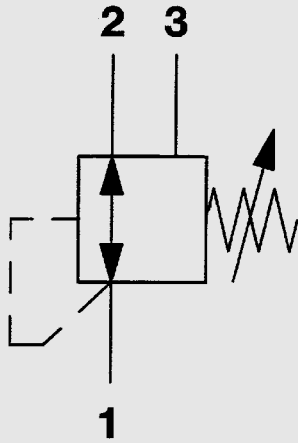
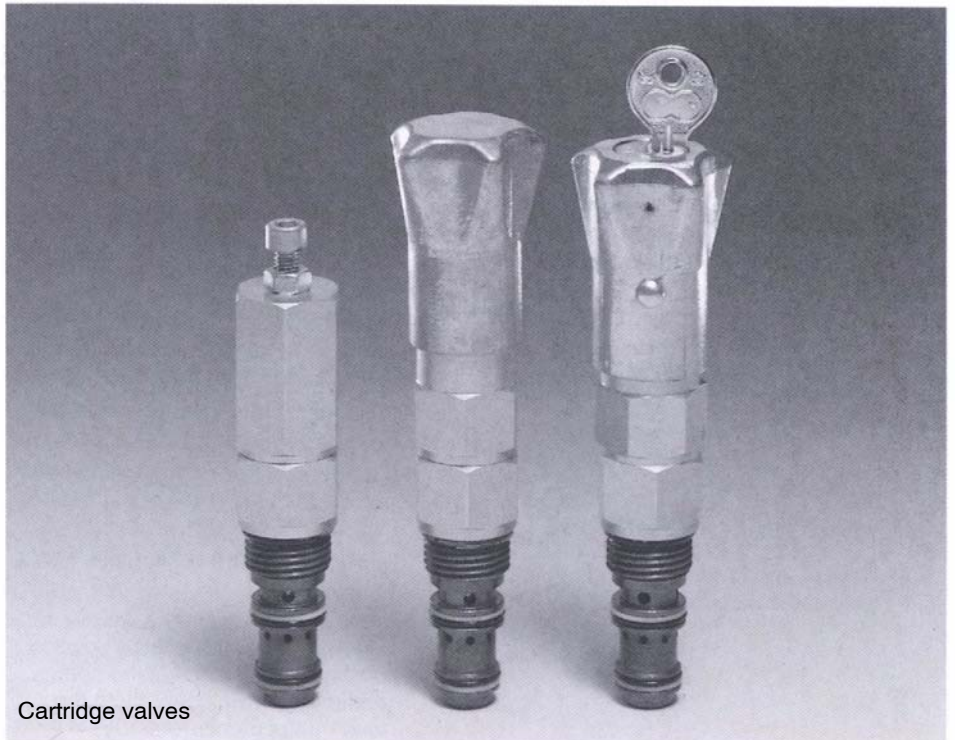


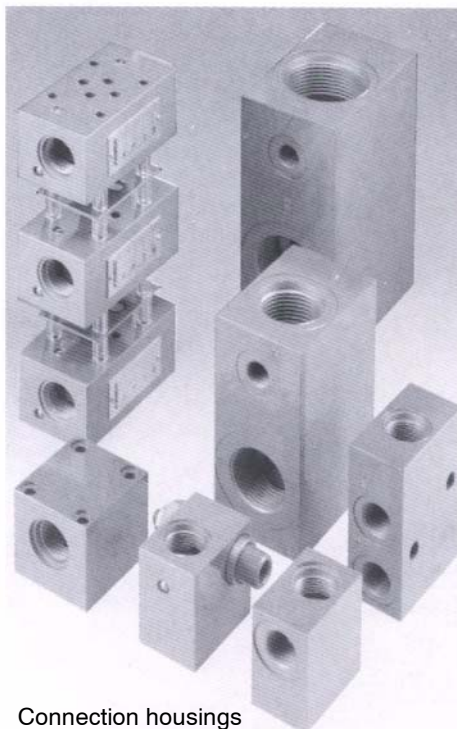
Pressure Reducing Valves DMVE



up to 500 bar
up to 30 l/min



Cartridge valves



Connection housings

1. DESCRIPTION

1.1. GENERAL

HYDAC pressure reducing valves DMVE belong to the group of pressure valves. According to DIN ISO 1219 these are valves for oil hydraulic systems with a variable inlet pressure, but which in the main provide a constant outlet pressure, provided that the inlet pressure is higher than the pre-set outlet pressure.

HYDAC DMVE pressure reducing valves function as follows:

- pressure control from 2 to 1
- outlet pressure relief from 1 to 3

Further advantages are:

- their compact design allows space-saving installation in connection housings, sandwich plates, control blocks etc.
- three different types of adjustment available
- optimum system adaptation by means of various pressure ranges
- simple assembly due to service-friendly cartridge valve technology

1.2. FUNCTION

HYDAC DMVE pressure reducing valves are direct-operated spool valves in a 3-way configuration, i.e. including maximum pressure relief on the outlet side.

The valves basically consist of valve body, spring, the adjustment device and a hardened and polished control spool.

Pressure control function from 2 to 1

In the initial position there is free flow through the pressure reducing valve from the high pressure side (port 2) through the control spool to the low pressure side (port 1). Pressure building up across port 1 due to a user unit (e.g. a cylinder), acts on the surface of the control spool and thereby produces a counter force to the pre-set spring force (setting pressure). If this counter force is smaller than the pre-set spring force, the control spool remains in its initial position. If the outlet pressure reaches the setting pressure due to the load on the user unit, the control spool is pushed against the spring. The inlet holes at port 2 are open only enough to admit the flow that is drawn off by the user unit, without increasing the pressure. If the user unit stops drawing off fluid, e.g. during the stroke of a cylinder, the control spool returns the whole control stroke and closes the inlet holes.

If the outlet pressure drops below the setting pressure because the user unit is relieved, the control spool is pushed back into the respective control position (flow from 2 to 1) by the spring and the control process starts again.

The maximum outlet pressure that can be set is limited by the spring.

Due to the spool construction of the valve slight leakages occur during the control process.

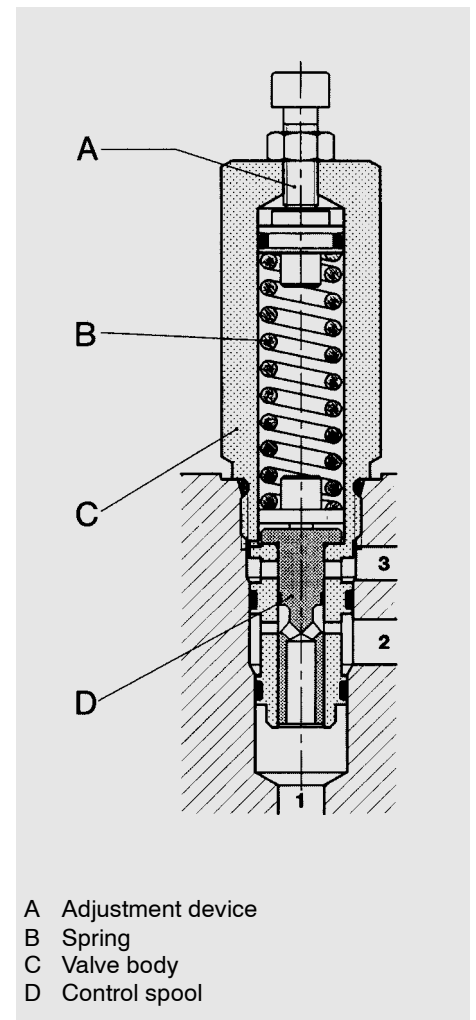
Outlet pressure relief from 1 to 3

If the pressure across port 1 rises above the setting pressure due to external force, the control spool is pushed further against the spring and relieves the user unit to the tank (outlet pressure relief).

The pressure across port 1 is limited according to the graphs (1→3), point 2.2.10.

Direction of flow from 1 to 2 (free return flow)

HYDAC DMVE pressure reducing valves can have flow from port 1 to port 2, but the permissible flow rates as per the graphs at 2.2.9. must be observed.



- A Adjustment device
- B Spring
- C Valve body
- D Control spool

1.3. APPLICATION

HYDAC DMVE pressure reducing valves are used to maintain a reduced pressure at a constant level in a secondary circuit of a hydraulic system, independent of the higher pressure of the primary circuit and without affecting the latter.

Particularly suitable applications are:

- hydraulic units
- mobile hydraulics
- clamping hydraulics

1.4. NOTES

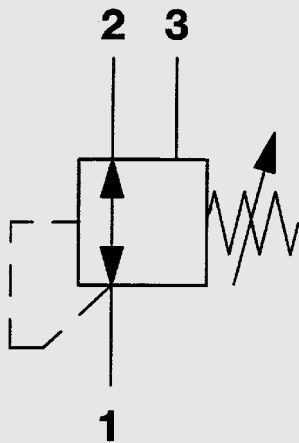
- to ensure fault-free operation the application limits regarding flow rate and operating pressure must be observed
- for direction of flow 1 to 2 (free return flow) the permissible flow rates must be observed (see point 2.2.9.)
- when fitting the valves into control blocks and housings the recommended torque ratings must be observed (see point 3)
- when connecting the ports make sure that no pressure is applied to the valve on the tank side as this pressure is added to the spring force, thereby affecting the setting pressure

2. TECHNICAL SPECIFICATIONS

2.1. GENERAL

2.1.1. Designation and symbol

Pressure reducing valve



2.1.2. Model code (also order example)

DMVE - G1/2 - 01 X - 140 V 40

Pressure reducing valve

Size
G1/2

Type
01 = standard

Series
(determined by manufacturer)

Setting pressure range
50 = 50 bar
140 = 140 bar

Type of adjustment
V = adjustable (standard model)
H = hand wheel
A = hand wheel, key-lockable
(hand wheel, E10 lock, type 2H)

Outlet pressure setting (p_1 in bar)
if no pressure is specified, the valve is not set (spring relaxed)

Standard types:

Stock No. (= order no.)	Model code
710254	DMVE-G1/2-01X-50 V
710250	DMVE-G1/2-01X-140 V

Please quote stock number when ordering.
Delivery for non-standard models is longer and the price is higher.

2.1.3. Type of construction

Spool valve,
direct-operated

2.1.4. Type of mounting

Cartridge valve

2.1.5. Mounting position

Optional

2.1.6. Weight

DMVE-G1/2-01X-50V ... 0.23 kg
DMVE-G1/2-01X-50H ... 0.30 kg
DMVE-G1/2-01X-50A ... 0.35 kg
DMVE-G1/2-01X-140V ... 0.34 kg
DMVE-G1/2-01X-140H ... 0.40 kg
DMVE-G1/2-01X-140A ... 0.45 kg

2.1.7. Flow direction

from 2 to 1 controlled flow
from 1 to 3 outlet pressure relief
from 1 to 2 free return flow
(see point 2.2.9.)

2.1.8. Ambient temperature range

min. -20 5C
max. +80 5C

2.1.9. Materials

Valve body: steel
Control spool: hardened and
polished steel
Seals: compatible with hydraulic oil
to DIN 51524 Part 1 and 2

2.1.10. Type of connection

Various types of suitable connection
 housings with cavity 08030 are
available. (See separate housing
brochure no. E 5.252../.)

2.2. HYDRAULIC DETAILS

2.2.1. Inlet pressure p_2

p_2 min. $> p_1$
if $p_2 < p_1$
no control function
 p_2 max. 500 bar

2.2.2. Outlet pressure p_1

p_1 min. depends on source flow rate (see point 2.2.10)
 p_1 max. 140 bar

2.2.3. Operating fluid

Mineral oil to DIN 51524 part 1 and part 2.

2.2.4. Operating fluid temperature range

min. $-20\text{ }^{\circ}\text{C}$
max. $+80\text{ }^{\circ}\text{C}$

2.2.5. Viscosity range

min. $2.8\text{ mm}^2/\text{s}$
max. $380\text{ mm}^2/\text{s}$

2.2.6. Flow rate, dependent on pressure

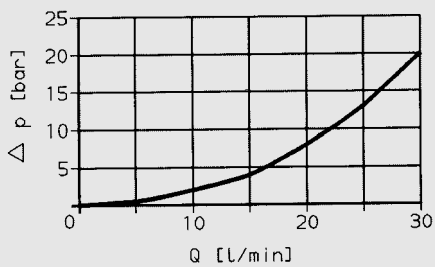
$Q_{\text{max}} = 30\text{ l/min}$ at $p_2 \leq 350\text{ bar}$
 $Q_{\text{max}} = 6\text{ l/min}$ at $p_2 \geq 350\text{ bar}$

2.2.7. Filtration

Max. permissible contamination level of the operating fluid to ISO 4406 Class 21/19/16 (NAS 1638 class 10). We recommend a filter with a minimum retention rate of $b_{20} \leq 100$. The fitting of filters and regular replacement of elements guarantees functioning, reduces wear and tear and increases the service life.

2.2.8. Pressure drop, dependent on flow rate

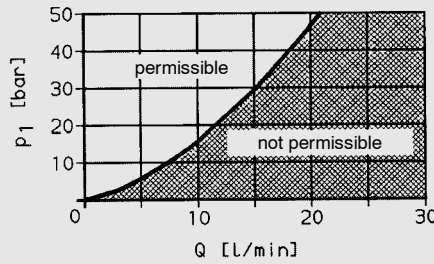
for flow direction $2 \rightarrow 1$; $1 \rightarrow 2$ measured at $n = 36\text{ mm}^2/\text{s}$ and $t_{\text{oil}} = 50\text{ }^{\circ}\text{C}$



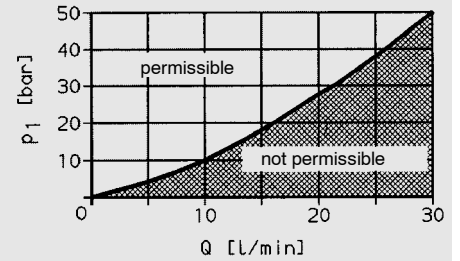
2.2.9. Permissible flow rate from 1 to 2 (free return flow)

$p_1 =$ outlet pressure setting
 $p_1 > 50\text{ bar} \dots 30\text{ l/min}$
 $p_1 \leq 50\text{ bar} \dots$ see graphs

DMVE-G1/2-01X-50



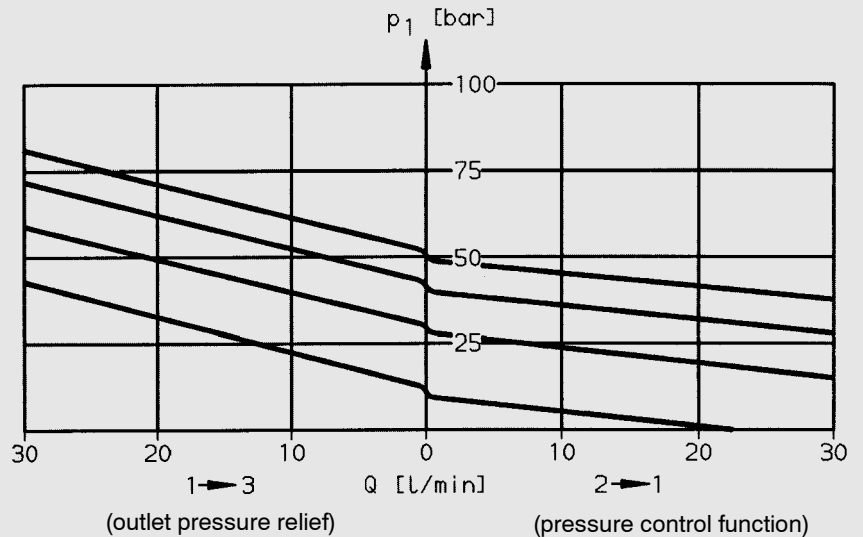
DMVE-G1/2-01X-140



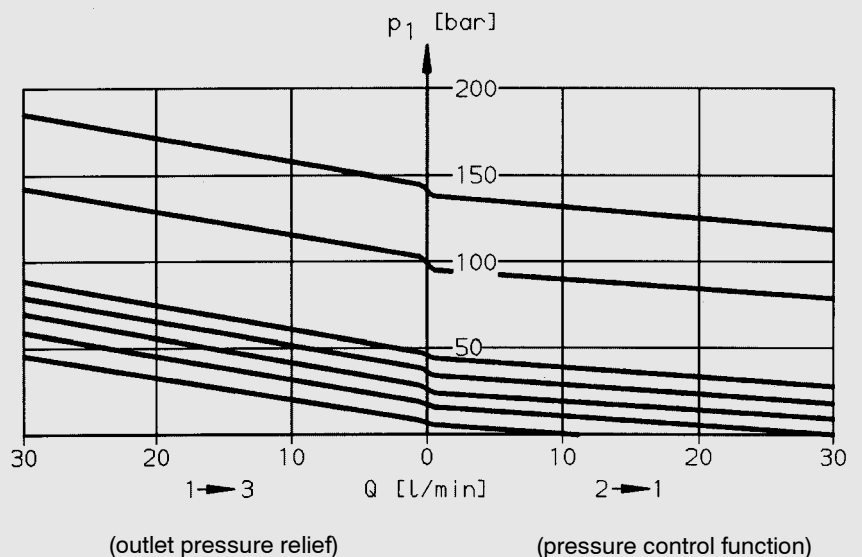
2.2.10. p_1 -Q Graphs

The graphs fall when there is an increasing flow rate from port 2 to port 1 because of the decreasing spring force for the increasing flow cross-section across port 2.

DMVE-G1/2-01X-50



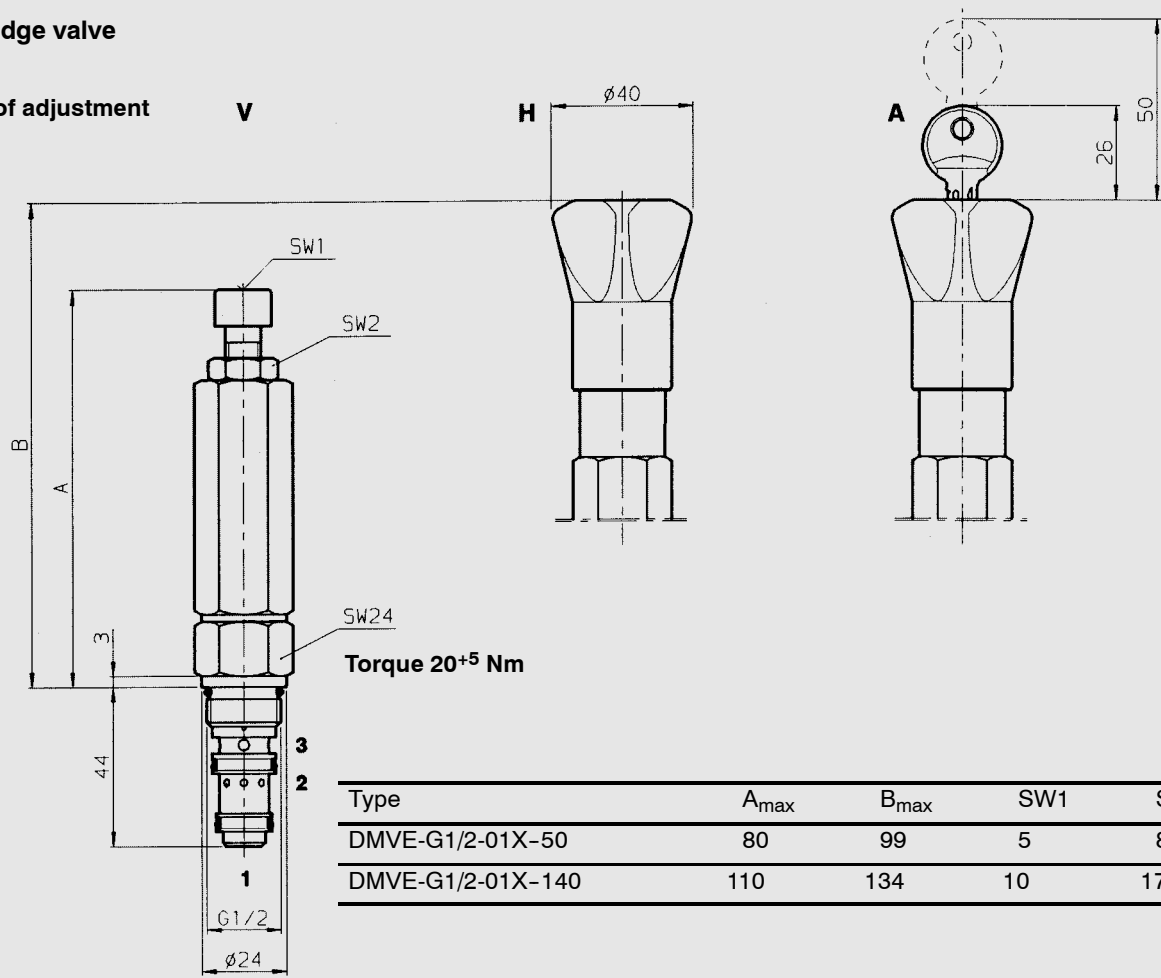
DMVE-G1/2-01X-140



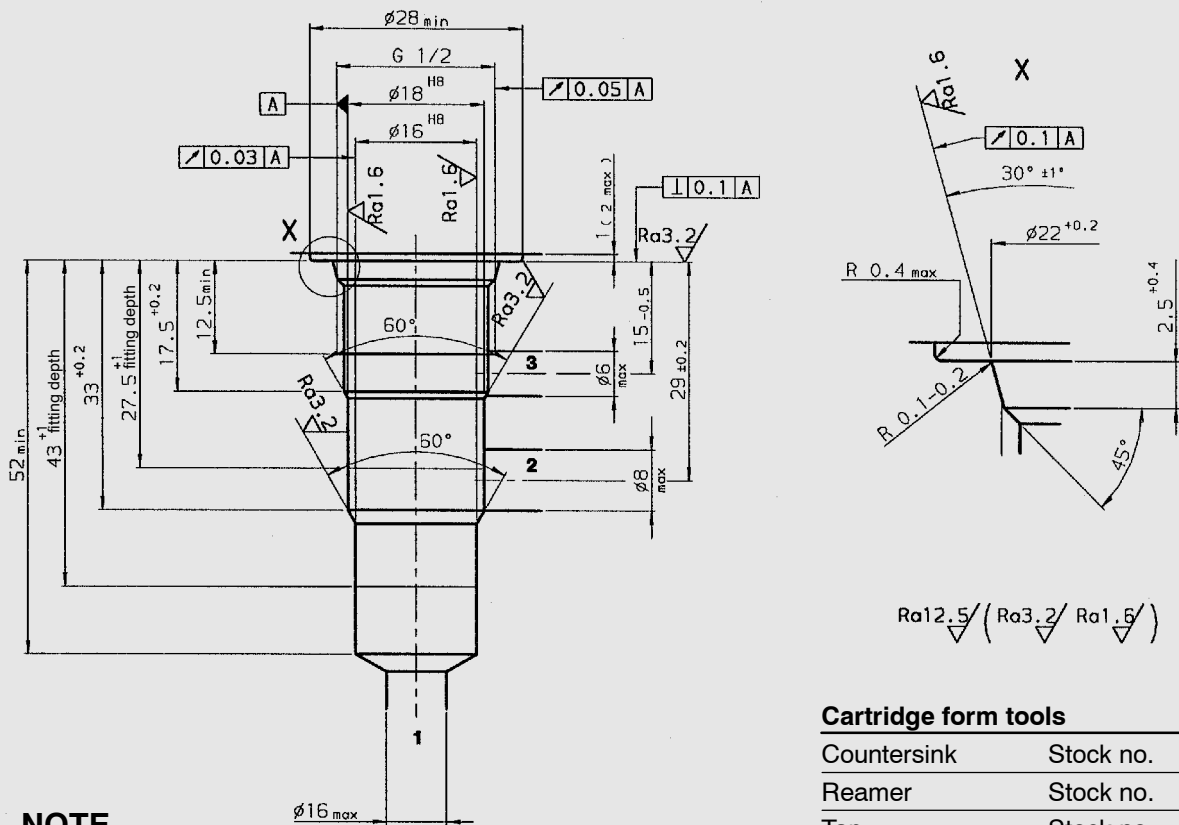
3. DIMENSIONS

Cartridge valve

Type of adjustment **V**



Installation dimensions 08030



4. NOTE

The information in this brochure relates to the operating conditions and applications described. For applications or operating conditions not described, please contact the relevant technical department. Subject to technical modifications.

Cartridge form tools

Countersink	Stock no.	170031
Reamer	Stock no.	169962
Tap	Stock no.	1002667
Plug gauge	Stock no.	169939