4-way thermostat adaptable valves for two-pipes and one-pipe heating systems Serie 120B - 102M

Main features

- Available in the following versions with :
  - Connection to heat emitter ND 1/2” - 3/4 “
  - Connection to copper or plastic pipe ND 1/2” - 1/2 “ S
- Plug stroke presetting device
- Conforms with UNI 7942/79 standard

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Technology by nature

Description

The 4-way thermostat adaptable valves, **Series 120B, 102M**, are used as shut-off and control devices for radiators in two-pipe and one-pipe heating systems respectively.

The valves come in the configuration with 1/2" - 3/4" connection to the heat emitter and are provided with probe for separating the delivery flow from the return flow in the radiator.
Connection of the valves to the heat emitter is through an O-ring sealed straight tailpiece and final washer with the aid of a hex. spanner.

120B

4-way nickel-plated thermostat adaptable valve for **two-pipe systems**.
With presetting. Built-in lockshield valve. Connection for copper or plastic pipe. **O-ring sealed** straight tailpiece, complete with flow separation probe. ABS handwheel. Differential pressure (item 148): 1.5 bar.

Compatible with thermostatic actuators series 148 and electrothermic actuators 22C.

Type	Part Number	Size body	Size tube	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

102M

4-way nickel-plated thermostat adaptable valve for **one-pipe systems with fixed by-pass**. **With presetting**. Built-in lockshield valve. Connection for copper or plastic pipe. **O-ring sealed** straight tailpiece, complete with flow separation probe. ABS handwheel. Differential pressure (item 148) : 1.5 bar.
Flow rate to radiator: 50%.

Compatible with thermostatic actuators series 148 and electrothermic actuators 22C.

Type	Part Number	Size body	Size tube	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

Technical feature		
Max. temp.	110°C	
Max. pressure	10 bar	
Max. differential pressure	1.5 bar	
Fluids which can be used	Water also with glycol ≤ 50%	
	120B	102M
Kvn coefficient with proportional band 2K	DN 1/2" = 1.76 DN 1/2" = 0.58	DN 3/4" = 1.84 DN 3/4" = 0.62
Kvn coefficient with proportional band 1K	DN 1/2" = 1.56 DN 1/2" = 0.34	DN 3/4" = 1.61 DN 3/4" = 0.38

Design feature	
Valve body	Brass CW617N
Plug seal	EPDM
Handwheel	ABS
Radiator probe	Modified polyether (PPE + PA)
Panel radiator probe	Copper
O-ring	EPDM
Tailpiece	Brass CW617N

Application

These valves are designed for manual room temperature control using just one connection for water inlet/outlet to/from the heat emitter. They can also be used for automatic temperature control when coupled to thermostatic actuators (**Series 148, 148SD, 148CD**) or else electrothermic actuators (**Art. 22C**). The use of thermostatic valves allows installation of metering systems (see Sections on Measuring and metering systems) as required by Italian legislation (Act 10/91 Art. 26). The valves are provided with active memory presetting which, when using thermostatic or thermoelectric actuators, enables exact balancing of the heating system.

Such balancing is obtained by turning the ring nut located under the handwheel in order to limit the plug stroke. Above all, when removing the handwheel for thermostatting the system, the active memory presetting holds the balancing made permanently.

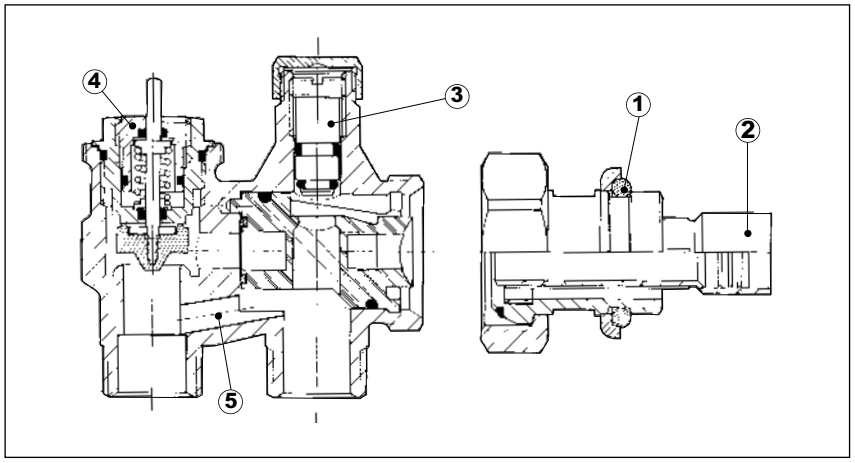
Installation

Valve selection is based on the type of system (one-pipe or two-pipe) as well as size of the connection to the radiator and connecting piping. Valves, **Series 120B, 102M**, can be installed on heat emitters supplied by copper or plastic pipes. When it is required to thermostat the system, merely unscrew the control handwheel from the valve and substitute it with a thermostatic or electrothermic actuator by tightening the ring nut.

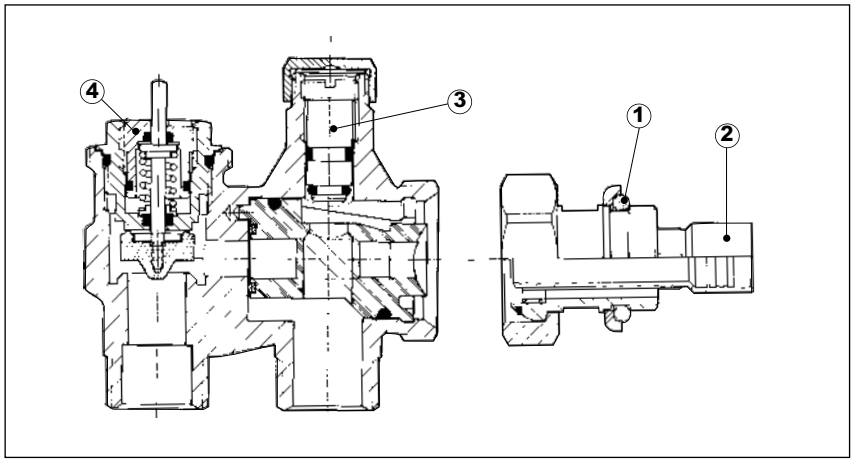
All this can be done without any plumbing work and with the system running. As with all the two-pipe and one-pipe valves, likewise valves **120B, 102M** should be connected in the bottom part of the heat emitter.
In order to ensure correct thermostatic operation (i.e. with thermostatic actuator **Series 148**), the delivery pipe must be connected to the connection under the valve control handwheel which should always be mounted in the horizontal direction. In the case of panel type radiators, use the copper probe (**art. RV141**). When excluding and removing the radiator, it is also necessary to regulate the special built-in lockshield. All this should be done without interrupting circulation of the fluid in the rest of the ring circuit.

Reliability of the thermostat adaptable valves, **Series 120B, 102M**, is guaranteed thanks to the 100% testing of the production which checks pressure tightness of the valve body and its components towards the outside and that of the plug during its flow shut-off function.

102M



120B



Details

1) O-ring sealed straight tailpiece

2) Probe holder insert

3) Lockshield

4) Presetting stuffing box nut, can be replaced with the system under pressure through art. 225.

5) By-pass

Operation

Valve operation is controlled either by manual movement or by automatic movement of the plug which shuts off the heat carrier fluid.

In valves of the **102M series**, known as partial flow types for one-pipe systems, the water flow calculated for the entire ring circuit, is subdivided into one part for heat exchange and one part reaching the next heat emitter directly. 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 valves of the **120B series** for two-pipe systems, the flow of water reaches the heat emitter directly where the heat exchange takes place.

To ensure efficiency of this, in valves **Series 120B, 102M**, the delivery and return flow is separated by a probe inserted in the heat emitter. The hydraulic flow rate and pressure drop cahracteristics for the valves can be deduced from the appropriate charts.

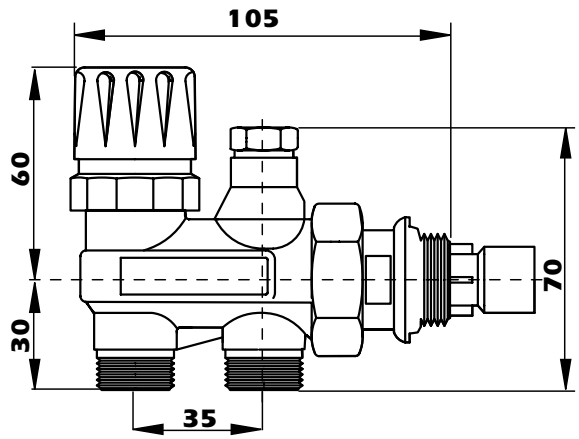
102M								
Total Kv values (flow rate towards radiator + by-pass flow rate) Setting positions								
Setting positions	1	2	3	4	5	6	7	A
DN 1/2"	1.50	1.60	1.75	1.80	1.85	1.90	1.95	2.00
DN 3/4"	1.55	1.75	1.90	1.95	2.00	2.05	2.10	2.15

102M								
"Supply coefficient" of the heating emitter, expressed in percentage of the flow passing through the distribution ring circuit is equal to:								
DN	1	2	3	4	5	6	7	A
DN 1/2" - 3/4"	22%	30%	34%	36%	38%	40%	42%	50%

120B - 102M								
Kv values in the various presetting 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

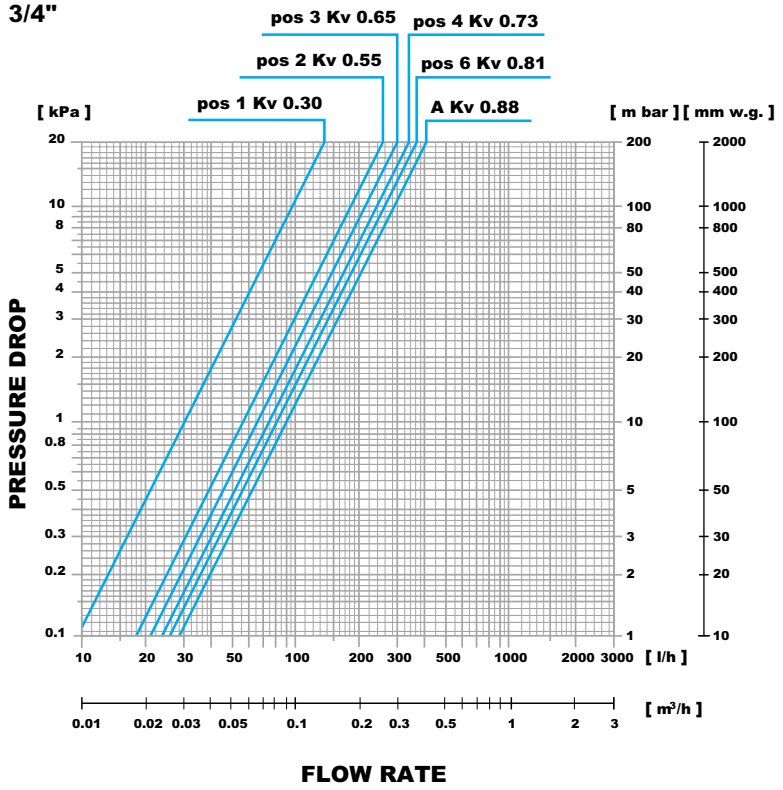
Overall dimension (mm)

120B/102M



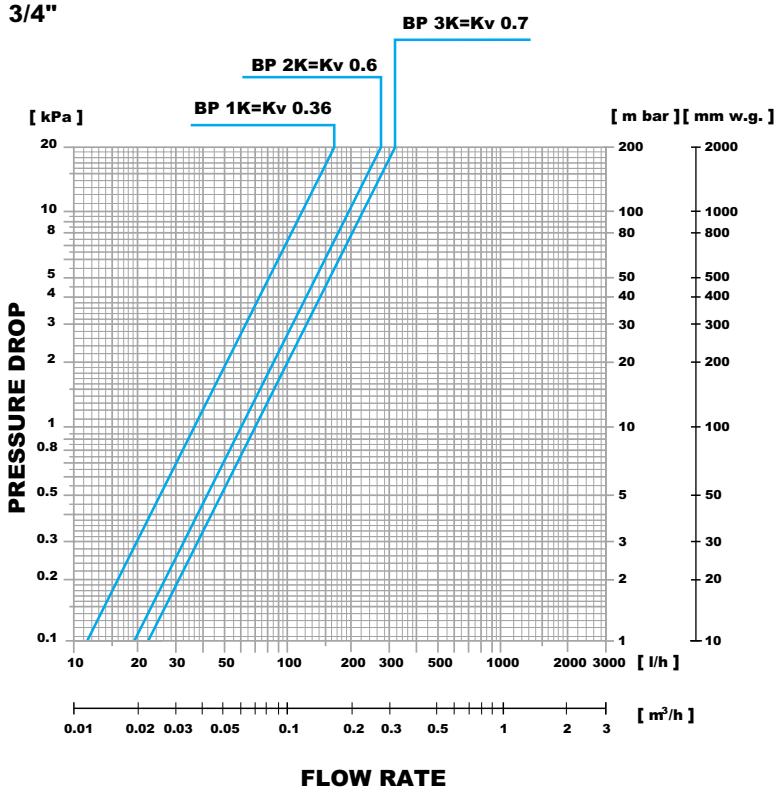
Flow rate/pressure drop charts

120B - DN 1/2" - 3/4"



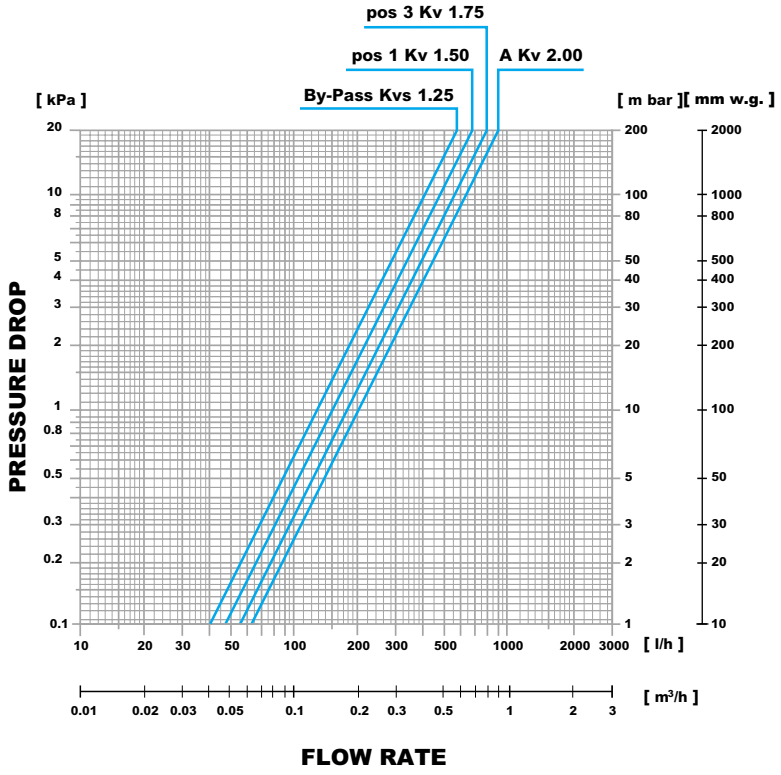
With actuator 148

120B - DN 1/2" - 3/4"



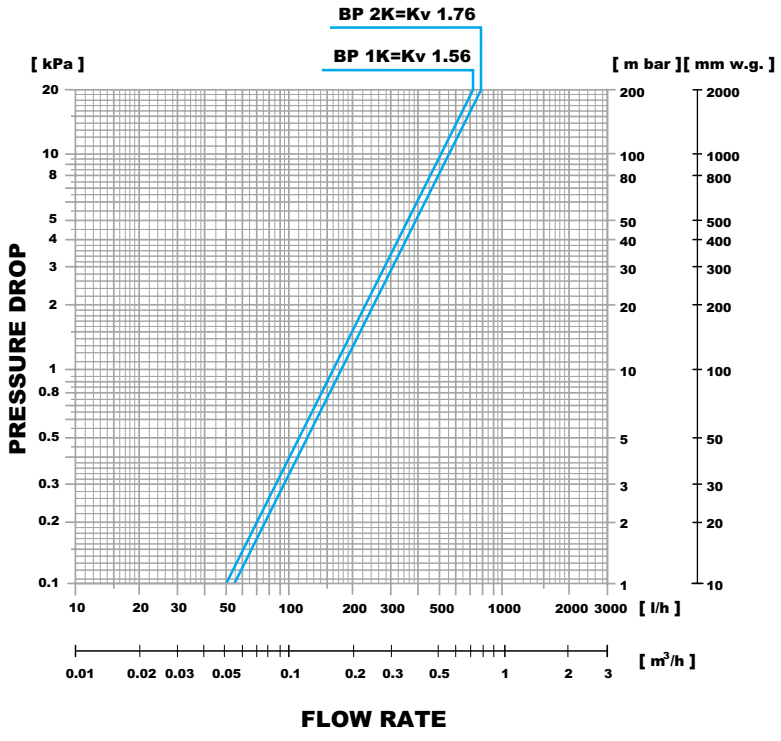
Flow rate/pressure drop charts

102M - DN 1/2"

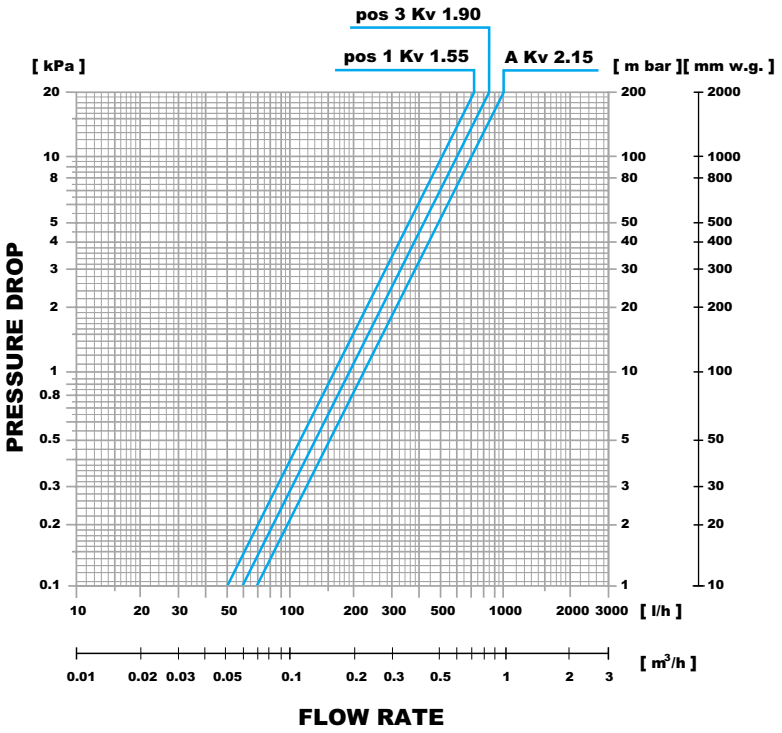


With actuator 148

102M - DN 1/2"

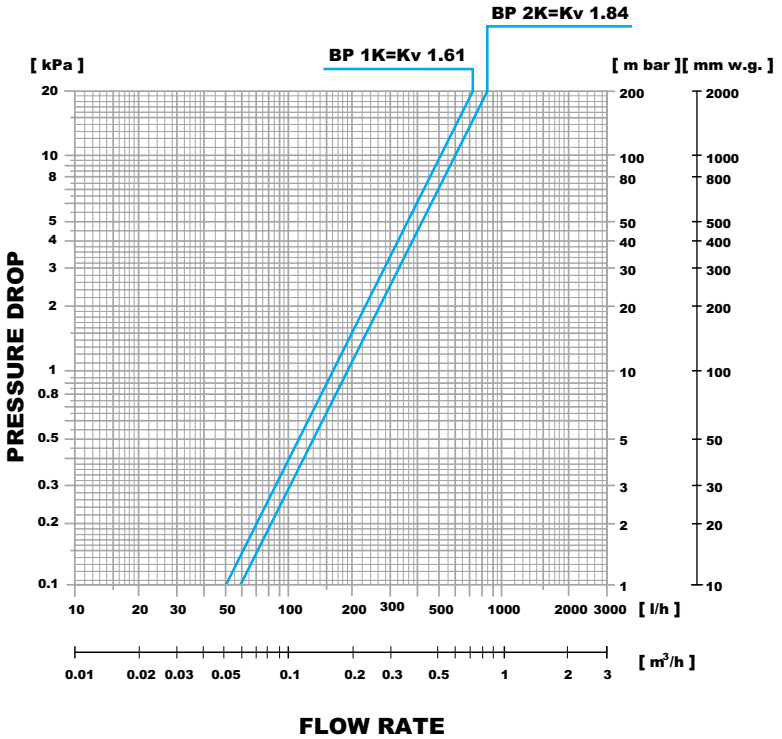


102M - DN 3/4"



With actuator 148

102M - DN 3/4"



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