Druckminderventil, federbelastet
Pressure-Reducing-Valve, springloaded

für Dämpfe, Gase und Flüssigkeiten, für sehr kleinen Minderdruck
for steam, gases and liquids, for very low reduced pressure

Typ 75

Discharge capacities
for saturated steam

for definition the size of Pressure-Reducing-Valve

Size		0	I		II		III		III B	
Over-pressure $p_ü$ [bar(g)] / Nominal pipe		10	15	20	25	32	40	50	65	80
		3/8	1/2	3/4	1	1¼	1½	2	2½	3
		kg/h								
t_{max} 200 °C	0,15	4	10	17	27	40	83	120	180	260
	0,2	5	11	19	31	46	99	145	210	310
	0,3	6	13	23	35	55	112	160	240	360
	0,5	7	16	28	46	70	140	200	300	440
	0,75	9	20	35	57	85	175	250	370	560
	1	11	25	42	68	100	210	300	450	680
	1,5	14	32	55	90	140	280	400	590	880
	2	17	40	70	115	170	350	520	750	1120
	2,5	21	47	84	135	200	400	600	880	1310
	3	24	55	99	155	240	480	700	1020	1540
	4	31	70	123	195	300	600	890	1300	1900
	5	38	85	150	245	360	740	1080	1600	2400
	6	46	104	185	300	450	900	1340	1950	2900
	7	54	122	225	350	540	1100	1600	2400	3400
	8	62	140	250	400	600	1250	1800	2700	4000

a) To the defination of the right valve size according to the table, the downstreampressure is considerably. The usual piping speeds are appropriate for the table codes.

b) The valve size determined under a) can be selected around a nominal size smaller, if it is noted that the pipe diameter at the valve outlet is increased around at least one nominal size.

To small pressure ratios applies:

$$\frac{\text{absolute reduced pressure } p \text{ [bar]}}{\text{absolute inlet pressure } p \text{ [bar]}}$$

- ≥ 0,7 => correction factor = 1,25
- ≥ 0,8 => correction factor = 1,60
- ≥ 0,9 => correction factor = 2,25

$$\dot{m}_D = \dot{m}_D^1 \cdot f$$

The found correction factor must be multiplied due to the smaller flow rate by the given mass flow. With the help of the calculated value now a valve can be determinend in accordance with the table.
With smaller pressure ratios than 0.7 no correcton factor is used.

For superheated steam:

$$\dot{m}_D = \frac{V_H}{V_S} \cdot \dot{m}_D^1 \cdot f$$

If the downstream pipe should be longer than 3 meters, then it is to be selected around one nominal size stage more largely.

Gaskets for steam:

P_1 < 4 [bar(g)] (<150°C): Piston gasket PTFE
Gasket ring EPDM

P_1 < 15 [bar(g)] (<200°C): Piston gasket PTFE
Gasket ring AF 100

* V_H: specific volume of the superheated steam
* V_S: specific volume of the saturated steam
f : correction factor
$\dot{m}_D^1$: given mass flow
$\dot{m}_D$: resulting value of the mass flow, with that the table can be used.

* see VDI Steam table

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