



V241 can be used in a wide range of applications, such as heating, cooling, air handling and domestic hot water systems.

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.

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.

TECHNICAL SPECIFICATION

Design two-way plug valve
 Pressure class PN 16 (232 psi)
 Flow characteristic EQM
 Stroke 20 mm (0.79 in.)
 Rangeability $K_v/K_{v_{min}}$ see table
 Leakage up to 0,02% of K_v/C_v
 ΔP_m 600 kPa (87 psi), water
 Max. temperature of medium: 150 °C (302 °F)
 Min. temperature of medium: -20 °C (-4 °F)

Connections:

Valve external pipe thread according to ISO 228/1
 Connection sets see tables

Materials:

Body Bronze Rg5
 Plug and seat stainless steel SS 2346
 Stem stainless steel SS 2346

Item no.s (connections are ordered separately, see p. 4):

Conn. DN	in.	K_v m ³ /h	C_v	Item number excl. connection	Rangeability
15	½"	0.25	0.29	721-4106-000	> 50
15	½"	0.40	0.47	721-4110-000	> 50
15	½"	0.63	0.74	721-4114-000	> 50
15	½"	1.0	1.2	721-4118-000	> 50
15	½"	1.6	1.9	721-4122-000	> 50
15	½"	2.5	2.9	721-4126-000	> 50
15	½"	4.0	4.7	721-4130-000	> 50
20	¾"	6.3	7.4	721-4134-000	> 100
25	1"	10	11.7	721-4138-000	> 100
32	1¼"	16	18.7	721-4142-000	> 100
40	1½"	25	29.3	721-4146-000	> 100
50	2"	38	44.5	721-4150-000	> 100

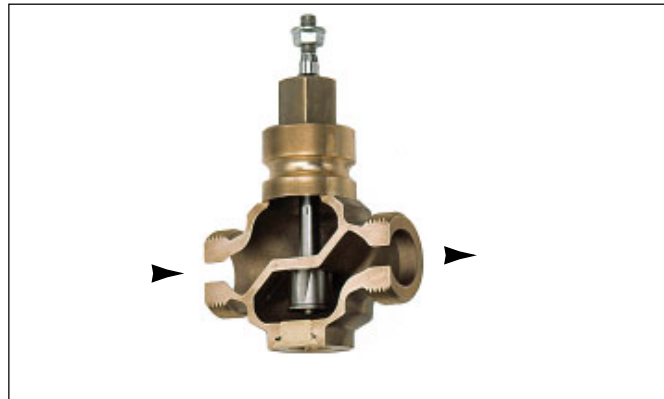
Key:

- 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.

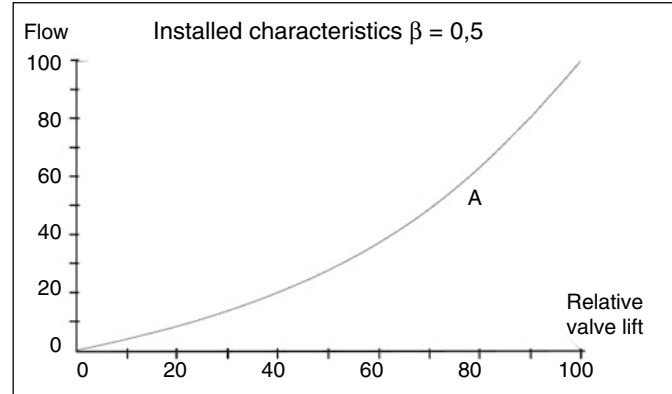
DESIGN AND CHARACTERISTICS

The design of the V241 gives good resistance against solid particles in the fluid.

The plug is guided throughout the lift, which reduces the risk for vibrations. The valve closes with the stem up.



The flow characteristics of the V241 is equal percentage modified. This characteristic makes it possible to control low flow rates down to almost closed position. This is particularly important for achieving good control performance in systems with wide load variations.



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.

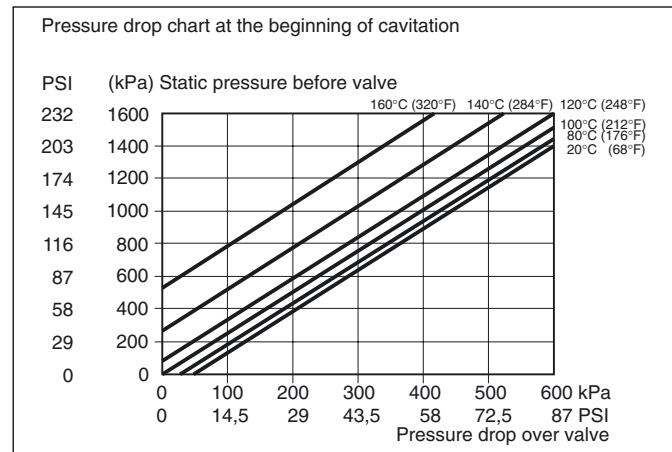
When, after the plug and seat, the velocity decreases, the gas bubbles collapse (implode), generating considerable noise and causing considerable wear on the valve.

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.

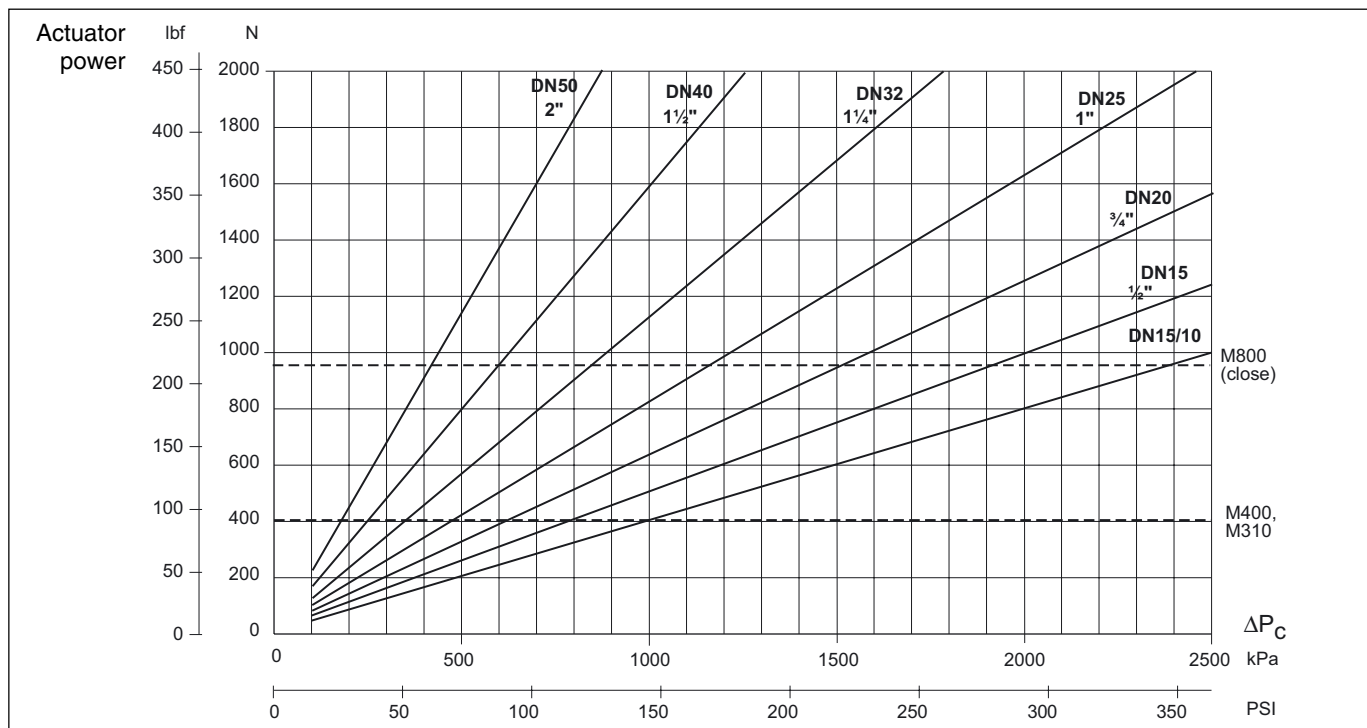


Pressure drop limit where cavitation might occur. Is dependent of valve inlet pressure and temperature of water.

SPECIFICATION OF ACTUATOR

Use the diagram below to select actuator motor for the V241 to close required ΔP_c .

A suitable actuator is selected, using the data sheet F-10-6.



INSTALLATION

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

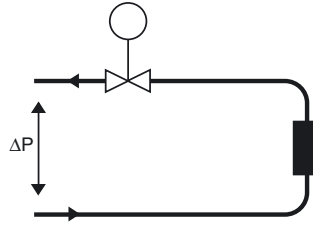
It is recommended to install the valve in the return pipe, in order to avoid exposing the actuator to high temperatures.

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.

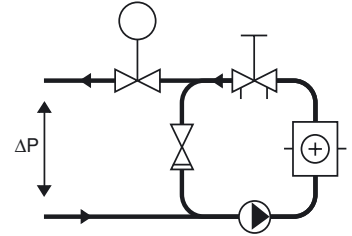
A Typical installation without local circulating pump.

To provide a 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%.

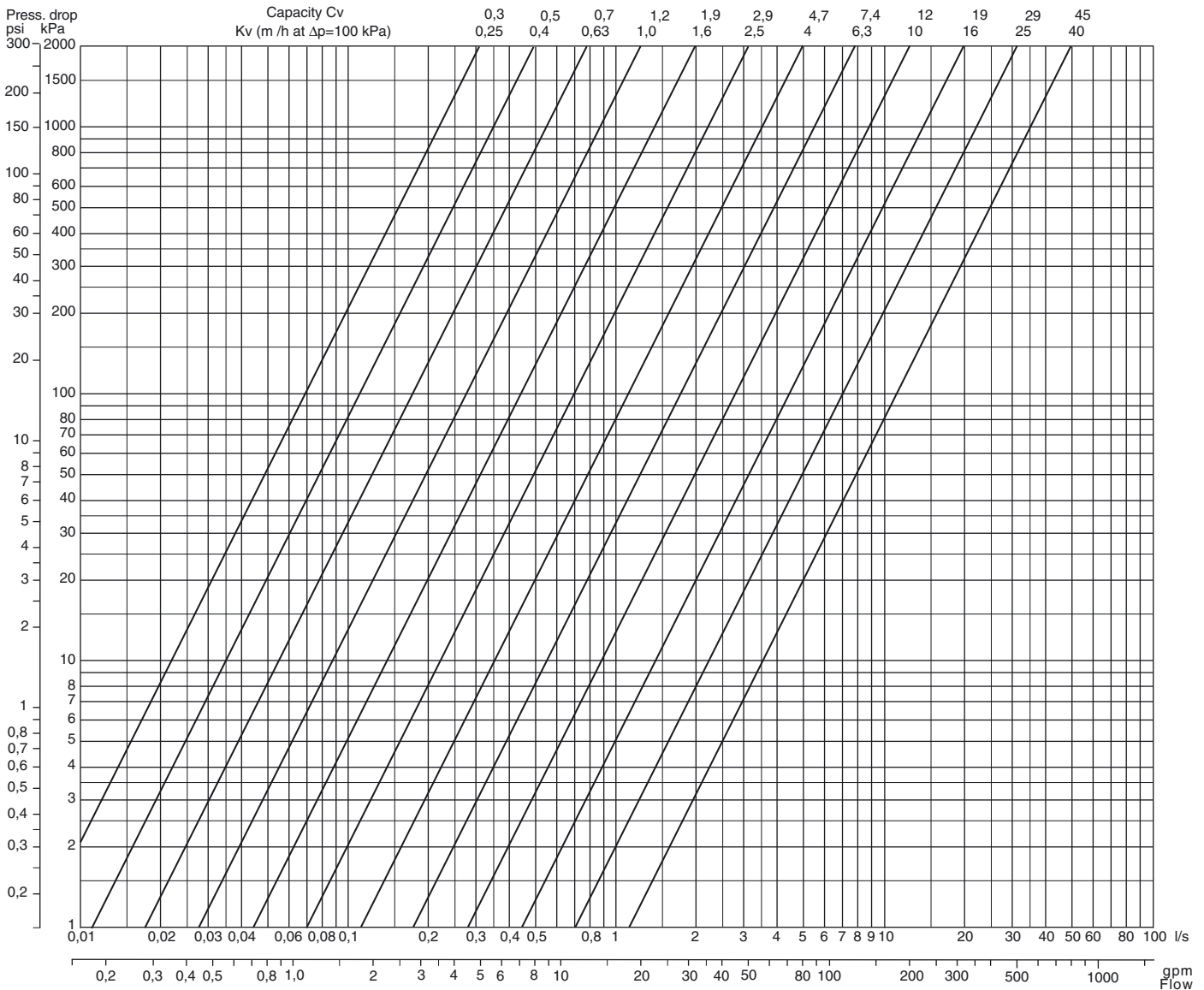


B Typical installation with local circulating pump.

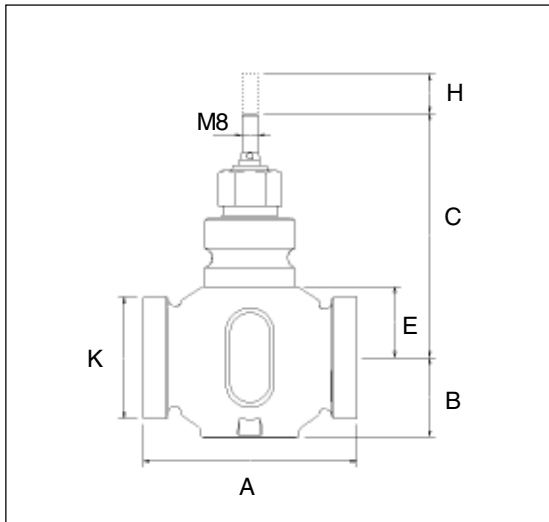
The K_v (C_v) value of the valve to be selected so that the entire available pressure drop (ΔP) falls across the control valve.



PRESSURE DROP CHART



DIMENSIONS AND WEIGHTS



Conn. DN in.	Dimensions						Weight	
	A mm in.	B mm in.	C mm in.	E mm in.	H mm in.	K in.	kg	lb
15 1/2"	100 3.94	36 1.42	109.5 4.31	23.5 0.93	20 0.79	1"	1.0	2.20
20 3/4"	100 3.94	38 1.50	116 4.57	30 1.18	20 0.79	1 1/4"	1.2	2.65
25 1"	105 4.13	39 1.54	120 4.72	34 1.34	20 0.79	1 1/2"	1.4	3.1
32 1 1/4"	105 4.13	39 1.54	121 4.76	35 1.38	20 0.79	2"	1.8	4.0
40 1 1/2"	130 5.12	48.5 1.91	128.5 5.06	42.5 1.67	20 0.79	2 1/4"	2.6	5.7
50 2"	150 5.91	58 2.28	139 5.47	53 2.09	20 0.79	2 3/4"	4.3	9.5

SPARE PARTS

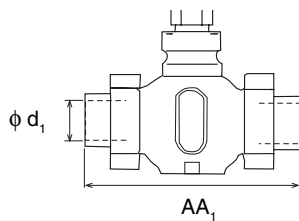
Stuffing box

Standard type S . max 150 °C (302°F)

Item number 1-001-0800-0

CONNECTIONS

Internal thread connection



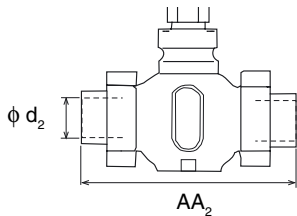
Materials Union nut malleable iron casting, galv.
Union end ... malleable iron casting, galv.
Packing, standard Klingersil C4400
or
Packing, spec
..... Klingersil Top chem 1,5 mm (0.059 in.)

Valve DN in.	Int. thread ϕd_1^*	AA_1 mm in.	Item no. for connection, <i>one pkg/port</i> w/Packing, std w/Packing, spec.**	
15 1/2"	R 1/2"	146 5.75	911-2100-015	911-2103-015
20 3/4"	R 3/4"	146 5.75	911-2100-020	911-2103-020
25 1"	R 1"	159 6.26	911-2100-025	911-2103-025
32 1 1/4"	R 1 1/4"	169 6.65	911-2100-032	911-2103-032
40 1 1/2"	R 1 1/2"	197 7.76	911-2100-040	911-2103-040
50 2"	R 2"	222 8.74	911-2100-050	911-2103-050

* 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

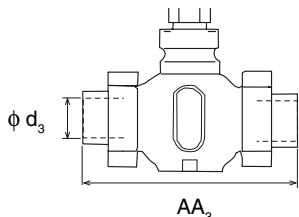


Materials Union nut malleable iron casting, galv.
Union end Bronze, SS 5204
Packing, standard Klingersil C4400
or
Packing, spec
..... Klingersil Top chem 1,5 mm (0.059 in.)

Valve DN in.	ϕd_2 mm in.	AA_2 mm in.	Item no. for connection, <i>one pkg/port</i> w/Packing, std w/Packing, spec.*	
15 1/2"	15 0.59	136 5.35	911-2101-015	911-2104-015
20 3/4"	22 0.87	146 5.75	911-2101-020	911-2104-020
25 1"	28 1.10	155 6.10	911-2101-025	911-2104-025
32 1 1/4"	35 1.38	163 6.42	911-2101-032	911-2104-032
40 1 1/2"	42 1.65	200 7.87	911-2101-040	911-2104-040
50 2"	54 2.13	232 9.13	911-2101-050	911-2104-050

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

Welded type connection



Materials Union nut
..... malleable iron casting, galv. (except ¹⁾)
Union end Steel SS 2172, SS 2174
Packing, standard Klingersil C4400
or
Packing, spec
..... Klingersil Top chem 1,5 mm (0.059 in.)

Valve DN in.	ϕd_3 mm in.	AA_3 mm in.	Item no. for connection, <i>one pkg/port</i> w/Packing, std w/Packing, spec.*	
15 1/2"	21.3 0.84	182 7.17	911-2102-015	911-2105-015 ¹⁾
20 3/4"	26.9 1.06	182 7.17	911-2102-020	911-2105-020 ¹⁾
25 1"	33.7 1.33	187 7.36	911-2102-025	911-2105-025 ¹⁾
32 1 1/4"	42.4 1.67	197 7.76	911-2102-032	911-2105-032 ¹⁾
40 1 1/2"	48.3 1.90	232 9.13	911-2102-040	911-2105-040
50 2"	60.3 2.37	262 10.32	911-2102-050	911-2105-050

¹⁾ Material Union nut Brass SS 5252

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

TAC AB, Jägershillgatan 18, SE-213 75 MALMÖ, SWEDEN, +46 40 38 68 50 (switchboard), www.tac.com