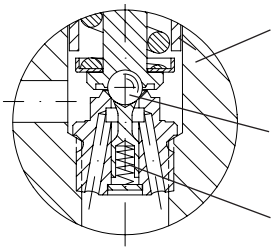
Pressure limiting valves - assembly kits

Pressure p_{max} = 700 bar; Flow Q_{max} = 160 lpm

These pressure limiting valves are ideally suited to be integrated in customer furnished valve housings or manifolds. The table below lists the available assembly kits, consisting of valve seat + valve ball, spring etc. The basic valve design is similar to the pressure limiting valves (with/without damping) illustrated in pamphlet D 7000/1.

The pressure relief valves are not suited for safeguarding pressure devices acc. to Pressure Equipment Directive 97/23/EC. There are also versions available featuring unit approvals, see D 7000 TÜV, D 7710 TÜV, D 6905 TÜV.

Special benefits:



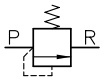
A travel stop prevents too high lift of the valve ball with the damping piston then jamming the valve passage. This could occur otherwise when the spring is completely decompressed or at excessive flow rates.

Ball seated valve with an dynamically acting lifting aid, making the pressure setting rather unaffected from the respective flow.

The spring loaded damping piston with ist long guide prevents chatter over a wide viscosity range. For pressure limiting valves without damping, see D 7000/1 sect. 1

Flow pattern symbols

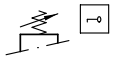
Standard, tool adjustable



Manually adjustable:

Coding R and V

Coding H



1. Available versions, main data

Order examples:

MVA 6 A
MVD 5 B R X

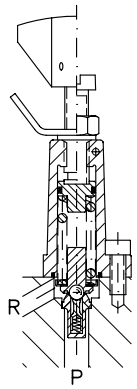
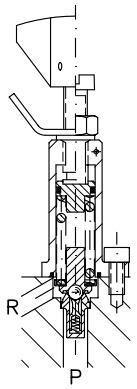
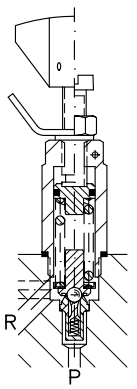
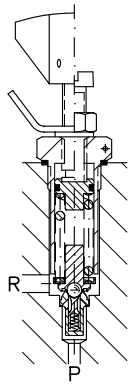
Basic type coding, design

X = Undamped version (see D 7000/1 sect. 1)

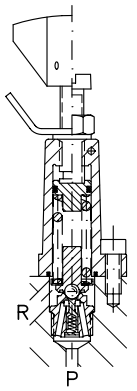
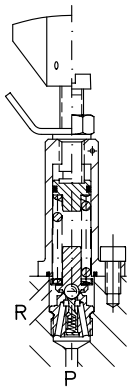
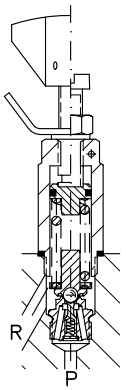
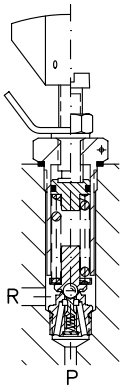
Version and coding

Spring dome made of zinc die-casting	Spring dome made of steel	
Perm. pressure at P = 700 bar at R = 20 bar	Perm. pressure at P = 700 bar at R = 200 bar MV..4 = 300 bar	Perm. pressure at P = 700 bar at R = 350 bar

Valves with peened valve seat

MVF 1)	**MVB**	**MVH** **MVJ** 3)	**MVZ** 1)
			

Valves with screwed-in valve seat

MVD 1)	**MVA** 1)	**MVK** 1)	**MVU** 1)
			

Adjustability during operation

No coding	Standard, tool adjustable (Slotted screw and jam nut)
R	Manually adjustable (Wing screw and wing nut)
V 1) 4)	Turn knob (self locking)
H 1) 4)	Turn knob, with lock Keys conforming the regulations of the automotive industry; One key is scope of delivery (usually anyway in the possession of the authorized work staff)

Pressure range

Coding	**A**	**B**	**C**	**E**	**F**
(0) 2) ... p_{max} (bar)	700	500 400 5)	315	160	80

Size

Coding	Flow Q_{max} (lpm) with pressure range (coding)				
	A	B	C	E	F
4	12	20	20	20	20
5	20	40	40	40	40
6	40	75	75	75	75
8	---	160	160	160	---

1) Only available with size 4, 5 and 6

2) Settings below 10 ... 15% of p_{max} are not recommended. The lowest, achievable pressure with the spring completely decommpressed, depends also on the design related back pressure (dep. on flow), see D 7000/1, sect. 3.2)

3) Only size 6 available, perm. pressure at R = 50 bar

4) Only types MVF, MVB, MVD, and MVA

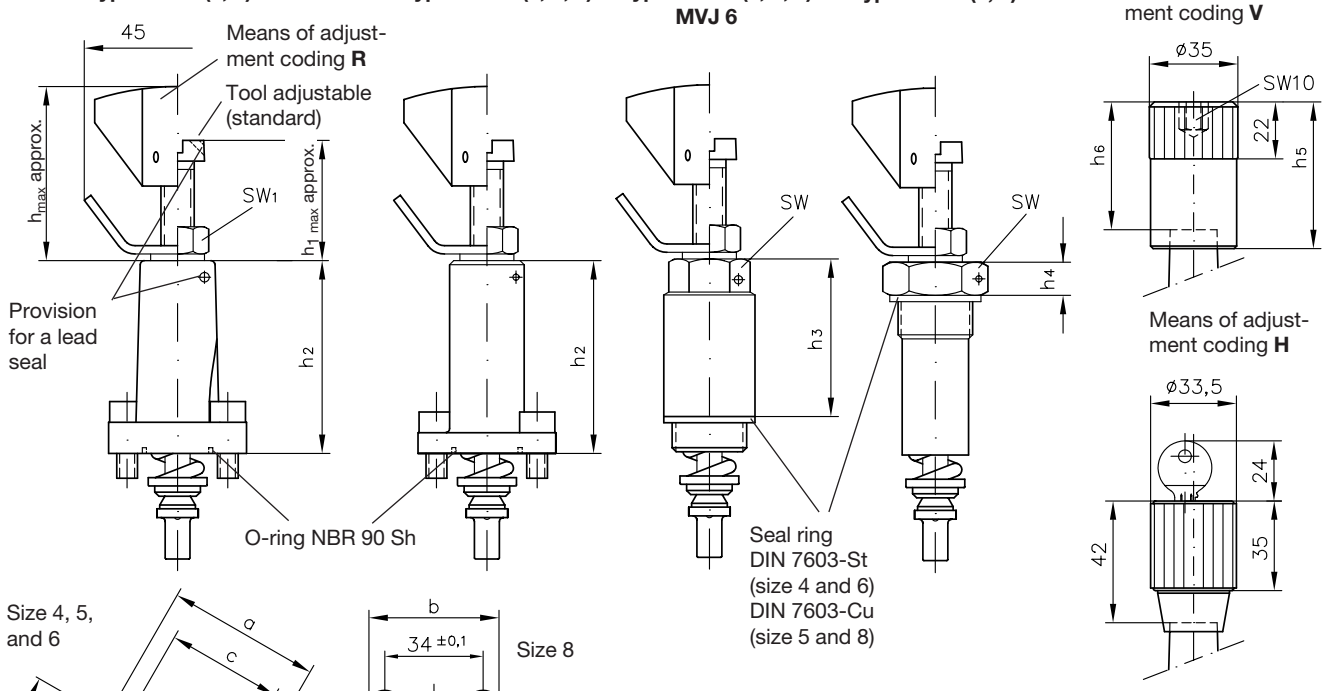
5) Only size 8

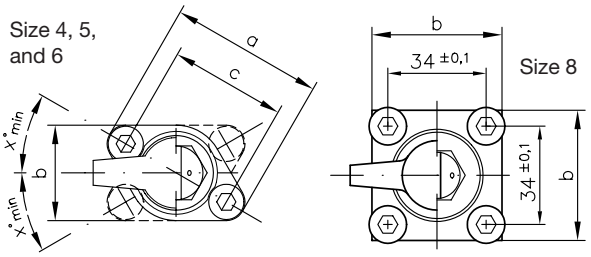
2. Unit dimensions

All dimensions in mm, subject to change without notice !

2.1 Valves with peened seat

Type MVF 4(5, 6) **Type MVB 4(5, 6, 8)** **Type MVH 4(5, 6, 8) MVJ 6** **Type MVZ 4(5, 6)**





Size	4	5	6	8
O-ring	15.6x1.78	18.77x1.78	22x2	29.82x2.62

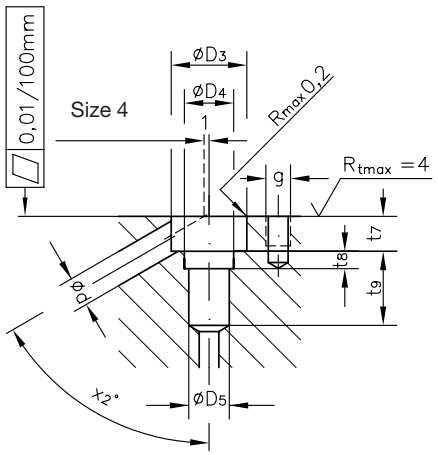
SW = a/f

2) in type MVZ 4

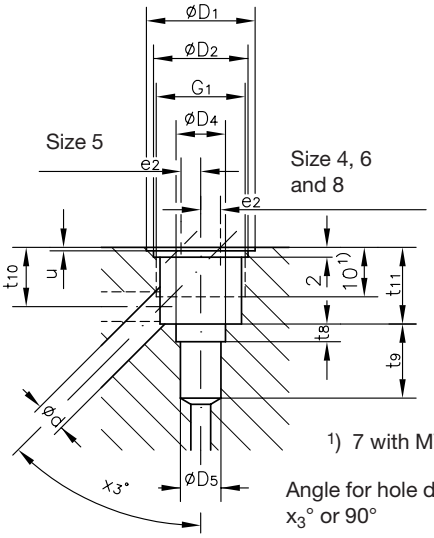
Size	a	b	c	h	h_1	h_2	h_3	h_4	h_5	h_6	x	SW	SW_1	Seal ring DIN 7603-..	Torque for steel (Nm) Mounting screws flange body MVF	MVB	Screw-in spring dome MVH(Z)	MVJ 6
4	37	23	28 ± 0.1	40	26	46.5	38	8	58	41	30°	17/22 2)	13	A 18x22x1.5	5...5.5	5.5...6	80	---
5	41	28	32 ± 0.1	42	29	49	42.5	10.5	58	41	35°	27	13	A 22x27x1.5	5...5.5	5.5...6	60	---
6	49	30	38 ± 0.1	44	29	59.5	52.5	8.5	64	56	35°	30	13	A 26x30x2	9...9.5	9.5...10	160	100
8	--	45	---	59	37	83	74	---	---	---	---	41	17	A 33x39x2	---	39	300	---

Mounting holes:

For type MVF.. and MVB..



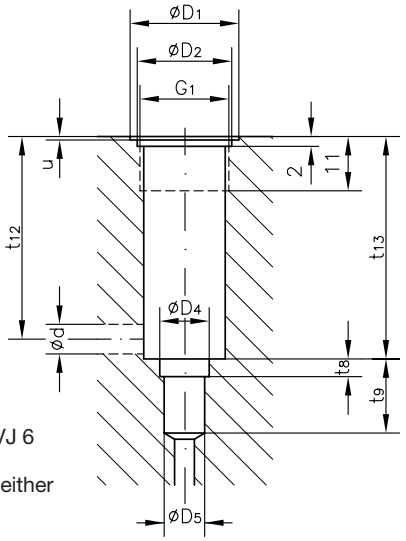
For type MVH.. and MVJ 6



1) 7 with MVJ 6

Angle for hole d either x_3° or 90°

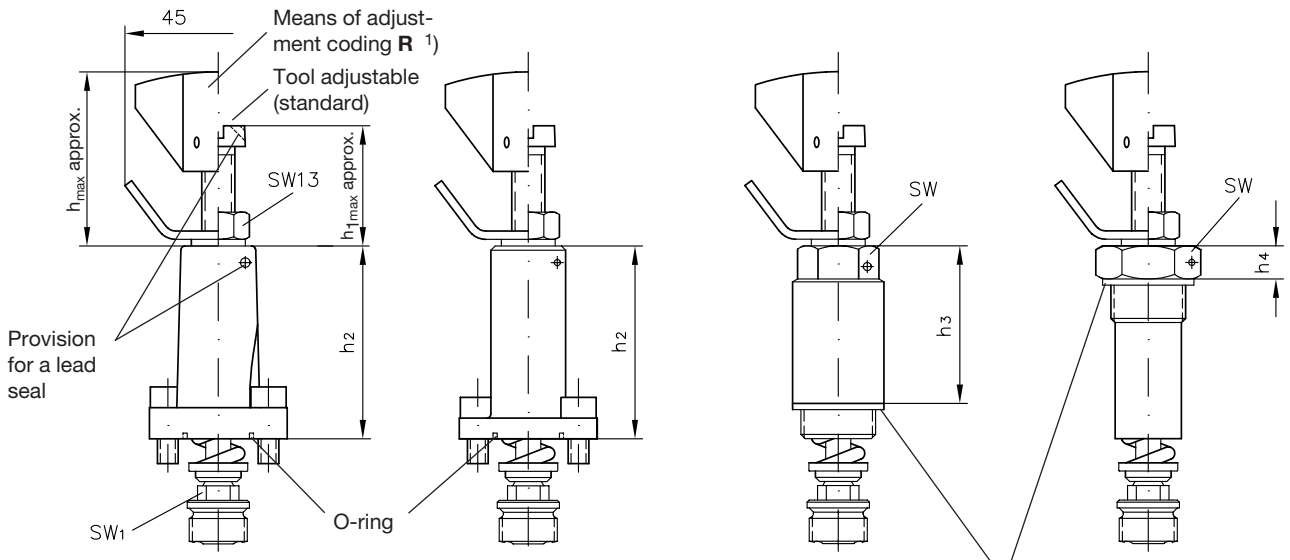
For type MVZ..



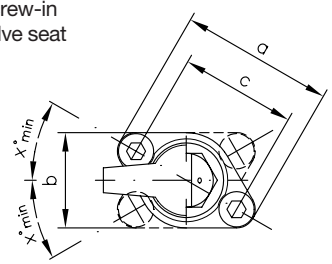
Size	G_1	D_1	D_2	D_3	D_4	D_5	d	e_2	g	t_7	t_8	t_9	t_{10}	t_{11}	t_{12}	t_{13}	u	x_2	x_3
4	M 18x1.5	22	18.2	15.3	10 +0.1	8.2	6	4	M5, 6 deep	7	3.6 +0.1	15	12	15.5	41	45	0.7	60°	45°
5	M 22x1.5	27	22.2	19	12 +0.1	10.4	9	2	M5, 7 deep	10	3.5 +0.1	20	13	18	45	50	1	60°	30°
6	M 26x1.5	30	26.2	22	16 +0.1	13	12	4	M6, 7 deep	14	4 +0.1	24	14.5	21	58	64.5	1	55°	45°
8	M 33x1.5	39	33.2	29	20 +0.1	17	16	--	M8, 9 deep	17	7.5 +0.1	26	16.5	25	--	--	1	35°	45°

2.2 Valves with one screw-in seat

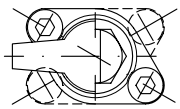
Type MVD 4(5, 6) **Type MVA 4(5, 6)** **Type MVK 4(5, 6)** **Type MVU 4(5, 6)**



Screw-in valve seat



Size	4	5	6
O-ring NBR 90 Sh	15.6x1.78	18.77x1.78	22x2



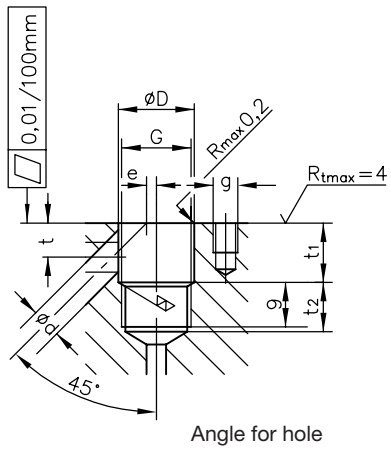
1) For means of adjustment coding V and H, see sect. 2.1

Size	a	b	c	h	h_1	h_2	h_3	h_4	x	SW	SW_1	Seal ring DIN 7603-..	Torque for steel (Nm) Mounting screws flange body MVD	MVA	Screw-in spring dome MVK, MVU	Screw-in valve seat
4	37	23	28 ± 0.1	40	26	46.5	38	8	30°	22	10	A 18x22x1.5	5 ... 5.5	5.5 ... 6	50	35
5	41	28	32 ± 0.1	42	29	49	42.5	10.5	35°	27	13	A 22x27x1.5	5 ... 5.5	5.5 ... 6	60	70
6	49	30	38 ± 0.1	44	29	59.5	52.5	8.5	35°	30	13	A 26x30x2	9 ... 9.5	9.5 ... 10	160	90

SW = a/f

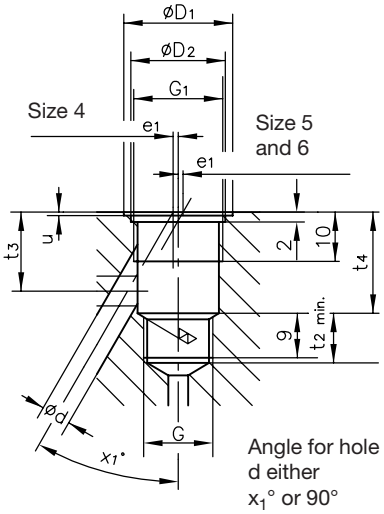
Mounting holes:

For type MVD.. and MVA..



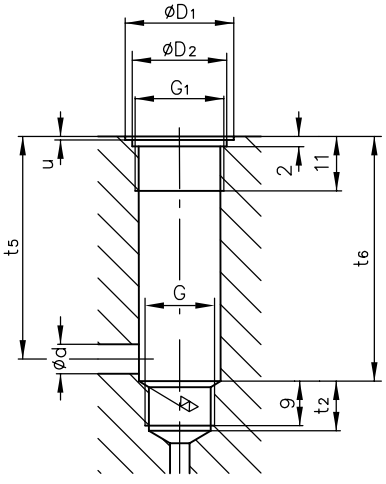
Angle for hole d either 45° or 90°

For type MVK..



Angle for hole d either $x_1°$ or 90°

For type MVU..

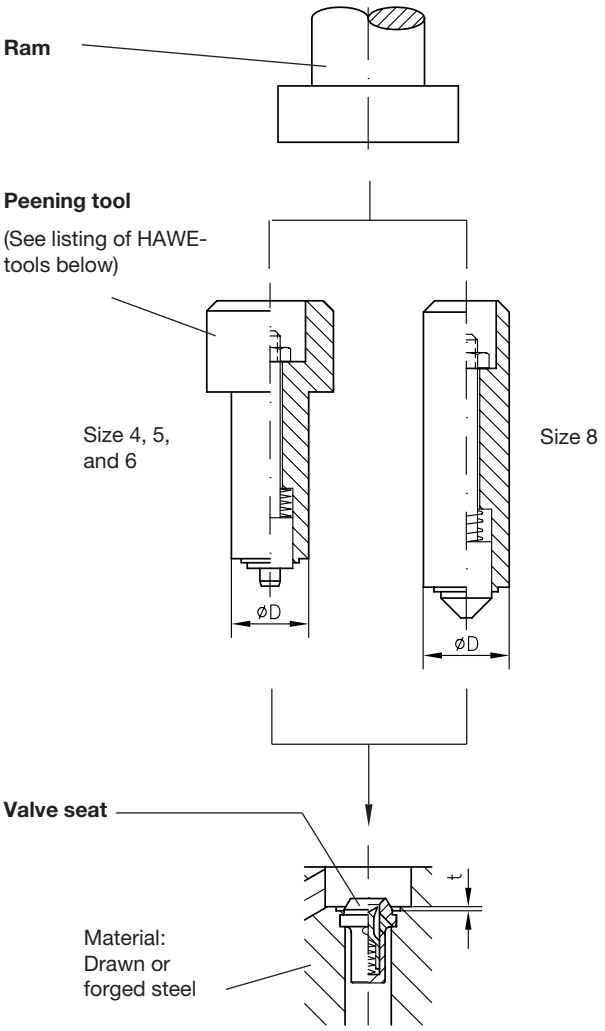


Size	G	G_1	D	D_1	D_2	d	e	e_1	g	t	t_1	t_2	t_3	t_4	t_5	t_6	u	x_1
4	M 14x1.5	M 18x1.5	15.5	22	18.2	6	2	1	M5, 6 deep	7	12	10	16	20.5	45	49.5	0.7	30°
5	M 16x1.5	M 22x1.5	19	27	22.2	9	2.5	2.5	M5, 7 deep	8	14.5	15	17	22.5	49	54.5	1	40°
6	M 20x1.5	M 26x1.5	22	30	26.2	12	1	1	M6, 7 deep	12	19.5	19	18	25.5	62	69	1	40°

3. Mass (weight) approx. g

Type	MVD	MVA	MVK	MVU	MVF	MVB	MVH	MVJ	MVZ
Size 4	130	140	130	100	120	130	120	---	90
Size 5	160	190	200	160	150	180	190	---	150
Size 6	250	290	270	230	230	270	250	250	210
Size 8	---	---	---	---	---	700	700	---	---

4. Assembly and peening manual for type MVF, MVB, MVH, MVJ, and MVZ



Attention:

For shape and dimensions of the valve seat's mounting hole, see mounting notes (page 2 and 3)

Tool order codings

Size	MVF MVB	MVH	MVJ	MVZ
4	**W1-201**	**W1-309/1**	---	[1])
5	**W1-310/3**	**W1-310/1**	---	[1])
6	**W1-311/2**	**W1-311/1**	**W1-311/1**	[1])
8	**W1-304**	**W1-304/1**	---	---

[1]) On enquiry

Suited for valve	D	Peening depth t (mm)	Peening force (N) [2])
MVF(B, H) 4	15.25 - 0.05	0.7 +0.05	approx. 50000
MVZ 4	16.3 - 0.1		
MVF(B, H) 5	18.8 - 0.1	0.7 +0.05	approx. 65000
MVZ 5	20.3 - 0.1		
MVF(B, H, J) 6	21.9 - 0.1	0.8 +0.1	approx. 100000
MVZ 6	24.3 - 0.1		
MVB(H) 8	28.9 - 0.1	0.7 +0.05	approx. 90000

[2]) It is recommended to increase the peening force in steps always checking the resulting peening depth t until the specified figures are achieved.