

V311 can be used in a wide range of applications, such as heating, cooling, air handling and domestic hot water systems.

The valve can handle the following types of media:

- Hot and chilled water.
- Water with antifreeze additives such as glycol.

If the valve is used for media at temperatures below 0 °C (32 °F), it should be equipped with a stem heater in order to prevent ice formation on the valve stem.



TECHNICAL DATA

Design three-way plug valve
Pressure class PN 16 (232 psi)
Flow characteristic A - AB EQM
Flow characteristic B - AB Complementary
Stroke 20 mm (0.79 in.)
Rangeability $K_v/K_{v_{min}}$ >50
Leakage A - AB and B - AB Tight sealing
 ΔP_m 400 kPa (58 psi), water
Max. temperature of medium: 120 °C (248 °F)
Min. temperature of medium: -20 °C (-4 °F)
Connection Flange according to ISO 7005-2

Materials:

Body Nodular iron EN-JS 1030
Stem Stainless steel SS 2346
Plug Brass CW602N
Sealing EPDM
Seat Nodular iron EN-JS 1030
Standard packing box Venta

Pressure Equipment Directive PED 97/23/EC Cat. 0

Size DN	in.	K_v m ³ /h	C_v	Part number
15	½"	1.6	1.9	731-1117-000
15	½"	2.5	2.9	731-1121-000
15	½"	4.0	4.7	731-1125-000
20	¾"	6.3	7.4	731-1129-000
25	1"	10	11.7	731-1133-000
32	1¼"	16	18.7	731-1137-000
40	1½"	25	29.3	731-1141-000
50	2"	38	44.5	731-1145-000

Key to Technical specification:

- The rangeability is the ratio of K_v and $K_{v_{min}}$ (C_v and $C_{v_{min}}$).
- K_v (C_v) is the flow through the valve in m³/h at the specified valve lift and at a pressure drop of 100 kPa across the valve.
- $K_{v_{min}}$ ($C_{v_{min}}$) is the minimum controllable flow (m³/h) at a pressure drop of 100 kPa within the range in which the valve characteristics conform to the slope requirements of IEC 534-1.
- ΔP_m is the maximum pressure drop across the fully open valve.

DESIGN AND CHARACTERISTICS

The design of the V311 gives good resistance against solid particles in the fluid. The plug is guided throughout the lift, which reduces the risk for vibrations.

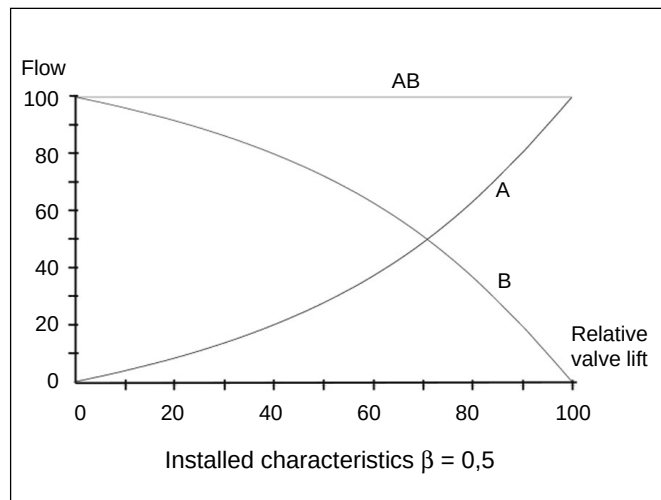
The V311 is designed to be used as a mixing valve.

The valve closes port A with the stem up.



The flow characteristics A - AB of the V311 is equal percentage modified.

The flow characteristics B - AB is complement to A - AB for constant sum of flow at $\beta = 0,5$.



CAVITATIONS

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.

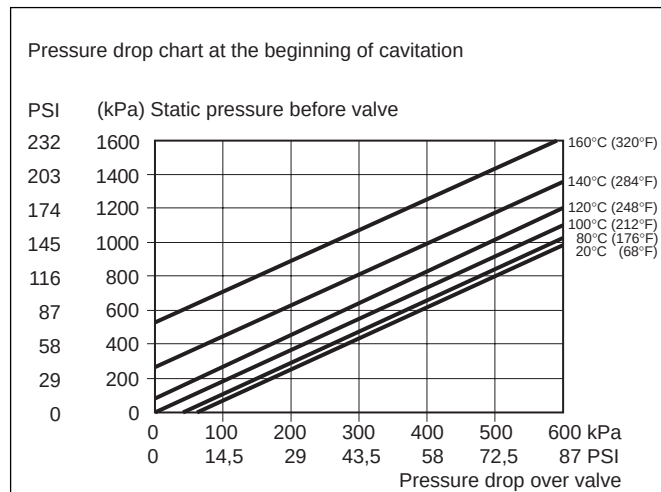
When, after the plug and seat, the velocity decreases, the gas bubbles collapse (implode), generating considerable noise and causing considerable wear on the valve.

By means of the cavitation diagram shown in the figure 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 the 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 for cavitation.

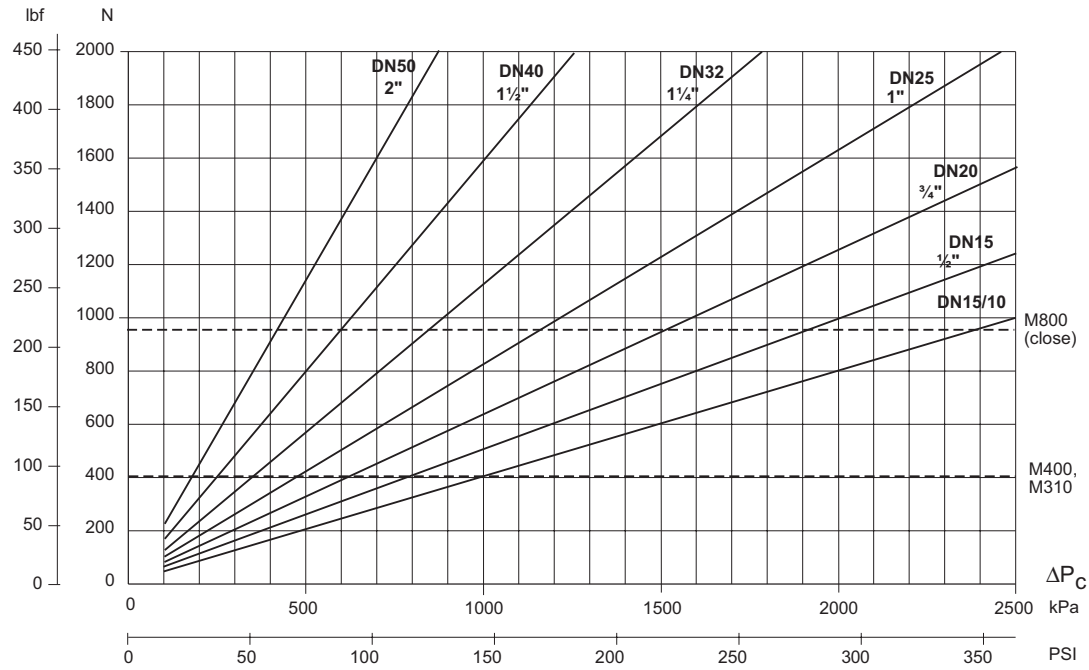


Pressure drop limit where cavitation might occur. Is dependent of valve inlet pressure and temperature of water.

SPECIFICATION OF ACTUATOR

Use the diagram below to select actuator motor for the V311 to close required ΔP_c . A suitable actuator is selected, using the data sheet F-10-6.

Actuator power



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.

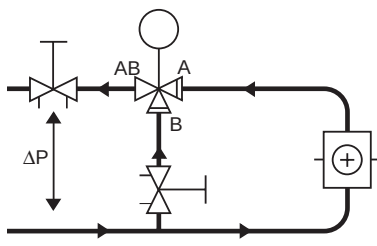
The valve must not be installed with the actuator mounted below the valve.

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.

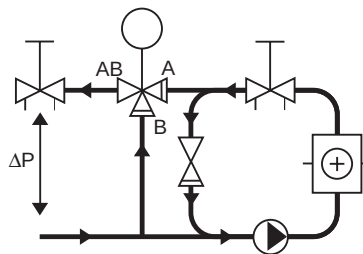
A Circuit without local circulating pump.

To obtain good function the pressure drop across the valve should be no less than half of the available pressure drop (ΔP). This will give a valve authority of 50%.



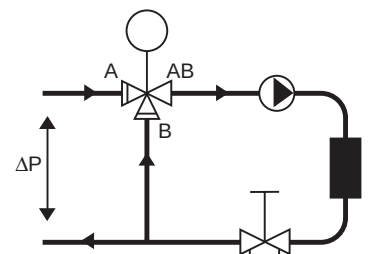
B Circuit with local circulating pump.

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.

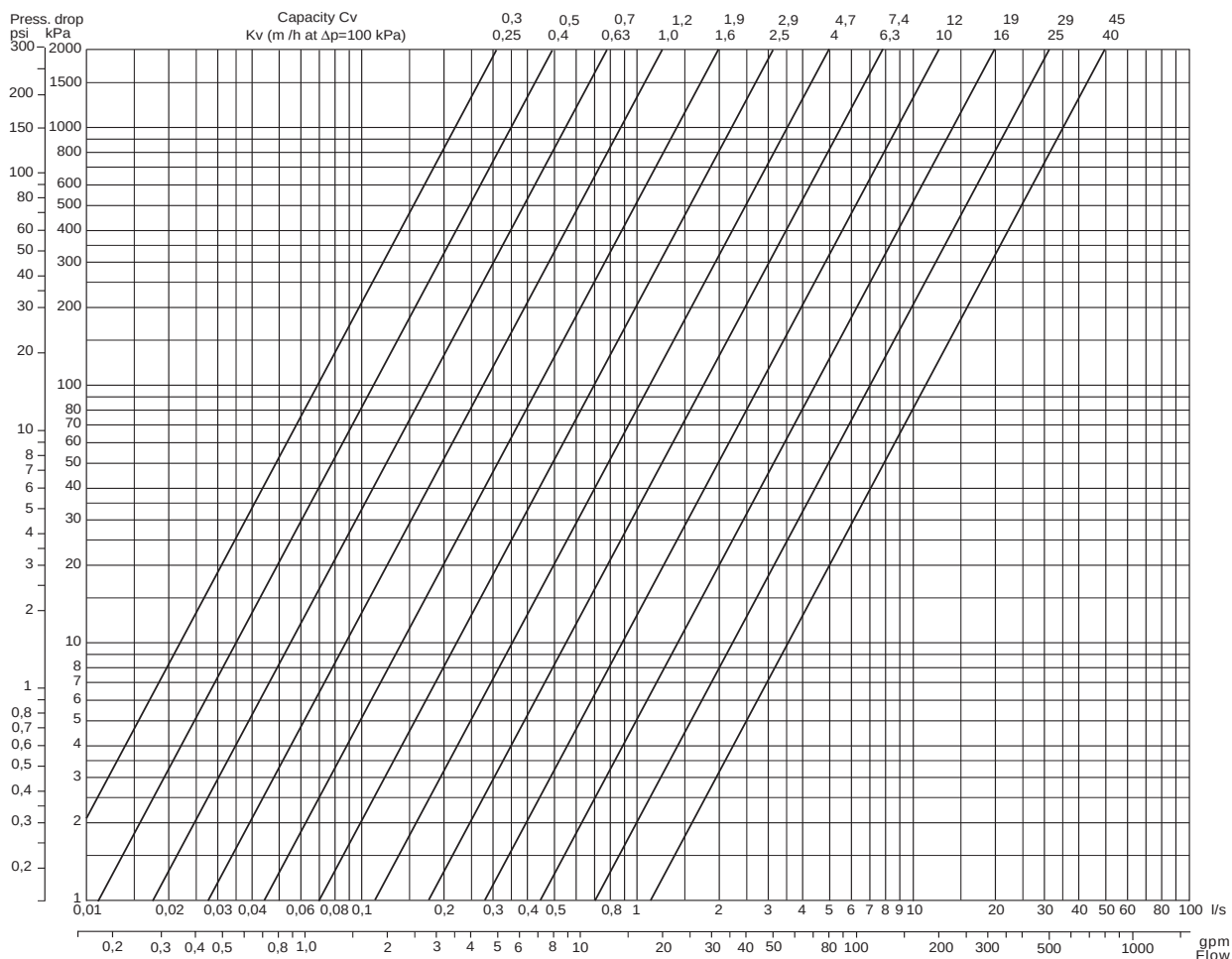


C Circuit with local circulating pump.

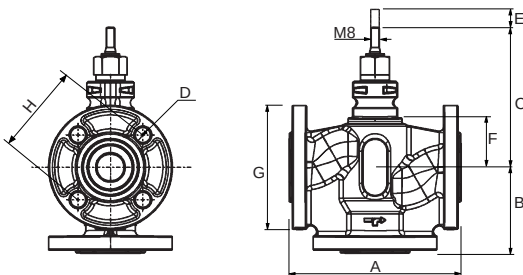
The K_v (C_v) value of the valve to be selected so that the pressure drop across the control valve becomes equal to or greater than ΔP .



PRESSURE DROP CHART



DIMENSIONS AND WEIGHT



SPARE PARTS

Stuffing box
 Standard type S max 150 °C (302 °F)
 Item number 1-001-0800-0

Part No	Conn.		Dimensions												Weight					
			A		B		C		D		E		F		G		H		kg	lb.
731-	DN	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.		
1117	15	½	130	5.12	65	2.56	123	4.84	4x14	4x0.55	20	0.79	38	1.50	95	3.74	65	2.56	2.5	5.5
1121	15	½	130	5.12	65	2.56	123	4.84	4x14	4x0.55	20	0.79	38	1.50	95	3.74	65	2.56	2.5	5.5
1125	15	½	130	5.12	65	2.56	123	4.84	4x14	4x0.55	20	0.79	38	1.50	95	3.74	65	2.56	2.5	5.5
1129	20	¾	150	5.91	75	2.95	126	4.96	4x14	4x0.55	20	0.79	41	1.61	105	4.13	75	2.95	3.2	7.1
1133	25	1	160	6.30	80	3.15	131	5.16	4x14	4x0.55	20	0.79	46	1.81	115	4.53	85	3.35	3.8	8.4
1137	32	1¼	180	7.09	90	3.54	144.5	5.69	4x19	4x0.75	20	0.79	59.5	2.34	140	5.51	100	3.94	6.6	14.6
1141	40	1½	200	7.87	100	3.94	146	5.75	4x19	4x0.75	20	0.79	61	2.40	150	5.91	110	4.33	7.5	16.5
1145	50	2	230	9.06	115	4.53	161	9.34	4x19	4x0.75	20	0.79	76	3.00	165	6.50	125	4.92	10.0	22.0

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