V292

Two-way Pressure Balanced Plug Valve, Flanged PN 25 (362 psi)

F-20-19

30 Mar 2004

The **V292** valve is primarily intended to be used in heating, air conditioning and district heating installations with large pressure drops.

For other types of applications, please contact your nearest TAC sales office.

The V292 valve can be used with the following types of fluids:

- hot water, or deaerated cooling water.
- water with additives such as phosphate or hydrazine.
- deaerated water with glycol-type antifreeze agent (max.50%)
- with cooling medias at temperatures below 0 °C a stem heater must be fitted, to protect from stem seizure due to freezing.

TECHNICAL DATA

Design ..... two-way pressure balanced plug valve
Pressure class ..... PN 25 (362 psi)
Flow characteristics ..... EQ%
Stroke .....DN 65 –DN 100 .....30 mm (1.18 in.)
DN 125 – DN 150 .....50 mm (1.97 in.)
Rangeability Kv/Kv min 50
Leakage ..... <0.05% of Kv/Cv
ΔPm ..... 1600 kPa (232 psi), water
Max. temperature of medium: ..... 150 °C (302 °F)
Min. temperature of medium: ..... -10 °C (14 °F)
Connection ..... Flange according ISO 7005-2
Materials:
Body ..... Nodular iron GGG40.3
Stem ..... stainless steel SS 1.4021
Plug ..... stainless steel SS 1.4021
Seat ..... stainless steel SS 1.4021
Packing box ..... Spring-loaded PTFE-V-ring

Key to Technical specification

- The rangeability is the ratio of K_V to K_{Vmin} (C_V to C_{Vmin}).
- K_V (C_v) is the valve flow at the max. lift and a pressure drop of 100 kPa across the valve.
- K_{Vmin} (C_{Vmin}) is the minimum controllable flow at a pressure drop of 100 kPa, within the flow range where the characteristic meets the requirements on characteristic slope according to IEC534-1.
- Δp_m is max. pressure drop across a fully open valve.

Size DN	Size In.	Kv m³/h	Cv	Part number	Pressure Equipment Directive PED 97/23/EC	CE-marked
65	2½	63	76	721-9254-000	Cat. III	CE
65	2½	40	47	721-9255-000	Cat. III	CE
80	3	100	117	721-9258-000	Cat. III	CE
100	4	160	187	721-9262-000	Cat. III	CE
125	5	250	292	721-9266-000	Cat. III	CE
150	6	400	467	721-9270-000	Cat. III	CE

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FUNCTION AND FLOW CHARACTERISTIC

The design of the **V292** plug is pressure balanced to ensure high close off pressure with lower actuator force.

The valve closes with the stem down.

The flow characteristic of the **V292** is equal percentage (EQ%, also called logarithmic), giving an equal-percentage change in flow.

The latter is necessary to give good control in systems with large load variations

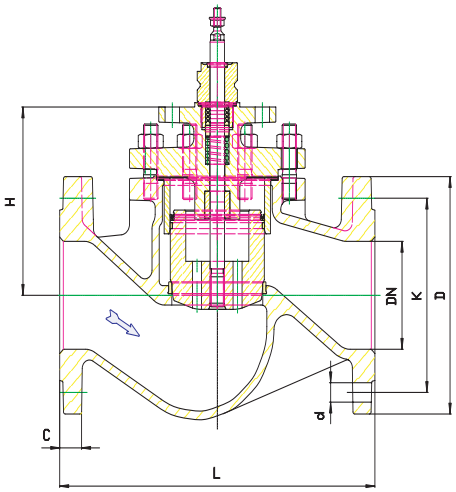

Figure 1

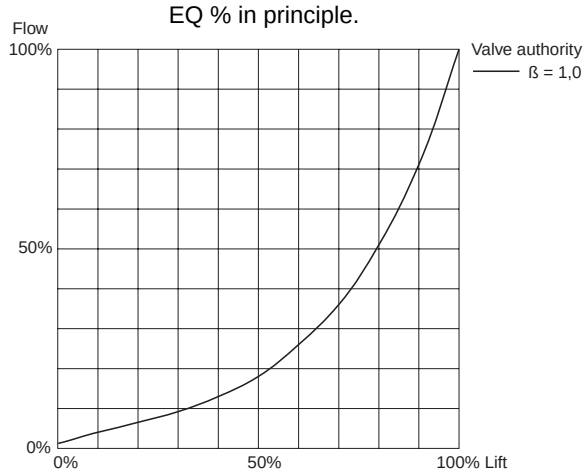

Figure 2

ACTUATOR

Size		M800 ΔPc		M22 ΔPc		M50 ΔPc	
DN	in.	kPa	PSI	kPa	PSI	kPa	PSI
65	2½	1500	218	–	–	–	–
80	3	1500	218	–	–	–	–
100	4	1100	160	–	–	–	–
125	5	–	–	1800	261	2500	363
150	6	–	–	1400	203	2500	363

ΔP_C = Max. close-off pressure drop across the valve.

INSTALLATION

The valve should be mounted with flow direction in accordance with the valve marking.

It is recommended to install the valve in the return pipe, in order to avoid exposing the actuator to high temperatures.

The valve must not be mounted with the actuator under the valve.

To ensure that suspended solids will not become jammed between the valve plug and seat, a filter should be installed upstream of the valve and the pipe system should be flushed before the valve is installed.

A. Typical installation without local circulating pump.

To provide good function the pressure drop across the valve should be no less than half of the available pressure (Δp). This corresponds to a valve authority of 50%.

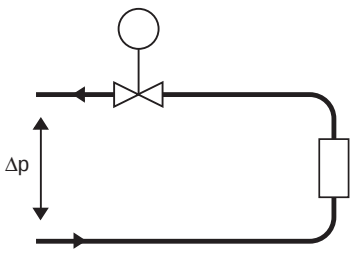

Figure 3

B. Typical installation with local circulating pump.

The K_V/C_V value of the valve to be selected so that the entire available pressure drop (Δp) falls across the control valve.

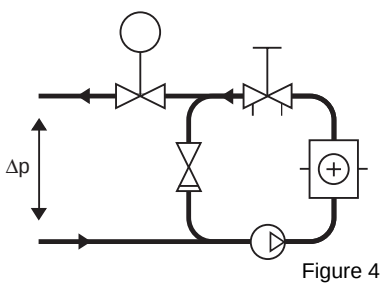

Figure 4

PRESSURE DROP DIAGRAM

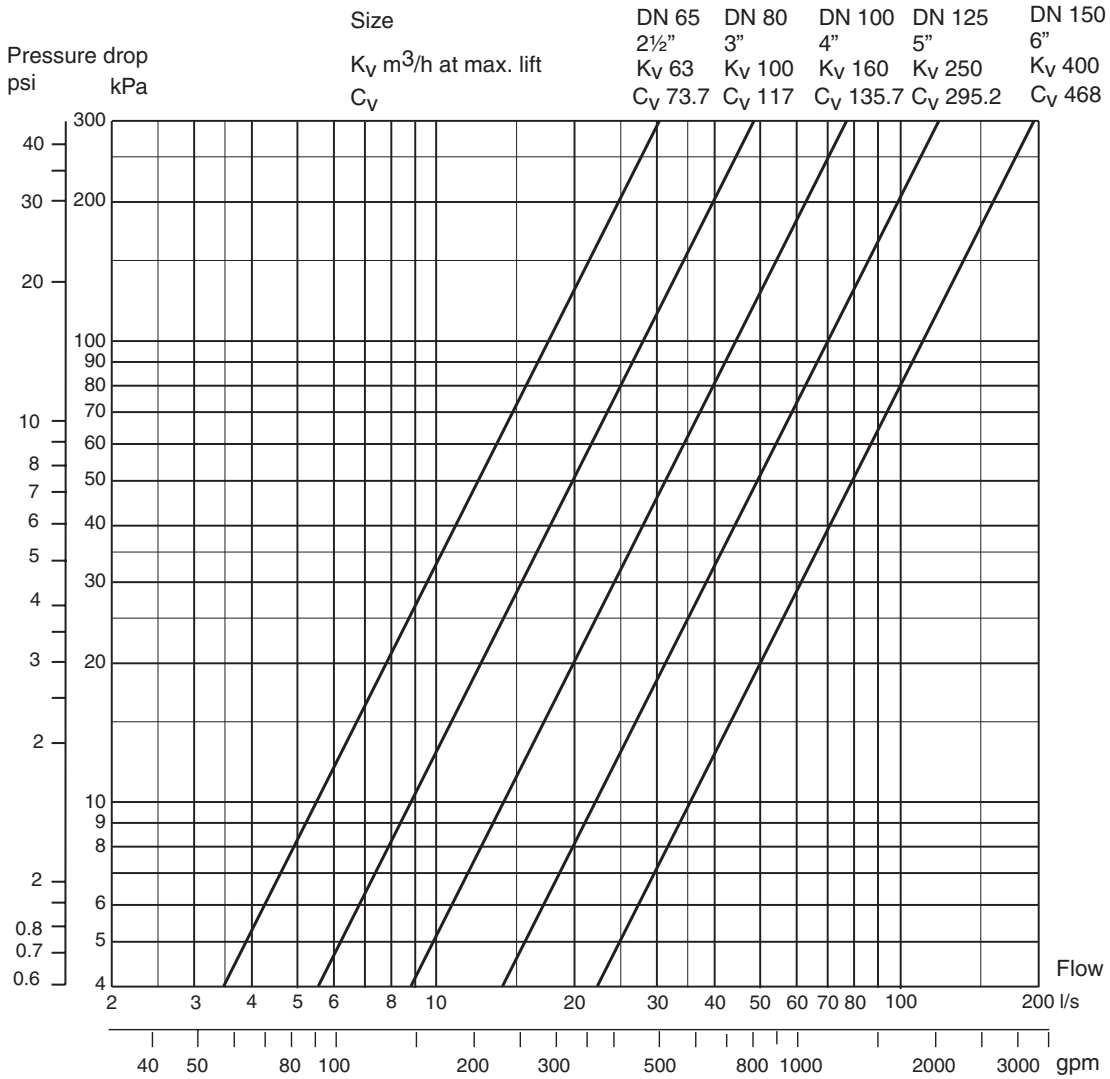

Figure 5

CAVITATION

Cavitation takes place in a valve when the velocity of the flow between the plug and seat increases to the extent that gas bubbles are created in the water.

When, after the plug and seat, the velocity decreases, the gas bubbles collapse (implode), generating considerable noise and causing considerable wear on the valve.

By means of the cavitation diagram shown in figure 6 it can be checked if risk of cavitation exists with the working conditions in the pertinent installation. Proceed as follows:

Using the static pressure before the valve (e.g. 1000 kPa), plot a horizontal line to the line for the temperature of the liquid (e.g. 120 °C).

From the intersection point, plot a vertical line downwards and read off the max. permissible pressure drop across the valve.

If the computed pressure drop exceeds the value read from the diagram there is risk of cavitation.

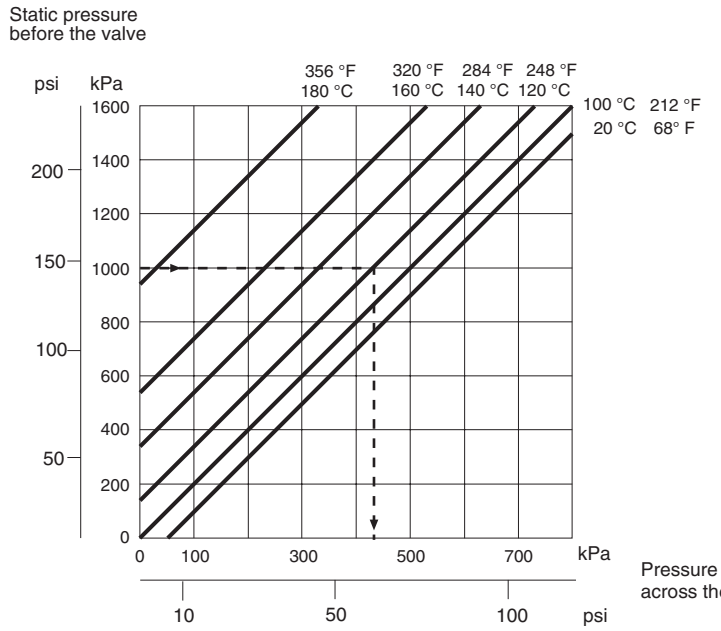

Figure 6

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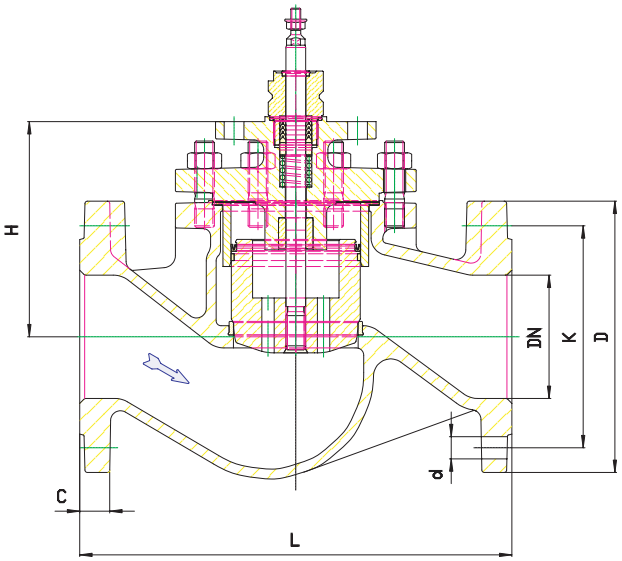
MEASUREMENTS AND WEIGHTS

DN 65-100



DN 125-150

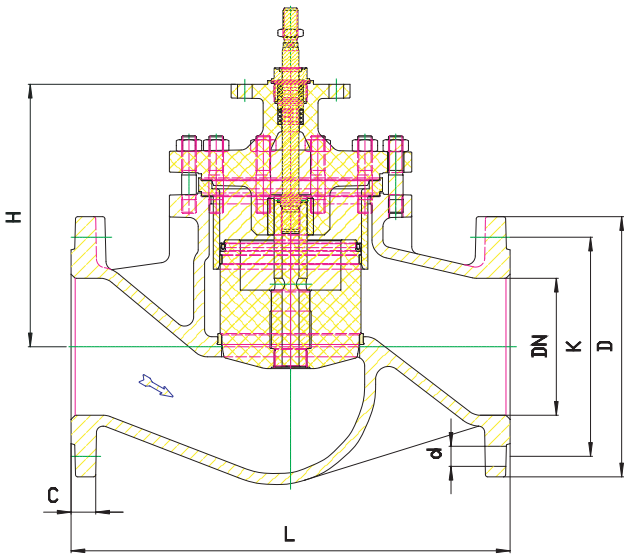


Figure 7

Part No 721-	Size. DN	Size. in.	Stroke mm	Stroke in.	Dimensions L mm	Dimensions L in.	Dimensions H mm	Dimensions H in.	Dimensions d mm	Dimensions d in.	Dimensions D mm	Dimensions D in.	Dimensions K mm	Dimensions K in.	Dimensions C mm	Dimensions C in.	Weight kg	Weight lb.
9254	65	2½	30	1.18	290	11.4	137	5.4	8x18	8x0.7	185	7.3	145	5.7	22	0.9	16.7	36.8
9258	80	3	30	1.18	310	12.2	152	6.0	8x18	8x0.7	200	7.9	160	6.3	24	0.9	22.4	49.4
9262	100	4	30	1.18	350	13.8	171	6.7	8x22	8x0.9	235	9.3	190	7.5	24	0.9	32.5	71.7
9266	125	5	50	1.97	400	15.7	228	9.0	8x26	8x1.0	270	10.6	220	8.7	26	1.0	67	148
9270	150	6	50	1.97	480	18.9	288	11.3	8x26	8x1.0	300	11.8	250	9.8	28	1.1	97	214