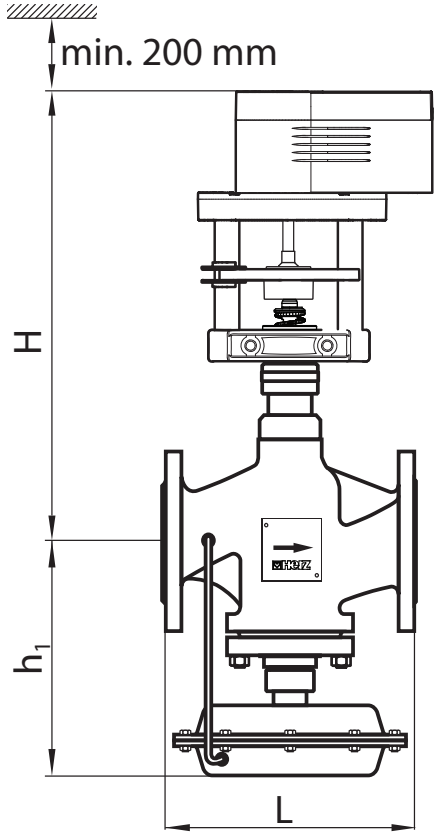
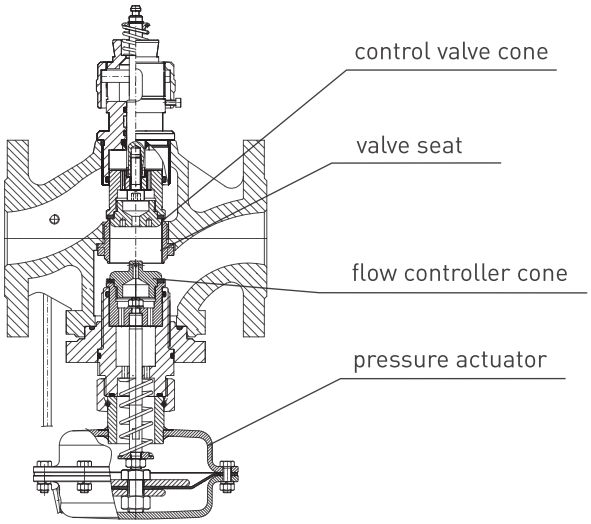
HERZ - Pressure-independent control valve in flanged design

Data sheet F 4006 53, 7X, 8X, 9X, 10, Issue 0123

Dimensions in mm





Order Nr. PN 16	Order Nr. PN 25	DN	Stroke [mm]	kvs	min. Flowrate [m³/h]	max. Flowrate [m³/h]	min. Δp [kPa]	Cavitation factor Z	H	h1	L	kg
F 4006 71	F 4006 90	15	10	2,5	0,25	1,3	50	0,6	260	170	130	7
F 4006 72	F 4006 91	15	10	4,0	0,40	2			260	170	130	7
F 4006 73	F 4006 92	25	11	6,3	0,6	3		0,55	310	205	160	10
F 4006 93	F 4006 53	25	11	8,0	0,8	4			310	205	160	10
F 4006 74	F 4006 94	32	13	12,5	1,3	6,5			315	210	180	13
F 4006 75	F 4006 95	40	13	20,0	2,6	11		0,5	315	220	200	15
F 4006 80	F 4006 96	50	13	32,0	3,2	16			320	235	230	22
F 4006 81	F 4006 97	65	15	50,0	6	28		0,45	510	360	290	39
F 4006 82	F 4006 98	80	18	80,0	8	40		0,40	525	400	310	48
F 4006 83	F 4006 99	100	21	125,0	12,6	60		0,35	540	425	350	71
F 4006 84	F 4006 10	125	21	180,0	16	80			555	480	400	86

Technical data

Max. operating pressure	16 bar (PN 16), 25 bar (PN 25)
Max. differential pressure	10 bar (PN 16), 15 bar (PN 25)
Diff. pressure across the restrictor	0,2 bar
Min. operating temperature	2 °C
Max. operating temperature	140 °C
Type of connection	Flanged (EN 1092-2)
Valve body material for PN16	EN-GJL-250 (EN 1561)
Valve body material for PN25	EN-GJS-400-18-LT (EN 1563)
Gasket material	FPM (ISO1629)
Cones, stem, seat material	WN1.4057, WN1.4404, WN1.4021
Impulse tube	WN1.4301
Diaphragm material	EPDM

Water purity in accordance with the ÖNORM H 5195 and VDI 2035 standards.

Description

Combi valve - Flow controller with integrated control valve, is primarily designed to control the flow of circulation water in district heating and HVAC systems. The flow controller is operated by an electric actuator 1 **7712** 21, 28, 29, which is controlled by a microprocessor controller.
The limitation and flow regulation is realized by means of the pressure actuator with a diaphragm and integrated control valve. The control valve cone is controled by the electric actuator and limited by the adjustable nut. Changing the position of the adjustable nut increases or decreases the maximum flow through the valve.
The pressure actuator with a diaphragm is connected to the valve flow port via a capillary pipe. The pressure difference acts through the impulse tube on the control diaphragm and flow controller cone. Each pressure change on the valve upstream port, causes the movement of the control diaphragm and flow controller cone and causes increase or decrease of the valve orifice. Differential pressure across the restrictor is kept constant, Δpw = 0,2 bar.

Pressure drop across the valve:
$\Delta pv = \Delta pw + (Q/K_{vs})^2$

Maximal pressure drop across the valve:
$\Delta pv_{max} = \Delta pw + (Q_{max}/K_{vs})^2$

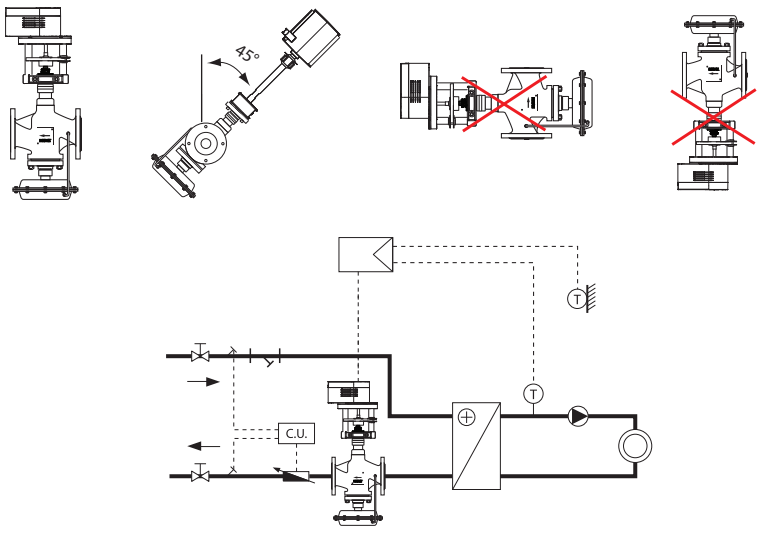
To ensure correct control function, minimal required differential pressure across the valve must be:
Δpv = 0,5 bar.
Q – fluid flow, Q_{max} – max. fluid flow

Installation

Recommended installation: Install the valve in the return flow pipe of the system. Electric actuator should be placed in upward position, at ± 45° angle to the vertical pipe axis.

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

The valves must be installed for the correct application using clean fittings. A HERZ strainer (4111) should be fitted to prevent impurities.
For installation, the local and international rules and standards have to be followed.

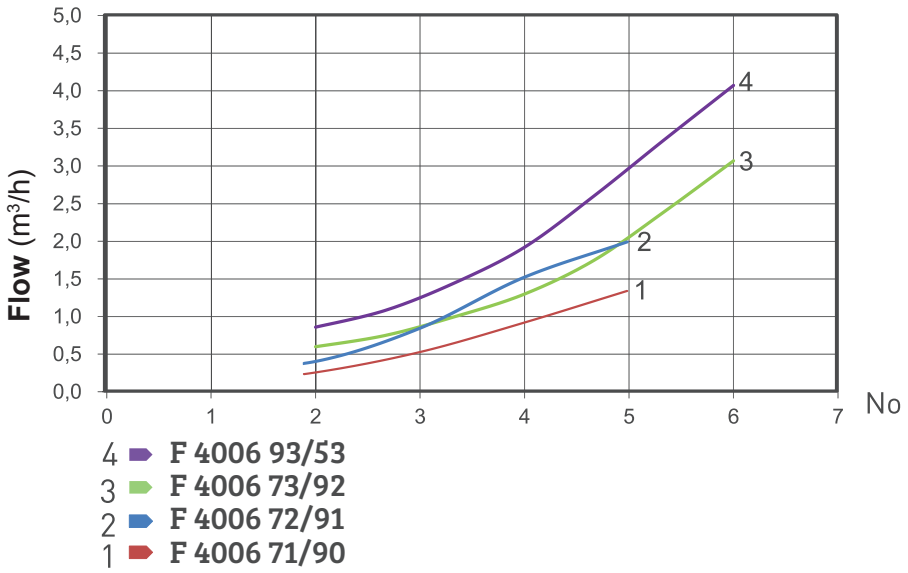


Flow adjustment

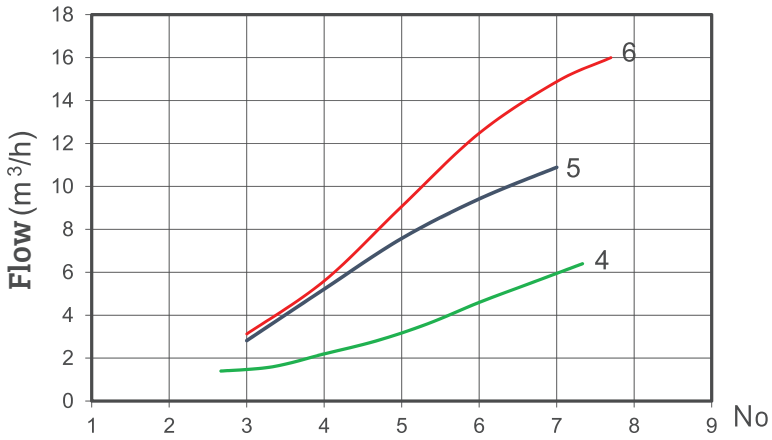
The adjustment of the flow rate is caried out by limiting the valve stroke. The set point for the valve flow limitation can be adjusted by a flow meter or by using the diagrams with adjustment curves.

The set point for the flow limitation can be adjusted by turning the adjustable nut. X-axis values represent the numbers of full rotations of the adjustable nut from the lowest position on the valve neck (No).

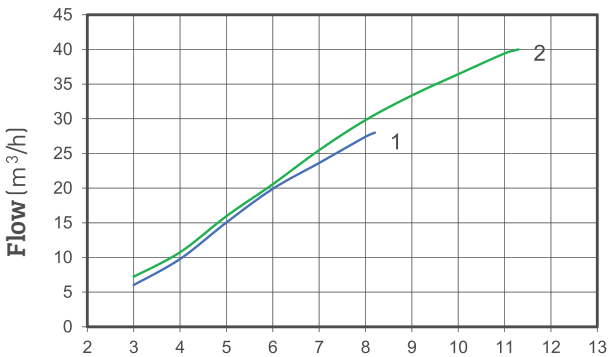
Diagram values are approximate.



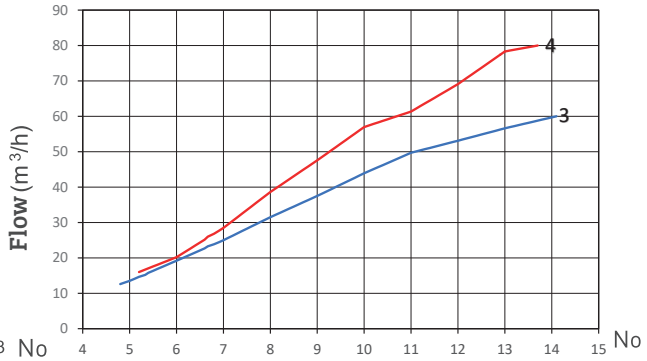
4 F 4006 93/53
3 F 4006 73/92
2 F 4006 72/91
1 F 4006 71/90



6 F 4006 80/96
5 F 4006 75/95
4 F 4006 74/94



2 F 4006 82/98
1 F 4006 81/97



4 F 4006 84/10
3 F 4006 83/99

Electric actuators

The flow controllers are used with three types of actuators. The flow controllers from DN15 to DN50 are used with the actuators type 1 **7712** 28, 29 and the controllers from DN65 to DN125 with the actuator type 1 **7712** 21.
Note the max. medium temperatures for the actuators.

DN 15 - DN 50

DN 65 - DN 125

Safety instructions and disposal

Control valves are in conformity with, PED-directive 97/23/EEC. Certificate reference no: CE 1837-PED-0099.

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.

Actuator Selection

Combi valves	DN	F **7712** 90 24 V, stetig, 500 N, 15 mm	F **7712** 95 24 V, 2-3 Pkt, 500 N, 15 mm	F **7712** 81 230 V, 2-3 Pkt, 500 N, 15 mm	1 **7712** 21 24 V, 2-3 Pkt, 2500 N, 40 mm	F **7712** 92 24 V, stetig, 2500 N, 40 mm	F **7712** 98 24 V, 2-3 Pkt, 2500 N, 40 mm	F **7712** 84 230 V, 2-3 Pkt, 2500 N, 40 mm
F **4006** 71 F **4006** 90	15	Direct installation	Direct installation	Direct installation				
F **4006** 72 F **4006** 91	15	Direct installation	Direct installation	Direct installation				
F **4006** 73 F **4006** 92	25	Direct installation	Direct installation	Direct installation				
F **4006** 93 F **4006** 53	25	Direct installation	Direct installation	Direct installation				
F **4006** 74 F **4006** 94	32	Direct installation	Direct installation	Direct installation				
F **4006** 75 F **4006** 95	40	Direct installation	Direct installation	Direct installation				
F **4006** 80 F **4006** 96	50	Direct installation	Direct installation	Direct installation				
F **4006** 81 F **4006** 97	65				Direct installation	Direct installation	Direct installation	Direct installation
F **4006** 82 F **4006** 98	80				Direct installation	Direct installation	Direct installation	Direct installation
F **4006** 83 F **4006** 99	100				Direct installation	Direct installation	Direct installation	Direct installation
F **4006** 84 F **4006** 10	125				Direct installation	Direct installation	Direct installation	Direct installation