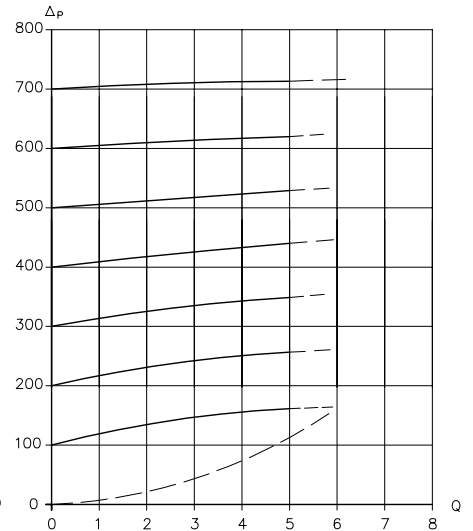


Figure 7: Δp flow resistance (bar); Q flow rate (lpm)

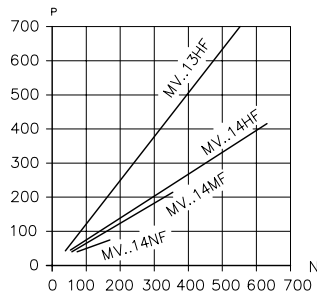


Figure 8: p operating pressure (bar); N actuating force for pin head

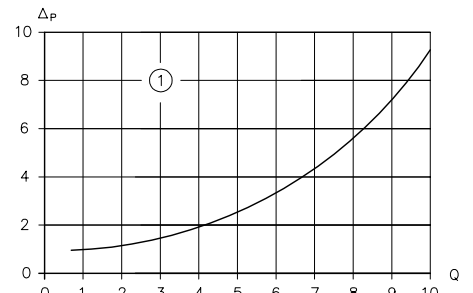


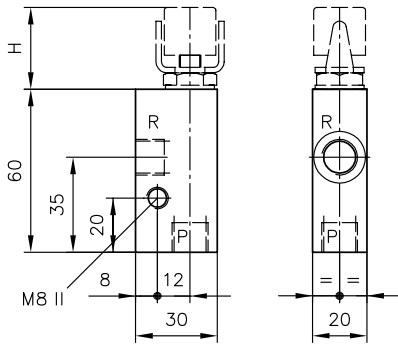
Figure 9: Δp flow resistance (bar); Q flow rate (lpm)

1 Flow resistance MVGC with free return flow
F → V

4 Dimensions

All dimensions in mm, subject to change.

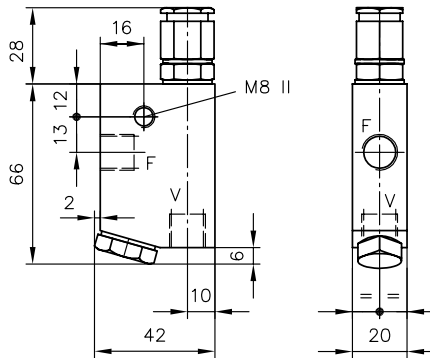
Type MVG



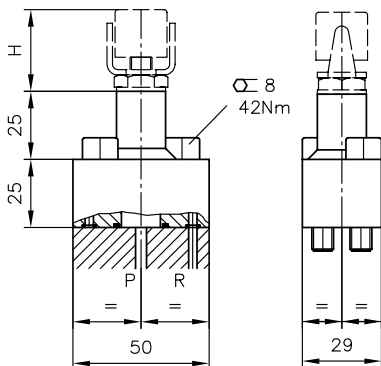
Ports (BSPP)	
P, R, F, V	G 1/4

Type MVGC

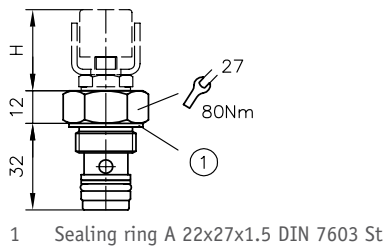
Fixed only



Type MVP

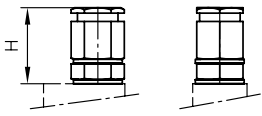


Type MVE



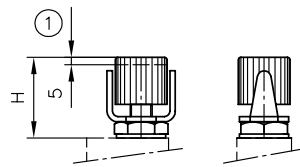
No designation

Fixed



Coding **R**

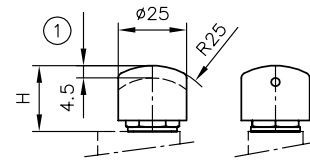
Adjustable



1 Adjustment travel

Coding **F**

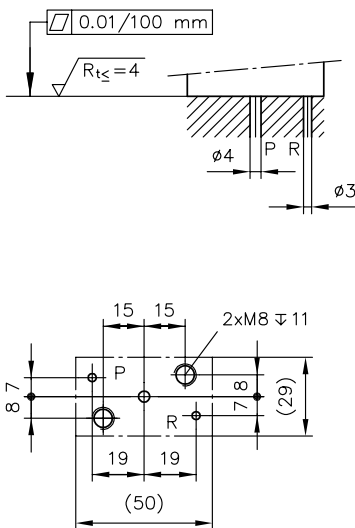
Pin head



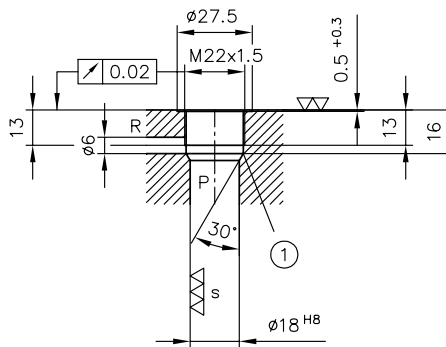
1 Switching travel

	H
Fixed	28
Adjustable	30
Pin head	24

Base plate and hole pattern (type MVP)



Mounting hole (type MVE)



1 Round off edges

Sealing of the ports:

	O-ring
P	17.12x2.62 NBR 90 Sh
R	4.47x1.78 NBR 90 Sh

5**Installation, operation and maintenance information****5.1 Designated use**

This fluid-power product has been designed, manufactured and tested acc. to standards and regulations generally applicable in the European Union and left the plant in a safe and fault-free condition.

To maintain this condition and ensure safe operation, operators must observe the information and warnings in this documentation.

This fluid-power product must be installed and integrated in a hydraulic system by a qualified staff who is familiar with and observes the general engineering principles and relevant applicable regulations and standards.

In addition, application-specific features of the system or installation location must be taken into account if relevant.

This product may only be used as a pressure-limiting valve within oil-hydraulic systems.

The product must be operated within the specified data. This documentation contains the technical parameters for various product versions.

**Note**

Non-compliance will void any warranty claims made against HAWE Hydraulik SE.

5.2 Assembly information

The hydraulic accumulator must be integrated in the system via state of the art connection components (screw fittings, hoses, pipes, etc.). The hydraulic system must be shut down as a precautionary measure prior to dismantling; this applies in particular to systems with hydraulic accumulators.

5.3 Operating instructions

Product, pressure and/or flow settings

All statements in this documentation must be observed for all product, pressure and/or flow settings on or in the hydraulic system.



Caution

Risk of injury on overloading components due to incorrect pressure settings!

Risk of minor injury.

- Always monitor the pressure gauge when setting and changing the pressure.

Filtering and purity of the hydraulic fluid

Soiling in the fine range, e.g. abraded material and dust, or in the macro range, e.g. chips, rubber particles from hoses and seals, can cause significant malfunctions in a hydraulic system. It is also to be noted that new hydraulic fluid "from the drum" does not necessarily meet the highest purity requirements.

Pay attention to the purity of the hydraulic fluid in order to maintain faultless operation (also see cleanliness level in [Chapter 3, "Parameters"](#)).

5.4 Maintenance information

This product is largely maintenance-free.

Conduct a visual inspection to check the hydraulic connections for damage at regular intervals, but at least once per year. If external leaks are found, shut down and remedy.

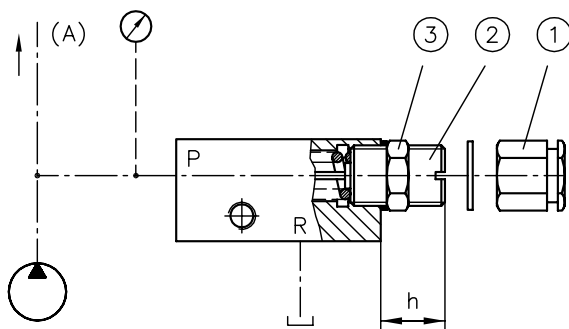
Check the device surfaces for dust deposits at regular intervals (but at least annually) and clean the device if required.

5.5 Valve setting



Note

Always monitor the pressure gauge when setting or changing the pressure yourself. The specified pressure change values per rotation of the adjusting spindle are only rough indicative values for approximately finding the desired operating point.



- 1 Remove cap nut
- 2 Undo lock nut
- 3 Unscrew adjusting spindle to approx. $h = 18.5$ to max. 19 mm (no noticeable spring preload)
- 4 If the consumer connected to the system has an end position that is limited by a stop (e.g. hydraulic cylinder), set the directional valve so that the consumer occupies an end position when the pump is switched on (e.g. remains retracted). If the consumer has no end position (hydraulic motor), the pressure line at (A) should be sealed off.
- 5 When the pump is running and directional valve position is as described in point 4, screw in adjusting spindle as described in point 3 until the pressure gauge shows the desired pressure value.
- 6 Tighten lock nut and cap nut again (don't forget sealing rings!)

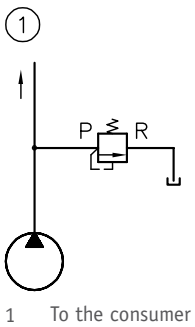
Type	Pressure change per rotation
MV.. 13 H	≈ 370 bar
MV.. 14 H	≈ 200 bar
MV.. 14 M	≈ 90 bar
MV.. 14 N	≈ 20 bar

6 Appendix

6.1 Typical application examples

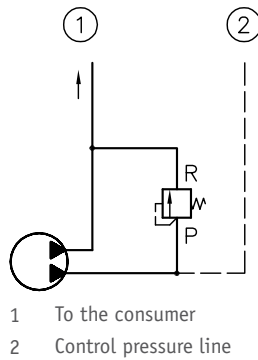
MVG, MVP and MVE

As protection for the hydraulic system against overpressure



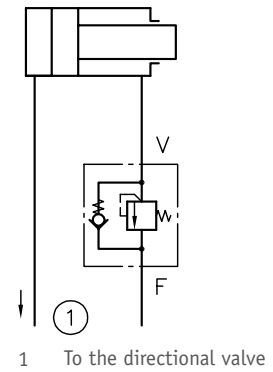
MVG, MVP and MVE

As a pre-load valve for generating minimum inlet pressure, e.g. for a control line



MVGC

For generating counter-pressure at the consumer



Further information

Additional versions

- Pressure-limiting valve type MV, SV and DMV: D 7000/1
- Pressure-limiting valve (installation kit) type MVF etc.: D 7000 E/1
- Pressure control valve type CMV, CMVZ, CSV and CSVZ: D 7710 MV
- Pressure-limiting valve, pilot-controlled type DV, DVE and DF: D 4350