



K054 - K056 - K058

Pre-assembled group in a box for systems with a low temperature panel system and high temperature radiators, supplied at high temperature, with a fixed point mixing system for the panel system.
Supplied with UPS2 25-40 / 60 or UPSO 25-65 pump, P310 safety thermostat and P309 heat dissipation board.



K060

Pre-assembled group in a box for systems with a low temperature panel system, supplied at high temperature, with a fixed point mixing system.
Supplied with UPS2 25-40 / 60 or UPSO 25-65 pump, P310 safety thermostat and P309 heat dissipation board.

TECHNICAL FEATURES

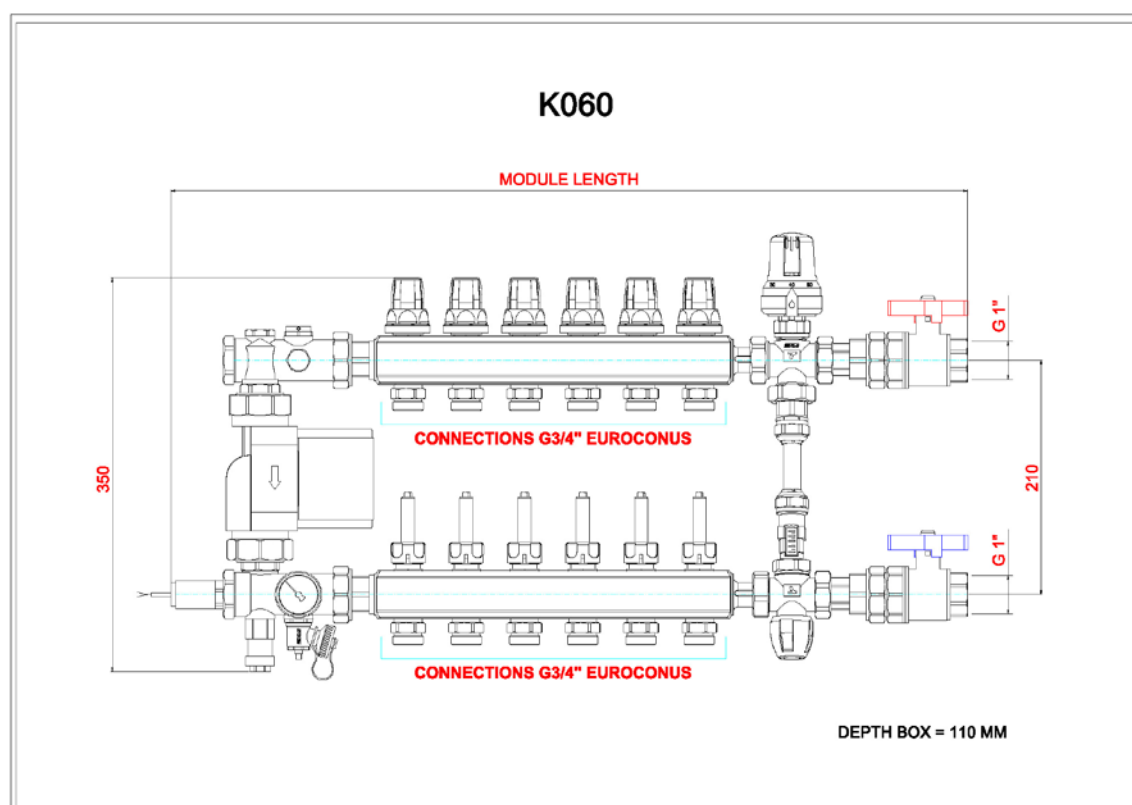
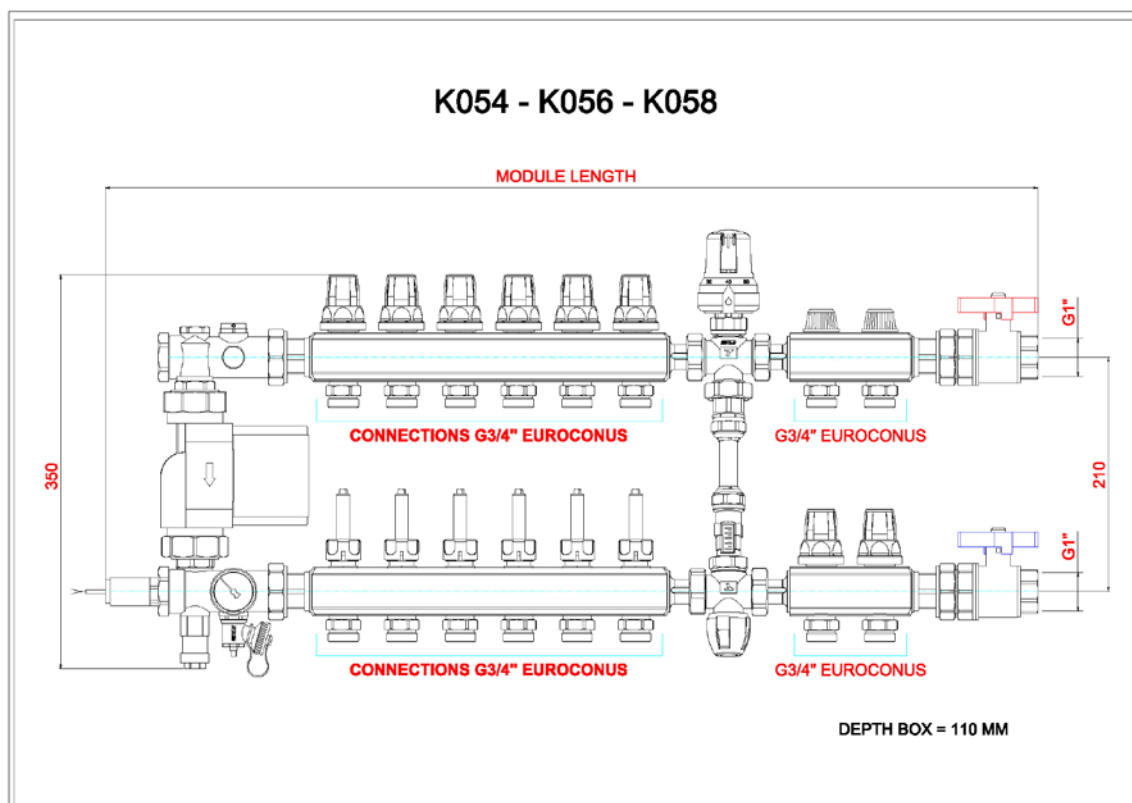
Performances

Fluids used:	Water and glycol solutions
Maximum percentage of glycol:	30%
Primary input temperature range:	5÷100°C
Temperature adjustment range:	20÷50°C
Thermometers scale:	0÷60°C
Maximum operating pressure:	10 bar
Minimum operating pressure:	0,8 bar
Power supply:	230 V – 50 Hz
Circulators:	See specifications pag.5/6

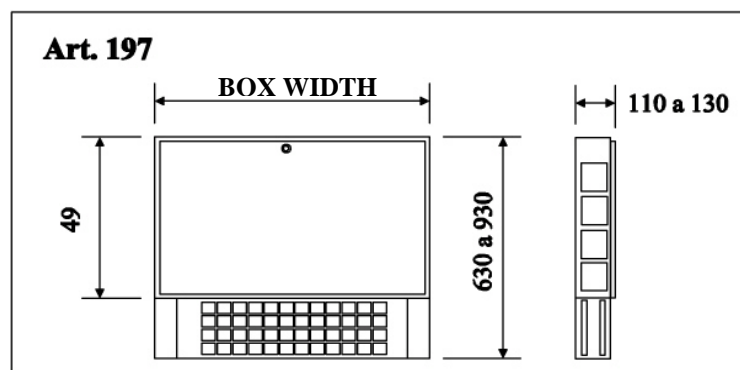
MATERIALS:

Valve body and fittings:	Brass CW617N - UNI EN 12165
Caps and unions:	Brass CW617N - UNI EN 12165
Thermometers:	Steel/Aluminium
Sealing elements:	EPDM Perox

DIMENSIONS

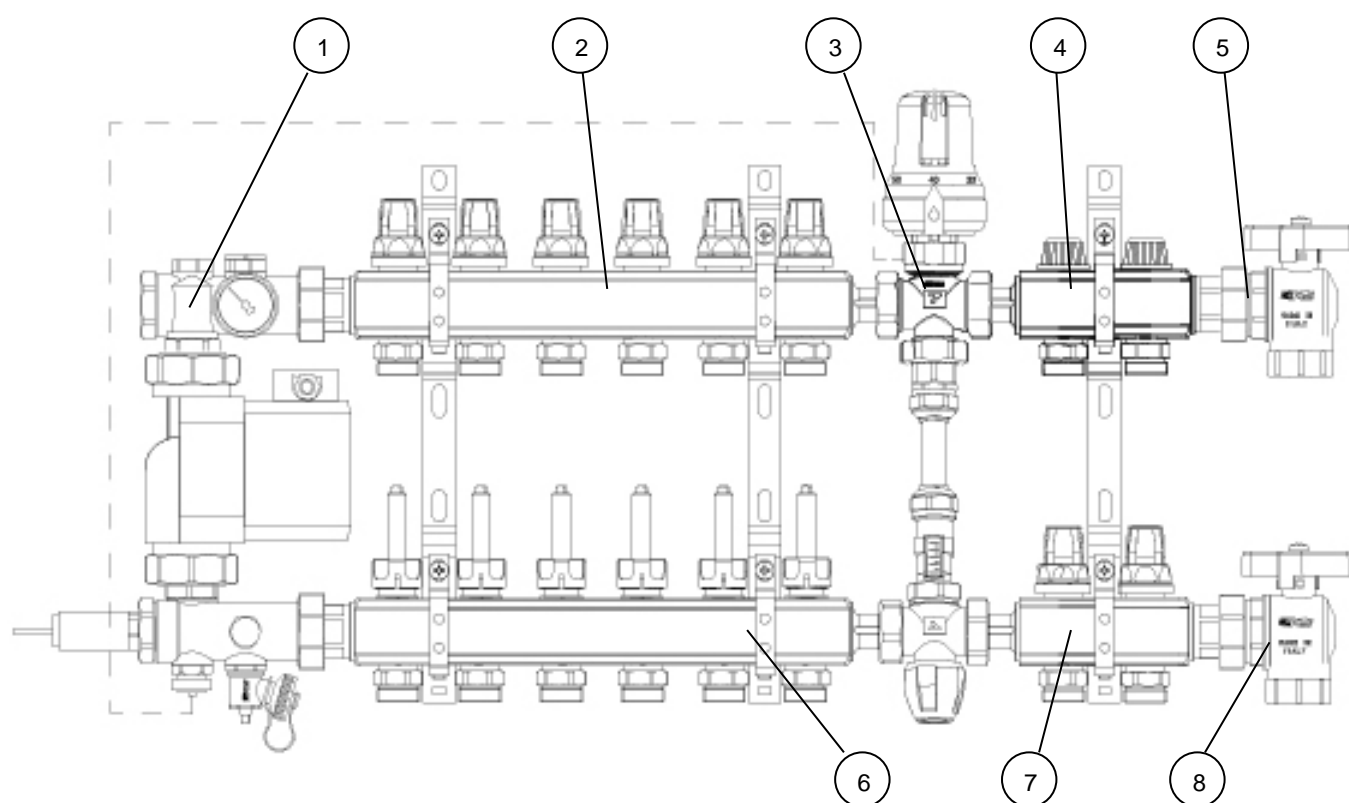


MODULES DIMENSIONS AND BOXES						
MODULE	UNDERFLOOR EXIT	RADIATOR EXIT	MODULE LENGHT	MODULE CODE	BOX WIDTH	BOX CODE
K054	2	1	559	87K054PG06	600	81197OC09
	3	1	609	87K054PH06	700	81197OF09
	4	1	659	87K054PJ06	700	81197OF09
	5	1	709	87K054PQ06	850	81197OK09
	6	1	759	87K054PK06	850	81197OK09
	7	1	809	87K054PR06	850	81197OK09
	8	1	859	87K054PL06	1000	81197OG09
	9	1	909	87K054PS06	1000	81197OG09
	10	1	959	87K054PM06	1000	81197OG09
	11	1	1009	87K054PT06	1200	81197OH09
	12	1	1059	87K054PU06	1200	81197OH09
K056	2	2	559	87K056PG06	700	81197OF09
	3	2	609	87K056PH06	700	81197OF09
	4	2	659	87K056PJ06	850	81197OK09
	5	2	709	87K056PQ06	850	81197OK09
	6	2	759	87K056PK06	850	81197OK09
	7	2	809	87K056PR06	1000	81197OG09
	8	2	859	87K056PL06	1000	81197OG09
	9	2	909	87K056PS06	1000	81197OG09
	10	2	959	87K056PM06	1200	81197OH09
	11	2	1009	87K056PT06	1200	81197OH09
	12	2	1059	87K056PU06	1200	81197OH09
K058	2	3	559	87K058PG06	700	81197OF09
	3	3	609	87K058PH06	850	81197OK09
	4	3	659	87K058PJ06	850	81197OK09
	5	3	709	87K058PQ06	850	81197OK09
	6	3	759	87K058PK06	1000	81197OG09
	7	3	809	87K058PR06	1000	81197OG09
	8	3	859	87K058PL06	1000	81197OG09
	9	3	909	87K058PS06	1200	81197OH09
	10	3	959	87K058PM06	1200	81197OH09
	11	3	1009	87K058PT06	1200	81197OH09
	12	3	1059	87K058PU06	1200	81197OH09
K060	2	---	559	87K060PG06	600	81197OC09
	3	---	609	87K060PH06	600	81197OC09
	4	---	659	87K060PJ06	700	81197OF09
	5	---	709	87K060PQ06	700	81197OF09
	6	---	759	87K060PK06	850	81197OK09
	7	---	809	87K060PR06	850	81197OK09
	8	---	859	87K060PL06	850	81197OK09
	9	---	909	87K060PS06	1000	81197OG09
	10	---	959	87K060PM06	1000	81197OG09
	11	---	1009	87K060PT06	1000	81197OG09
	12	---	1059	87K060PU06	1200	81197OH09



PART LIST

- 1) Relay pump unit (article K062)
- 2) Return manifold for low temperature with manual / thermostatic valves (article 1001)
- 3) Fixed point temperature regulation unit (article K063)
- 4) Delivery manifold for high temperature with micrometric adjustment lockshields (article 1005)
- 5) Ball valve with union with O-ring seal to the manifold (article 215)
- 6) Delivery manifold for low temperature with flow meters (article 1013)
- 7) Return manifold for high temperature with manual / thermostatic valves (article 1001)
- 8) Ball valve with union with O-ring seal to the manifold (article 215)



The following paragraphs show the characteristics, dimensions and operating principles of the various items that make up the pre-assembled units in boxes

ART. K062 – RETURN PUMP UNIT

Return pump unit, includes:

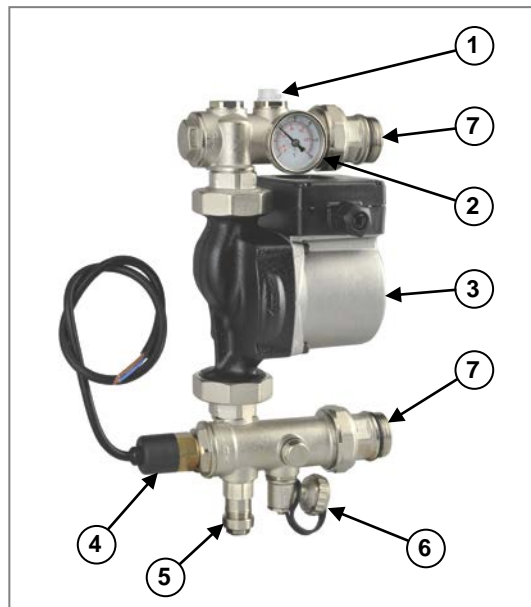
- 1) Adjustable, hand-operated air vent valve
- 2) Thermometer (0-60°C)
- 3) Circulator
- 4) Safety thermostat (item P310)
- 5) Sensor slot
- 6) System loading/discharge valve
- 7) G1" pipe unions with O-ring seal for collector

Collector connections: G1" Male

Can be installed on either the left or right side of collectors.

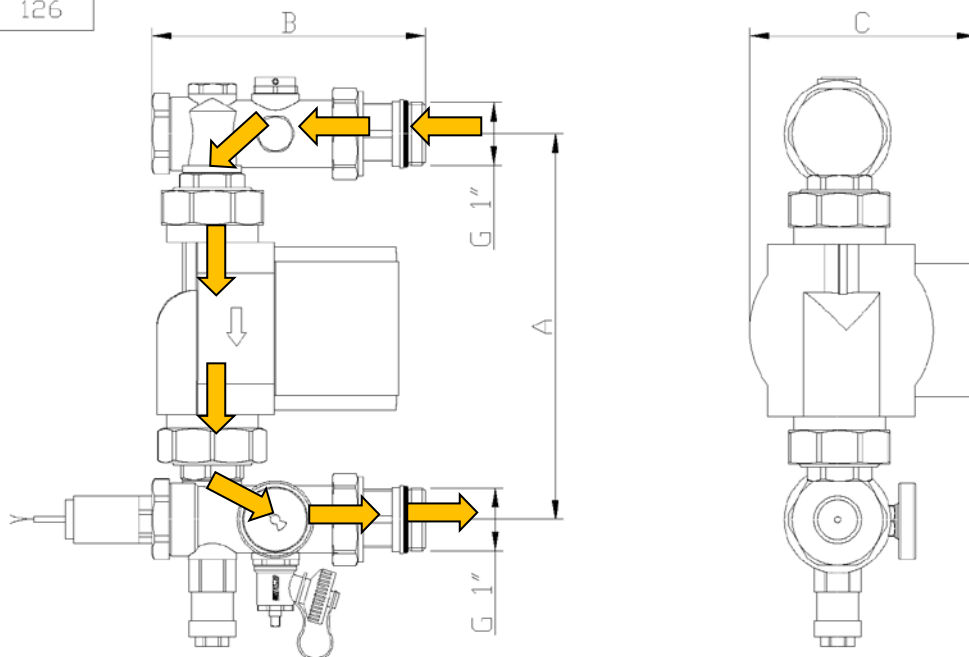
The pre-assembled units are supplied with three different pump models:

- GRUNDFOS - UPSO 25-65 130 - Synchronous circ. pump 3 speeds
- GRUNDFOS - UPS2 25-40/60 130 - Circulation pump with 3 speeds
- GRUNDFOS - UPM3 HYBRID 25-70 130 – Electronic circulation pump



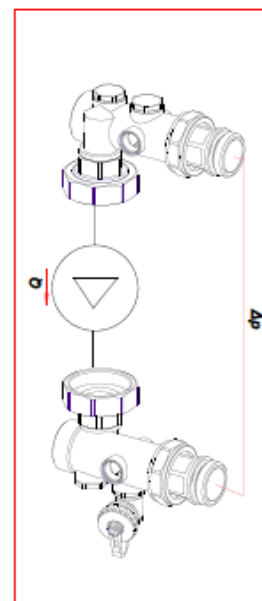
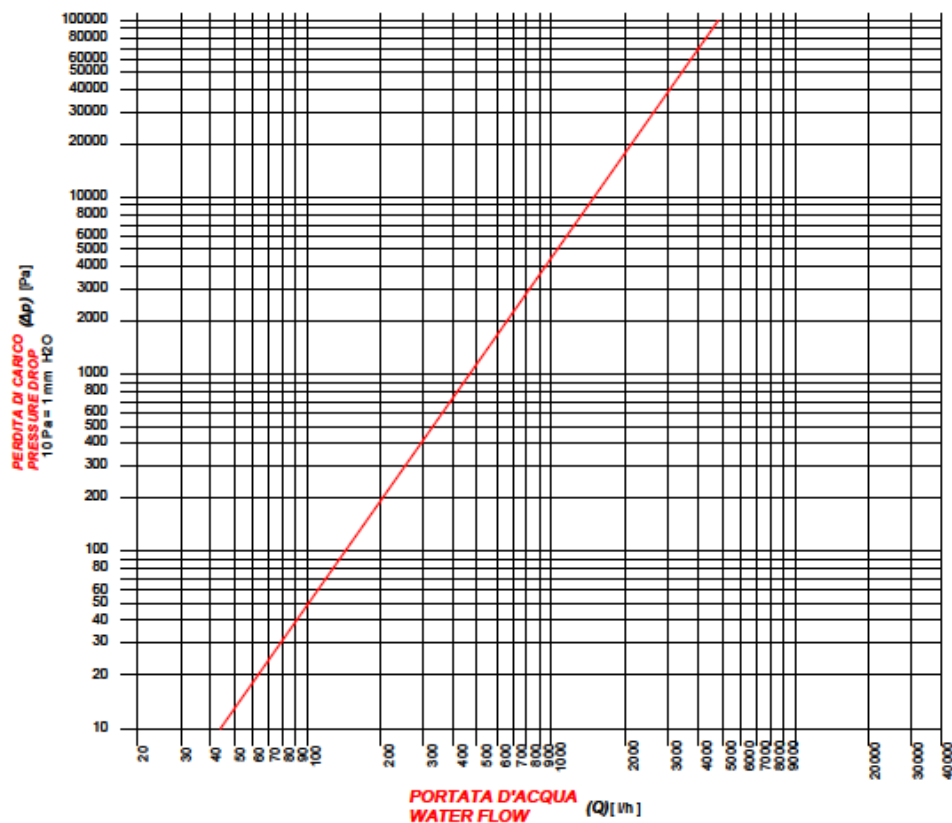
DIMENSIONS

OVERALL DIMENSIONS		
A	B	C
210	145	126



CARATTERISTICHE IDRAULICHE

Gruppo di miscela/mixing group Art.M055-K062
DIAGRAMMA DELLE PERDITE DI CARICO
PRESSURE DROP DIAGRAM



Kv [m³/h]

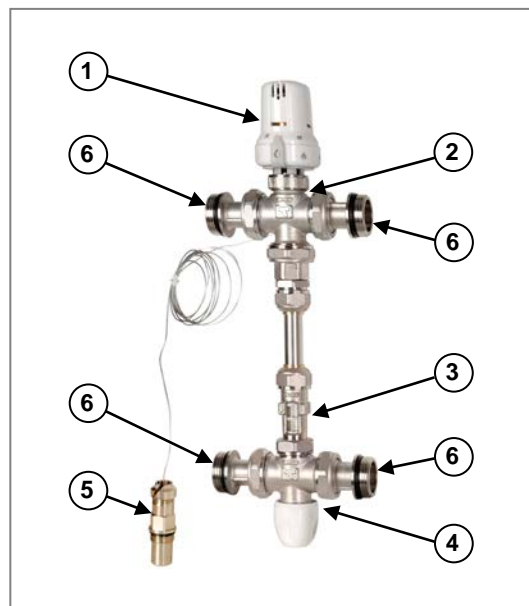
4,84

ART. K063 - FIXED POINT ADJUSTMENT UNIT

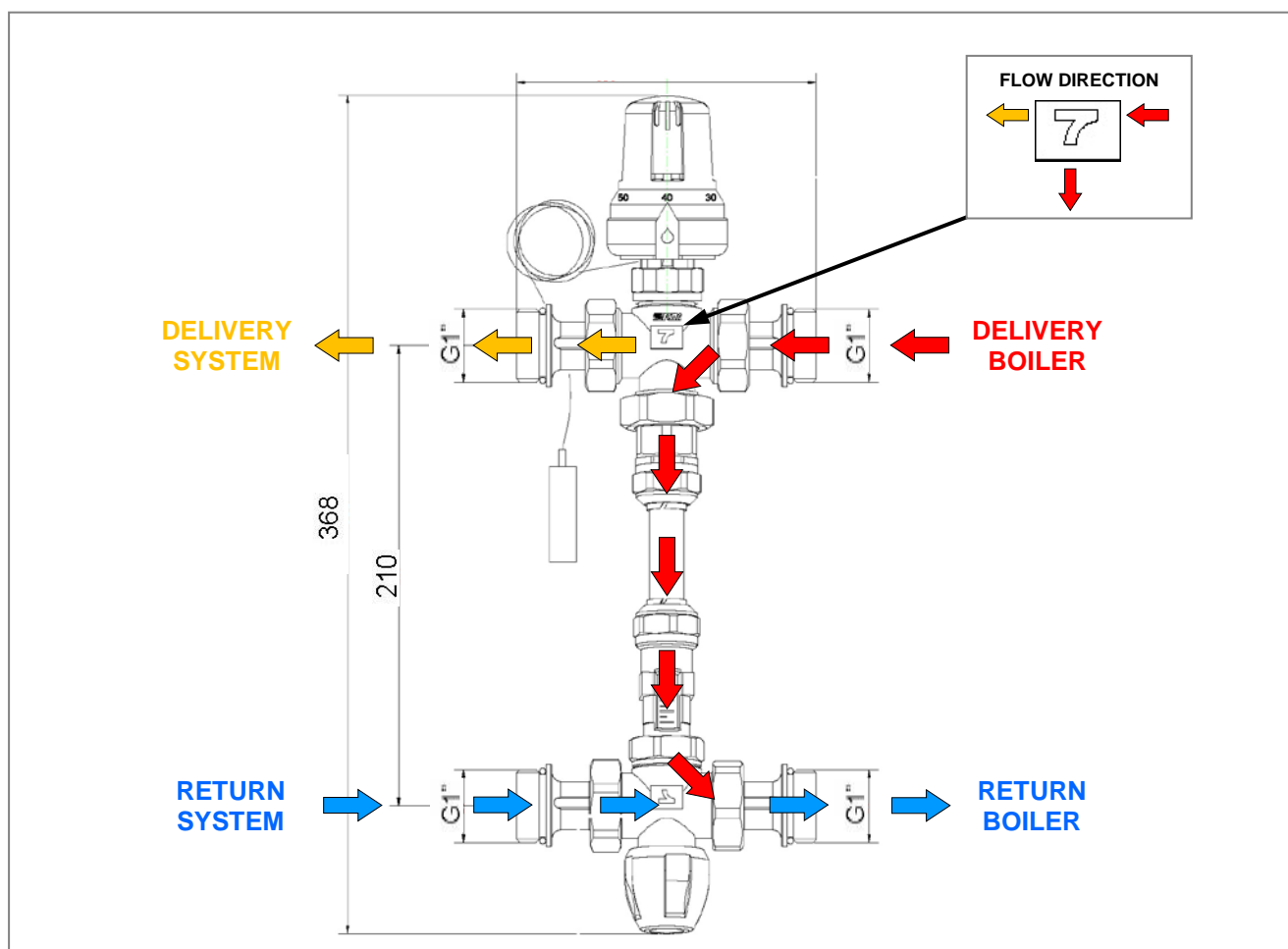
Fixed point temperature adjustment unit, includes:

- 1) Thermostat control device (20-50°) with remote sensor
- 2) Three-way mixing valve
- 3) Flow meter
- 4) Manually adjusted by-pass valve
- 5) Sensor slot
- 6) G1" pipe unions with O-Ring seal for collector

Collector connections: G1" Male.
Can be installed on either the left or right side of collector.



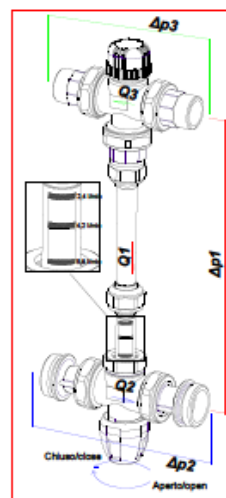
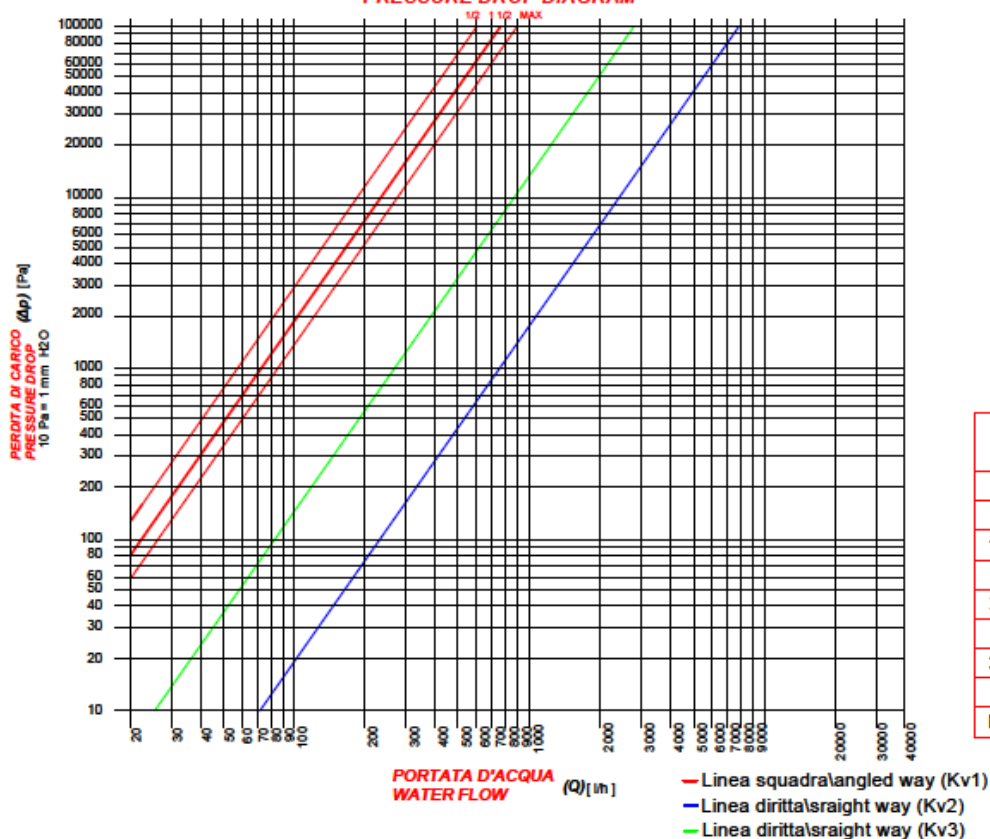
DIMENSIONS



CARATTERISTICHE IDRAULICHE

Gruppo di regolazione della temperatura
Group for temperature regulation
Art.K063

DIAGRAMMA DELLE PERDITE DI CARICO
PRESSURE DROP DIAGRAM



n° giri	Kv1 [m³/h]	Kv2 [m³/h]
1/2	0,57	7,85
1	0,68	
1 1/2	0,70	Kv3 [m³/h] (MAX)
2	0,76	2,7
2 1/2	0,8	
3	0,82	
3 1/2	0,83	
4	0,84	
MAX	0,85	

$$Kv1 = \frac{Q1}{\sqrt{\Delta P1}}$$

$$Kv2 = \frac{Q2}{\sqrt{\Delta P2}}$$

$$Kv3 = \frac{Q3}{\sqrt{\Delta P3}}$$

MIXING VALVE ADJUSTMENT

The fixed point adjustment unit is supplied with a thermostat control device with remote sensor, which is to be installed on the 3-way valve. By regulating the thermostat control device, it is possible to set the temperature of the heat transfer fluid that circulates inside the low temperature circuit of the radiating panels.

The thermostat control device has an adjustment range of between 20° and 50°C. A temperature of about 35-40° should be set on the hand wheel with graduated scale (see the instruction sheet contained in the control device container for a detailed description of how to adjust the thermostat control device).

Instead, the 3-way mixing valve is equipped with a “**double adjustment**” function which makes it possible to limit the amount of water that flows into the low temperature system when the mixing valve is completely open. The “**double adjustment**” function is set in the factory during mixing valve inspection. The setting should never be changed except under exceptional circumstances.

To change the setting of the “**double adjustment**” feature, you must first remove the white cap or the thermostat control device located on the mixing valve (the valve appears as shown in Fig. A). This is done by inserting a shear screwdriver in the slot on the black pin (see red arrow in Fig. B), and then rotating the pin to change the mixing valve setting, as indicated below:

- turn the black pin in the **clockwise** direction to shut off the flow of the heat transfer fluid to the low temperature system; this limits the flow to a maximum value even when the mixing valve is in the completely open position.
- turn the black pin in the **counter-clockwise** direction to open the flow of the heat transfer fluid to the low temperature system; this increases the maximum amount of water that is allowed to flow into the low temperature circuit when the mixing valve is in the completely open position.

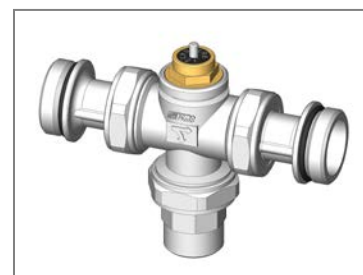


Figure A

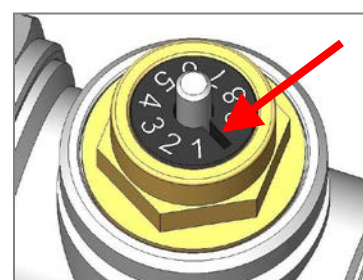


Figure B

ADJUSTMENT OF BY-PASS VALVE

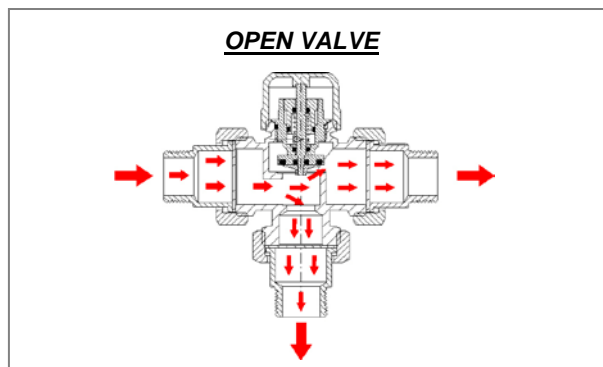
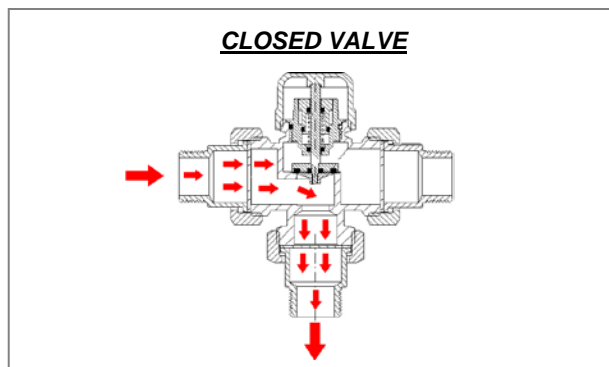
With the manually adjusted by-pass valve, it is possible to regulate the circulation of the heat transfer fluid coming from the heat generator in the event the mixing valve is completely closed and does not allow any fluid to flow to the low temperature circuit collector of the radiating panels.

For a **standard adjustment** of the by-pass valve, close the valve completely by turning the white hand wheel clockwise (indicated by blue arrow in Fig. C) to its end stop and then open it by 1 1/5 turns by rotating the hand wheel in the counter-clockwise direction.



Figure C

DIRECTION OF MIXING VALVE FLOW



ART. 1013 – DELIVERY MANIFOLD

Delivery manifold for low temperature with flow meters, regulation range 0/4 l / min.

Connections for Euroconus fittings with Male G3 / 4 "threads, distance between connections 50 mm.

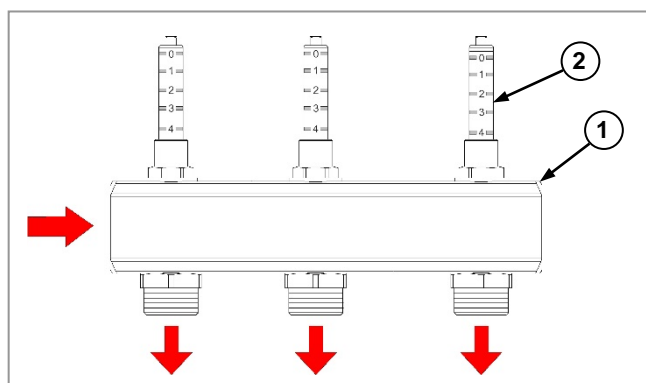


USE OF FLOW MEASUREMENTS WITH INCORPORATED ADJUSTMENT VALVE

The delivery manifold, as described above, consists of a perforated pull bar (1) on which flow meters are fitted with the built-in flow control valve (2).

Flow meters have the function of indicating the value of the flow of each single ring of the system in real time, while the built-in control valves allow it to be calibrated in a simple and accurate way, this simplifies and greatly speeds up the calibration operation of the whole circuit.

The precision of the gauge also allows calibration of the flow of the thermal fluid to the lowest flow rates.



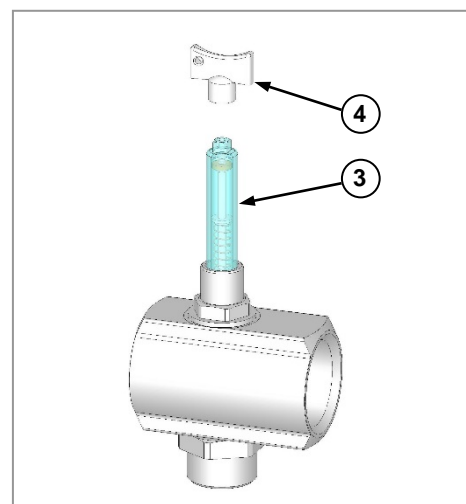
FLOW ADJUSTMENT

To adjust the flowrate, simply rotate the transparent slide (3) at the top of the meter.

To facilitate this operation, a special key (4) is supplied, which must be inserted on the frame obtained at the top of the slide.

- **Screwing the slide (rotate clockwise) the flow rate decreases**
- **Uncoupling the slide (turning counterclockwise) the flow rate increases**

Completely closing the control valve, it is possible to intercept each single ring, excluding it from the system.



FLOW INDICATION

On the transparent slide is shown a graduated while inside it there is a white rod with an orange plate (5), these two elements rise and lower in the slide depending on the variations in the flow rate of the flowing fluid, inside the meter.

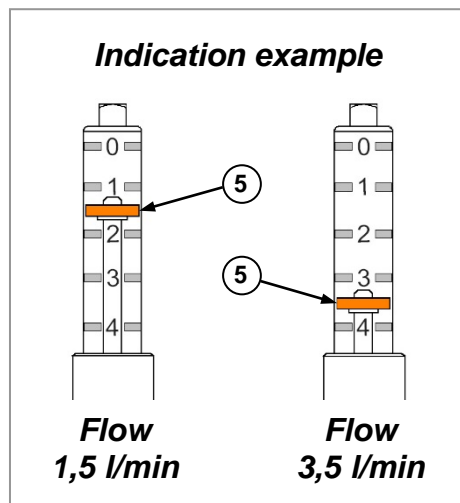
The position of the orange plate on the graduated scale of the slide indicates the actual value of the flow rate of the fluid passing through the meter and, consequently, to the corresponding floor ring ring.

The reading range of the meters is as follows:

0÷4 l/min for manifold G1"

0÷8 l/min for manifold G1" 1/4.

Indication example



HYDRAULICAL FEATURES

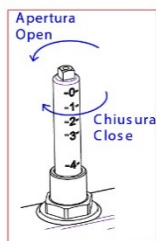
The hydraulic characteristics of a radiant panel circuit, served by a collector kit such as those described in this data sheet, are substantially represented by the load losses of the circuit itself.

The loss of load by its definition is the pressure loss due to all the passive forces (curves, branches, bottlenecks and shrubs of materials) that oppose water resistance in a pipe or circuit.

Knowing the value of the overall load loss of a circuit is critical at the time of designing a plant to determine the flow rate and consequently the prevalence that the circulation pump will provide.

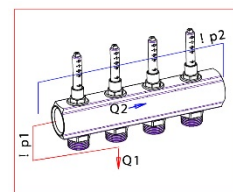
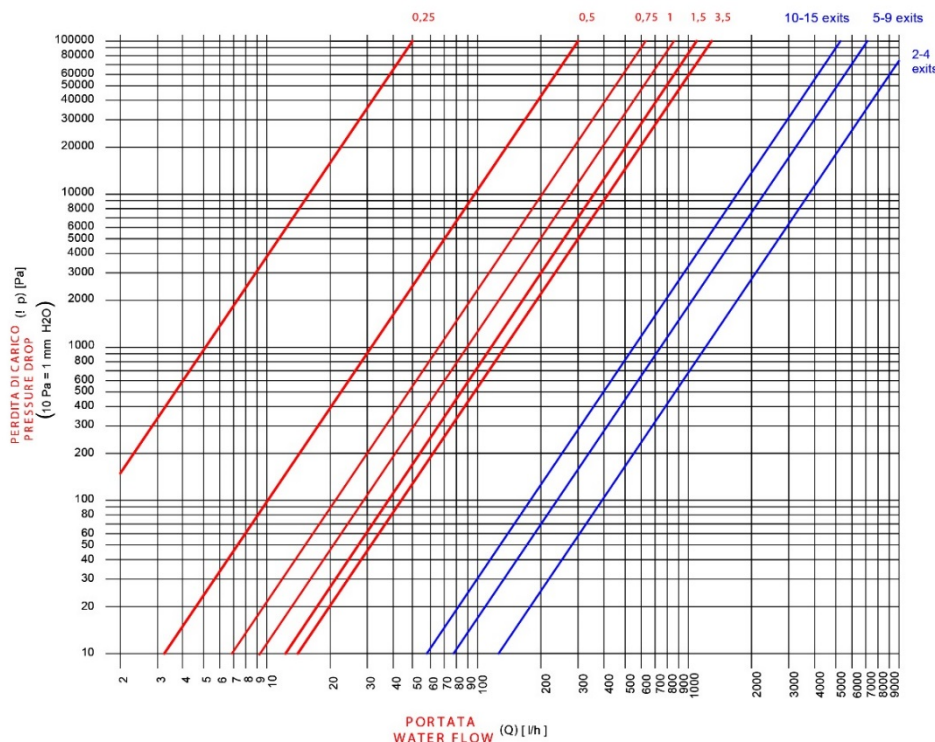
In order to determine the overall loss of a circuit, it is necessary to know and add up all the load losses of the individual devices that compose it.

Collettore/Manifold Art. 1013-1014-1015-1016 - G 1"
DIAGRAMMA DELLE PERDITE DI CARICO / PRESSURE DROP DIAGRAM



n° giri opening turns	Kv1* [m³/h]
0,25	0,05
0,5	0,30
0,75	0,62
1	0,88
1,5	1,05
2	1,12
2,5	1,16
3,5 MAX FLOW	1,21

* Valori riferiti ad una singola uscita
values in reference to a single exit



Kv2 collettore Kv2 manifold [m³/h]	
2-4 exits	11,1
5-9 exits	7,1
10-15 exits	5,2

$$Kv1 = \frac{Q1}{\sqrt{\Delta P1}}$$

$$Kv2 = \frac{Q2}{\sqrt{\Delta P2}}$$

— Flussimetro/flow meter
— Collettore/manifold

ART. 1001 – RETURN MANIFOLD

Return manifold for low and high temperature with manual / thermostatic valves.

Connections for Euroconus fittings with Male G3 / 4 "threads, distance between connections 50 mm.

Connection for M28x1.5 electro-thermal controls.



RETURN MANIFOLD

The return manifold is also made up of a nickel-plated brass drill bit (1) and a variable number of thermostatable shut-off valves (2).

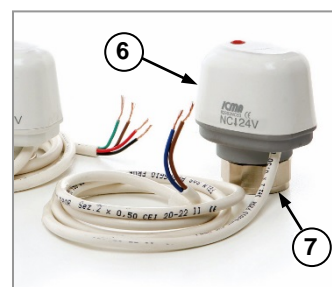
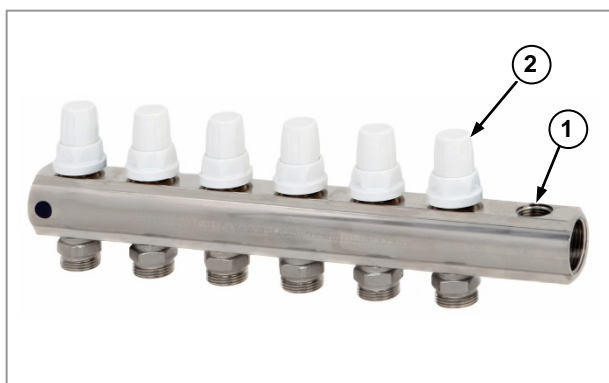
Thermostatable valves give you the ability to manually open or close each branch ring according to your needs. By fully screwing (clockwise), the top of the white cap (3) above the valve can close the fluid passage to the respective loop ring (5), excluding the entire circuit.

The shut-off valves are also predisposed for the installation of electrothermal actuators (6) which are appropriately connected to the room thermostats, allowing to maintain the temperature in the various rooms at the set values.

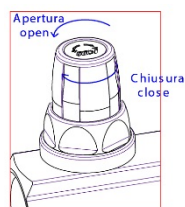
To do this, simply unscrew both parts of the white knob (3 and 4) from the valve body and fasten the fastening ring (7) first and then the actuator.

However, you will still be able to remove the installed actuator and reassemble the white dial for manual control at any time by returning the shut-off valve to the initial condition.

For actuator installation operations, see the specific instruction sheet contained in each package.

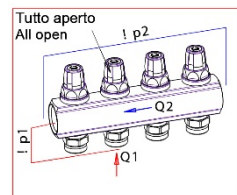
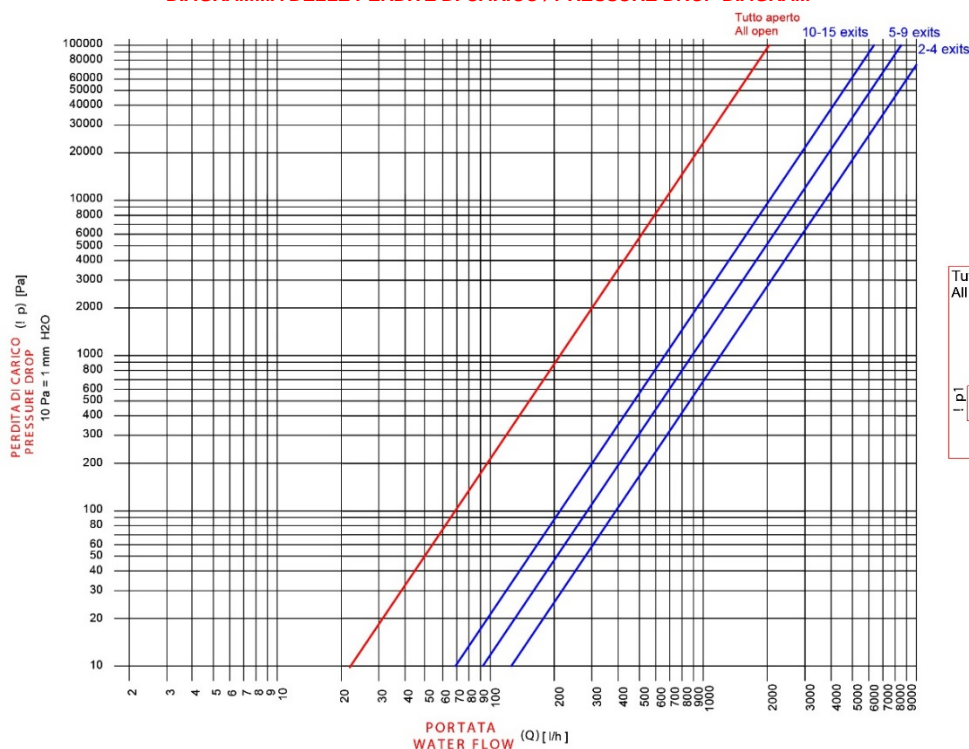


Collettore/Manifold Art. 1001-1002-1007-1008 – G 1"
DIAGRAMMA DELLE PERDITE DI CARICO / PRESSURE DROP DIAGRAM



n° giri/ turns	Kv1* [m³/h]
Tutto aperto All open	2,05

* Valori riferiti ad una singola uscita
values in reference to a single exit



Kv2 collettore Kv2 manifold [m³/h]	
2-4 exits	12,6
5-9 exits	8,7
10-15 exits	6,45

$$* Kv1 = \frac{Q1}{\sqrt{P1}}$$

$$Kv2 = \frac{Q2}{\sqrt{P2}}$$

— Vitone/spindle
— Collettore/manifold

ART. 1005 – DELIVERY MANIFOLD

Delivery manifold for high temperature with micrometric adjustment lockshields.
Connections for Euroconus fittings with Male G3 / 4 "threads, distance between connections 50 mm.



INTERCEPTION SPHERE VALVE



Ball-tap valves with o-ring seal for mounting on the manifold bar. Installed on manifold kits is used to exclude the system from connecting to the boiler or centralized supply, facilitating any maintenance or repair operations.

AIR VENT VALVES



The air vent valves have the function of ejecting the air that accumulates inside the circuit. Depending on the product chosen, automatic or manual vent valves are installed. Valves are installed in K025-K026 and K031-K032, while manual valves are installed in K023-K024 articles.

The automatic air vent valves are equipped with an internal float that, connected via a shutter lever system, automatically adjusts the expulsion of the air that accumulates inside it. They are also equipped with a hygroscopic safety cap which, once closed manually, prevents water spills in the event of a valve malfunction. The use of these valves avoids the occurrence of negative phenomena for the plant such as corrosion, localized air pockets and cavitation in circulation pumps.



The manual air vent valves have a micrometric opening, they are rotatable and are equipped with a special sealing gasket for mounting on the manifold. They are mounted on collector kits to facilitate the loading and unloading of the plant.

THERMOMETER HOLDER CAPS



They are specially designed for a simple and safe installation at the head of the manifold bars, they are equipped with a sealing gasket and have a hole for the housing of the thermometers. The supplied thermometers have a reading range of 0 ÷ 60 ° C.

CHARGE/VENT TAPS



Micrometric opening orientable taps are equipped with sealing gasket for mounting on the manifold and a seal with seal for a safety closure. They are mounted on collector kits to facilitate the loading and unloading of the plant.

SUPPORTS



Along with the collector kits, galvanneal steel fixing brackets are provided with their anti-vibration gaskets. These are brackets designed to facilitate the installation of the manifolds and to limit the dimensions, can be fixed directly to the wall or in the appropriate floor heating systems.

ACCESSORIES

ELECTROTHERMAL ACTUATORS



Normally closed electrothermal commands with M28x1.5 connection

Article 982 - with micro-switch for normally closed closed-end signal

Article 983 - simple command on / off

The electrothermal actuators installed on the thermostatable return manifold shut-off valves have the function of automatically intercepting the thermovoltaic fluid on the control of the room thermostat and other electrical circuit breaker.

It is possible to install an electrothermal actuation of each of the shut-off valves so as to best control and regulate each single branch of the floor system.

The installation is simple and fast and is done via a quick coupling and a threaded nut.

The ICMA electrothermal actuators are in compliance with Directives 73/23 / EEC - 89/336 / EEC.

FITTINGS FOR MULTILAYER PIPE



Fittings for simple or multilayer plastic tubes

Article 100 - connection thread on manifold M24x1.5

Article 101 - Connection thread on the G3 / 4 "Euroconus manifold

They ensure a simple and secure connection of the multilayer pipe to the outlet and return manifolds.

The seals on the pipe and the manifold are made of peroxide EPDM O-Ring rings.

Thanks to their reduced internal surface roughness, low load losses are guaranteed.

INSULATION SHIELDS



Article 177 - Insulation shields for manifolds G1 "and G1" ¼

They are made up of a pair of thermoformed shells made of closed cellular polyethylene foam, particularly suitable for thermal insulation and condensation formation.

Drilled on both sides with a distance between holes of 50 mm.

For G1 manifolds "are provided with a length suitable for manifolds with max. 12 outputs, while for manifolds G1" ¼ the length is suitable for collectors with max 15 outputs.

It is possible to cut the cups to fit them with manifolds with a lower number of outputs.

MANIFOLD BOXES



Article 197 - Boxes for underfloor heating systems

Cassette for underfloor heating systems, painted WHITE RAL 9010 with lock.

It is possible to adjust the height of the box from 630 to 930 mm and the depth from 110 to 130mm.

It is possible to adjust the internal position of the collector, both in height and laterally.

In order to guarantee a good constructive solidity, the thickness of the metal sheet of the frame and of the door is 1 mm.

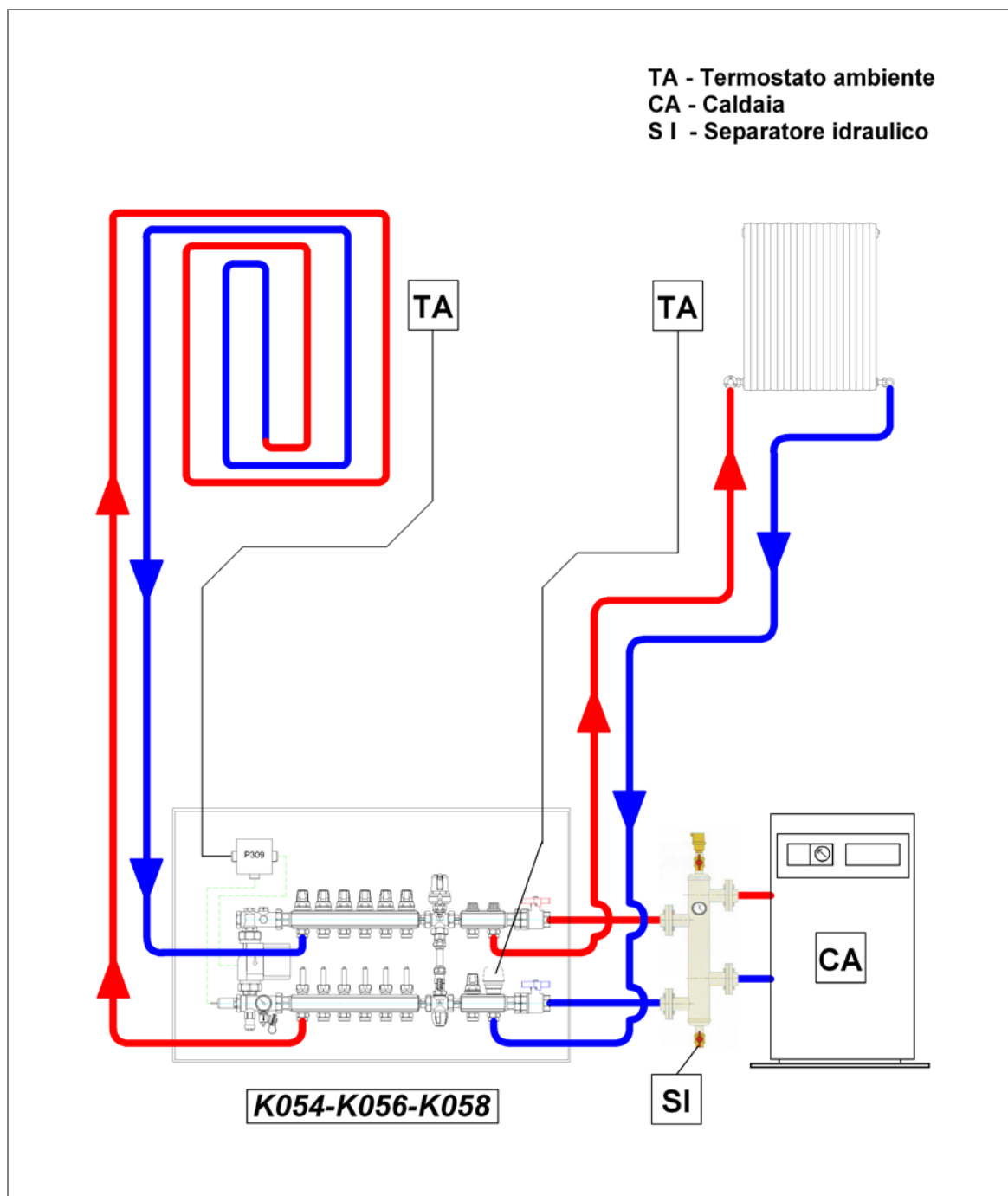
It is also possible to adjust the inside position of the manifold both in height and sideways. Suitable for collectors without circulation pump.

For the choice of cassettes, refer to the total lengths of the manifolds and the recommended cassettes indicated in the "codes and dimensions" tables of the respective collector kits.

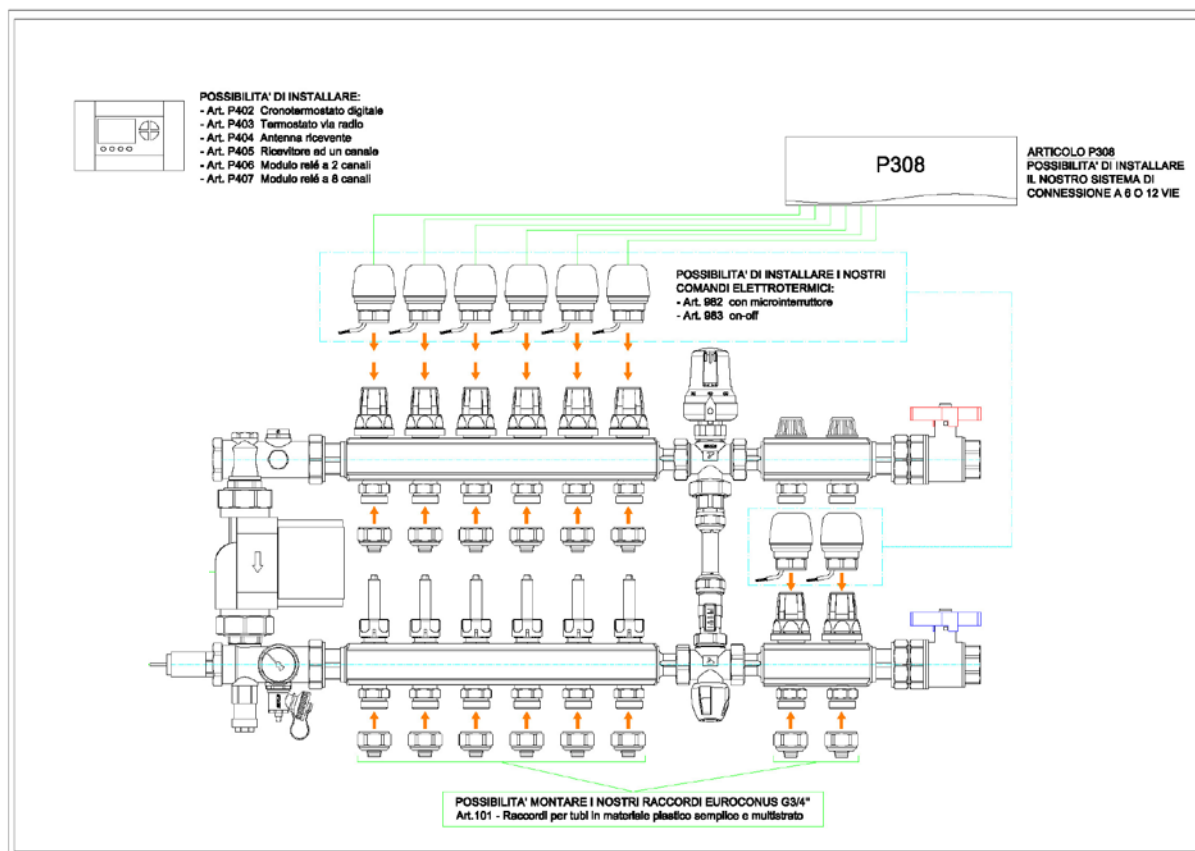
INSTALLATION SCHEME

The following diagram shows the example of installing a preassembled group in a box with low temperature outputs to serve radiant panels and high temperature outputs to serve radiators.

The delivery pipes to the plant are shown in red color, while the blue ones are represented by those returning from the plant. On the connecting pipes between the boiler and the pre-assembled unit in a box it is advisable to install a hydraulic separator, to avoid interference between the circulators.



ACCESSORIES



The aforementioned diagram shows a series of accessory items that can be installed together with our "pre-assembled group in a box" to make it completely automatic in its operation. By installing our electrothermal controls, it is possible to automate the system by checking the opening and closing of each individual ring according to the signal received from a room thermostat. It is also possible to optimize the system by installing the items in our range "wireless room temperature control systems", thanks to these commands you can control and manage the temperature in the various rooms served by the system without having to create a specific electrical system. Below are the main features of our electrothermal controls, for detailed information on our "wireless control systems", see the specific technical sheets.

ELECTROTHERMICAL COMMANDS

The electro-thermal controls are components that serve to control and intercept the flow of the heat-carrying fluid in the air-conditioning systems. They can be installed on all the thermostatic valves present on the delivery manifolds, thus passing from an initial condition of manual operation to an automatic operating condition. The operations to be carried out are few and simple and are described in detail in the specific technical sheets.

Configurations:	Normally Close / Normally Open
Supply:	230V(+/-10V) 50-60Hz / 24V 50-60Hz
Time to movement start:	90 Secondi
Obturator gap:	5 mm
Max environment temperature:	50°C
Protection class:	IP66
Max closure differential:	1,5 Bar
Connection ferrule:	M28x1,5
Regulation compliance:	73/23/CEE – 89/336/CEE



Electrothermal commands

SAFETY



Read the installation and commissioning instructions carefully before operating the appliance in order to prevent accidents and system failures caused by improper use of the product. Please note that the right to the warranty is void in case of unauthorized modifications or tampering during the assembly and construction phase. In addition to the aforementioned directives, the following rules must necessarily be followed:

DIN 4751

Heating water systems

DIN 4757

Solar heating systems

DIN 18380

Heating systems and sanitary water heating systems

DIN 18382

Electrical and conduction systems in buildings

DIN 12975

Solar thermal systems and their construction

WORKING CONDITIONS

The limit values shown must in no way be exceeded. Operational safety is therefore ensured by respecting the general conditions and operating limit values described in this sheet.

SAFETY RULES FOR MOUNTING AND INSPECTION

Assembly and inspection must be performed by qualified, authorized personnel who are familiar with the instructions given here. Before any work on the equipment is necessary to make sure that they are in rest conditions.

ELECTRICAL CONNECTIONS

The electrical connections must be made by qualified personnel.

Before powering up the relay unit, check that the data indicated on the nameplate regarding the type and voltage values supplied by the electricity grid are respected. All connections must be made as prescribed by law.

MAINTENANCE

Maintenance operations must be performed by qualified, authorized personnel who are familiar with the instructions given here. Before any work on the equipment is necessary to make sure that they are in rest conditions. If the pump is to be replaced, the shut-off valves should be turned to the closed position.



Warning! Depending on the operating conditions of the pump and the characteristics of the system, the surface temperature may be very high. Therefore, if you touch the pump directly, you are in danger of burns!

DECLARATION OF CONFORMITY (CE)

The circulators supplied as part of the ICMA relay groups comply with the following harmonization directives:

Machinery Directives CEE

89/392/CEE, 91/368/CEE, 93/44/CEE, 93/68/CEE.

Electromagnetic compatibility

89/336/CEE, 92/31/CEE, 93/68/CEE

General harmonized rules

EN 809, EN50081-1, en 50 081-2, EN 50 082-1,
EN 50 082-2.