V321

Three-way Plug Valve, Flanged
PN 16 (232 psi)

F-30-19

27 Sep 2004

V321 can be used in a wide range of applications, such as heating, cooling, and air handling.
The valve can handle the following types of media:

- Hot and chilled water.
- Water with antifreeze additives such as glycol, up to 50%.

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 mixing valve
Pressure class ..... PN 16 (232 psi)
Connection ..... Flange according ISO 7005-2

DN 65 – DN100

Flow characteristics A – AB ..... EQ%
Flow characteristics B - AB ..... complementary
Stroke ..... 30 mm (1.18 in.)
Rangeability Kv/Kv min ..... >30
Leakage A – AB DN65 – DN100 ..... Tight sealing
Leakage B - AB DN65 – DN100 ..... Tight sealing
ΔPm ..... 400 kPa (58 psi), water
Max. temperature of medium: ..... 130 °C (266 °F)
Min. temperature of medium: ..... -10 °C (14 °F)
Materials:
Body ..... Cast iron GG25
Stem ..... stainless steel SS 1.4571
Plug ..... brass CuZn39Pb3, 2.0401
Sealing ..... EPDM
Seat ..... stainless steel SS 1.4021
Packing box ..... EPDM

DN 125 – DN150

Flow characteristics A – AB ..... linear
Flow characteristics B - AB ..... linear
Stroke ..... 50 mm (1.97 in.)
Rangeability Kv/Kv min ..... >30
Leakage A – AB DN125 – DN150 ..... <0.05 of Kv
Leakage B - AB DN125 – DN150 ..... <0.05 of Kv
ΔPm ..... 400 kPa (58 psi), water
Max. temperature of medium: ..... 200 °C (392 °F)
Min. temperature of medium: ..... -10 °C (14 °F)
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	731-2153-000	Cat. III	CE
80	3	100	117	731-2157-000	Cat. III	CE
100	4	160	187	731-2161-000	Cat. III	CE
125	5	250	292	731-2165-000	Cat. III	CE
150	6	320	374	731-2169-000	Cat. III	CE

ACTUATOR

Size		M800 ΔPc		M16 ΔPc		M22 ΔPc		M50 ΔPc	
DN	in.	kPa	PSI	kPa	PSI	kPa	PSI	kPa	PSI
65	2½	140	20	320	46	–	–	–	–
80	3	80	12	190	28	–	–	–	–
100	4	40	6	110	16	–	–	–	–
125	5	–	–	–	–	90	13	340	49
150	6	–	–	–	–	60	9	240	35

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

INSTALLATION

The V321 valve should, if possible, be installed in the return line 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, if possible, be installed upstream of the valve, and the pipe system should be flushed before the valve is installed.

A. Circuit without local circulation pump. To ensure satisfactory performance, the pressure drop across the valve should be at least half the available pressure differential (ΔP). This corresponds to a valve authority of 50%.

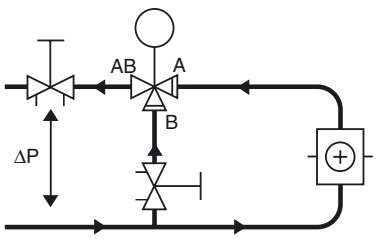


Figure 1

B. Circuit with local circulation pump. The Kv (Cv) value of the valve should be selected so that the entire available pressure differential (ΔP) will be across the valve.

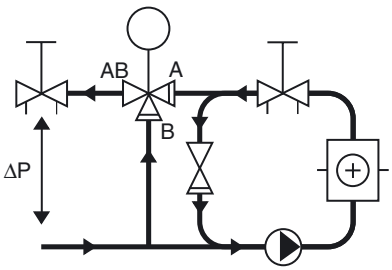


Figure 2

C. Circuit with local circulation pump. The Kv (Cv) value of the valve should be selected so that the pressure drop across the valve will be at least as high as (ΔP).

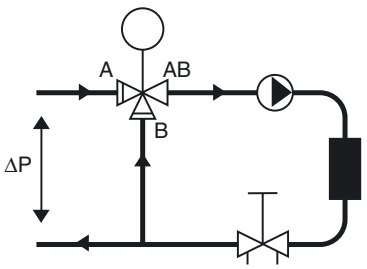


Figure 3

PRESSURE DROP DIAGRAM

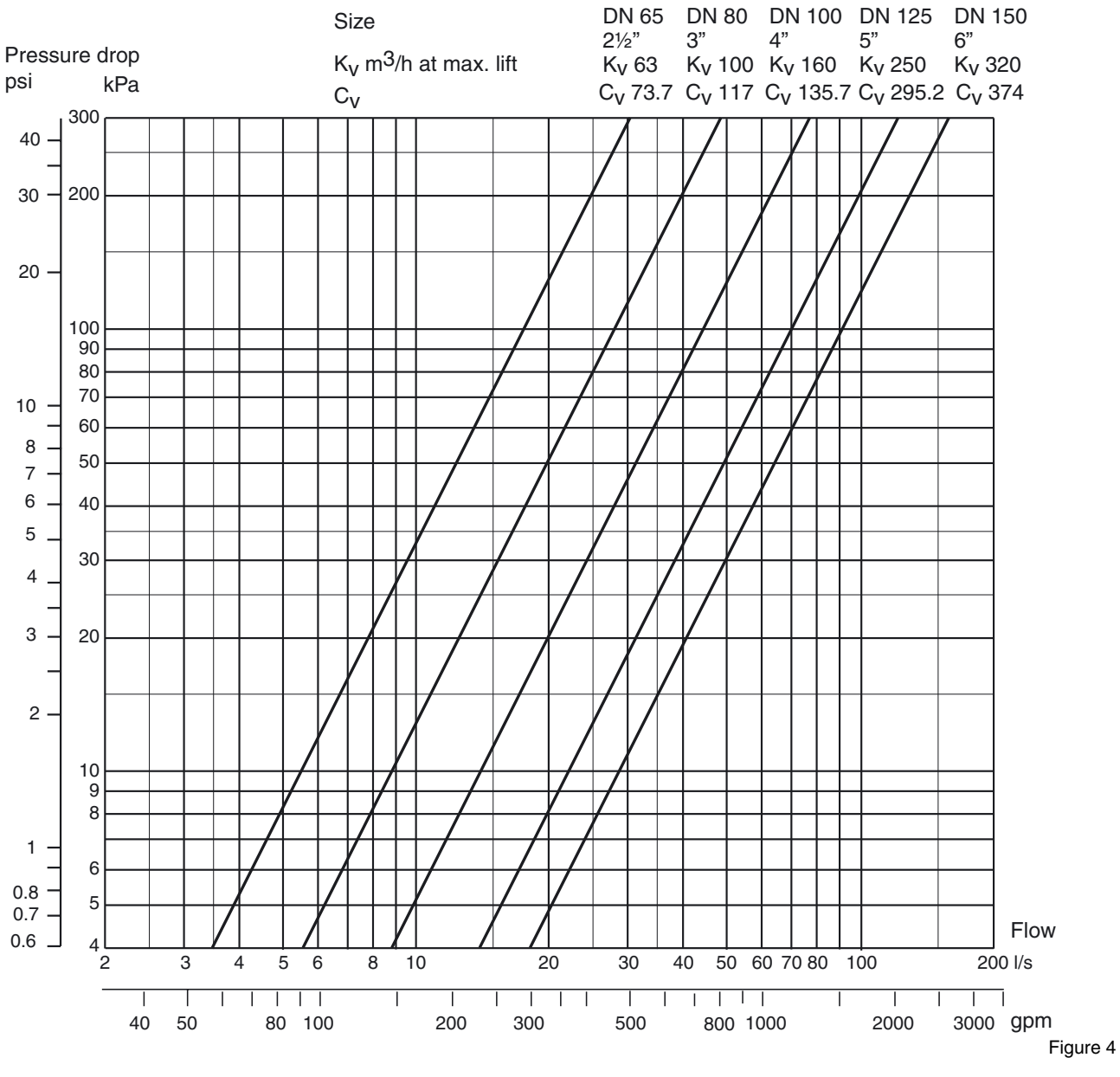
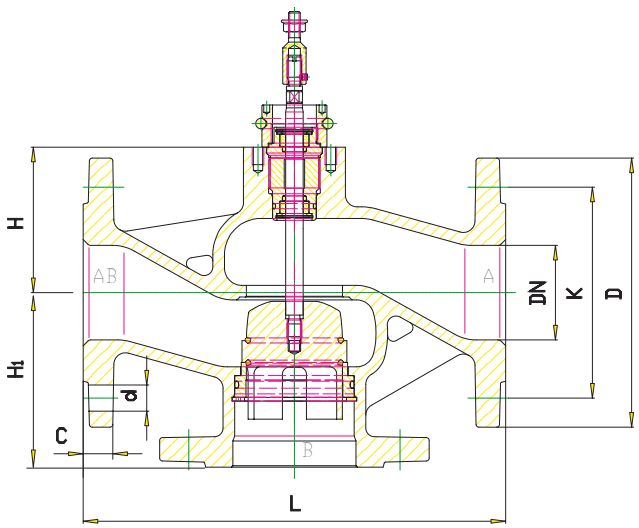


Figure 4

MEASUREMENTS AND WEIGHTS

DN 65-100



DN 125-150

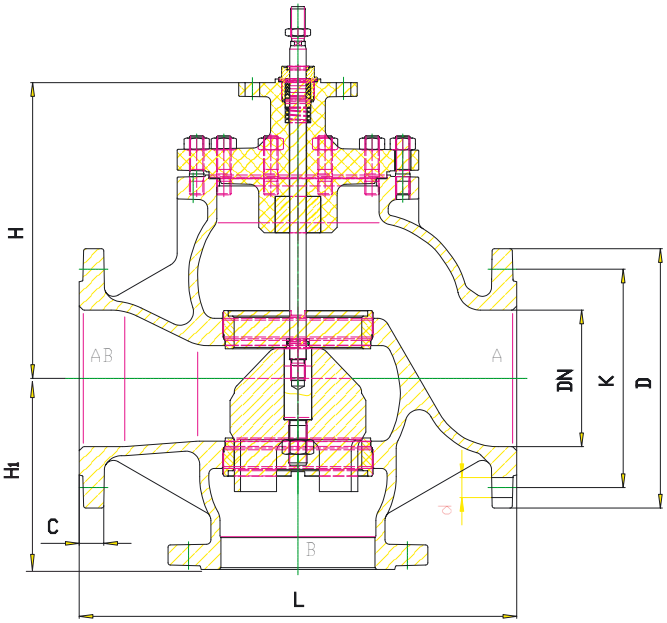


Figure 5

Part No. 731-	Size. DN	Size. in.	Stroke mm	Stroke in.	Dimensions L mm	Dimensions L in.	Dimensions H mm	Dimensions H in.	Dimensions H_1 mm	Dimensions H_1 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.
2153	65	2½	30	1.18	290	11.4	100	3.9	120	4.7	4x18	4x0.7	185	7.3	145	5.7	20	0.8	14.8	33
2157	80	3	30	1.18	310	12.2	110	4.3	130	5.1	8x18	8x0.7	200	7.9	160	6.3	22	0.9	21	46
2161	100	4	30	1.18	350	13.8	125	4.9	150	5.9	8x18	8x0.7	220	8.7	180	7.1	24	0.9	31	68
2165	125	5	50	1.97	400	15.7	228	9.0	200	7.9	8x18	8x0.7	250	9.8	210	8.3	26	1.0	63	139
2169	150	6	50	1.97	480	18.9	288	11.3	210	8.3	8x22	8x0.9	285	11.2	240	9.4	26	1.0	93	205