

Function

All 4-way valves are designed so that the heating medium can flow in and out of the heating body through a single connection. These valves must be installed on the bottom connection of the heating body. 4-way valves for single pipe systems are designed to:

- Connect the heating body to the single pipe ring tubing, which can be in copper, plastic or PEX-AL-PEX multilayer;
- Allow for room temperature setting by adjusting the inlet flow;
- Intercept the flow so as to allow for maintenance without affecting the functioning of the remaining heating bodies;
- The valve divides the incoming flow into two: one part enters the heating body, while the other flows on to the next heating body through the bypass. The advantage is that the flow coming out of a low temperature heating body mixes with the flow which has passed through the bypass and has a higher temperature; in this way, the flow proceeding towards the next heating body will have a higher thermal input.



Technical data

Max. working pressure:	10 bar
Max. differential pressure:	1 bar
Max. working temperature:	120 °C
Working fluids:	Water in compliance with UNI 8065:1989

Materials

Valve body:	CW 617 N – DW UNI-EN 12165:2016
Obturator:	CW 614 N – DW UNI-EN 12164:2016
Gaskets:	Peroxide cured EPDM
Flat gasket:	FASIT
Knob:	RAL9016 white ABS

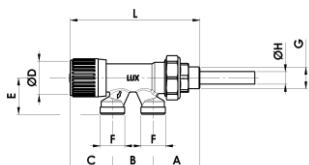
Surface treatment

Nickel-plating

Dimensional Drawings

M 87

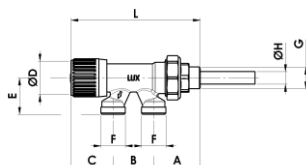
4-way single adjustment horizontal manual single pipe valve.
Maximum flow to radiator: 50% ring flow.
Copper and plastic pipe W24x19"



Code	Size	A	B	C	D	E
68072100	DN15 1/2	45	40	41	37	35
68072700	DN20 3/4	45	40	41	37	35
Code	Size	F	G	H	L	M
68072100	DN15 1/2	W24x19	G1/2	12	126	-
68072700	DN20 3/4	W24x19	G3/4	16	126	-

M 88

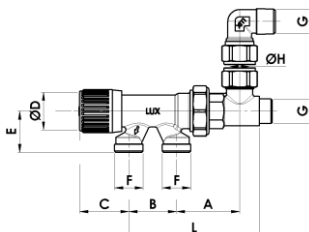
4-way single adjustment horizontal manual single pipe valve
(for double pipe systems). Maximum flow to radiator: 100%
ring flow.
Copper and plastic pipe W24x19"



Code	Size	A	B	C	D	E
11021700	DN15 1/2	45	40	41	37	35
11022100	DN20 3/4	45	40	41	37	35
Code	Size	F	G	H	L	M
11021700	DN15 1/2	W24x19	G1/2	12	126	-
11022100	DN20 3/4	W24x19	G3/4	16	126	-

M 86

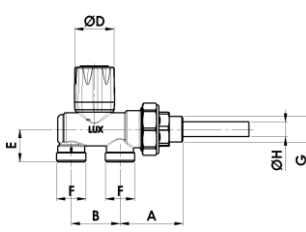
4-way distributor with floor connections. Maximum flow to
radiator: 50% and 100% ring flow.
Copper and plastic pipe W24x19"



Code	Size	A	B	C	D	E
68072102	DN15 1/2 50%	52	40	41	37	35
68072103	DN15 1/2 100%	52	40	41	37	35
Code	Size	F	G	H	L	M
68072102	DN15 1/2 50%	W24x19	G1/2	15	110	-
68072103	DN15 1/2 100%	W24x19	G1/2	15	110	-

M 81

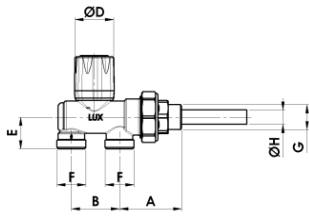
Single adjustment vertical manual single pipe valve. Maximum
flow to radiator: 50% ring flow.
Copper and plastic pipe W24x19"



Code	Size	A	B	C	D	E
68032101	DN15 1/2	50	40	-	35	27
68032701	DN20 3/4	50	40	-	35	27
Code	Size	F	G	H	L	M
68032101	DN15 1/2	W24x19	G1/2	12	-	-
68032701	DN20 3/4	W24x19	G3/4	16	-	-

M 83

Single adjustment vertical manual single pipe valve. Maximum flow to radiator: 100% ring flow. Copper and plastic pipe W24x19"

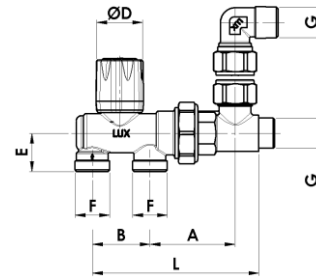


Code	Size	A	B	C	D	E
68042100	DN15 1/2	50	40	-	35	27
68042700	DN20 3/4	50	40	-	35	27

Code	Size	F	G	H	L	M
68042100	DN15 1/2 W24x19	G1/2	12	-	-	-
68042700	DN20 3/4 W24x19	G3/4	16	-	-	-

M 85

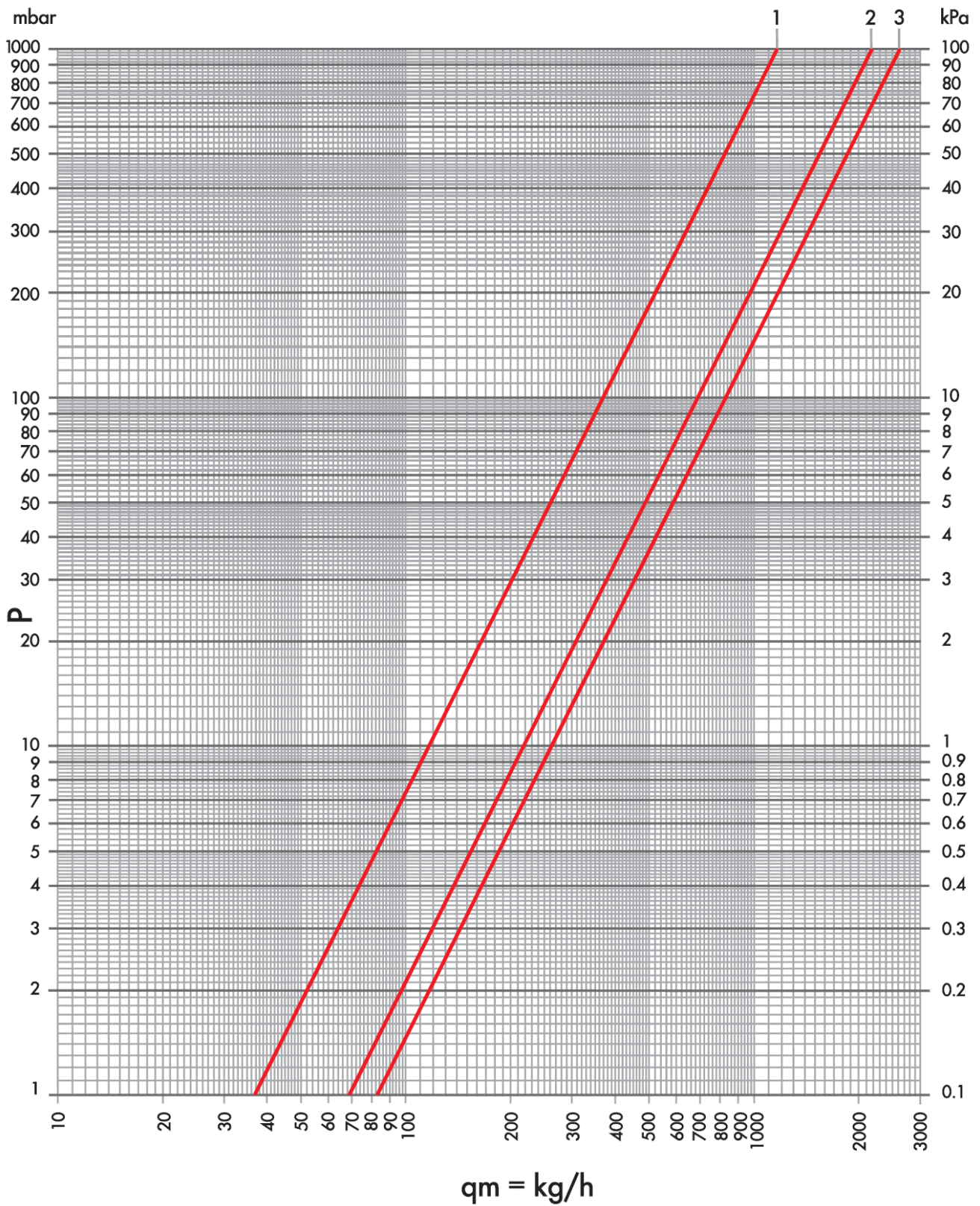
Single adjustment vertical straight single pipe valve, with flow conveyor. Maximum flow to radiator: 50% and 100% ring flow. Copper and plastic pipe W24x19"



Code	Size	A	B	C	D	E
68042102	DN15 1/2 50%	57	40	-	35	27
68042103	DN15 1/2 100%	57	40	-	35	27

Code	Size	F	G	H	L	M
68042102	DN15 1/2 50% W24x19	G1/2	15	114	-	-
68042103	DN15 1/2 100% W24x19	G1/2	15	114	-	-

Hydraulic Characteristics

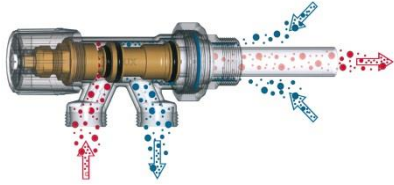


Curve	Kv	Items
1	1.61	M 88 1/2; M 88 3/4; M 86 1/2 100%
2	2.16	M 83 1/2; M 83 3/4; M 85 1/2 100%
3	2.60	M 87 1/2; M 81 1/2; M 87 3/4; M 81 3/4; M 86 1/2 50%; M 85 1/2 50%

Working Instructions



The M 87 valve has a fixed bypass, in full open position 50% of the ring flow rate enters the heating body.



The M 88 valve has no bypass in full open position and 100% of the ring flow rate enters the heating body (see picture).

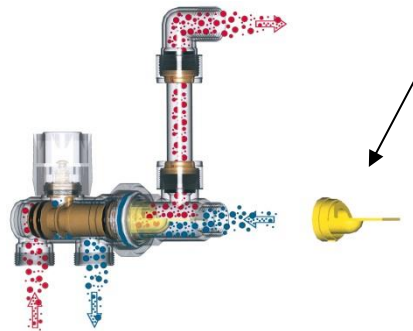


The bypass opens gradually and proportionally to the closure of the obturator.

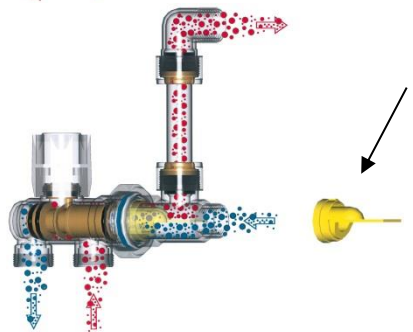
The M 88 valve has a 100% bypass in closed position, no fluid enters the heating body. The other features are the same as for manual valves M87 for single pipe distribution systems.



4-way vertical manual valves are available in two versions: single pipe with a 50% bypass or double pipe with 100% of the ring flow rate. The valves must be connected to the system observing the direction indicated by the arrows on the body. In this way, the valves can heat up heating bodies with up to 7-8 elements. Should the flow direction not be respected or should the heating body be composed of more than 8 elements, a M 525 extension must be installed on valves M 81 and M 83. The extension must then be cut so that the other end is located 10 cm far from the edge of the heating body.



If the flow direction is not observed with valves M 85 and M 86, it is necessary to correct it by turning the baffle inside the conveyor body .
riprendere il giusto verso del flusso. Use the baffle as shown in the picture to let the flow enter through the connection as displayed by the arrow.



Should the arrow direction not be observed during installation, use the baffle as shown in the picture.

WARNING: Once the system has been leak tested, please relieve the pressure. A differential pressure over 1 bar between the inlet and the outlet of the valve may cause the sealing O-ring to be expelled.

Item Specifications

M 87

4-way single adjustment horizontal manual single pipe valve. Maximum flow to radiator: 50% ring flow. Connection for copper, plastic and multilayer pipe, with W24x19 thread, connection to heating body G 1/2 (68072100) and G 3/4 (68072700). The valves feature a double sealing towards the outside and their obturator is tightened with peroxide cured EPDM O-rings. Press forged CW617 N UNI-EN 12165-2016 brass valve body with nickel-plated finish and RAL9016 white ABS knob. Max. working temperature 120 °C, max. pressure 10 bar, differential pressure 1 bar.

M 88

Single adjustment horizontal manual single pipe valve for double pipe systems. Maximum flow to radiator: 100% ring flow. Connection for copper, plastic and multilayer pipe, with W24x19 thread, connection to heating body G 1/2 (68072101) and G 3/4 (68072701). The valves feature a double sealing towards the outside and their obturator is tightened with peroxide cured EPDM O-rings. Press forged CW617 N UNI-EN 12165-2016 brass valve body with nickel-plated finish and RAL9016 white ABS knob. Max. working temperature 120 °C, max. pressure 10 bar, differential pressure 1 bar.

M 86

Single adjustment horizontal straight valve, with flow conveyor. Maximum flow to radiator: 50% (68072102) and 100% (68072103) ring flow. Connection for copper, plastic and multilayer pipe, with W24x19 thread, connection to heating body G 1/2. The valves feature a double sealing towards the outside and their obturator is tightened with peroxide cured EPDM O-rings. Press forged CW617 N UNI-EN 12165-2016 brass valve body with nickel-plated finish and RAL9016 white ABS knob. Max. working temperature 120 °C, max. pressure 10 bar, differential pressure 1 bar.

M 81

Single adjustment vertical manual single pipe valve. Maximum flow to radiator: 50% ring flow. Connection for copper, plastic and multilayer pipe, with W24x19 thread, connection to heating body G 1/2 (68032101) and G 3/4 (68032701). The valves feature a double sealing towards the outside and their obturator is tightened with peroxide cured EPDM O-rings. Press forged CW617 N UNI-EN 12165-2016 brass valve body with nickel-plated finish and RAL9016 white ABS knob. Max. working temperature 120 °C, max. pressure 10 bar, differential pressure 1 bar.

M 83

Single adjustment vertical manual single pipe valve. Maximum flow to radiator: 100% ring flow. Connection for copper, plastic and multilayer pipe, with W24x19 thread, connection to heating body G 1/2 (68042100) and G 3/4 (68042700). The valves feature a double sealing towards the outside and their obturator is tightened with peroxide cured EPDM O-rings. Press forged CW617 N UNI-EN 12165-2016 brass valve body with nickel-plated finish and RAL9016 white ABS knob. Max. working temperature 120 °C, max. pressure 10 bar, differential pressure 1 bar.

M 85

Single adjustment vertical straight valve, with flow conveyor. Maximum flow to radiator: 50% (68042102) and 100% (68042103) ring flow. Connection for copper, plastic and multilayer pipe, with W24x19 thread, connection to heating body G 1/2. The valves feature a double sealing towards the outside and their obturator is tightened with peroxide cured EPDM O-rings. Press forged CW617 N UNI-EN 12165-2016 brass valve body with nickel-plated finish and RAL9016 white ABS knob. Max. working temperature 120 °C, max. pressure 10 bar, differential pressure 1 bar.



Luxor S.p.A.

Sede amministrativa, stabilimento e uffici commerciali:

Administrative office, factory and commercial office:

Tel.: 030-9961161 – Fax: 030-9961165

info@luxor.it – www.luxor.it

via Madonnina, 94 – 25018 Montichiari - (BS) Italy

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