

Description

Flow controller with integrated control valve – combi-valve, is primarily designed to control the flow of circulation water in district heating systems. The flow controller is operated by electric actuators AV.. and NV.. (manufactured by Belimo) and is controlled by microprocessor controller.

The limitation and flow regulation is realized by means of the pressure actuator with a diaphragm and integrated control valve. Control valve cone is controlled by the electric actuator and limited by the adjustable nut. Changing the position of the adjustable nut increases or decreases maximum flow across the valve.

The pressure actuator with a diaphragm is connected to the valve entry. Pressure difference acts through the impulse tube on the control diaphragm and flow controller cone. Each pressure change on the valve entry, causes the movement of the control diaphragm and flow controller cone and causes increase or decrease of the valve orifice. Differential pressure across the valve is $\Delta p_w = 0,2$ bar.

Drop pressure across the valve is:

$$\Delta p_v = \Delta p_w + (Q/K_{vs})^2$$

and the minimal required differential pressure across the valve:

$$\Delta p_{v_{min}} = \Delta p_w + (Q_{max}/K_{vs})^2$$

To ensure correct control function, available differential pressure across the valve must be minimum:

$$\Delta p_v = 0,5 \text{ bar.}$$

Q – fluid flow, Q_{max} – max. fluid flow



Types

KV (PN 16)				KVP (PN 25)			
DN	K_{vs} (m ³ /h)	Stroke (mm)	Type	DN	K_{vs} (m ³ /h)	Stroke (mm)	Type
15	2,5	10	KV 015/2,5	15	2,5	10	KVP 015/2,5
15	4	10	KV 015/4	15	4	10	KVP 015/4
25	6,3	14	KV 025/6,3	25	6,3	14	KVP 025/6,3
25	8	14	KV 025/8	25	8	14	KVP 025/8
32	12	16	KV 032/12	32	12	16	KVP 032/12
40	20	18	KV 040/20	40	20	18	KVP 040/20
50	32	22	KV 050/32	50	32	22	KVP 050/32
65	50	28	KV 065/50	65	50	28	KVP 065/50
80	80	34	KV 080/80	80	80	34	KVP 080/80
100	125	36	KV 100/125	100	125	36	KVP 100/125
125	180	38	KV 125/180	125	180	38	KVP 125/180

Technical data

VALVE

Nominal diameter:	DN	15	15	25	25	32	40	50	65	80	100	125	
K_{VS} value:	(m ³ /h)	2,5	4	6,3	8	12	20	32	50	80	125	180	
Min. flow rate:	(m ³ /h)	0,15	0,2	0,3	0,5	1	1,5	2	4	5	8	12	
Max. flow rate:	(m ³ /h)	1,3	2	3	4	6,5	9	15	25	36	65	80	
Cavitation factor Z:		0,6				0,55			0,45		0,40		
Nominal pressure:	PN (bar)						16 (KV) or 25 (KVP)						
Medium:		Circulation water											
Max. medium temperature:	(°C)	120											
Type of connection:		Flanges (EN 1092-2)											
Approx. valve weight:	(kg)	7	7	10	10	13	15	20	33	44	60	78	
Valve body material:		GG-25 (KV) or GGG 40.3 (KVP)											
Gasket material:		FPM (ISO1629)											
Cones, spindle, seat material:		WN1.4021, WN1.4057											

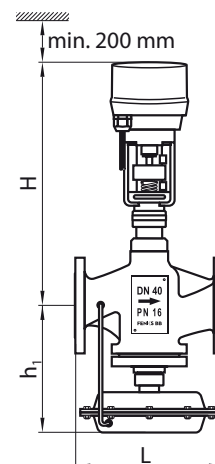
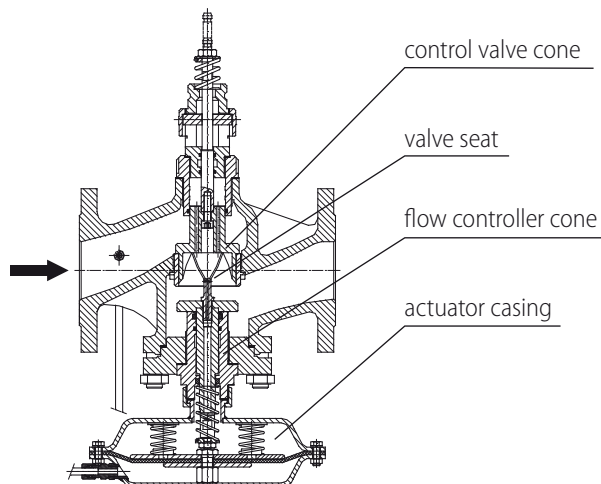
PRESSURE ACTUATOR

Nominal diameter:	DN	15	25	32	40	50	65	80	100	125	
Effective surface:	(cm ²)	80				300					
Max. pressure difference:	(bar)	10									
Diaphragm material:		NBR									
Impulse tube:		Ø6			WN1.4301		Ø8		Ø10		
Approx. weight:	(kg)	2				7					

Dimensions

DN (nominal diameter)	(mm)	15	25	32	40	50	65	80	100	125
L (distance between flanges)	(mm)	130	160	180	200	230	290	310	350	400
h_1 (height up to the flange axis)	(mm)	175	205	220	225	240	250	260	290	330
H (height of the valve with actuator)	(mm)	300	325	320	345	500	530	540	550	600

DN Nominal diameter
L Distance between flanges
 h_1 Height up to the flange axis
H Height of the valve with actuator



Electric actuator

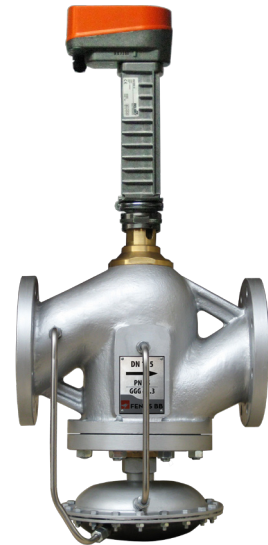
The flow controllers are used with two types of actuators. The controllers from DN15 to DN40 are used with the actuator type NV.. and the controllers from DN50 to DN125 are used with the actuator type AV.. .



combi-valve with NV.. actuator
(DN15 – DN40)



combi-valve with AV.. actuator
(DN50 – DN100)

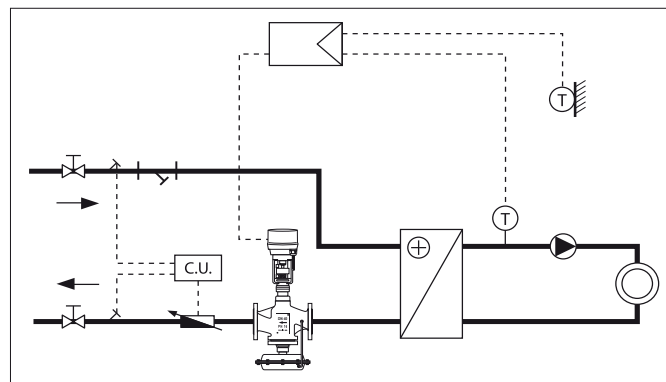
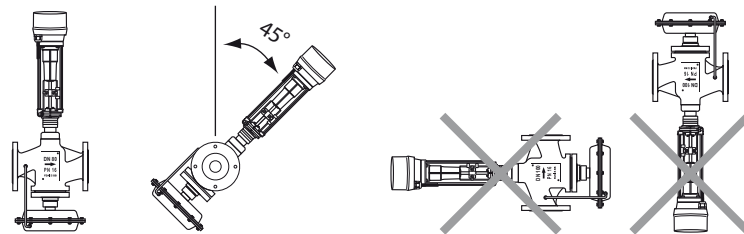


combi-valve with AV.. actuator
(DN125)

Installation

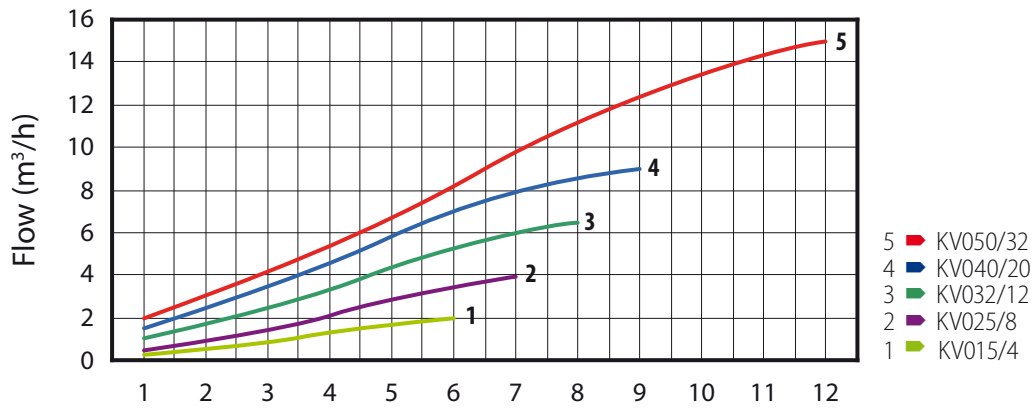
Recommended installation: Install the valve in the return flow pipe of the system. Electric actuator should be placed in upward position, at $\pm 45^\circ$ angle to the vertical pipe axis.

Permissible installation: The valve may be installed in horizontal supply flow pipes of the system.

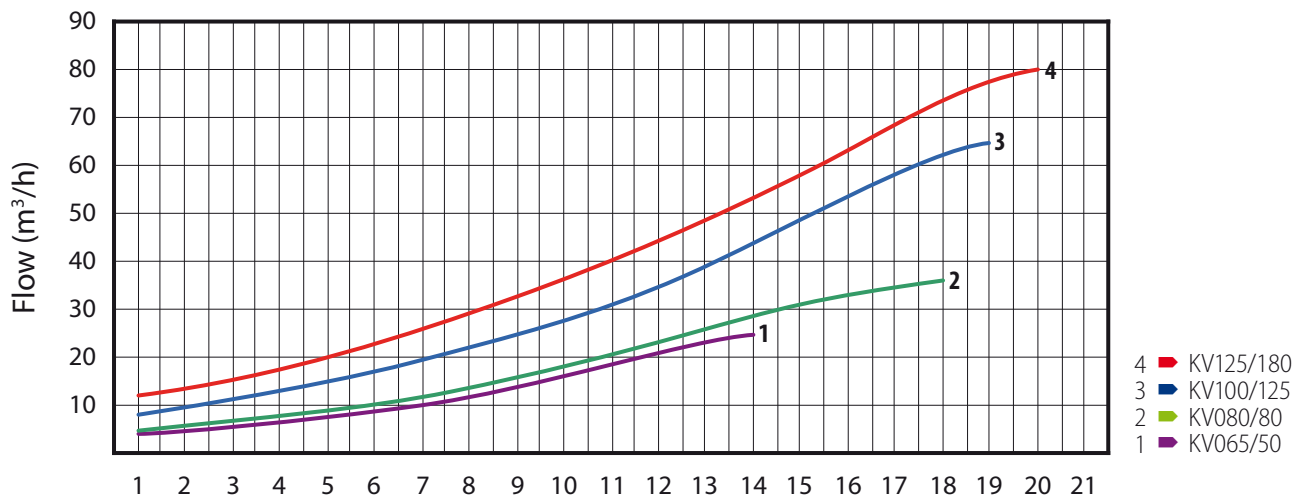


Return mounting in indirectly connected heating system

Flow adjustment



adjustment curves
KV025 – KV050



adjustment curves
KV065 – KV125

The adjustment of the flow rate is carried out by limiting the valve stroke. The set point for the valve flow limitation can be adjusted by a flow meter or by using the diagrams with adjustment curves.

The set point for the flow limitation can be adjusted by turning the adjustable nut. X-axis values represent the numbers of rotations of the adjustable nut from the lowest position on the valve neck.

Diagram values are approximate.

Disposal



Prior to the assembly, maintenance and disassembly, the system must be depressurized, cooled down and emptied.

Only authorized, trained and qualified personnel may perform activities of assembly, start-up, operation and disassembly of the equipment.

Before disposal the valve must be dismantled into groups of structural components and delivered to authorized waste recycling organizations in order to preserve the environment. Local legislations must be obeyed when disposing of the components.

Feniks BB reserves the right to alter its products without notice.

All trademarks in this material are property of the respective companies. Feniks BB and Feniks BB logotype are trademarks of Feniks BB d.o.o.



Čegarska 16, 18000 Niš, Serbia
tel: (+381) 18 45-75-333, 45-75-556
fax: (+381) 18 45-75-557

www.feniksbb.com
info@feniksbb.com



Feniks BB has implemented and maintains quality and environment management systems in accordance with international standards ISO 9001:2008 and ISO 14001:2004.

April 2011.