

## Pressure Relief Valve

## Overflow Valve

Type DHV 715

Type DHV 716

Type DHV 725

High reproducibility,  
with union sockets or  
spigot ends



### Design

### Size

### Max. pressure

### Setting range

### Pressure setting

### Opening pressure

### Working pressure

### Back lash

### Operating security

### Maintenance

### Simple inline pipe connection

- ASV sturdy and robust construction
- DN 10 up to DN 50
- 10 bar (PN 10) at 20 °C
- DHV 715: 0,2 - 4,0 bar
- DHV 716: 0,5 - 10,0 bar
- DHV 725: 0,2 - 10,0 bar
- At any time also during operation
- DHV 715: approx. 0,2 bar
- DHV 716: approx. 0,4 bar
- DHV 725: approx. 0,2 bar
- Corresponding to related material and temperature:
  - DHV 715: up to 4,0 bar
  - DHV 716: up to 10,0 bar
  - DHV 725: up to 10,0 bar
- Low pressure increase up to full seat opening
- High reproducibility
- Low hysteresis of only approx. 0,3 bar
- Hermetically sealed by diaphragm with crimped O-ring
- Solid, vibration and fluttering free pressure control
- Maintenance free
- Injection moulded spigot ends as per DIN 8063, completed with union nuts, o-rings and union ends. Also ANSI, JIS and BSP union ends available.
- Radial possibility of later extensions (after mounting)
- Spigot ends for solvent welding or butt/socket fusion welding as per ISO/DIN

**Because of constructive design the valves DHV 715/716/725 has the following features:**

- high reproducibility
- short compact dimensions
- injection moulded threaded necks acc. to DIN 8063 with unions socket ends
- direct mounting on any valve support by metal inserts below the body

### Range of applications

The DHV is directly controlled by the operating fluid and is needed in all technical processes where a constant working and system pressure is required and for avoiding any undesired pressure increase. Page 11 shows typical applications. It can also be used as overflow valve in a bypass.

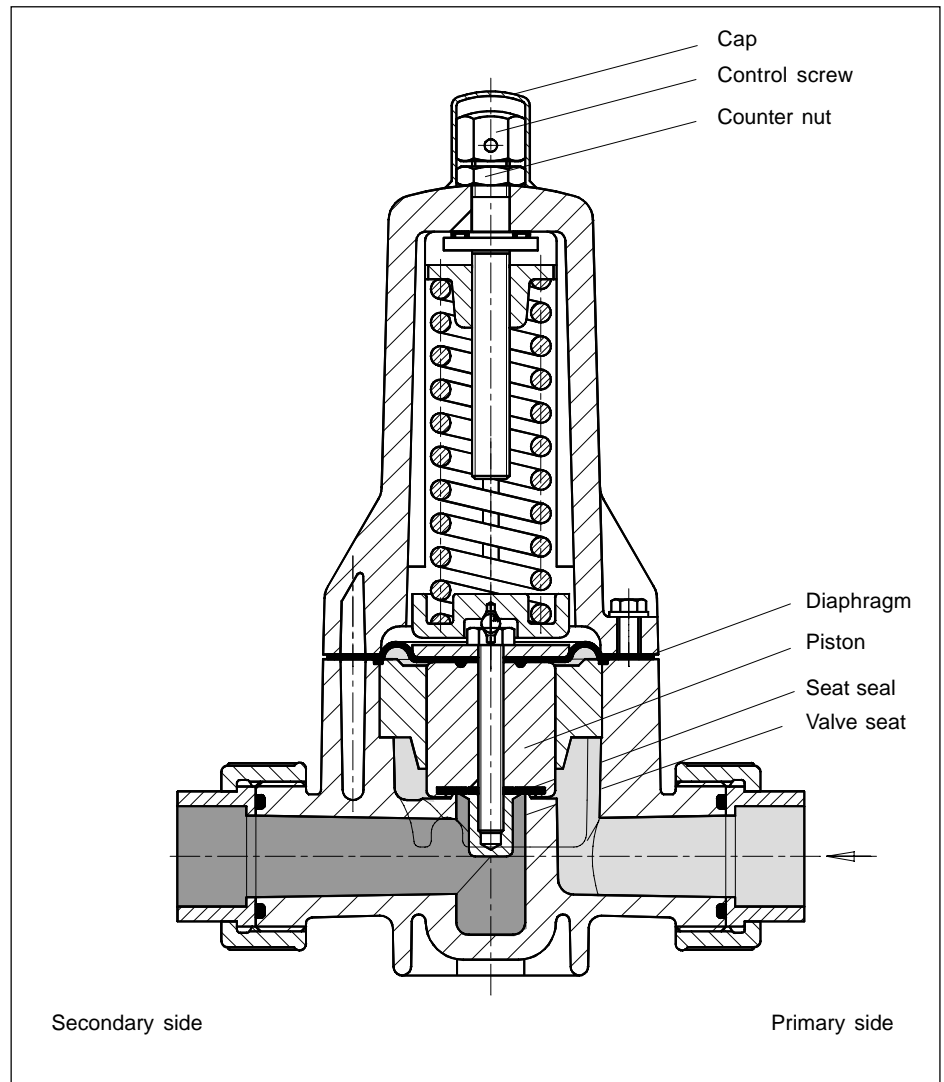
### Valve functions and design

Normally the valve is closed and the piston respectively the valve seat is only admitted to the secondary pressure. Does the operating pressure or primary pressure rises above a certain pre-set pressure value the diaphragm (5) is lifted against the spring (8). The valve opens and a pressure suppression into the secondary pipe system takes place. Because of the diaphragm supported by the secondary pressure on the piston seat a flat curve of the opening is reached which means a low pressure increase with a high valve piston lift.

A constructive damping at the valve piston suppresses vibration and fluttering.

The preformed diaphragm constructed for full opening of the valve separates the fluid in the lower body from the bonnet respectively the atmosphere. The sealed tightness especially at higher temperature is secured by crimped seal O-rings at the diaphragm.

### Sectional view DHV 725

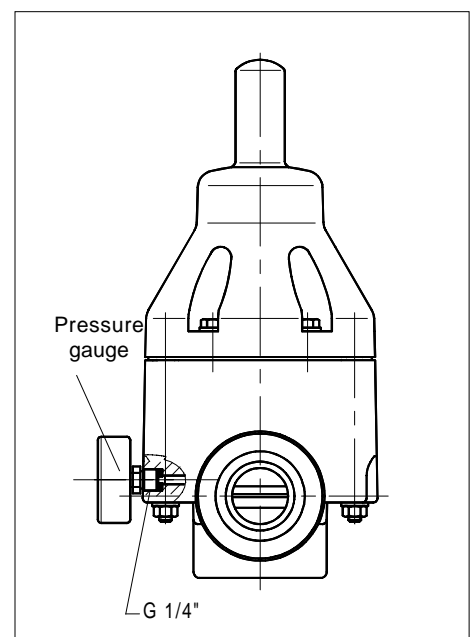


### Valve setting and adjustment

The pre-setting or readjustment is made by removing the protection cap (18) and by setting the adjustment screw (15) with a counter-nut (16) and by reading the set pressure from the ASV pressure gauge type 900 in the pipe system. The counter-nut (16) can be leaded.

### Pressure relief valve with pressure gauge

For neutral fluids the valve can be equipped with a gauge either at the primary or also at the secondary side.



## Material

Only thermoplastic material with high impact strength and longtime rupture strength will be used by ASV

### Valve body, piston, separation disc:

- uPVC (Polyvinyl Chloride)
- PP (Polypropylene)
- PVDF (Polyvinylidene Fluoride)

### Valve bonnet:

- PP glass-fiber reinforced

### Moulded diaphragm:

- EPDM, PTFE coated on fluid side

### Valve seat seal:

- EPDM
- FPM
- PTFE coated elastomer ring

### O-Rings at union ends:

- EPDM
- FPM

### Screws, nuts and washers:

- Stainless Steel (1.4301)

## Technical data

### Fluids:

Technically clean, neutral or aggressive fluids corresponding to the respective resistance of the valve material at working temperature. Refer to the ASV resistance chart.

### Direction of installation:

In direction of arrow but independent from horizontal, vertical or up side down installation.

### Normal pressure:

PN 10 at +20 °C

### Operating Pressure:

Depending on material, temperature and pressure relation. See material chart.

### Working pressure:

Equal to set pressure plus pressure increase depending on flow (see characteristic curves):  
0,2 up to 10,0 bar

### Opening pressure difference:

DHV 715 approx. 0,2 bar  
DHV 716 approx. 0,4 bar  
DHV 725 approx. 0,2 bar

### Hysteresis:

Difference between opening and closing pressure: approx. 0,3 bar

### Fluid temperature:

Corresponding to material, working pressure and resistance against fluid:

- uPVC: + 50 °C
- PP: + 70 °C
- PVDF: +100 °C

### Colour of body:

- uPVC grey, RAL 7011
- PP grey, RAL 7032
- PVDF opaque (yellowish white)

### Colour of bonnet

- PP-gfr orange, RAL 2005

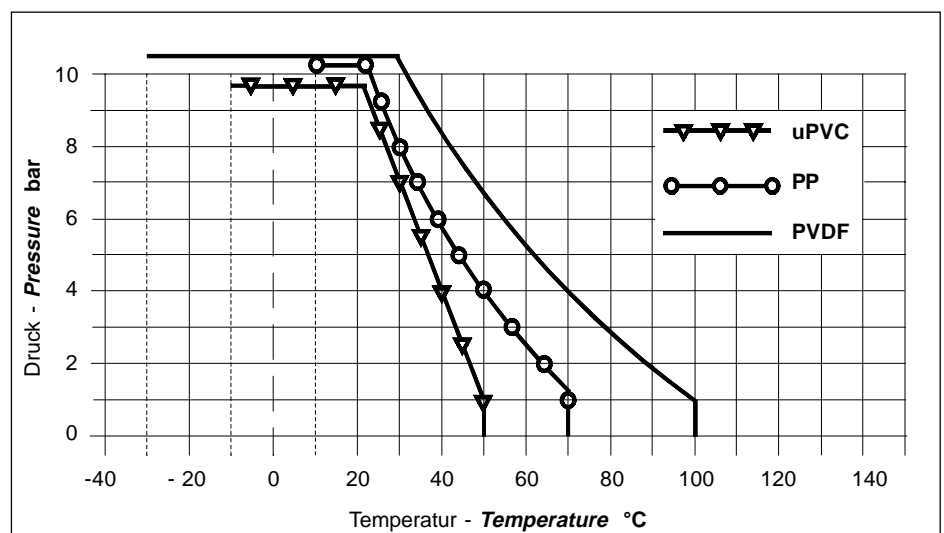
### Pressure-temperature relation graph:

This graph is a guideline of resistance of thermoplastic material for neutral fluids.

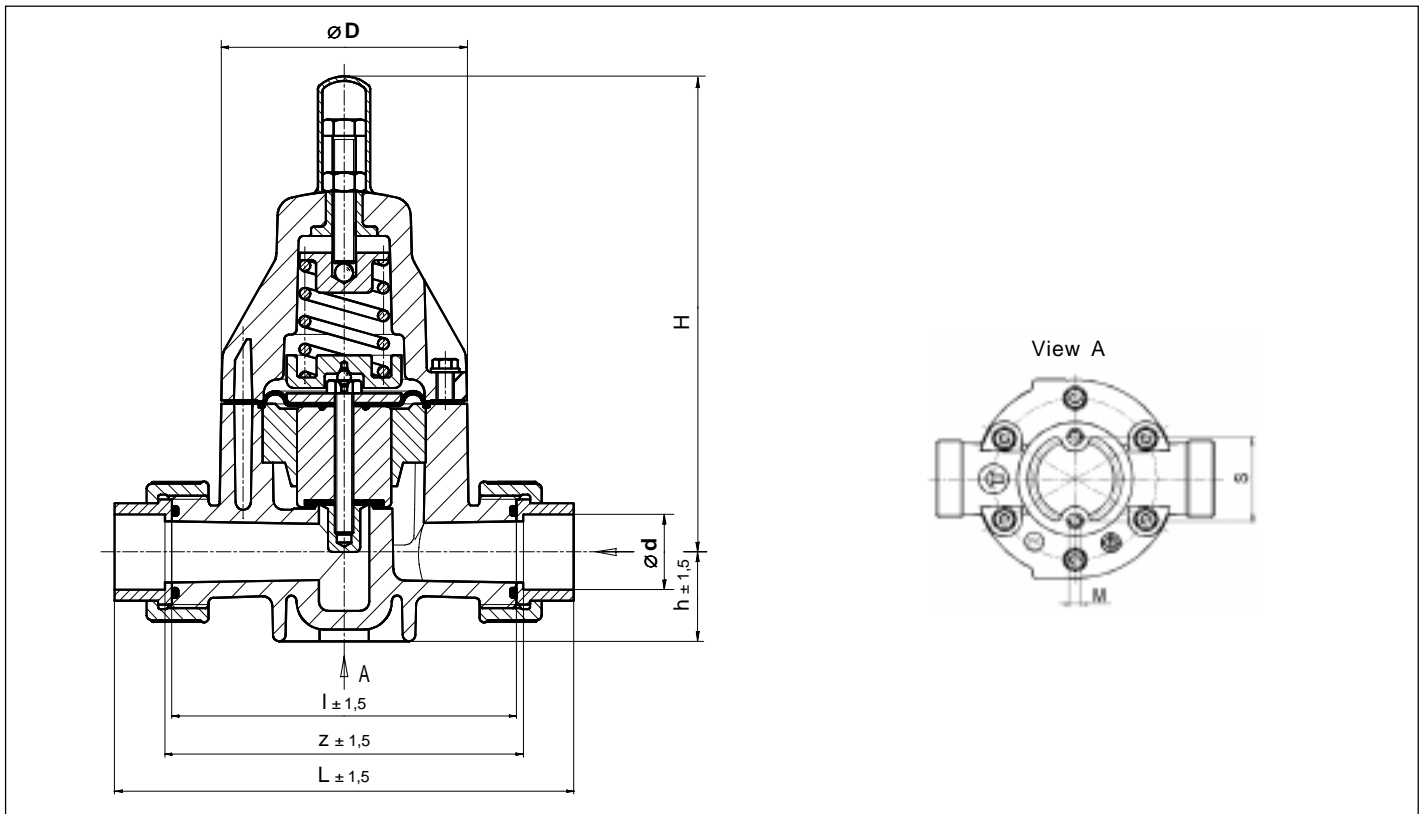
The curves are valid for a calculated lifetime of about 20 years (uPVC and PVDF), 10 years (PP).

At working temperature below 0 °C (PP < +8 °C), details on request. All details of application are needed.

### Pressure-temperature relation graph



### Dimensions DHV 715, DHV 716 and DHV 725 with union sockets



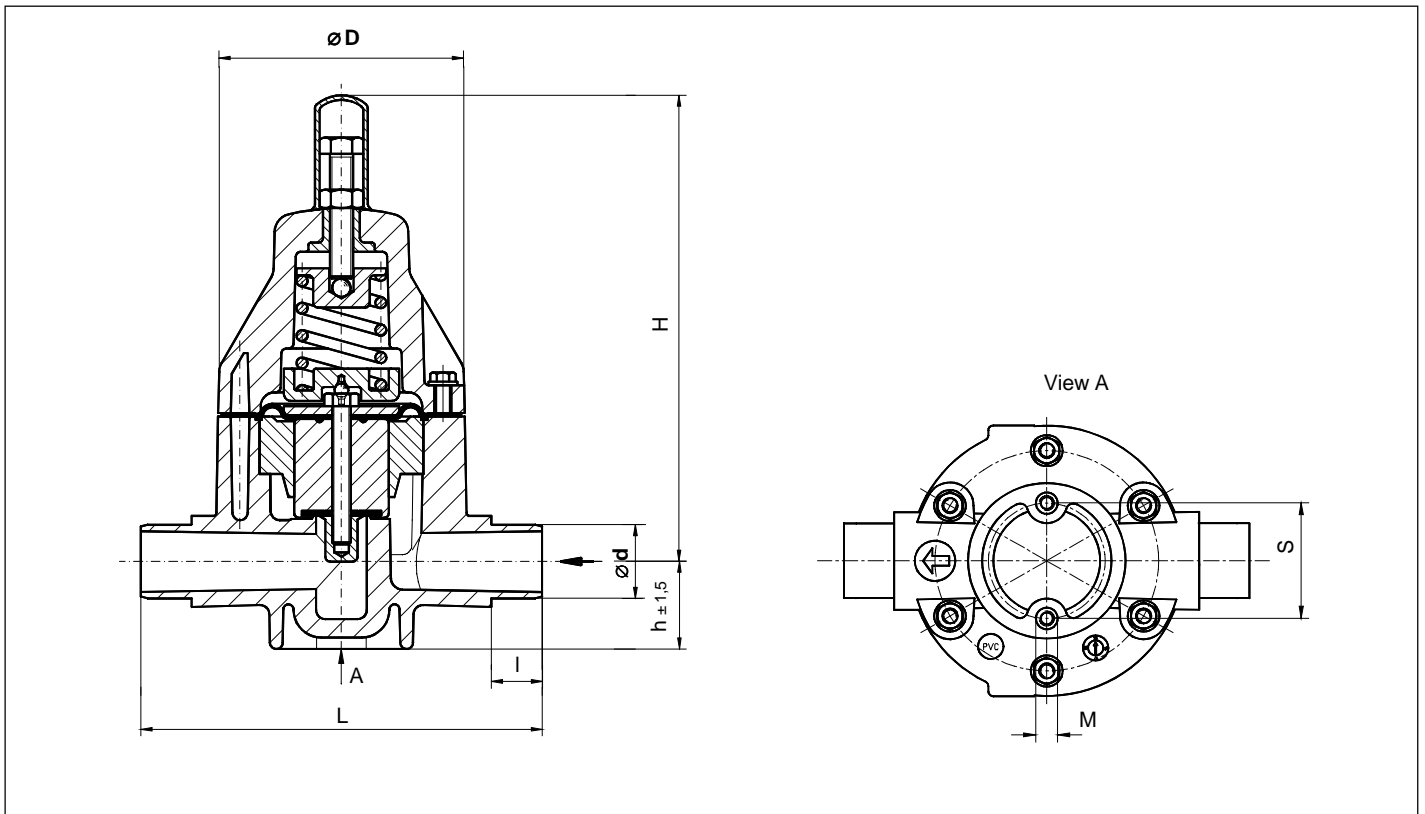
### For DHV 715 and DHV 716 with union sockets

Size			Dimensions mm													Weight kg (appr.)		
d	DN	DN	L			l		z		h		H	D	M	s	uPVC	PP	PVDF
mm	mm	inch	uPVC	PP	PVDF	uPVC*	PVDF	uPVC*	PVDF	uPVC*	PVDF							
16	10	3/8	154	155	154	120	118	126	124	25	24	174	81	M 6	40	0,80	0,67	1,02
20	15	1/2	159	154	156	120	118	126	124	25	24	174	81	M 6	40	0,85	0,72	1,07
25	20	3/4	195	188	189	150	147	156	153	37	36	202	107	M 6	46	1,86	1,57	2,11
32	25	1	201	192	193	150	147	156	153	37	36	202	107	M 6	46	1,90	1,61	2,15
40	32	1 1/4	263	251	250	205	200	211	207	57	54	262	147	M 8	65	5,00	4,10	5,45
50	40	1 1/2	273	257	256	205	200	211	207	57	54	262	147	M 8	65	5,10	4,18	5,55
63	50	2	287	265	264	205	200	211	207	57	54	262	147	M 8	65	5,20	4,28	5,65

### For DHV 725 with union sockets

Size			Dimensions mm													Weight kg (appr.)		
d	DN	DN	L			l		z		h		H	D	M	s	uPVC	PP	PVDF
mm	mm	inch	uPVC	PP	PVDF	uPVC*	PVDF	uPVC*	PVDF	uPVC*	PVDF							
16	10	3/8	154	155	154	120	118	126	124	25	24	207	81	M 6	40	0,98	0,82	1,20
20	15	1/2	159	154	156	120	118	126	124	25	24	207	81	M 6	40	1,00	0,84	1,24
25	20	3/4	195	188	189	150	147	156	153	37	36	243	107	M 6	46	2,20	1,90	2,45
32	25	1	201	192	193	150	147	156	153	37	36	243	107	M 6	46	2,25	1,95	2,52
40	32	1 1/4	263	251	250	205	200	211	207	57	54	348	147	M 8	65	6,00	5,20	6,45
50	40	1 1/2	273	257	256	205	200	211	207	57	54	348	147	M 8	65	6,21	5,41	6,66
63	50	2	287	265	264	205	200	211	207	57	54	348	147	M 8	65	6,40	5,60	6,87

\* valid also for PP

**Dimensions DHV 715, DHV 716 and DHV 725 with spigot ends**

**For DHV 715 and DHV 716 with spigot ends**

Size			Dimensions mm										Weight kg (appr.)		
d	DN	DN	L			I	h		H	D	M	s	Weight kg (appr.)		
mm	mm	Zoll	uPVC	PP	PVDF		uPVC*	PVDF					uPVC	PP	PVDF
16	10	3/8	144 $\pm$ 1,0	144 $\pm$ 2,1	144 $\pm$ 2,1	14	25	24	174	81	M 6	40	0,80	0,67	1,02
20	15	1/2	144 $\pm$ 1,0	144 $\pm$ 2,1	144 $\pm$ 2,1	16	25	24	174	81	M 6	40	0,85	0,72	1,07
25	20	3/4	174 $\pm$ 1,0	174 $\pm$ 2,6	174 $\pm$ 2,6	19	37	36	202	107	M 6	46	1,86	1,57	2,11
32	25	1	174 $\pm$ 1,0	174 $\pm$ 2,6	174 $\pm$ 2,6	22	37	36	202	107	M 6	46	1,90	1,61	2,15
40	32	1 1/4	224 $\pm$ 1,1	224 $\pm$ 3,3	224 $\pm$ 3,3	26	57	54	262	147	M 8	65	5,00	4,10	5,45
50	40	1 1/2	224 $\pm$ 1,1	224 $\pm$ 3,3	224 $\pm$ 3,3	31	57	54	262	147	M 8	65	5,10	4,18	5,55
63	50	2	244 $\pm$ 1,2	244 $\pm$ 3,6	244 $\pm$ 3,6	38	57	54	262	147	M 8	65	5,20	4,28	5,65

**For DHV 725 with spigot ends**

Size			Dimensions mm										Weight kg (appr.)		
d	DN	DN	L			I	h		H	D	M	s	Weight kg (appr.)		
mm	mm	Zoll	uPVC	PP	PVDF		uPVC*	PVDF					uPVC	PP	PVDF
16	10	3/8	144 $\pm$ 1,0	144 $\pm$ 2,1	144 $\pm$ 2,1	14	25	24	207	81	M 6	40	0,80	0,67	1,02
20	15	1/2	144 $\pm$ 1,0	144 $\pm$ 2,1	144 $\pm$ 2,1	16	25	24	207	81	M 6	40	0,85	0,72	1,07
25	20	3/4	174 $\pm$ 1,0	174 $\pm$ 2,6	174 $\pm$ 2,6	19	37	36	243	107	M 6	46	1,86	1,57	2,11
32	25	1	174 $\pm$ 1,0	174 $\pm$ 2,6	174 $\pm$ 2,6	22	37	36	243	107	M 6	46	1,90	1,61	2,15
40	32	1 1/4	224 $\pm$ 1,1	224 $\pm$ 3,3	224 $\pm$ 3,3	26	57	54	348	147	M 8	65	5,00	4,10	5,45
50	40	1 1/2	224 $\pm$ 1,1	224 $\pm$ 3,3	224 $\pm$ 3,3	31	57	54	348	147	M 8	65	5,10	4,18	5,55
63	50	2	244 $\pm$ 1,2	244 $\pm$ 3,6	244 $\pm$ 3,6	38	57	54	348	147	M 8	65	5,20	4,28	5,65

\* valid also for PP

**Identification-No. for Type DHV 715 with union nut and socket**

Body Diaphragm Seal Set Range (bar)			uPVC PTFE EPDM 0,2 - 4,0	uPVC PTFE FPM 0,2 - 4,0	PP PTFE EPDM 0,2 - 4,0	PP PTFE FPM 0,2 - 4,0	PVDF PTFE EPDM 0,2 - 4,0	PVDF PTFE FPM 0,2 - 4,0
d mm	DN mm	DN inch	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.
16	10	3/8	119000	119007	119014	119021	119028	119035
20	15	1/2	119001	119008	119015	119022	119029	119036
25	20	3/4	119002	119009	119016	119023	119030	119037
32	25	1	119003	119010	119017	119024	119031	119038
40	32	1 1/4	119004	119011	119018	119025	119032	119039
50	40	1 1/2	119005	119012	119019	119026	119033	119040
63	50	2	119006	119013	119020	119027	119034	119041

**Identification-No. for Type DHV 716 with union nut and socket**

Body Diaphragm Seal Set Range (bar)			uPVC PTFE EPDM 0,5 - 10	uPVC PTFE FPM 0,5 - 10	PP PTFE EPDM 0,5 - 10	PP PTFE FPM 0,5 - 10	PVDF PTFE EPDM 0,5 - 10	PVDF PTFE FPM 0,5 - 10
d mm	DN mm	DN inch	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.
16	10	3/8	119042	119049	119056	119063	119070	119077
20	15	1/2	119043	119050	119057	119064	119071	119078
25	20	3/4	119044	119051	119058	119065	119072	119079
32	25	1	119045	119052	119059	119066	119073	119080
40	32	1 1/4	119046	119053	119060	119067	119074	119081
50	40	1 1/2	119047	119054	119061	119068	119075	119082
63	50	2	119048	119055	119062	119069	119076	119083

**Identification-No. for Type DHV 725 with union nut and socket**

Body Diaphragm Seal Set Range (bar)			uPVC PTFE EPDM 0,2 - 10	uPVC PTFE FPM 0,2 - 10	PP PTFE EPDM 0,2 - 10	PP PTFE FPM 0,2 - 10	PVDF PTFE EPDM 0,2 - 10	PVDF PTFE FPM 0,2 - 10
d mm	DN mm	DN inch	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.
16	10	3/8	119084	119091	119098	119105	119112	119119
20	15	1/2	119085	119092	119099	119106	119113	119120
25	20	3/4	119086	119093	119100	119107	119114	119121
32	25	1	119087	119094	119101	119108	119115	119122
40	32	1 1/4	119088	119095	119102	119109	119116	119123
50	40	1 1/2	119089	119096	119103	119110	119117	119124
63	50	2	119090	119097	119104	119111	119118	119125

**Identification-No. for Type DHV 715 with spigot ends**

Body			uPVC	uPVC	PP	PP	PVDF	PVDF
Diaphragm			PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Seal			EPDM	FPM	EPDM	FPM	EPDM	FPM
Set Range (bar)			0,2 - 4,0	0,2 - 4,0	0,2 - 4,0	0,2 - 4,0	0,2 - 4,0	0,2 - 4,0
d mm	DN mm	DN Zoll	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.
16	10	3/8	121922	121929	121936	121943	121950	121957
20	15	1/2	121923	121930	121937	121944	121951	121958
25	20	3/4	121924	121931	121938	121945	121952	121959
32	25	1	121925	121932	121939	121946	121953	121960
40	32	1 1/4	121926	121933	121940	121947	121954	121961
50	40	1 1/2	121927	121934	121941	121948	121955	121962
63	50	2	121928	121935	121942	121949	121956	121963

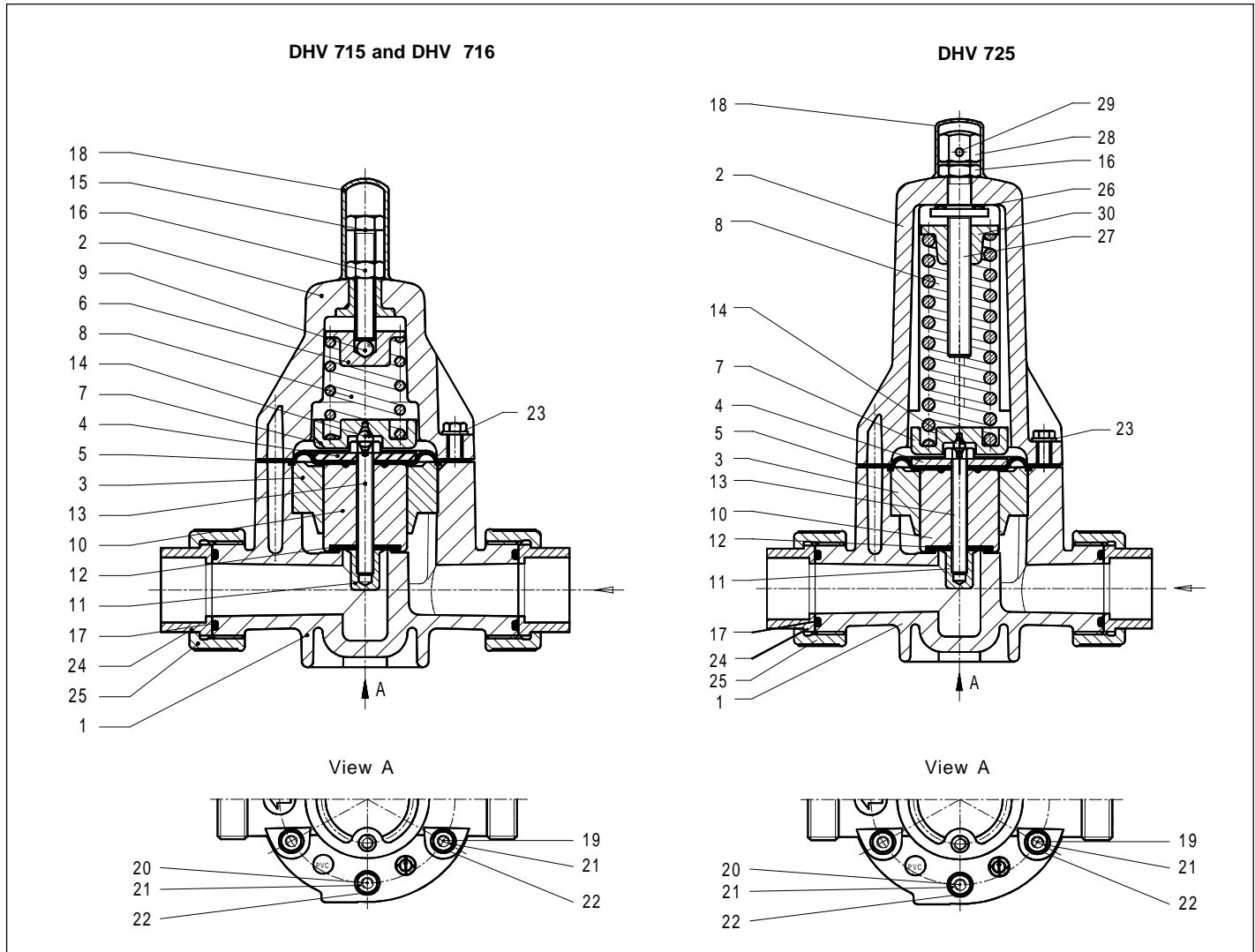
**Identification-No. for Type DHV 716 with spigot ends**

Body			uPVC	uPVC	PP	PP	PVDF	PVDF
Diaphragm			PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Seal			EPDM	FPM	EPDM	FPM	EPDM	FPM
Set Range (bar)			0,5 - 10	0,5 - 10	0,5 - 10	0,5 - 10	0,5 - 10	0,5 - 10
d mm	DN mm	DN Zoll	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.
16	10	3/8	121964	121971	121978	121985	121992	121999
20	15	1/2	121965	121972	121979	121986	121993	122000
25	20	3/4	121966	121973	121980	121987	121994	122001
32	25	1	121967	121974	121981	121988	121995	122002
40	32	1 1/4	121968	121975	121982	121989	121996	122003
50	40	1 1/2	121969	121976	121983	121990	121997	122004
63	50	2	121970	121977	121984	121991	121998	122005

**Identification-No. for Type DHV 725 with spigot ends**

Body			uPVC	uPVC	PP	PP	PVDF	PVDF
Diaphragm			PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Seal			EPDM	FPM	EPDM	FPM	EPDM	FPM
Set Range (bar)			0,2 - 10	0,2 - 10	0,2 - 10	0,2 - 10	0,2 - 10	0,2 - 10
d mm	DN mm	DN Zoll	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.	Id.-No.
16	10	3/8	122006	122013	122020	122027	122034	122041
20	15	1/2	122007	122014	122021	122028	122035	122042
25	20	3/4	122008	122015	122022	122029	122036	122043
32	25	1	122009	122016	122023	122030	122037	122044
40	32	1 1/4	122010	122017	122024	122031	122038	122045
50	40	1 1/2	122011	122018	122025	122032	122039	122046
63	50	2	122012	122019	122026	122033	122040	122047

## Sparepart List



Pos.	Name	Pce.	Pos.	Name	Pce.
1	Body	1	16	Counter nut	1
2	Bonnet	1	17	O-Ring *	2
3	Separation disc	1	18	Cap	1
4	Pressure disc	1	19	Hex.-screw	4
5	Diaphragm *	1	20	Hex.-screw	2
6	Pressure plate	1	21	Hex.-nut	4/6
7	Spring plate	1	22	Washer	4/6
8	Spring	1	23	Washer	4/6
9	Steel ball	1	24	Union end	2
10	Piston *	1	25	Union nut	2
11	Piston top *	1	26	Bearing *	1
12	Flat seal *	1	27	Spinn	1
13	Hex.-screw *	1	28	Cap nut	1
14	Steel ball	1	29	Spring dowel sleeve	1
15	Control screw	1	30	Pressure plate	1

\* Spare parts



## Characteristic curves

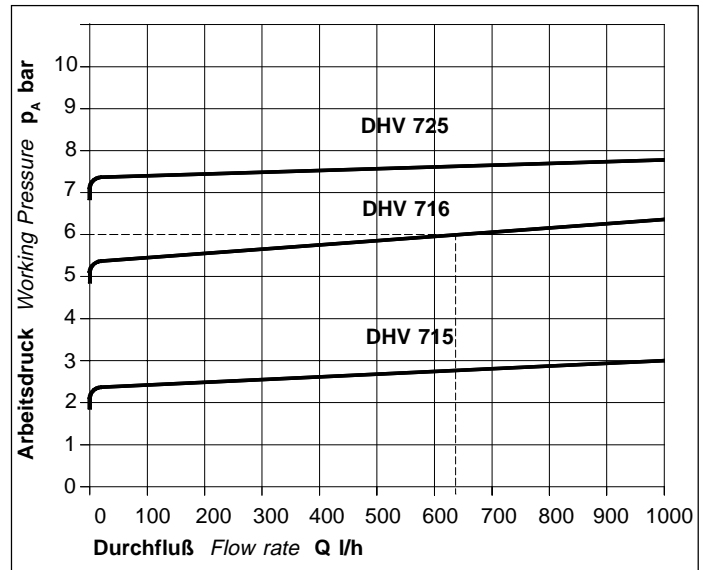
The valve curves show the primary pressure or working pressure  $p_A$  in bar in relation of the flow  $Q$  in l/h. The parameter is the set pressure  $p_E$  at  $Q = 0$  l/h. The curve shows the progression of the opening pressure. The curves are applicable for water at 20 °C.

**Example:** DHV 716, size DN 10

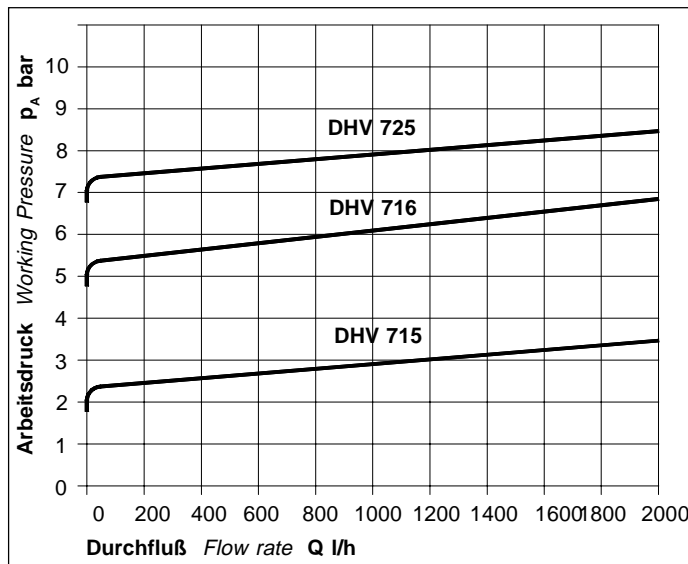
The valve is set closed at 5 bar.  
At a pressure increase of 1 bar the flow of about 630 l/h is reached.

Working pressure  $p_A \cong 6,0$  bar  
Closing pressure  $p_S \cong 4,8$  bar  
Opening pressure  $p_O \cong 5,4$  bar  
Set pressure  $p_E \cong 5,0$  bar

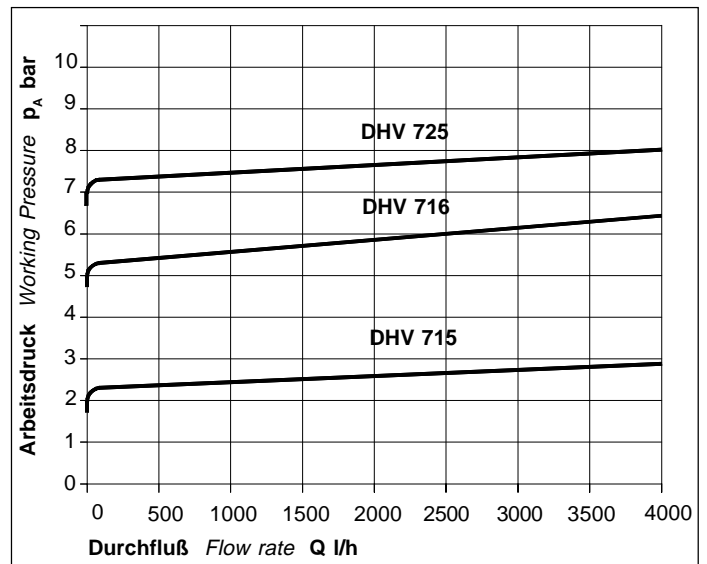
DN 10



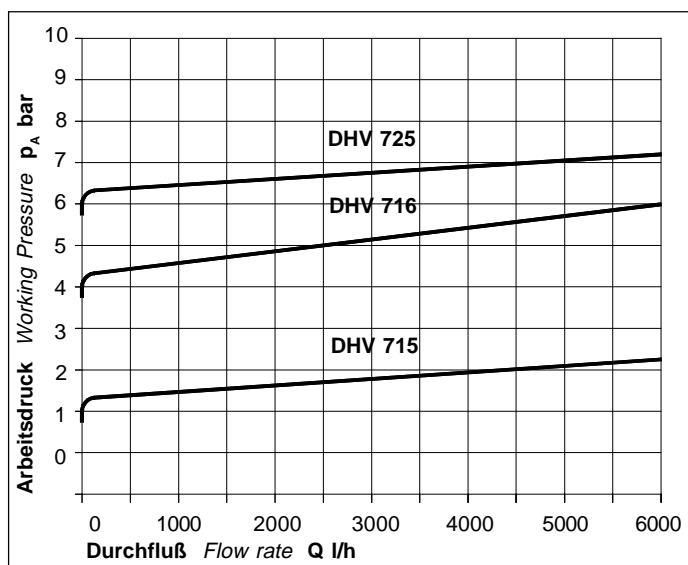
DN 15



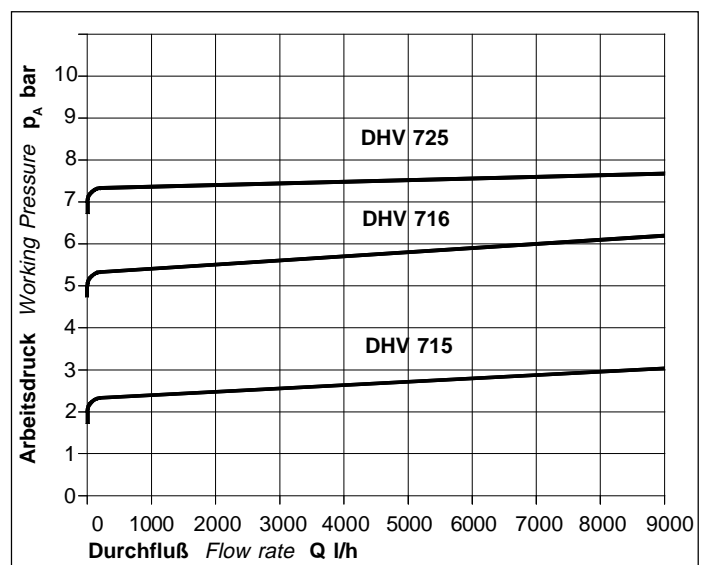
DN 20



DN 25

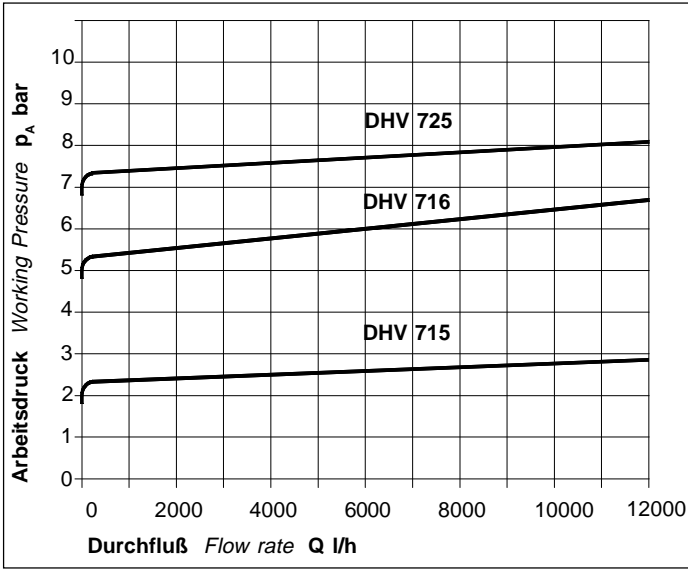


DN 32

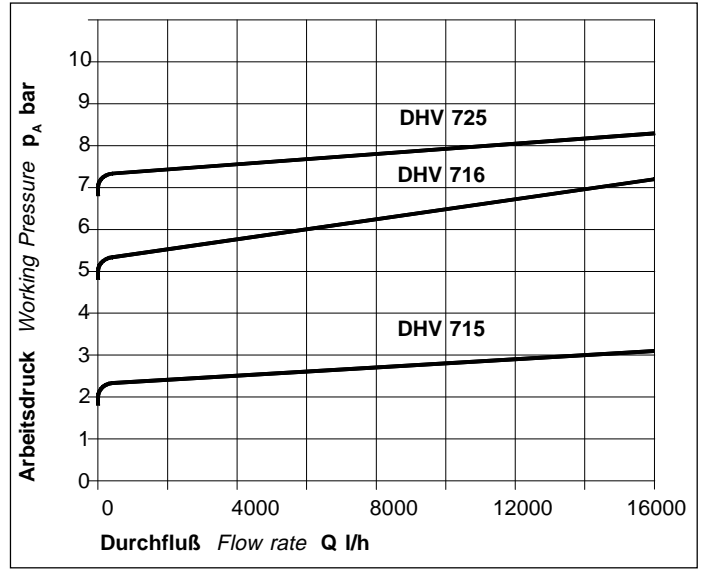


### Characteristic curves

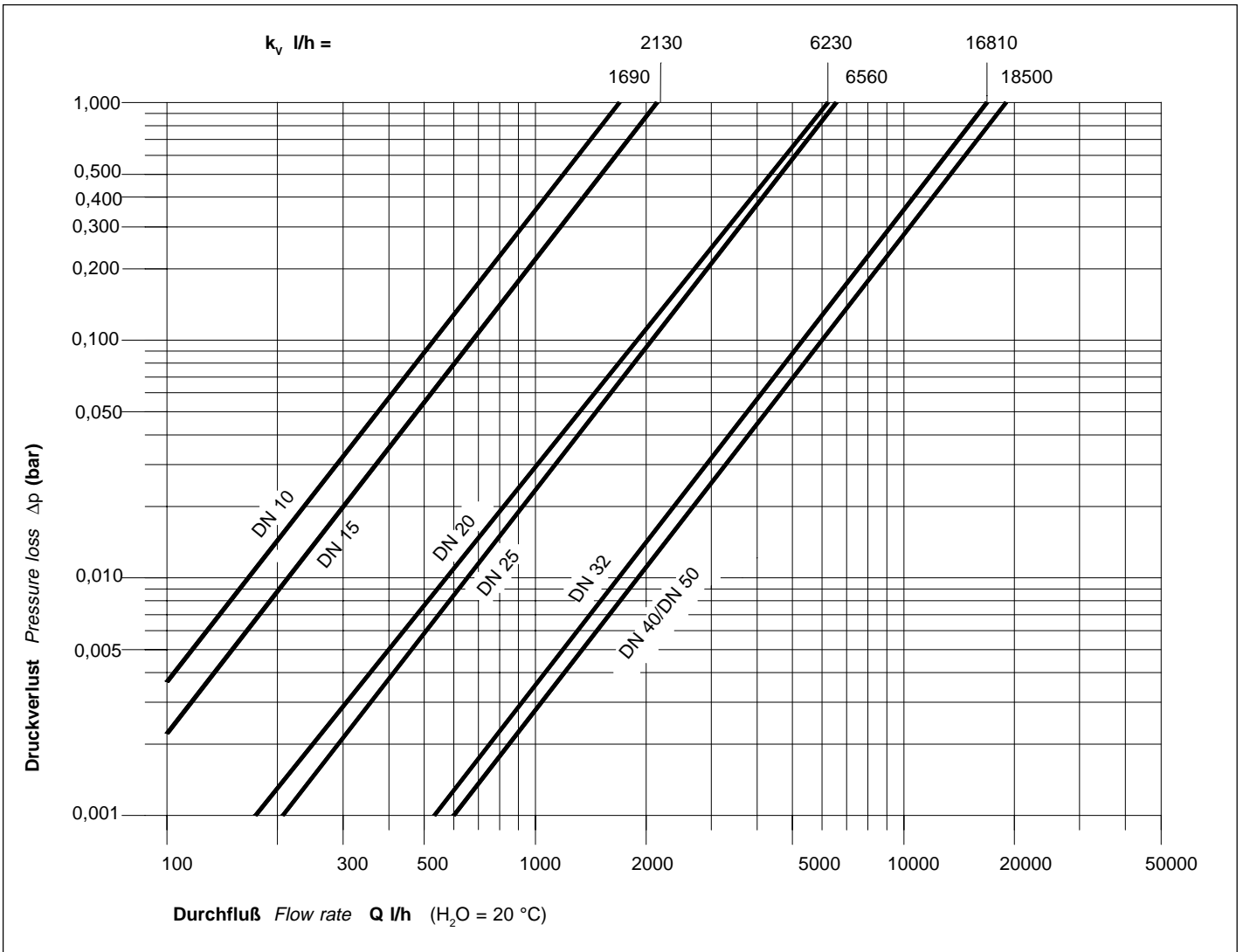
DN 40



DN 50

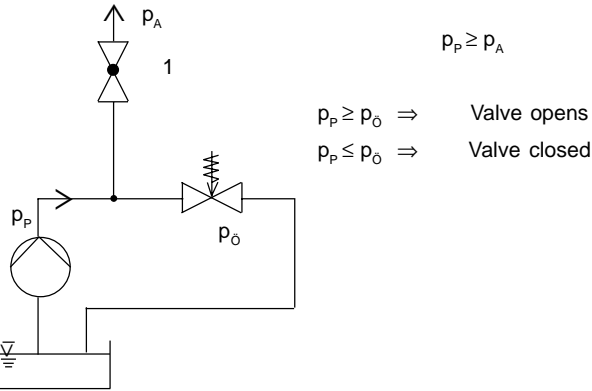


### Pressure loss DHV 715 / 716 / 725

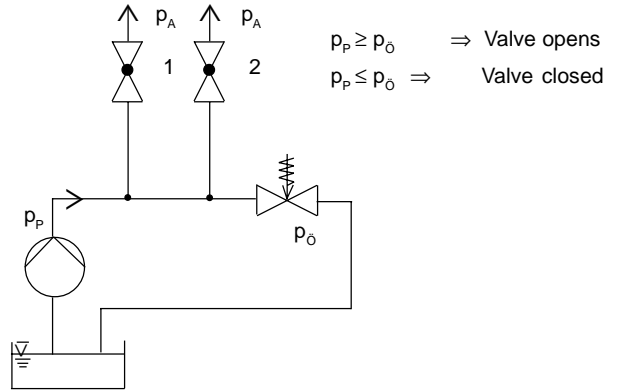


## Application of pressure relief-/overflow valve

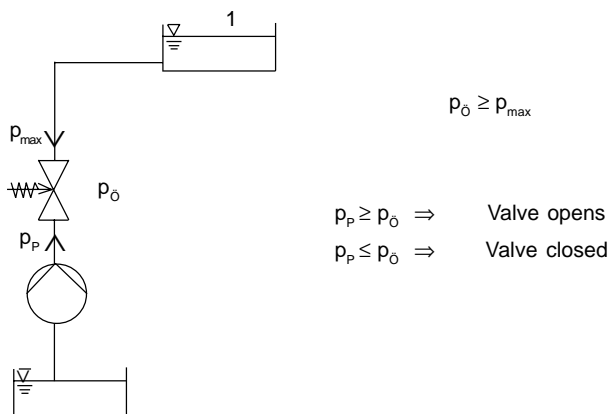
### 1. Constant system pressure



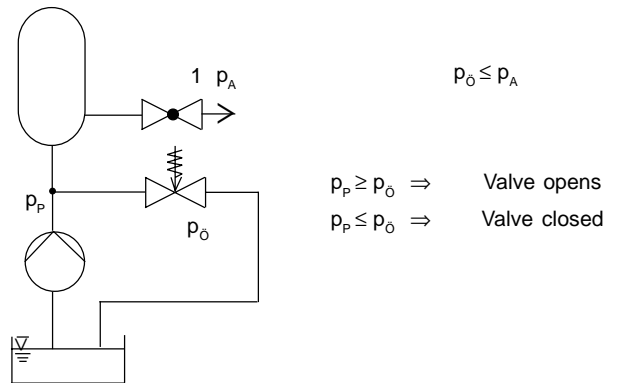
### 2. Consume 1 and/or 2 open, valve closes



### 3. DHV 715/716/725 as nonreturn valve. Container 1 is located above the pump.



### 4. DHV 715/716/725 as overflow valve. Pressure of container or application system should not exceed the max. pressure value.



$p_A$  = Working pressure

$p_p$  = Pressure of pump

$p_o$  = Opening pressure

## Operational failure, possible reason and repairs

Failure	Reason	Repair
Valve at diaphragm leaking.	Diaphragm clamping pressure to low.	Fasten screws (Pos. 19) and (Pos. 20).
Pressure drops below set pressure.	Pistonguide or valve seat leaking. Diaphragm (5) leaking.	Piston or seal to be check or replaced. Diaphragm to be replaced.
Pressure increase above the value.	Pistonguide is jammed or dirty.	Valve to be cleaned.
Valve is leaking at control screw.	Diaphragm damaged. Pressure Plate clamping pressure to low.	Replace diaphragm. Fasten screw (13).

## Operation Information



Only a qualified person can guarantee a proper function of valve during operation under consideration of all technical installation and safety regulations. Any inexperienced handling, use, installation, or service can call for personnel and property damages. For this reason certain limit values for pressure and temperature should not be exceeded. Any selected material of the valve must be resistant under the operation condition.

**Not observing this gives the full responsibility to the user!**

**Any user of an installation keeps responsible for demounting and assembling of such valves and should always consider the local rules, regulations and advise the operator about proper use.**

### 1. Demounting

- Close the pipeline with respective valves and empty it.

**Attention:** Before demounting the DHV-valve any rest of fluid has to be removed and disposed. Eventually the operator should wear protection cloth.

### 2. Valve bonnet

2.1. Position the valve upright.

2.2. Remove cap (18).

2.3. Loosen counter nut (16) and setting control screw (15), at DHV 725 (27), that far that the spring (8) in the bonnet is totally released.

2.4. Remove housing bolts and nuts (19, 20) from body (1) and bonnet (2).

2.5. Bonnet (2) to be lifted upward.

Remove spring (8), spring plate (7) and steel ball (14).

### 3. Valve body and diaphragm

3.1. Demounting of bonnet the same way as from 2.1 to 2.5.

3.2. Piston (10), pressure disk (4) with diaphragm (5), hexagonal screw (13), flat disk (12) and piston cap (11) to be pulled out of the body (1).

3.3. Piston to be checked without damaging it, screw (13) to loosen. Pressure disk (4) with diaphragm (5), flat-seal (12) and piston cap (11) to be turned off.

### 4. Assembly

All has be done in the opposite way as described above.

- Diaphragm, valve piston seat, seal O-rings to be checked on damages and dimension deviations. Shore hardness to be check. Parts eventually to be replaced.

**For this please always use original spare parts.**

**Attention:**

Screw torque max. 6 Nm.

**Attention:**

Elastomeres, especially the EPDM sealing elements, should not be touched or cleaned with synthetic oils, mineral oils, fats or cleaning agents. Danger of swelling. Only appropriate fats should be used, e.g. silicone greases.

Technical alterations excepted