

Pressure relief valve DHV 712

DN 65 - 80: 0,5 - 10 bar, DN 65 - 100: 0,3 - 4 bar, DN 100: 0,5 - 6 bar



Advantage

- for high pressure stability
- reliable reduction of pressure peaks and pulsations
- pressure setting possible at any time, also during operation
- hermetically sealed by valve diaphragm
- in the position of rest 100% back pressure free

Application

- chemical plants
- industrial plants
- water treatment

Utilisation

- The pressure relief valve which is directly controlled by the medium, is used in technical processing plants for keeping preset working pressures constant on the primary side.
- The pressure relief valve can also be used as an overflow valve to prevent pressure peaks. In this case, the pressure relief valve is fitted in a bypass line.

Valve Function

- If the working or inlet pressure rises above the set value, the pressurized valve piston is lifted against the spring force. The valve opens and a pressure relief on the secondary side (outlet side) takes place. The valve closes as soon as the working pressure at the valve piston is lower than the set spring preload.
- Constructional damping at the piston prevents controller transient oscillations. The diaphragm separates the medium in the valve body from the bonnet and the atmosphere.

Valve Setting

- Set or adjust the desired or permissible working pressure at the adjustment screw with the aid of pressure gauges (ASV diaphragm pressure gauge guard, type MDM 902) in the pipe system after removing the protection cap. The adjustment screw is secured by a counter nut and can be sealed against unauthorized adjustment, if necessary.

Flow Media

- Technically pure, neutral and aggressive fluids, provided that the selected valve materials coming into contact with the media are resistant at the operating temperature according to the ASV resistance guide.
- For nitric acid or sulfuric acid please specify the precise operating conditions of the application.

Fluid Temperature

- see pressure/temperature diagram

Operating Pressure

- see pressure/temperature diagram

Size

- DN 65 - DN 100

Set Range

- DN 65 - DN 80: 0,5 - 10,0 bar
- DN 65 - DN 100: 0,3 - 4 bar
- DN 100: 0,5 - 6 bar

Nominal Pressure (H₂O, 20°C)

- PN 6 - PN 10

Working Pressure

- set pressure plus flow dependent pressure increase (see characteristic curves): approx. 0.3 - 10.0 bar

Opening Pressure

- approx. 0.3 - 0.5 bar

Hysteresis

- Difference between opening and closing pressure approx. 1 bar

Valve Body

- PVC-U
- PP
- PVDF

Bonnet

- PVC-U
- PP
- PVDF

Diaphragm

- PTFE (EPDM diaphragm with PTFE coating on the surfaces coming into contact with the medium)

Sealing

- FPM
- EPDM

Screws

- stainless steel (1.4301)

Actuation

- medium controlled

Connection

- spigot end for solvent welding DIN ISO (PVC-U)
- fusion spigot end DIN ISO (PP)
- fusion spigot end DIN ISO (PVDF)
- backing flange DIN 2501, PN 10/16, on request

Flow Direction

- always in the direction of the arrow

Mounting

- as required

Fastening

- via threaded inserts (metal inserts) in the valve body

Colour

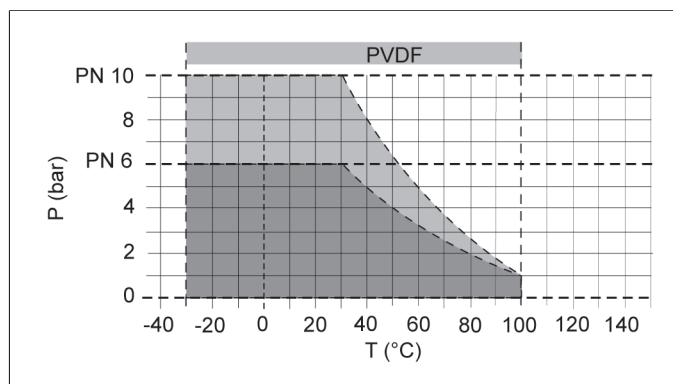
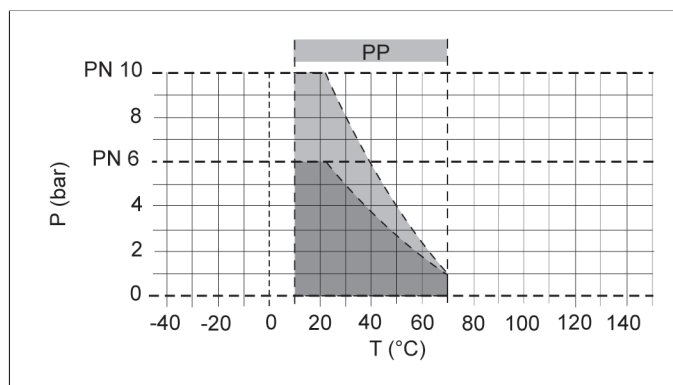
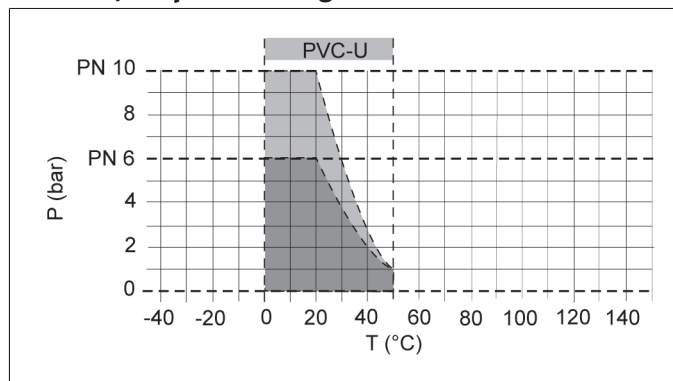
- PVC-U: grey, RAL 7011
- PP: grey, RAL 7032
- PVDF: opaque, yellowish-white

Pressure Gauge Connection

- The pressure relief valve can be factory fitted with a pressure gauge for neutral media. The resistance of the pressure gauge material has to be taken into consideration for other media.

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Pressure/temperature diagram



P = operating pressure

T = temperature

The pressure/temperature limits are applicable for the stated nominal pressures and a computed operating life factor of 25 years. These are standard values for harmless media (DIN 2403), to which the valve material is resistant.

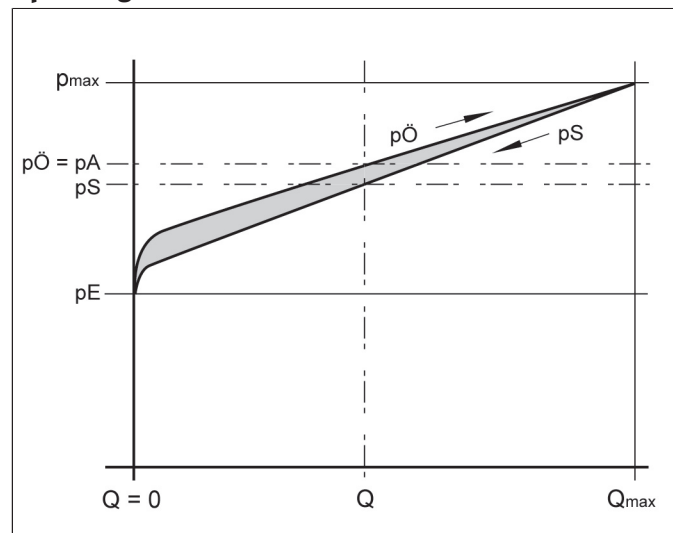
For other media please refer to the ASV resistance guide.

The durability of wear parts depends on the operating conditions of the application.

For temperatures below 0°C (PP < +10°C) please specify the precise operating conditions of the application.

The rated pressure depends on the valve size and material. For the corresponding rated pressure value of the valve, please refer to the »Order table«.

Operating behaviour



pE = set Pressure

pA = working pressure

$pÖ$ = opening pressure

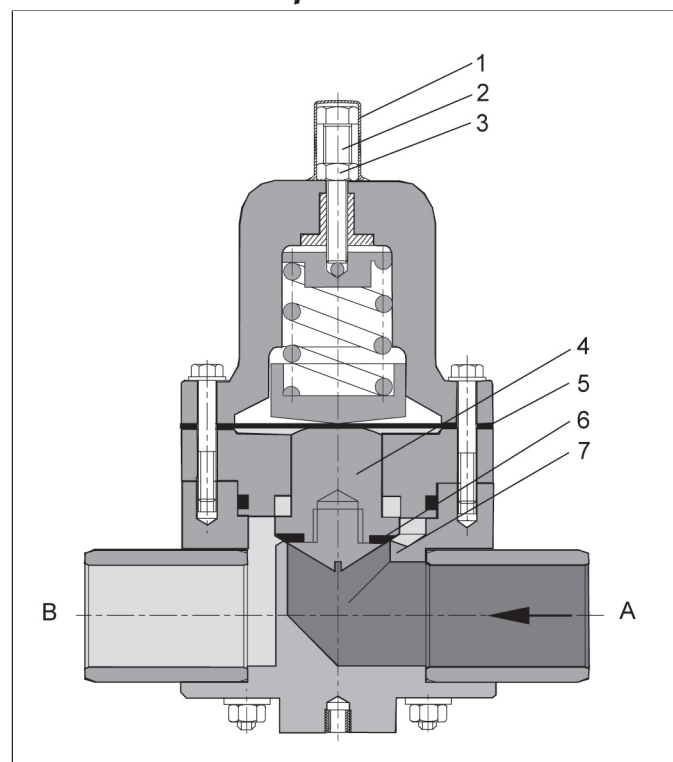
pS = closing pressure

$pÖ - pS$ = hysteresis

$pE - pA$ = flow dependent pressure reduction

Q = flow

The sectional view DHV 712



A = primary side

B = secondary side

1 = protection cap

2 = adjustment screw

3 = counter nut

4 = piston

5 = diaphragm

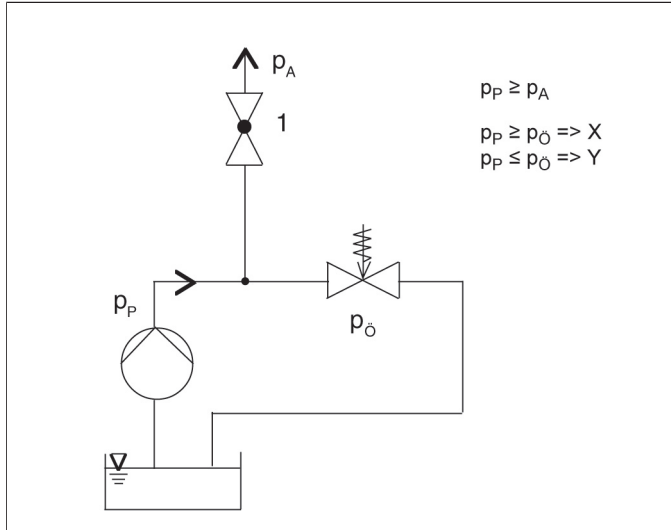
6 = flat sealing ring

7 = valve seat

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Applications for Pressure Relief Valve

Example 1: Constant system pressure



X = valve opens

Y = valve closed

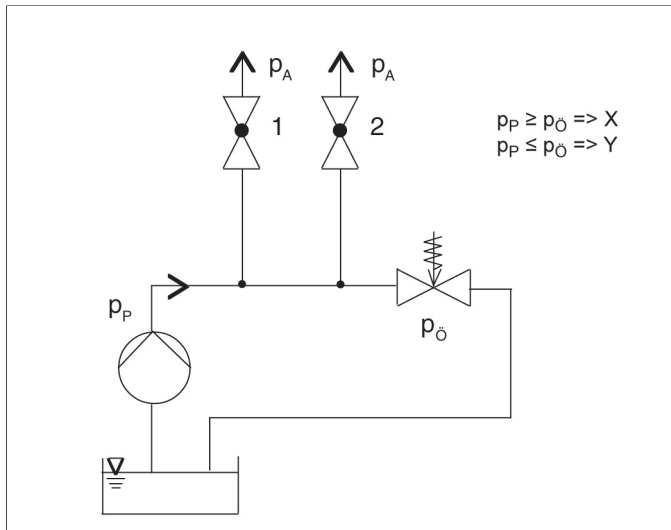
p_A = working pressure

p_P = pump pressure

$p_{\bar{O}}$ = opening pressure

Applications for Pressure Relief Valve

Example 2: Consumer 1 and/or 2 opens, pressure relief valve closes



X = valve opens

Y = valve closed

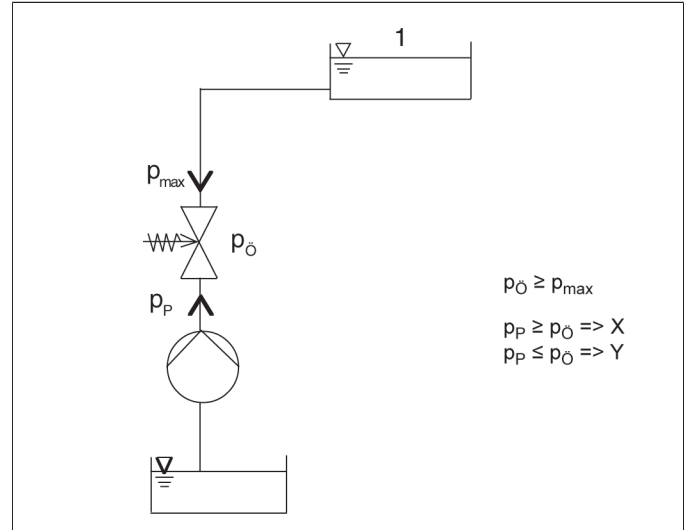
p_A = working pressure

p_P = pump pressure

$p_{\bar{O}}$ = opening pressure

Applications for Pressure Relief Valve

Example 3: Pressure relief valve as backflow preventer



X = valve opens

Y = valve closed

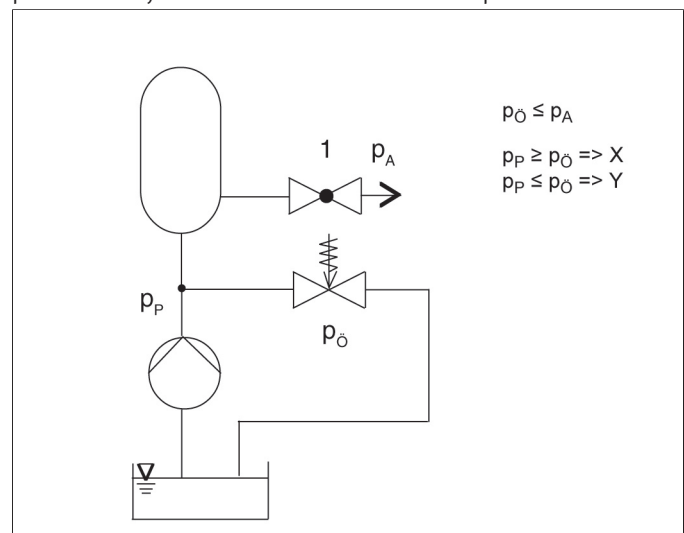
$p_{\max}$ = max. pressure

p_P = pump pressure

$p_{\bar{O}}$ = opening pressure

Applications for Pressure Relief Valve

Example 4: Pressure relief valve as overflow valve: The container pressure or system must not exceed the max. pressure value



X = valve opens

Y = valve closed

p_A = working pressure

p_P = pump pressure

$p_{\bar{O}}$ = opening pressure

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Malfunctions, possible causes, rectification

Malfunction:	Cause:	Rectification:
Valve leaking at the diaphragm.	Insufficient contact pressure (membrane fastening).	Tighten the connecting screws.
Pressure falls below the set value.	Piston guidance or valve seat leaking.	Check piston and/or valve seat and replace, if necessary.
Pressure exceeds the set value.	The piston guide sticking, possible due to soiling. Valve fitted the wrong way round.	Clean valve. Turn the valve around, observe the arrow for the direction of flow.
Medium leakage at the adjustment screw.	Diaphragm defective.	Replace diaphragm.

Maintenance note

Screw tightening torque (Nm)

d (mm)	75	90	110
Md (Nm)	20	20	20

The specified values apply to lubricated screws.

Check the tightening torque of the body screws at certain intervals in case of setting of the diaphragms and/or temperature fluctuations.

Operating note

Safe operation of the valve can only be ensured if it is properly installed, operated, serviced or repaired by qualified personnel according to its intended use while observing the accident prevention regulations, safety regulations, relevant standards, directives/technical regulations or codes of practice such as e.g. DIN, DIN EN, DIN ISO and DVS*. *DVS = German Welding Society
 The intended use includes adhering to specified limit values for pressure and temperature, as well as checking the resistance. This requires all components coming into contact with the medium to be "resistant" in accordance with the ASV resistance guide.

Pressure gauge version

If the valve body is equipped with a pressure gauge, do not tighten the pressure gauge with more than max. 3 Nm.

Please take into account that the material PTFE is classified as resistant against many media, however, PTFE is not diffusion tight when used as a film, e.g. for the ASV membranes. Please contact us for limit cases (nitric acid or sulfuric acid).

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body PVC-U

size pressure range	d(mm)		75	75	90	90	110	110
	DN(mm)		65	65	80	80	100	100
	DN(inch)		2 1/2	2 1/2	3	3	4	4
	PN(bar)		10	10	10	10	6	6
	Setting range (bar)		0.3-4	0.5-10	0.3-4	0.5-10	0.3-4	0.5-6
Connection	sealing	ident No.						
PVC-U spigot end DIN ISO	EPDM		110545	110060	110548	110063	112926	111856
	FPM		112920	112911	112923	112914	112929	112932
	weight		9.50 kg	9.50 kg	12.00 kg	12.00 kg	15.00 kg	15.00 kg

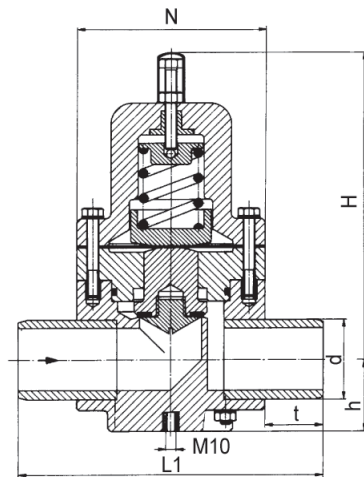
body PP

size pressure range	d(mm)		75	75	90	90	110	110
	DN(mm)		65	65	80	80	100	100
	DN(inch)		2 1/2	2 1/2	3	3	4	4
	PN(bar)		10	10	10	10	6	6
	Setting range (bar)		0.3-4	0.5-10	0.3-4	0.5-10	0.3-4	0.5-6
Connection	sealing	ident No.						
PP spigot end DIN ISO	EPDM		110546	110061	110549	110064	112927	111857
	FPM		112921	112912	112924	112915	112930	112933
	weight		7.00 kg	7.00 kg	10.80 kg	10.80 kg	12.00 kg	12.00 kg

body PVDF

size pressure range	d(mm)		75	75	90	90	110	110
	DN(mm)		65	65	80	80	100	100
	DN(inch)		2 1/2	2 1/2	3	3	4	4
	PN(bar)		10	10	10	10	6	6
	Setting range (bar)		0.3-4	0.5-10	0.3-4	0.5-10	0.3-4	0.5-6
Connection	sealing	ident No.						
PVDF spigot end DIN ISO	FPM		112922	112913	112925	112916	112931	112934
	weight		11.20 kg	11.20 kg	14.00 kg	14.00 kg	17.00 kg	17.00 kg

Pressure relief valves, Pressure relief valve DHV 712



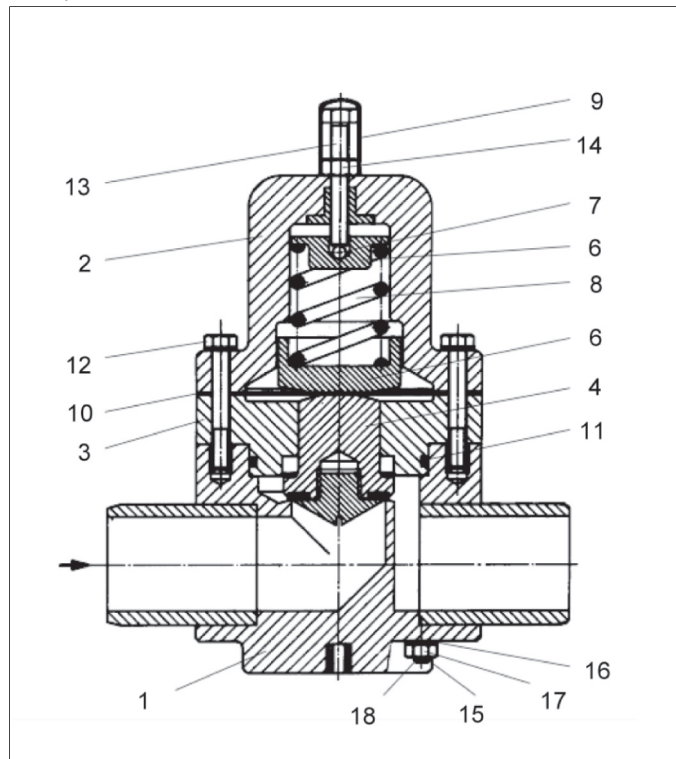
dimensions

d(mm)	75	90	110
DN(mm)	65	80	100
DN(inch)	2 1/2	3	4
dimensions(mm)			
d	75	90	110
h	68	75	95
L1	284	360	420
t	54	80	85
H	282	310	360
N	175	200	250

Pressure relief valves, Pressure relief valve DHV 712

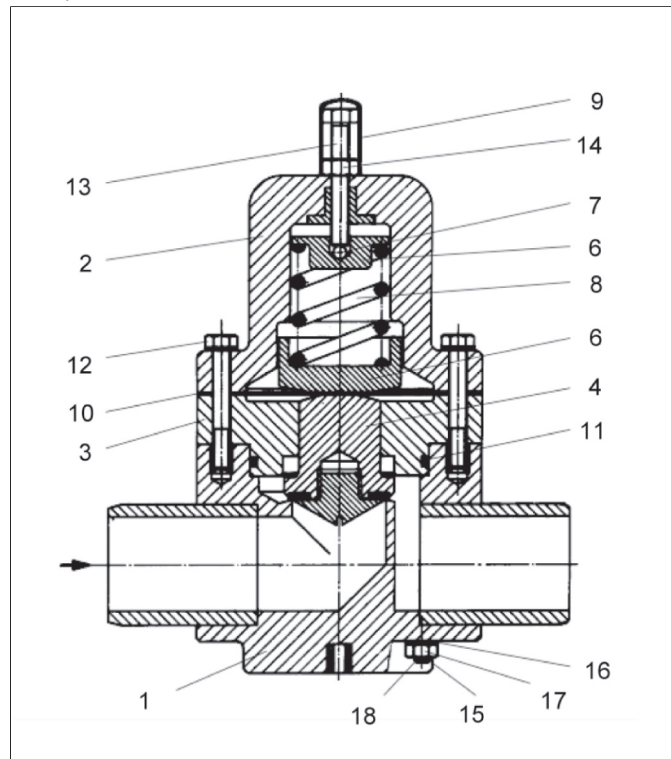
Exploded view

DHV 712 DN 65



position	quantity	designation
1	1	valve body
2	1	bonnet
3	1	separating disc
4	1	piston, complete
5	1	spring plate
6	1	pressure plate
7	1	steel ball
8	1	pressure spring
9	1	protection cap
10	1	diaphragm
11	1	O-ring
12	2	hexagon bolt
13	1	adjustment screw
14	1	counter nut
15	6	hexagon bolt
16	14	washer
17	12	hexagon nut
18	14	protection cap

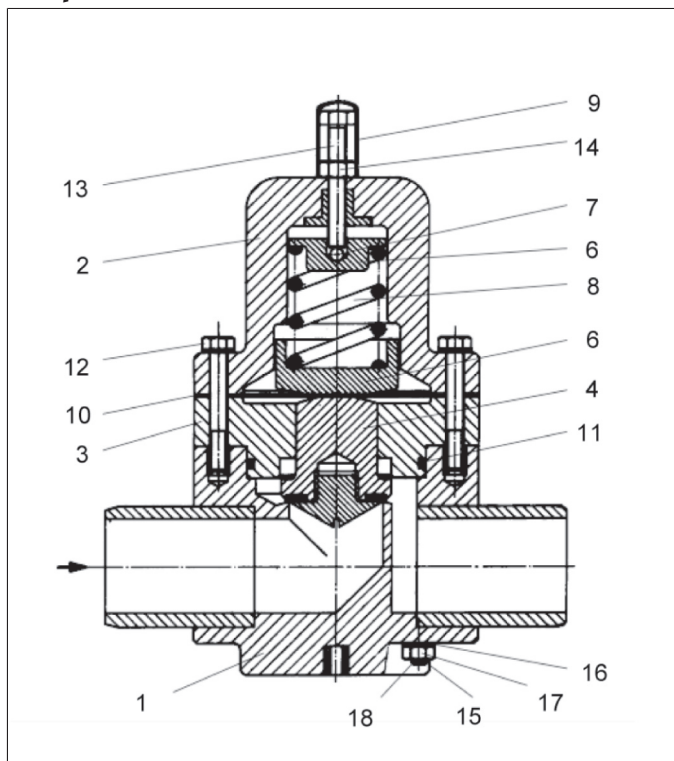
DHV 712 DN 80



position	quantity	designation
1	1	valve body
2	1	bonnet
3	1	separating disc
4	1	piston, complete
5	1	spring plate
6	1	pressure plate
7	1	steel ball
8	1	pressure spring
9	1	protection cap
10	1	diaphragm
11	1	O-ring
12	2	hexagon bolt
13	1	adjustment screw
14	1	counter nut
15	6	threaded bolt
16	14	washer
17	12	hexagon nut
18	14	protection cap

Pressure relief valves, Pressure relief valve DHV 712

DHV 712 DN 100

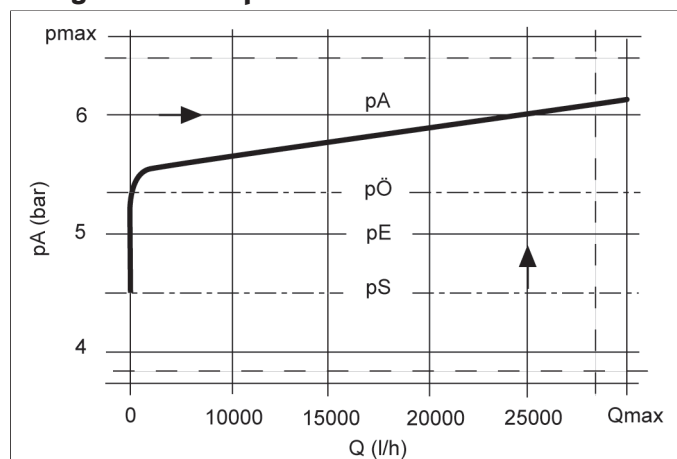


position	quantity	designation
1	1	valve body
2	1	bonnet
3	1	separating disc
4	1	piston, complete
5	1	spring plate
6	1	pressure plate
7	1	steel ball
8	1	pressure spring
9	1	protection cap
10	1	diaphragm
11	1	O-ring
12	2	hexagon bolt
13	1	adjustment screw
14	1	counter nut
15	8	threaded bolt
16	18	washer
17	16	hexagon nut
18	18	protection cap

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Characteristic curves

Configuration example



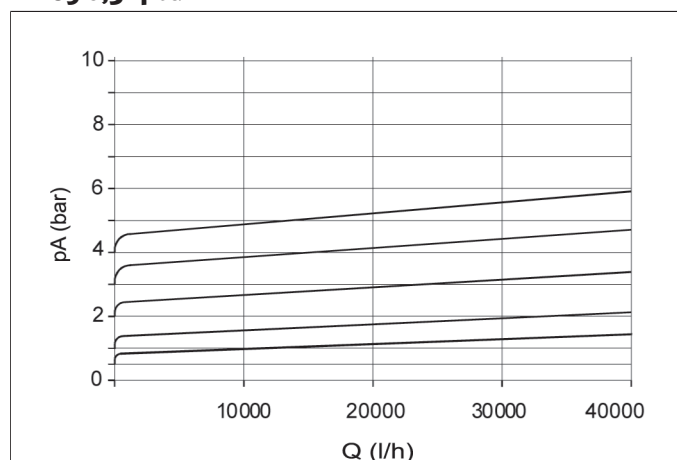
The valve is set tight at 5 bar.

A flow of approx. 25000 l/h is reached at a pressure increase of 1 bar.

According to the curve, this results in the following values:

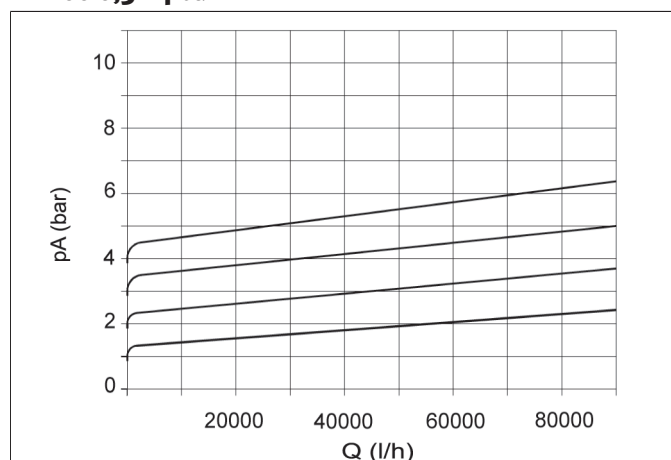
set pressure pE: 5 bar; working pressure pA: 6 bar; opening pressure pÖ: 5.4 bar; closing pressure pS: 4.5 bar

DN 65 0,3-4 bar



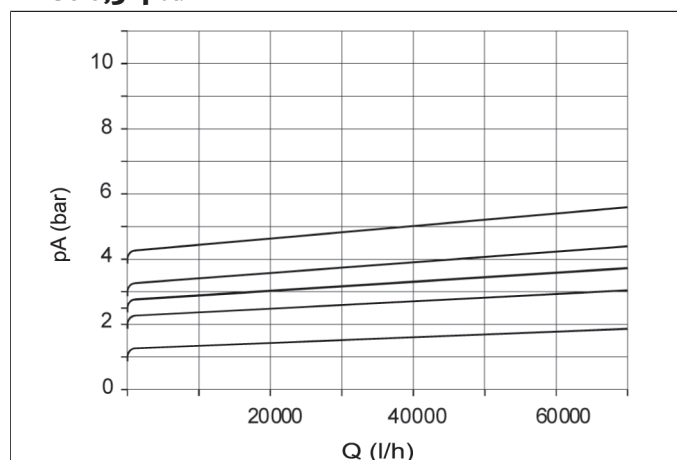
pA = working pressure
Q = flow

DN 100 0,3 - 4 bar



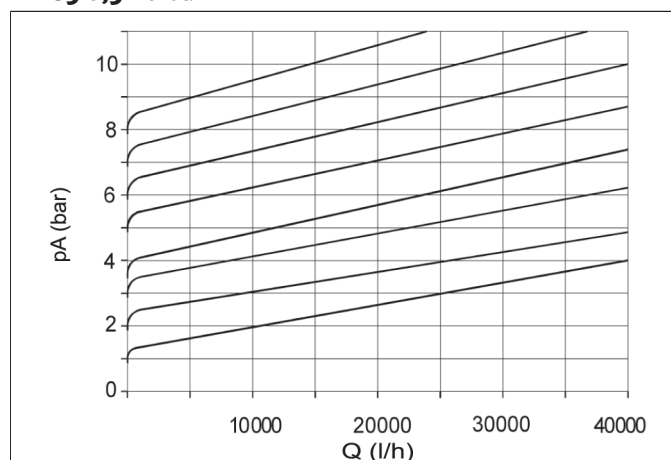
pA = working pressure
Q = flow

DN 80 0,3-4 bar



pA = working pressure
Q = flow

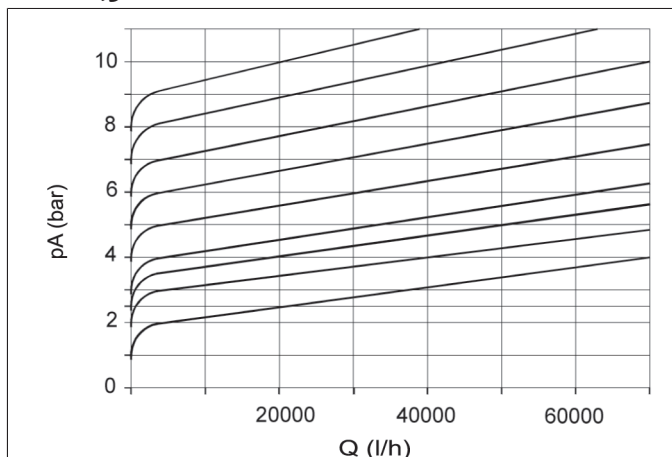
DN 65 0,5-10 bar



pA = working pressure
Q = flow

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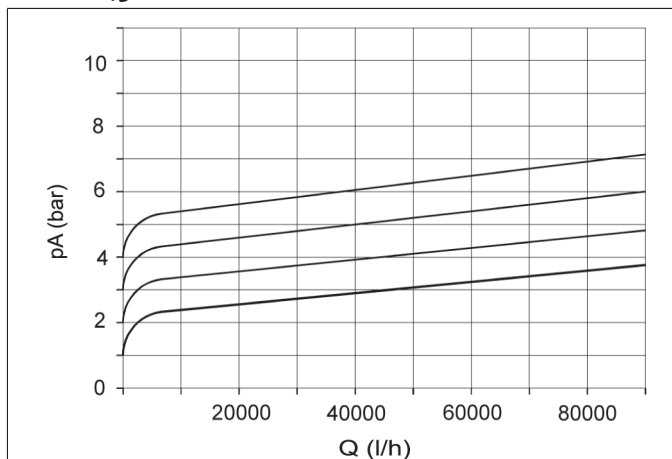
DN 80 0,5-10 bar



pA = working pressure

Q = flow

DN 100 0,5 - 6 bar



pA = working pressure

Q = flow

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