

120B and 102M series

4-way thermostat-adaptable valves for single-pipe and two-pipe systems

Technical Data Sheet



Description

120B and **102M series** 4-way thermostat-adaptable valves are used as radiator shut-off and control devices in two-pipe and single-pipe systems respectively. The valves are available with 1/2" and 3/4" connection to the heat emitter and are equipped with a probe for separating in the radiator the supply flow from the return flow. The valves are connected to the heat emitter by means of a straight tailpiece with O-Ring seal and finishing washer, using a hex wrench.

120B



4-way nickel-plated thermostat-adaptable valve for **two-pipe systems**, with **pre-setting device**, built-in lockshield and connection for copper or plastic pipe. O-ring-sealed **straight tailpiece** complete with flow separation probe. ABS handwheel. Differential pressure (148 and 148A series): 1.5 bar.

Compatible with **148 and 148A series** thermostatic actuators and **22C, 22CX, 22CX5** and **26LC series** electrothermal actuators.

Type	Part No.	DN Body	DN Pipe	Kvs	Weight (g)
120B	120B12AM12	1/2"	1/2"	0.82	570
120B	120B12AM34	3/4"	1/2"	0.93	570
120B	120B24AM12	1/2"	1/2"S	0.82	580
120B	120B24AM34	3/4"	1/2"S	0.93	580

Note: the 1/2"S models are compatible with ø 18mm pipes.

102M



4-way nickel-plated thermostat-adaptable valve for **single-pipe systems with fixed bypass**, with **pre-setting device**, built-in lockshield and connection for copper or plastic pipe. O-ring-sealed straight tailpiece complete with flow separation probe. ABS handwheel. Differential pressure (**148** and **148A series**): 1.5 bar. Flow rate to heat emitter: 50%.

Compatible with **148 and 148A series** thermostatic actuators and **22C, 22CX, 22CX5** and **26LC series** electrothermal actuators.

Type	Part No.	DN Body	DN Pipe	Kvs	Weight (g)
102M	102M12AM12	1/2"	1/2"	2	560
102M	102M12AM34	3/4"	1/2"	2.15	560
102M	102M24AM12	1/2"	1/2"S	2	570
102M	102M24AM34	3/4"	1/2"S	2.15	580

Note: the 1/2"S models are compatible with ø 18mm pipes.

RV140

ABS flow separation probe, length 380 mm.



Type	Part No.	DN	Pipe	Weight (g)
RV140	RV14010	1/2"	ø10 thk. 1.2	
RV140	RV14014	3/4"	ø14 thk. 1.0	

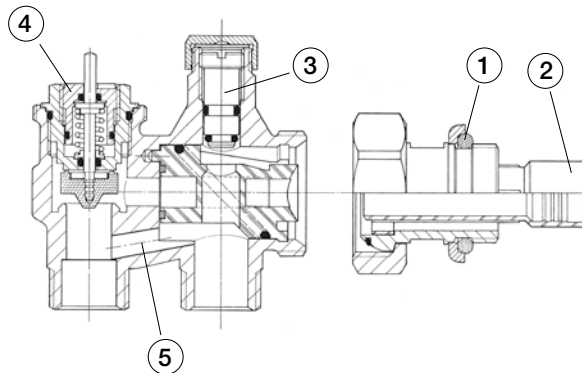
Technical features

Max. temperature	110°C	
Max. pressure	10 bar	
Max. differential pressure	1.5 bar	
Usable fluids	Water, including with glycol ≤ 50%	
	120B	102M
Kvn with 2K proportional band	DN 1/2"=0.58	DN 1/2"=1.76
	DN 3/4"=0.62	DN 3/4"=1.84
Kvn with 1K proportional band	DN 1/2"=0.34	DN 1/2"=1.56
	DN 3/4"=0.38	DN 3/4"=1.61

Design characteristics

Valve body	CW617N brass
Disc seal	EPDM
Handwheel	ABS
Probe for radiator	ABS
O-Ring	EPDM
Tailpiece	CW614N brass

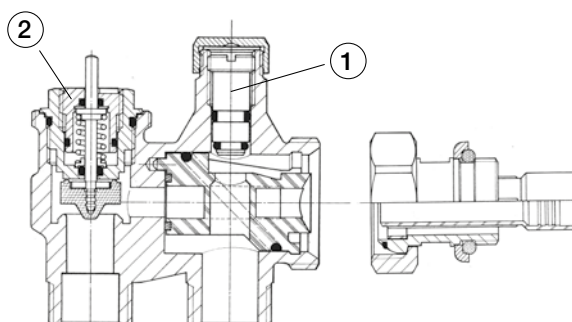
102M



Features

- 1) Straight tailpiece pre-sealed with O-ring
- 2) Probe-holder insert
- 3) Lockshield
- 4) Pre-setting packing nut
- 5) Bypass

120B



Features

- 1) Lockshield
- 2) Pre-setting packing nut

Application

These valves are for manual room temperature control, using a single connection for the water inlet and outlet from the heat emitter, or automatic room temperature control, if used in conjunction with **148, 148A and 148SD series** thermostatic actuators or **22C, 22CX, 22CX5 and 26LC series** electrothermal actuators. The use of thermostatic valves makes it possible to install metering systems as required by Italian law 10/91 art. 26.

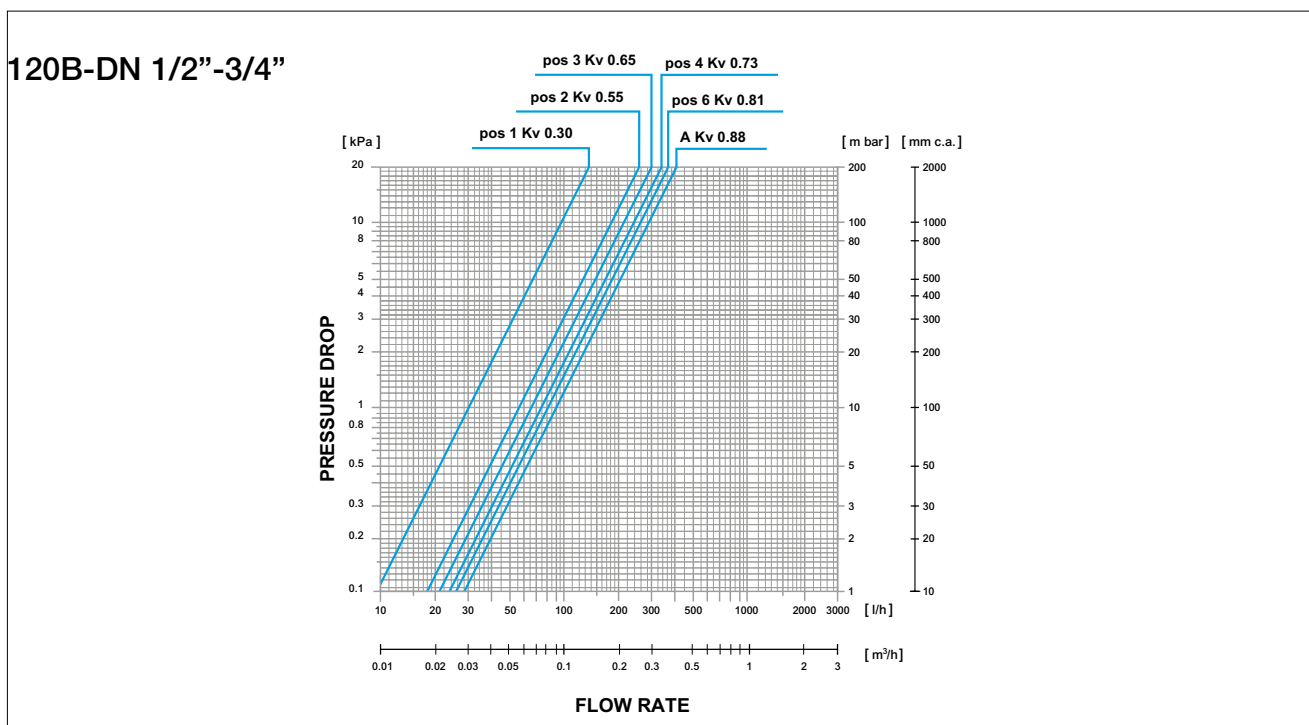
The valves are equipped with active-memory pre-setting, to allow precise balancing of the system when used with thermostatic or electrothermal actuators. To balance the system, turn the ring-nut located under the handwheel to limit its stroke. In particular, in the event of removal of the handwheel for thermostatic control of the system, the active-memory pre-setting permanently retains the set balance.

Operation

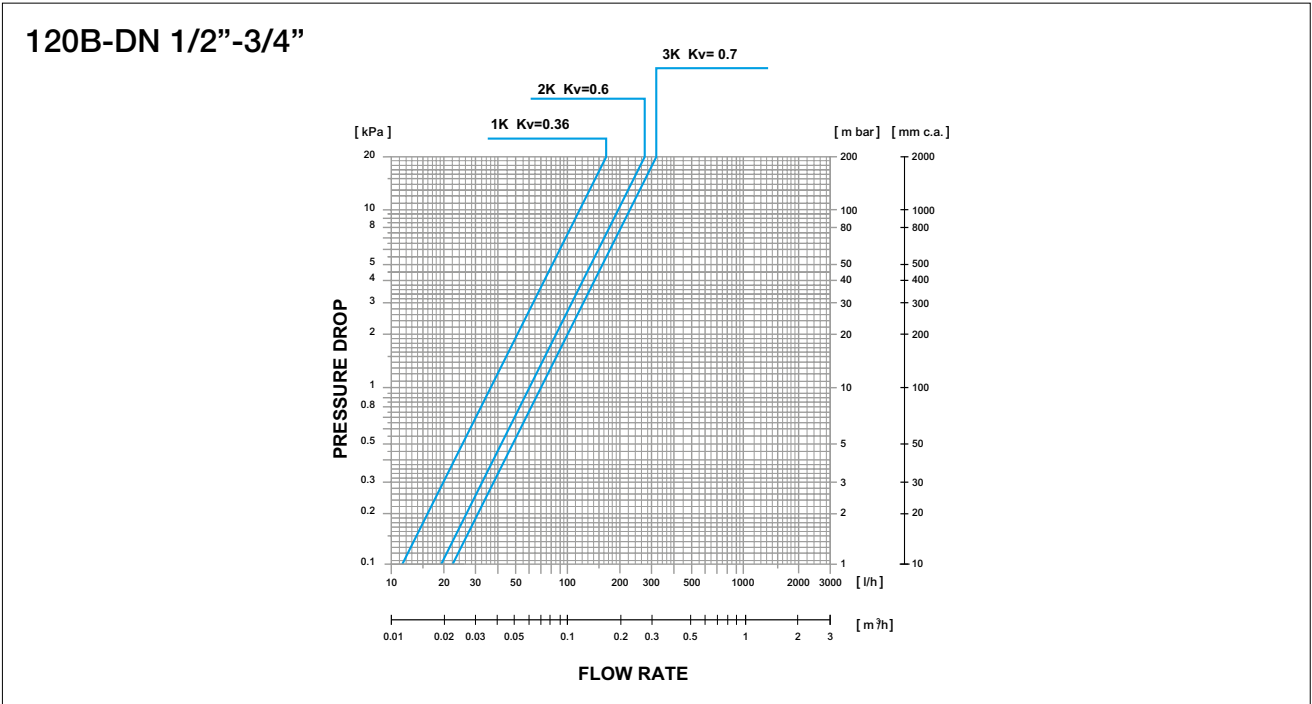
Valve operation is controlled by manual or automatic movement of the disc that shuts off the heat carrier fluid. In **102M series** partial-flow valves for single-pipe systems, the water flow calculated for the entire circuit is divided into two parts: one for heat exchange and the other for circulation to the next radiator. This permanently open by-pass allows constant circulation of the heat carrier fluid even when the valve is fully closed with respect to the heat emitter. In **120B series** valves for two-pipe systems, the water flow goes directly to the heat emitter where heat exchange takes place. To ensure efficiency of this system, in **120B** and **102M series** valves, the supply and return flow is separated by a probe fitted in the heat emitter. The fluid flow rate and pressure drop can be determined from the flow curves.

Charts

120B								
Kv values in the various pre-setting positions								
Setting positions	1	2	3	4	5	6	7	A
DN 1/2"	0.30	0.53	0.63	0.70	0.74	0.77	0.79	0.82
DN 3/4"	0.30	0.56	0.67	0.75	0.81	0.85	0.88	0.93

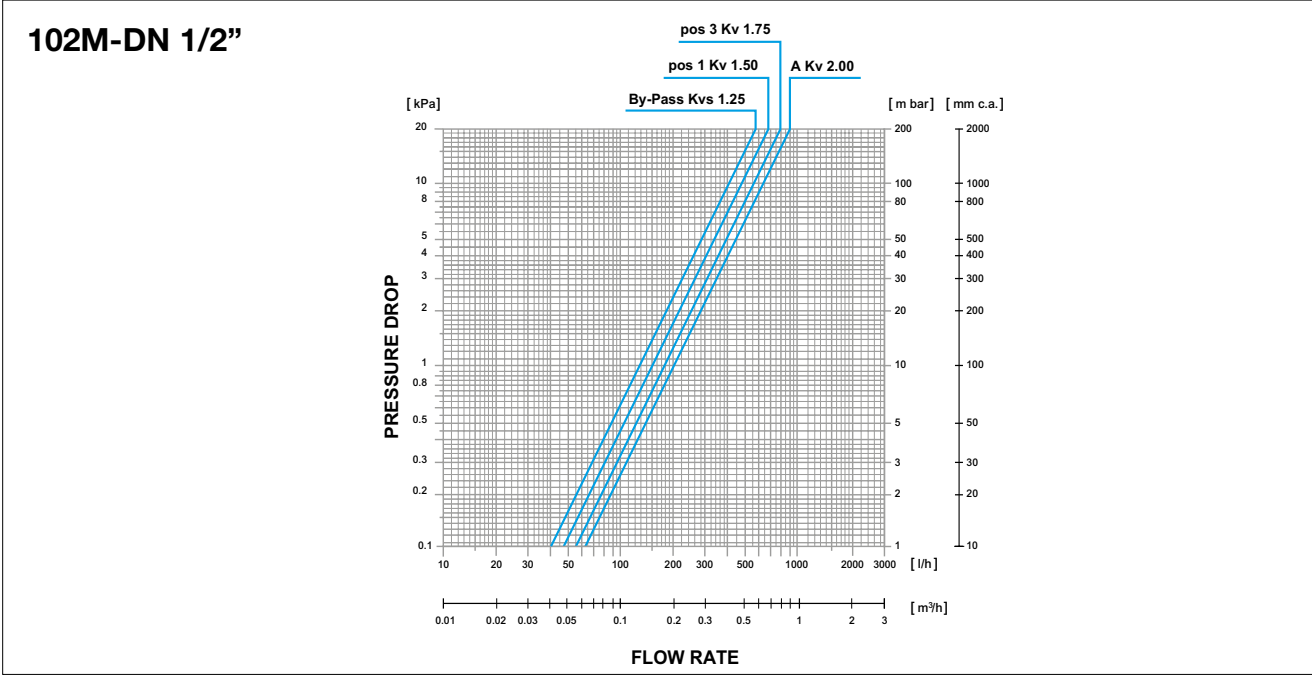


With actuator 148 and 148A



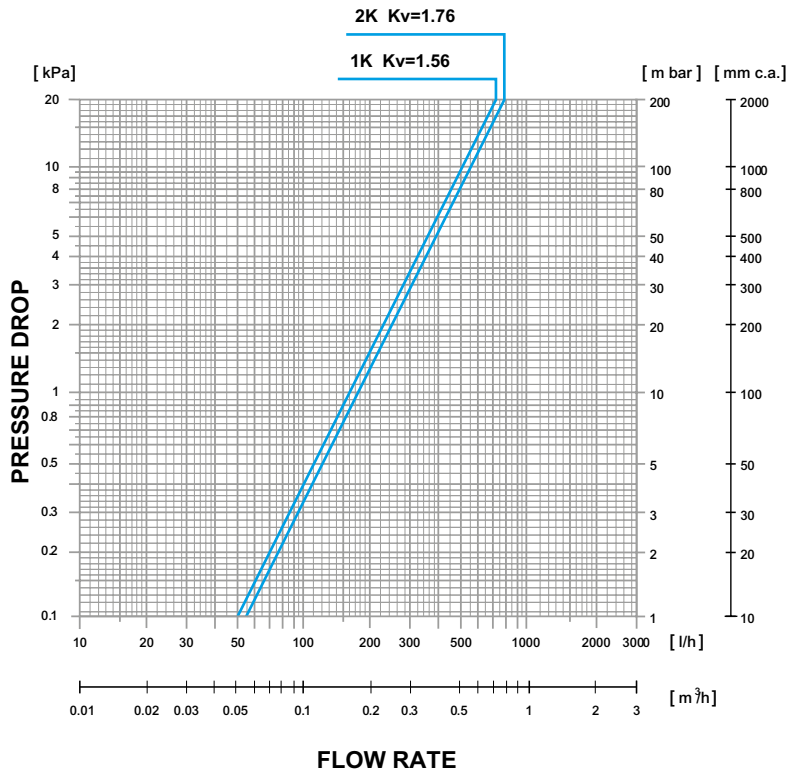
102M								
Total Kv values (flow rate to radiator + by-pass flow rate)								
Setting positions	1	2	3	4	5	6	7	A
DN 1/2"	1.50	1.60	1.75	1.80	1.85	1.90	1.95	2.00
DN 3/4"	1.55	1.75	1.90	1.95	2.00	2.05	2.10	2.15

102M								
The "supply coefficient" of the heat emitter, expressed as a percentage of the flow passing through the distribution circuit is as follows:								
Setting positions	1	2	3	4	5	6	7	A
DN 1/2"-3/4"	22%	30%	34%	36%	38%	40%	42%	50%

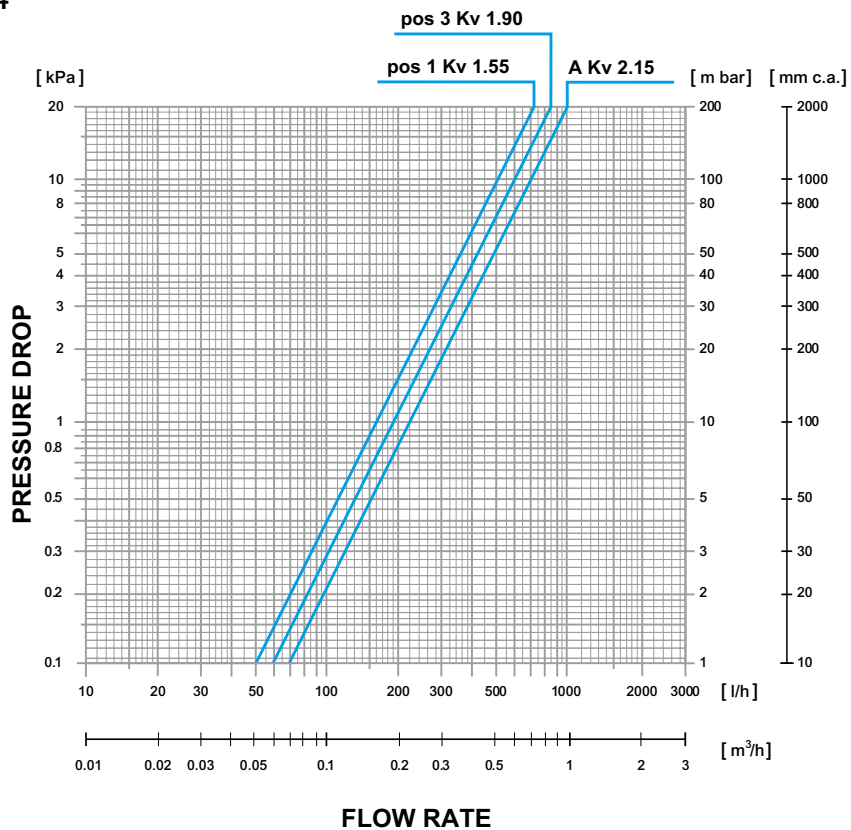


With actuator 148 and 148A

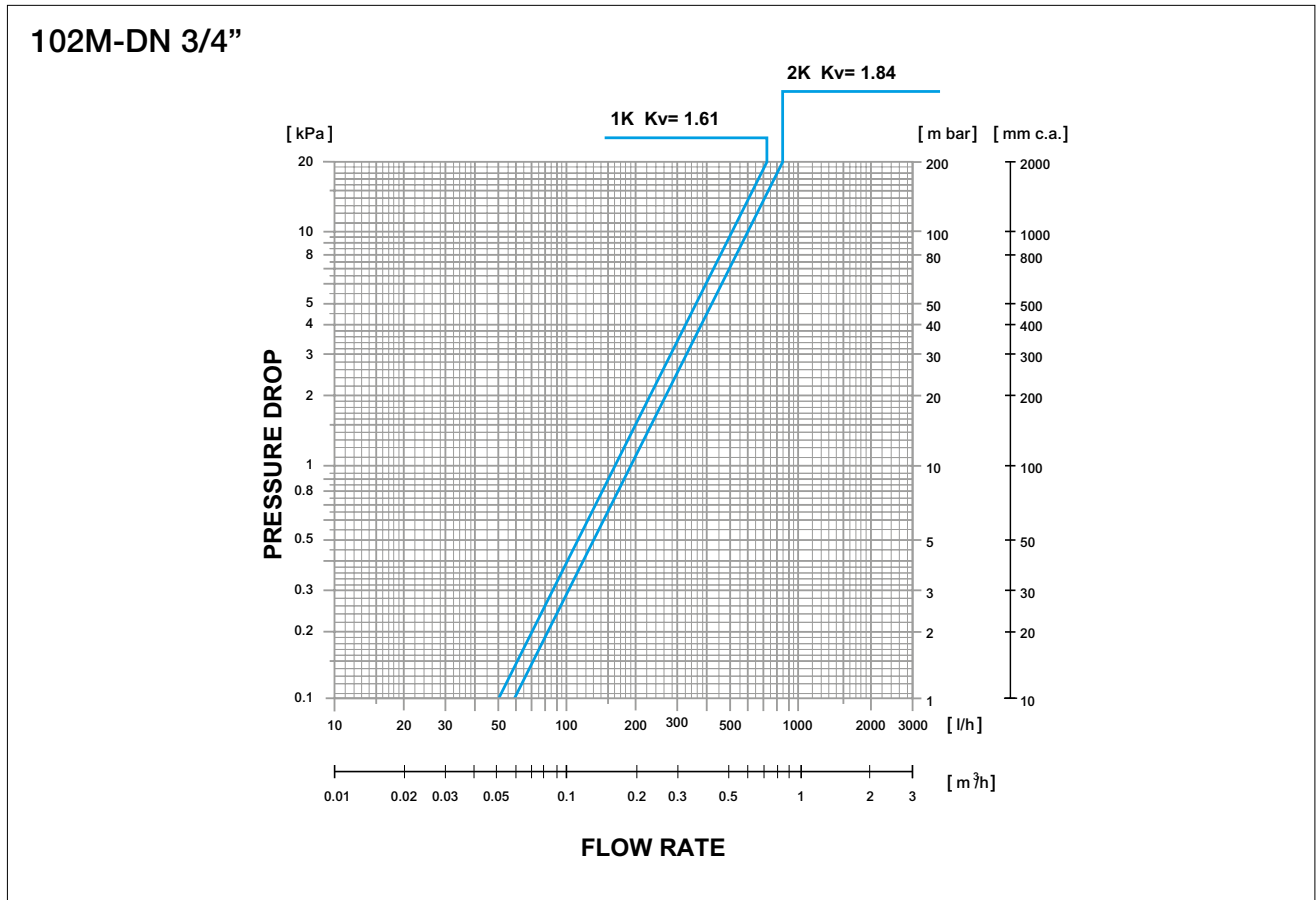
102M-DN 1/2"



102M-DN 3/4"



With actuator 148 and 148A



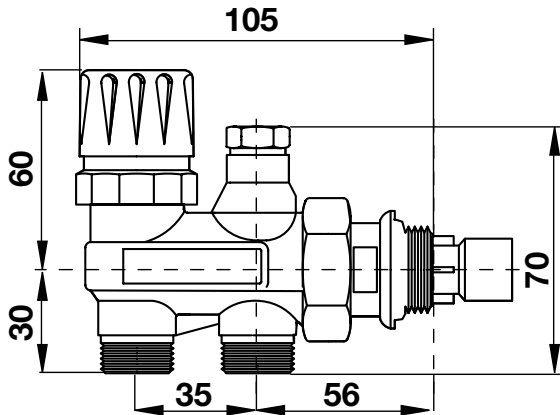
Installation

Valve selection is based on the type of system (single-pipe or two-pipe), the size of the connection, the radiator and the connecting pipe. **120B** and **102M series** valves can be installed on heat emitters supplied by either copper or plastic pipes. Should it be necessary to apply a thermostat to the system, simply unscrew the control handwheel of the valve and replace it with a thermostatic or electrothermal actuator by tightening the ring-nut. All this can be done without any plumbing work and with the system running. Like all two-pipe and single-pipe valves, **120B** and **102M series** valves need to be connected at the bottom of the heat emitter. To ensure correct thermostatic operation (with **148** and **148A series** thermostatic actuators), it is imperative to connect the flow pipe to the connection under the valve control handwheel, which must always be fitted horizontally. To shut off and remove the radiator, it is also necessary to adjust the built-in lockshield. All this can be done without interrupting fluid circulation in the rest of the circuit.

The reliability of the **120B** and **102M series** thermostat-adaptable valves is guaranteed by the fact that every single product is tested to ensure the outward pressure tightness of the valve body and its components, and the pressure tightness of the disc when it shuts off the flow.

Overall dimensions (mm)

120B/102M



Specification text

120B series

WATTS **120B series** 4-way nickel-plated thermostat-adaptable valve for two-pipe systems, with pre-setting device. Built-in lockshield. Connection for copper or plastic pipe. O-ring-sealed straight tailpiece complete with flow separation probe. ABS handwheel. Max. operating temperature: 110°C. Max. operating pressure: 10 bar. Body connection: 1/2"M-3/4"M. Connection for copper or plastic/multi-layer pipe: 1/2"M. Kvs: 0.82 (1/2"); 0.93 (3/4").

102M series

WATTS **102M series** 4-way nickel-plated thermostat-adaptable valve for single-pipe systems with fixed bypass, with pre-setting device. Built-in lockshield. Connection for copper or plastic pipe. O-ring-sealed straight tailpiece complete with flow separation probe. ABS handwheel. Max. operating temperature: 110°C. Max. operating pressure: 10 bar. Body connection: 1/2"M-3/4"M. Connection for copper or plastic/multi-layer pipe: 1/2"M-1/2"S. Kvs: 2.00 (1/2"); 2.15 (3/4").

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