SpaceLogic Venta V311T

Three-way Plug Valve, Internal pipe thread PN 16

Product Description

The Venta V311T is a cast iron high performance globe valve utilizing the crown plug with a soft seal to provide a tight close, high rangeability and a smooth predictable flow curve in both port directions. V311T 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 (at 50% glycol concentration).

Specifications

Design	three-way plug valve
Pressure class	PN 16
Flow characteristic A - AB	EQM
Flow characteristic B - AB	Complementary
Stroke	20 mm
Rangeability Kv/Kv_{min}	>50
Leakage A - AB and B - AB	Tight sealing
ΔPm (mixing)	400 kPa, water
ΔPm (diverting)	60 kPa, water
Max. temperature of medium	120 °C
Min. temperature of medium	–20 °C
Connection	Internal pipe thread Rp
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 2014/68/EU Article 4 (3)

~~Note: It is the responsibility of the installer or product specifier~~ to verify media compatibility of the valves construction materials with the supplier of water treatment/heat transfer solution.

Available Part Numbers

Size		Kv (m^3/h)	Part number
DN	Connection		
15	RP ½	1.6	731 1717 000
15	RP ½	2.5	731 1721 000
15	RP ½	4.0	731 1725 000
20	RP ¾	6.3	731 1729 000
25	RP 1	10	731 1733 000
32	RP 1¼	16	731 1737 000
40	RP 1½	25	731 1741 000
50	RP 2	38	731 1745 000

- The rangability is the ratio of Kv and Kv_{min} .
- Kv is the flow through the valve in m^3/h at the specified valve lift and at a pressure drop of 100 kPa across the valve.
- Kv_{min} is the minimum controllable flow (m^3/h) at a pressure drop of 100 kPa within the range in which the valve characteristics conform to the slope requirements of IEC60534.

Recommendations

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

Spare Parts

	Part Number
Stuffing box, Gland Seals (Packing), (max. 150 °C)	1 001 0800 0
Stem Heater	880 0109 000

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Design and Characteristics

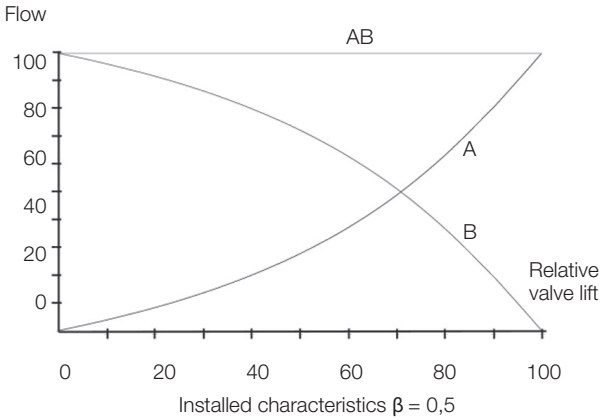
The design of the V311T gives good resistance against solid particles in the fluid. The plug is guided throughout the lift, which reduces the risk for vibrations.

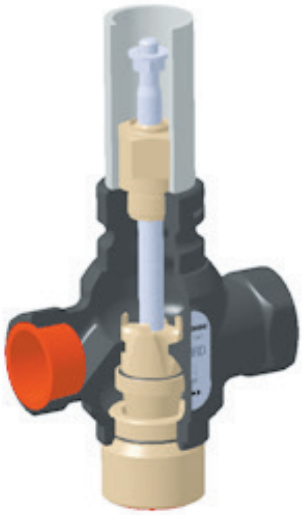
The V311T is designed to be used as a mixing valve.

The valve closes port A with the stem up.

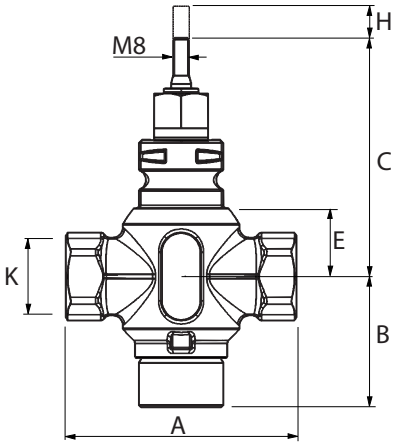
The flow characteristics A -AB of the V311T is equal percentage modified.

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





Dimensions and Weight



Part No.	Conn. DN	Dimensions (mm)						Weight (kg)
		A	B	C	E	G	K	
721 1717 000	15	85	57.5	108.5	23.5	20	Rp ½	1.1
721 1721 000	15	85	57.5	108.5	23.5	20	Rp ½	1.1
721 1725 000	15	85	57.5	108.5	23.5	20	Rp ½	1.1
721 1729 000	20	100	61	115	30	20	Rp ¾	1.3
721 1733 000	25	115	65	119	34	20	Rp 1	1.5
721 1737 000	32	130	70	120	35	20	Rp 1¼	2.1
721 1741 000	40	150	74.5	127.5	42.5	20	Rp 1½	3
721 1745 000	50	180	89.5	138	53	20	Rp 2	4.7

Cavitation

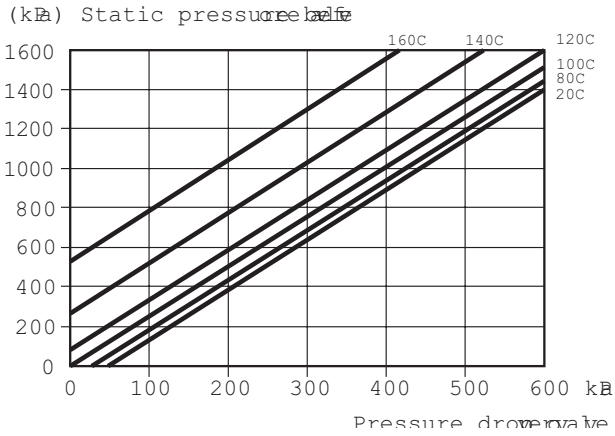
Cavitation takes place in a valve when the velocity of the fluid media over the plug and seat increases to such an extent that gas bubbles are created. As the fluid passes over the seat and the velocity decreases, these gas bubbles collapse (implode), generating considerable noise and erosion to the valve trim.

The cavitation chart provides guidance as to the cavitation zone where this phenomena will exist.

Chart usage:

1. Using the y-axis, 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).
2. From the intersection point, plot a vertical line downwards and read off the max. permissible pressure drop across the valve.
3. If the computed pressure drop exceeds the value from the diagram, there is risk for cavitation.
4. As a rule of thumb, to ensure the cavitation zone is not reached, the fluid velocity must be below 2 m/s.

Pressure drop chart at the beginning of Cavitation

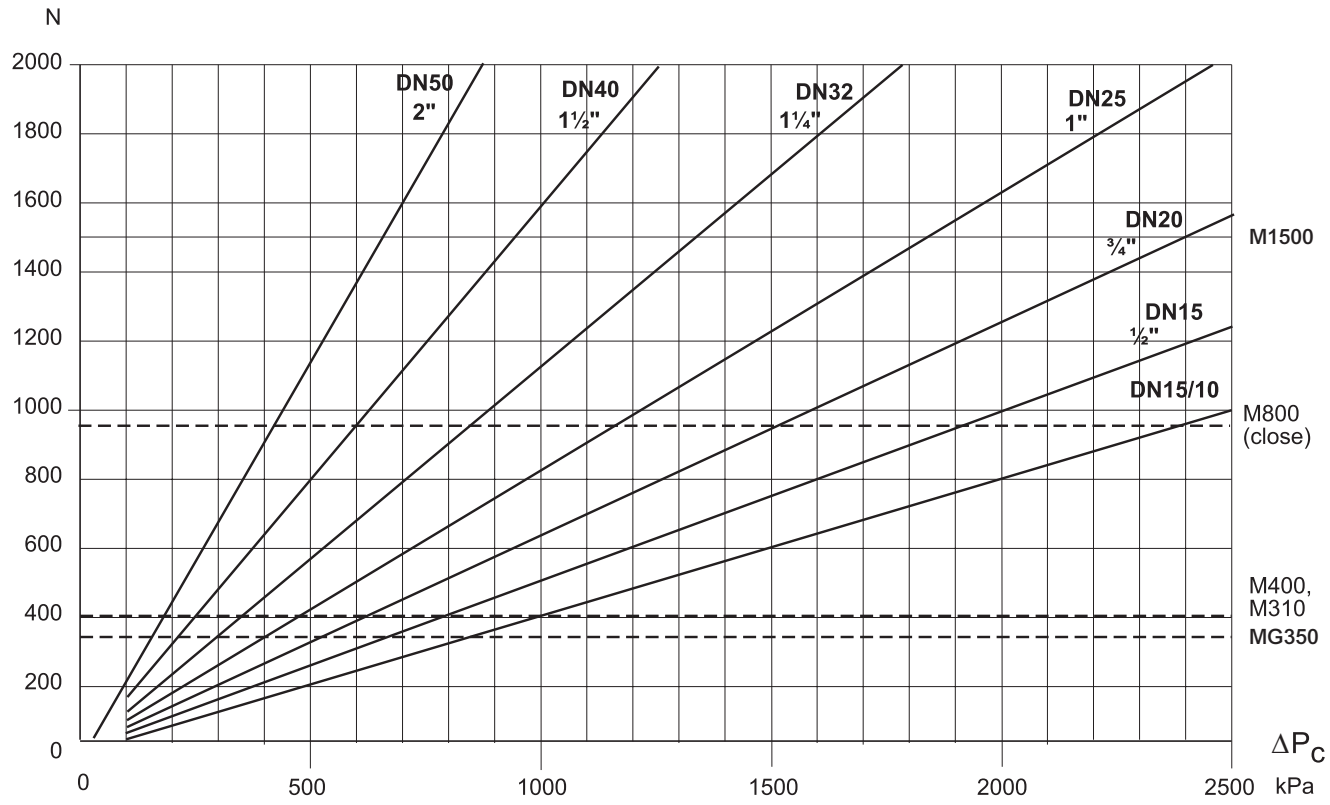


Pressure drop limit where caviation might occur is dependent on valve inlet pressure and water temperature.

Document Number: 003-02678-05

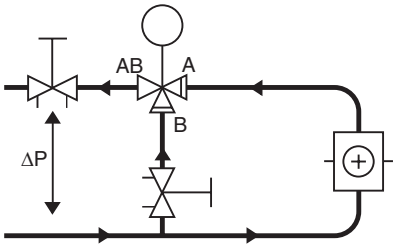
Actuator Selection

Use the diagram below to select the appropriate actuator to close required ΔPc.



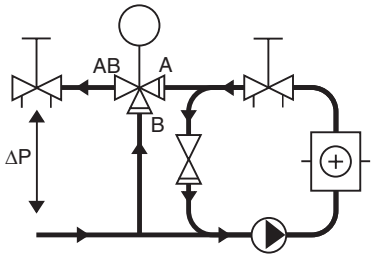
Installation

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.



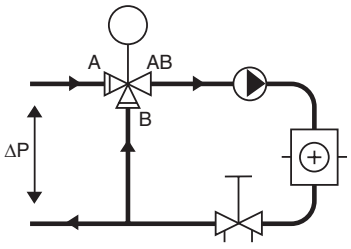
A. Circuit without local circulating pump.

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.

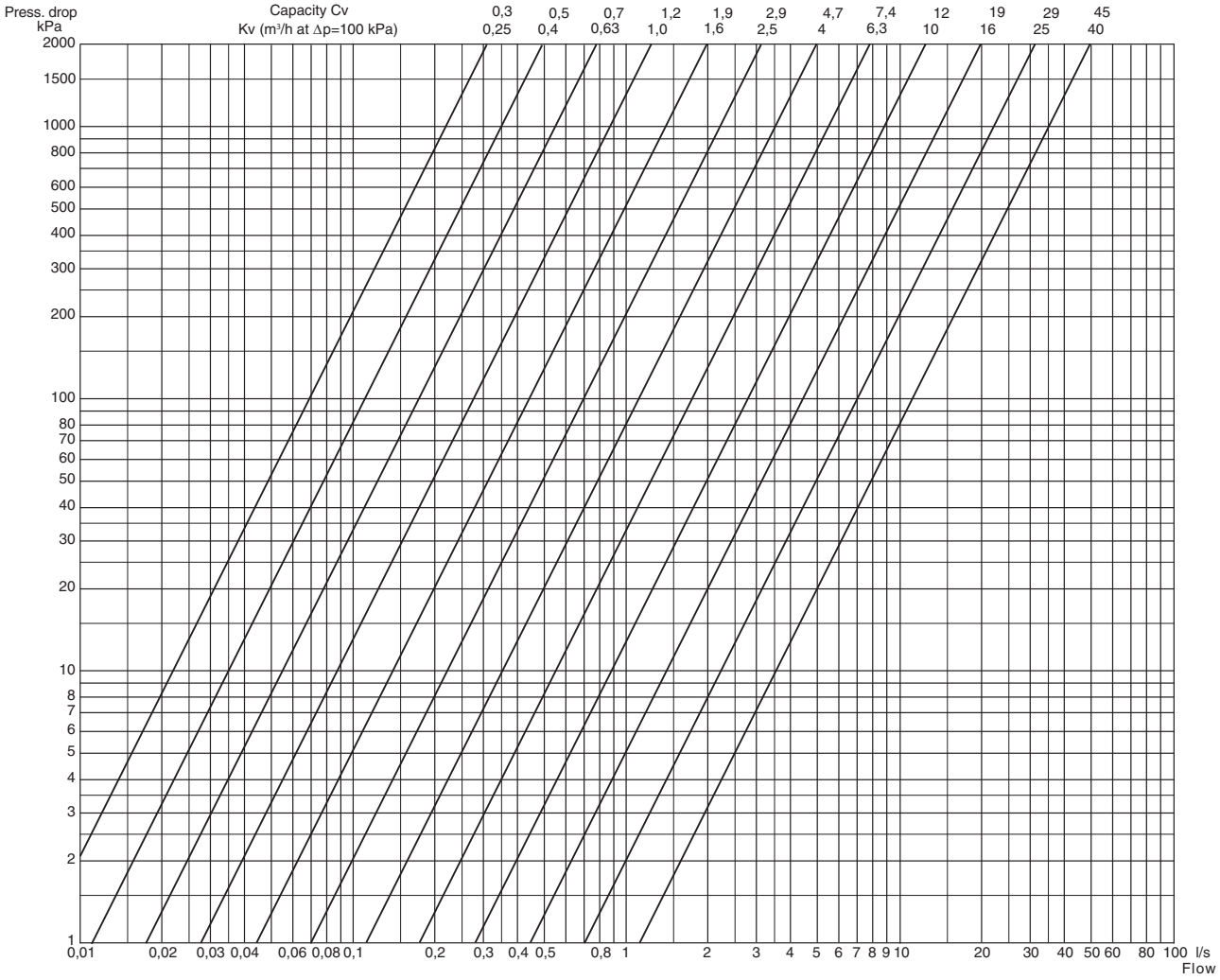
The Kvs value of the valve is to be selected so that the entire available pressure drop, ΔP, falls across the control valve.



C. Circuit with local circulating pump.

The Kvs value of the valve is to be selected so that the pressure drop across the control valve becomes equal to or greater than ΔP.

Flow and Pressure Drop Chart



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