

V341

Three-way Plug Valve, Bronze PN 16

Product Description

V341 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 containing phosphate or hydrazine additives.
- Water with antifreeze additives such as glycol (at 50% glycol concentration).

Specifications

Design	Three-way plug valve
Pressure class	PN 16
Flow characteristics A - AB	EQM
Flow characteristics B - AB	Complementary
Stroke	20 mm
Rangeability Kvs / Kv _{min}	see table
Leakage A - AB	up to 0.02% of Kv
Leakage B - AB	up to 0.05% of Kv
ΔPm (mixing)	600 kPa, water
ΔPm (diverting)	60 kPa, water
Max. temperature of medium	150 °C
Min. temperature of medium	-20 °C
Connections	
Valve	external pipe thread according to ISO 228-1
Connection sets	see tables
Main Construction Materials	
Body	Bronze Rg5
Plug and seat	stainless steel SS 2346
Stem	stainless steel SS 2346
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

Valve Size DN	Valve Thread Connection	Kvs (m ³ /h)	Part Number	Rangeability
15	G1B	1.6	7314121000	>50
		2.5	7314125000	
		4.0	7314129000	
20	G1-1/4B	6.3	7314133000	>100
25	G1-1/2B	10	7314137000	
32	G2B	16	7314141000	
40	G2-1/4B	25	7314145000	
50	G2-3/4B	38	7314149000	

- The rangeability is the ratio of Kvs and Kv_{min}.
- Kvs is the flow through the fully open valve in m³/h at a pressure drop of 100 kPa.
- Kv_{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 60534-1.

Recommendations

- If the valve is used for media at temperatures below 0 °C, it should be equipped with a stem or yoke heater in order to prevent ice formation on the valve stem.
- It is recommended to fit a strainer upstream if the valve to increase reliability and to follow waste treatment guidelines as detailed in VDI 2035.
- Valves should be installed in the return pipe to reduce exposure to media temperature extremes.

Spare Parts

Stuffing box (max 150 °C)	100108000
Yoke heater	8800109000

Design and Characteristics

The design of the V341 gives good resistance against solid particles in the fluid. The plug is guided throughout the lift, which reduces the risk for vibrations.

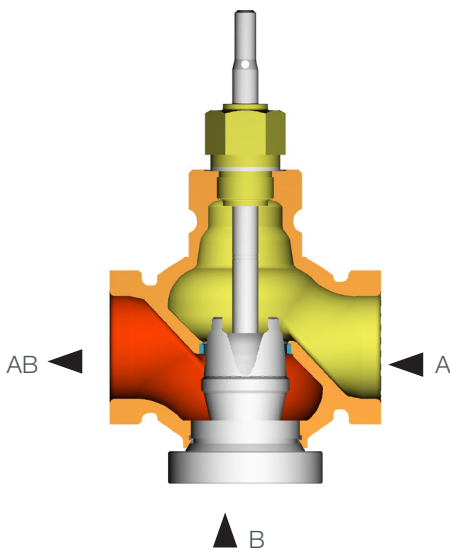
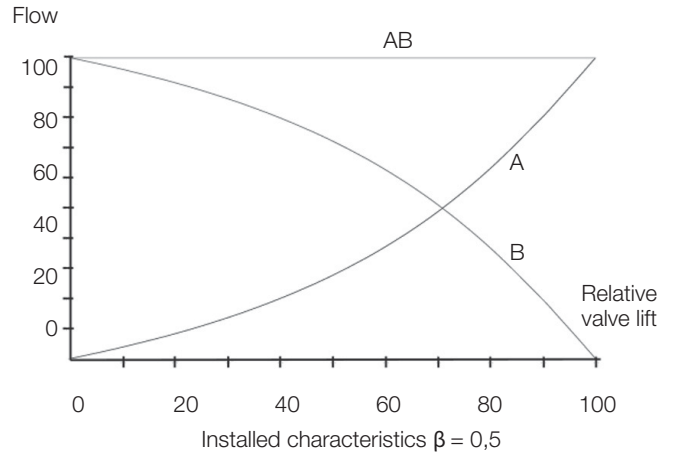
The V341 is designed to be used as a mixing valve.

The valve closes port A with the stem up.

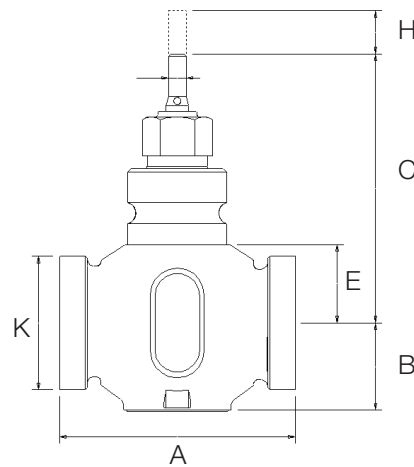
The flow characteristics A -AB of the V341 is equal percentage modified. This characteristic makes it possible to control low flow rates down to almost closed position.

This particularly important for achieving good control performance in systems with wide load variations.

The flow characteristics B - AB is complement to A - AB for constant sum of flow at $\beta = 0.5$.



Dimensions and Weight



Valve Size (DN)	Dimensions (mm)					K (ISO 228-1)	Weight (kg)
	A	B	C	E	H		
15	100	50	109.5	23.5	20	G1B	1.1
20	100	50	116	30	20	G1-1/4B	1.3
25	105	52.5	120	34	20	G1-1/2B	1.6
32	105	52.5	121	35	20	G2B	2.0
40	130	65	128.5	42.5	20	G1-1/4B	2.9
50	150	75	139	53	20	G2B	4.6

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.

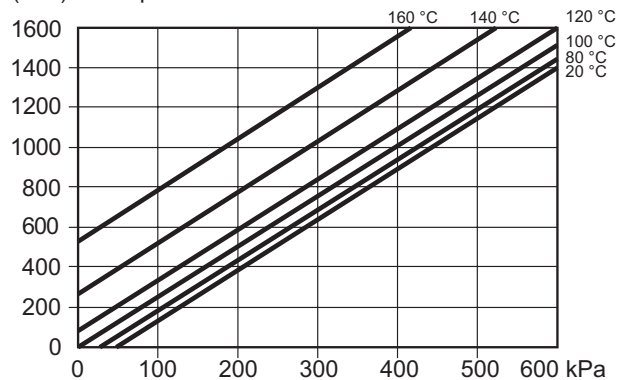
The cavitation chart provides guidance as to the cavitation zone where this phenomena will exist.

Chart usage:

- 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).
- 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 from the diagram, there is risk for cavitation.
- 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

(kPa) Static pressure before valve



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

Actuator Selection

Use the table below to select the actuator for the V341 to close against the required ΔP_c .

Actuator Power

V341					Max Close-off Pressure (kPa)							
					Non-spring Return Actuators						Spring Return	
Part Number	DN	Connection	Kvs	Rangeability	M310	MG350	M400	M800	M1500	MV15B (1500N)	M700	MG900 SR
7314121000	15	G1B	1.6	>50	800	800	800	1600	1600	1600	1400	1600
7314125000			2.5									
7314129000			4.0									
7314133000	20	G1¼B	6.3	>100	650	650	650	1500	1350	1350	1100	1510
7314137000	25	G1½B	10		400	400	500	1150			850	855
7314141000	32	G2B	16		300	300	350	850			650	605
7314145000	40	G2¼B	25		150	150	250	600			450	415
7314149000	50	G2¾B	38		50	50	150	400			300	300
					50	50	150	400			300	300

Service kit:
Replacement stem packing box: 100108000

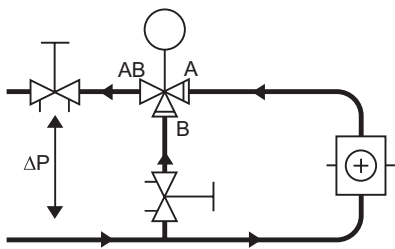
Installation

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

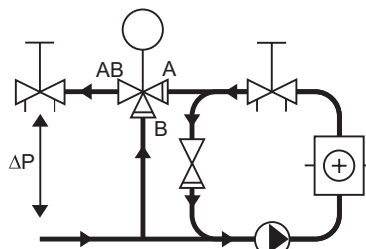
It is recommended to install the valve in the return pipe, in order to avoid exposing the actuator to high temperatures.

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

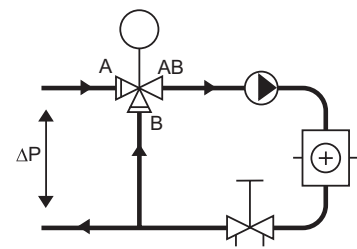
To ensure that suspended solids will not become jammed between the valve plug and seat, a filter should be installed upstream of the valve, and the pipe system should be flushed before the valve is installed.



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%.



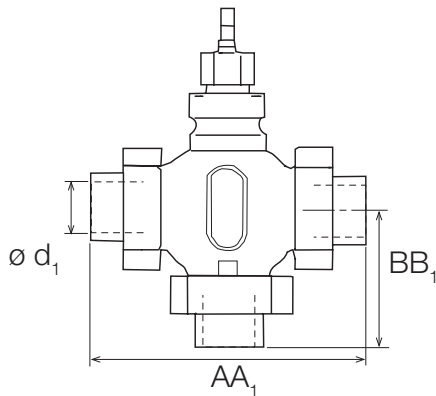
B. Circuit with local circulating pump.
The Kvs value of the valve is to be selected so that the entire available pressure drop, ΔP , falls across the control valve.



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 .

End Connection Accessories

Internal Thread Connection



Main Construction Materials

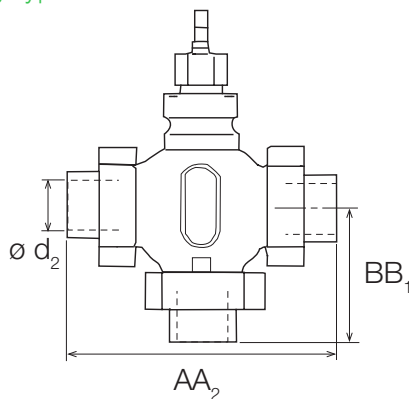
Union nut	malleable iron casting, galv.
Union end	malleable iron casting, galv.
Packing, standard or	Klingsil C4400
Packing, spec	Klingsil Top chem 1.5 mm

Valve Size DN	Valve Thread Connection	Int. thread $\varnothing d_1^*$	AA ₁	BB ₁	Part No. for Connection (1 piece per port, i.e. 3 needed)	
			mm	mm	w/Packing, std	w/Packing, spec.**
15	G1B	R ½	146	73	9112100015	9112103015
20	G1-1/4B	R ¾	146	73	9112100020	9112103020
25	G1-1/2B	R 1	159	79.5	9112100025	9112103025
32	G2B	R 1¼	169	84.5	9112100032	9112103032
40	G2-1/4B	R 1½	197	98.5	9112100040	9112103040
50	G2-3/4B	R 2	222	111	9112100050	9112103050

* Thread according to ISO 7/1

** The accessory combination "w/Packing, special" is intended for the primary circuit of district heating connections.

Soldering Type Connection



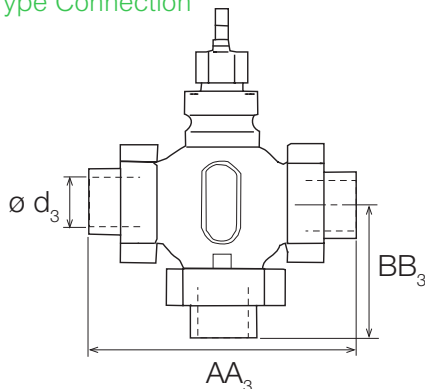
Main Construction Materials

Union nut	malleable iron casting, galv.
Union end	Bronze, SS 5204
Packing, standard or	Klingsil C4400
Packing, spec	Klingsil Top chem 1.5 mm

Valve Size DN	Valve Thread Connection	$\varnothing d_2^*$	AA ₂	BB ₂	Part No. for Connection (1 piece per port, i.e. 3 needed)	
		mm	mm	mm	w/Packing, std	w/Packing, spec.*
15	G1B	15	136	68	9112101015	9112104015
20	G1-1/4B	22	146	73	9112101020	9112104020
25	G1-1/2B	28	155	77.5	9112101025	9112104025
32	G2B	35	163	81.5	9112101032	9112104032
40	G2-1/4B	42	200	100	9112101040	9112104040
50	G2-3/4B	54	232	116	9112101050	9112104050

* The accessory combination "w/Packing, special" is intended for the primary circuit of district heating connections.

Welded Type Connection



Main Construction Materials

Union nut	malleable iron casting, galv. (except 1)
Union end	Steel, SS 2172, SS 2174
Packing, standard or	Klingsil C4400
Packing, spec	Klingsil Top chem 1.5 mm

Valve DN	Valve Thread Connection	$\varnothing d_3$	AA ₃	BB ₃	Part No. for Connection (1 piece per port, i.e. 3 needed)	
		mm	mm	mm	w/Packing, std	w/Packing, spec.*
15	G1B	21.3	182	91	9112102015	9112105015 1)
20	G1-1/4B	26.9	182	91	9112102020	9112105020 1)
25	G1-1/2B	33.7	187	93.5	9112102025	9112105025 1)
32	G2B	42.4	197	98.5	9112102032	9112105032 1)
40	G2-1/4B	48.3	232	116	9112102040	9112105040
50	G2-3/4B	60.3	262	131	9112102050	9112105050

1) Material Union nut: Brass, SS 5252

* The accessory combination "w/Packing, special" is intended for the primary circuit of district heating connections.

Flow and Pressure Drop Chart

