Single control thermostatic valves and thermostat control devices

770-772-771-773-774-775-774+940-775+940

Function

Thermostatic valves are used to regulate and cut-off the flow of the heat transfer fluid that circulates inside air-conditioning system terminals (radiators, fan coils, etc.).
Thermostat control devices are used in combination with the thermostatic valves to auto-matically regulate ambient temperature wherever they are installed, keeping the temperature at a preset value. This avoids the needless wasting of heat and provides a considerable saving of energy.

028
*ICMA IDENTIFICATION NUMBER 87


770-772


771-773


774


774+940


775


775+940


1100

Thermostatic valves - for commper, multi-layer, Pe-x

Article	Type	Pipe fitting	Radiator
770 - Thermostatic valve	Angled	M24x1,5	G1/2" - G3/8"
772 - Thermostatic valve	Angled	G1/2"	G1/2" - G3/8"
771 - Thermostatic valve	Straight	M24x1,5	G1/2" - G3/8"
773 - Thermostatic valve	Straight	G1/2"	G1/2" - G3/8"

Thermostatic valves - for iron pipe

Article	Type	Pipe fitting and Radiator
774 - Thermostatic valve	Angled	G3/8" - G1/2"* - G3/4"
774+940 - Thermostatic valve with anti-leackage pipe union	Angled	G1/2" - G3/4
775 - Thermostatic valve	Dritta	G3/8" - G1/2"* - G3/4"
775+940 - Thermostatic valve with anti-leackage pipe union	Dritta	G1/2" - G3/4

Thermostatic head

Article		Code	Connection
1100 - Thermostatic head	KEYMARK Certified	821100AC20*	M28x1,5

Matching fittings

For heating systems with copper, polyethylene or multi-layer polyethylene pipes, use the following fittings to connect ICMA thermostatic expansion valves to the heating system:

Article	Fitting Thread
90 - Patented SICURBLOC fitting for copper pipe	G1/2" – M24x1,5
98 - Fitting for multi-layer, polyethylene pipe	G1/2"
100 - Fitting for multi-layer, polyethylene pipe	M24x1,5

For the codes of the thermostatic valves please refer to the tables in paragraph "DIMENSIONS AND CODES". For the fitting codes please refer to the specific technical sheet or the general ICMA catalogue.

Single control Thermostatic valve

ICMA thermostat control devices can be installed on all thermostatic valves of this line to convert heating systems with **manual** operating mode to **automatic** operating mode.
To install the thermostat control device, simply replace the thermostatic valve knob with an ICMA thermostat control device. This is done with a few easy operations. These are described in detail in the paragraph "Thermostat Control Device Installation and Regulation".
The valves come in "straight" and "angled" versions so that they can be connected to two different types of pipes, at the side of the heating system:
–The valves with GAS thread (side of heating system) are designed for connection to a steel pipe.
–The valves with standard ICMA thread (side of heating system) are designed for connection to a copper pipe, apolyethylene pipe and a multi-layer polyethylene pipe, for which specific pipe fittings are provided.
Pressure loss can be detected by following the indications provided in the diagrams shown in the paragraph "Fluid Dynamic Characteristics".

Technical specifications

Performance

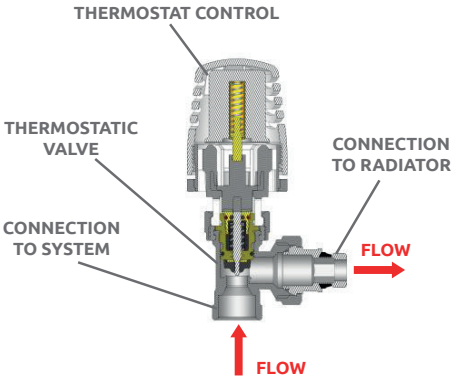
Fluids used:	Water, glycol solutions
Max percentage of glycol:	50%
Max operating pressure:	10 Bar
Max differential pressure:	1 Bar (control dev. mounted)
Heat transfer fluid temperat:	5 ÷ 120°C
Valve obturator travel:	3,5 mm
Connection with control devices:	28 x 1,5

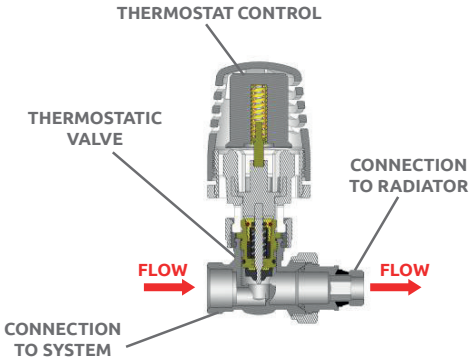
Materials

Body, cap and socket union:	CW617N Brass - UNI 12165 (Nickel-plated)
Large screw:	CW617N Brass - UNI 12164
Spring,obturator control rod:	Stainless steel
Liquid sealings:	Peroxy EPDM
Control knob:	Nylon 6 – 30% Fiberglass (White color)

Valve installation

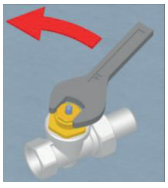
Install ICMA thermostatic valves on the heating system making sure to observe the direction of flow. The fluid must enter from the side on which the valve is connected to the system and go out toward the heating body.
The following problems can occur if the valve is installed incorrectly:
-A noise similar to a continuous sound of heavy hammering is due to the passage of fluid through the valve in thewrong direction. This problem can only be solved by inverting the valve with holder on radiators that have thisproblem, thus restoring the correct direction of flow of the fluid inside the valve.
-A noise similar to a sound of heavy whistling during the succession of specified on and off times is due to an excessive flowinside the valve. This problem can be solved by keeping the system pressure under control, and equipping the system withvariable rotation pumps along with differential pressure regulators, or by making use of differential by-pass valves.



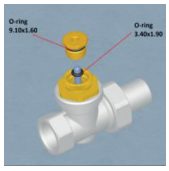


Maintenance (replacement of the gland O-ring seals)

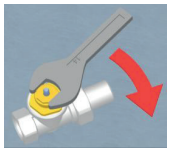
In accordance with EN215 regulations, O-Ring seals can be replaced on all ICMA thermostatic valves even while the system is running without causing water leaks. To do this operation follow the instructions below:



Remove the gland using a 14mm wrench as shown in the picture.



The O-Ring seals can now be replaced:
CODICI
O-RING CODES:
P10002043
P10002243



Screw the gland back into the valve using a 14mm wrench.

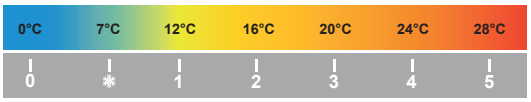
Thermostat control device

Thermostat control devices are used to regulate ambient temperatures automatically wherever they are installed so that the temperature is kept at a preset value.
Residential and working environments often contain other sources of heat, such as electrical appliances, stove-top cookers, computers, servers, and simple sunlight. Combined with the heating system, these additional heat sources cause a needless, uncontrolled increase in ambient temperature and the wasting of heat. Thermostat control devices detect variations in ambient temperature in the environments in which they are installed making it possible to keep the heat supplied by the heating system at optimal temperatures and to provide a considerable saving of energy.
The ICMA, 1100, thermostat control device can be installed on all thermostatic valves of this line.
ICMA valves are supplied with the current manual control knob (for manual operation). The valves can be converted into thermostatic valves that function completely automatically by installing a thermostat control device.
To install the thermostat control device, simply remove the thermostatic expansion valve control knob and replace it with the 1100 thermostat control device. This is done with just a few easy operations. These are described in detail in the paragraph “Thermostat Control Device Installation and Regulation”.

Adjustment scale

Adjustment scale: ❄÷ 5
Temperature adjustment range: 7 ÷ 28°C

The symbol ❄ indicates the freezing protection position, which corresponds to 7°C.



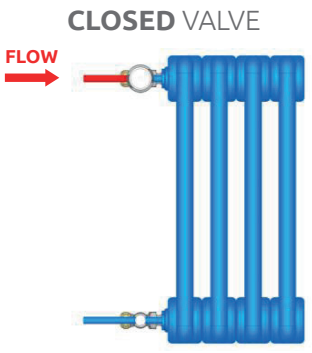
Technical specifications

Performance	
Minimum adjustment calibration (anti-freeze position):	ts min 7°C (❄)
Maximum adjustment calibration (position):	ts max 28°C (5)
Saving condition (position):	20°C (3)
Maximum working pressure:	PN 1000 KPa
Maximum differential pressure:	Δp 100 KPa
Nominal capacity "qm N" (DP=10 KPa) angled-straight:	qm N 190 Kg/h
Maximum working temperature:	110°C
Maximum storage temperature:	50°C
Hysteresis:	C 0.19 K
Authority:	a 0,9
Response time:	Z 20 min
Differential pressure influence:	D 0,25 K
Water temperature influence:	W 0,7 K
Control Accuracy:	CA 0,2 K
Use of the protection cap:	55°≈1K
Connection to thermostatic expansion valves:	M28x1,5
Certification:	UNI - EN215

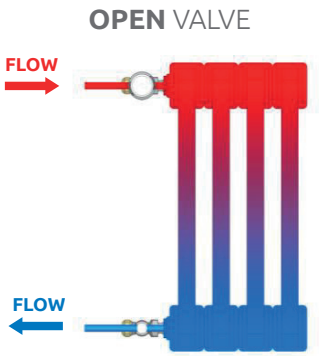
Materials	
Knob and stop ring:	RAL 9010 ABS White
Body and transmitter:	RAL 9010 PA6 30% F.V.
Sensor liquid:	Thermostatic ethyl-acetate
Connection ring:	CW617N Brass - UNI 12164 - Nickel-plated
Compensation pin:	CW617N Brass - UNI 12164
Compensation pin spring:	SH steel for springs - Phosphated

Operation

The thermostat head is made of a series of plastic parts containing a thermostatic component that is sensitive to temperature variations.
Operation of the thermostatic component is based on the expansion of the thermostatic liquid contained inside it:
– when the ambient temperature rises, the thermostatic liquid increases in volume, resulting in the lengthening of the component;
– when the ambient temperature drops, the thermostatic liquid decreases in volume, resulting in the shortening of the component.
The variations in length of the thermostatic component are transmitted to the valve obturator by a small steel rod. These movements constantly regulate the flow of the heat transfer fluid to the heating component so that the temperature set on the thermostat control device remains constant over time.

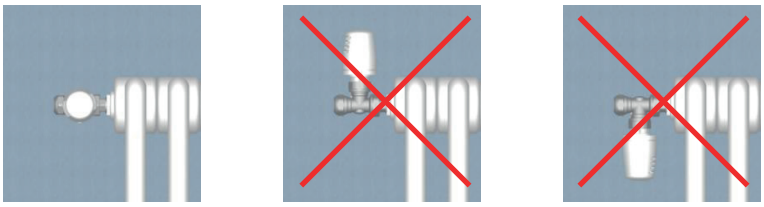


The thermostat control device components are specially made of plastic materials to prevent the valve heat and that irradiated by the heating component from being transmitted to the thermostatic component by contact or induction. This prevents possible malfunctions in the control device.
The thermostat control device temperature is regulated by turning the numbered knob and bringing the corresponding symbol to the desired temperature close to the head indicator (see the following paragraph for more details).
- Position 3 on the adjustment scale corresponds to an ambient temperature of 20°C. This is the recommended temperature for ensuring a comfortable environment and reduced heat consumption and costs.
– The asterisk "❄" indicates the freezing protection position.
This setting is recommended when one is absent for long period of time during the winter months, or when one wishes to aerate the premises when outside temperatures are very low.



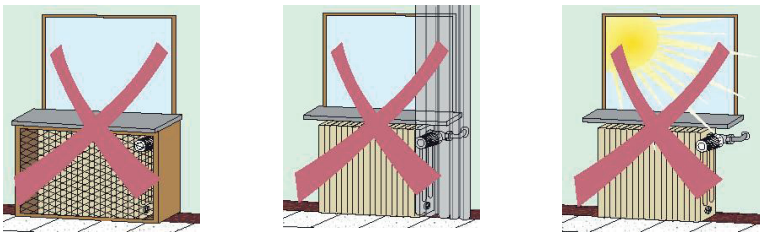
Direction of thermostat control device

The ICMA thermostat control devices should be installed in the horizontal position. Any other position could compromise their correct functioning.



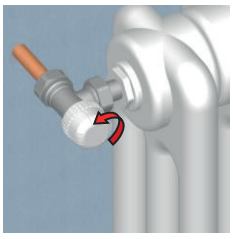
Positioning of radiators

The thermostat control devices should never be placed inside niches or radiator boxes, behind curtains or exposed to direct sunlight. These conditions could result in incorrect detection of the actual ambient temperature and compromise the proper functioning of the device.

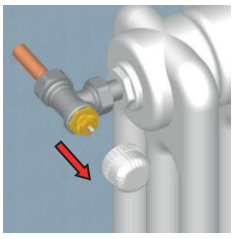


Thermostat control device installation and regulation

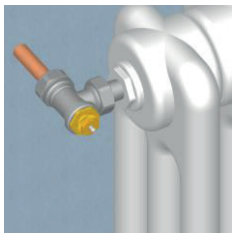
Conversion of manual valves to thermostatic valves



Turn the white knob in the counter clock-wise direction to remove it com-pletely from the valve.

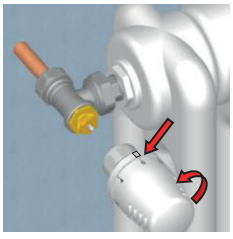


Remove the knob and store it for possible use in the future.

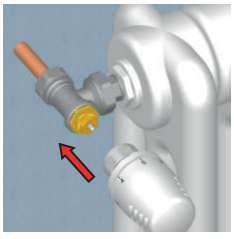


The valve will appear as shown above.

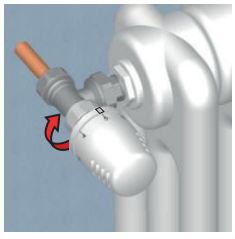
Installation of thermostato control device



To facilitate installation of the thermostat control device, turn the knob counter clockwise and bring it to the number 5.

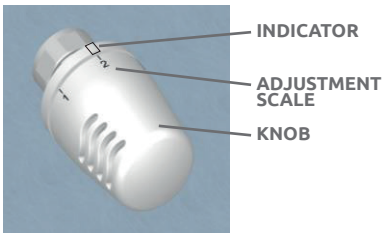


Install the thermostat control device on the valve body keeping the indi-cator turned up-ward so that it is clearly visible.

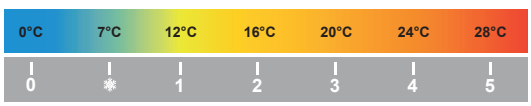


Screw the thermostat control device ring on the valve body blocking it. Turn the knob a few times to adjust the compo-nents.

Temperature adjustment

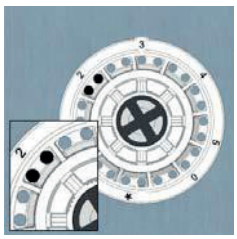


The knob indicates the numbers from 0 to 5, which correspond to specific temperatures (see the adjustment scale shown at side).
Set the desired temperature simply by turning the knob to the corresponding number close to the indicator.



Blocking of temperature

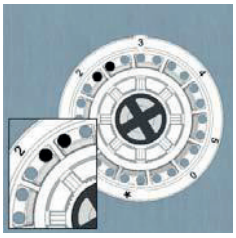
Turn the thermo-stat control devi-ce knob to one of the setting num-bers from 0 to 5 shown on the knob. Setting ex-ample on the n°2.



The same num-bering is also indicated on the lower part of the device. Identify the hole before and the hole after the number set.

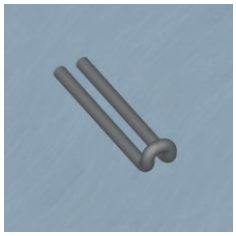
Insert the forked pin inside these two holes and push until com-pletely inserted.
The knob is now blocked at the desired setting.

Limitation of temperature



In order to limit the temperature, simply identify the two holes located right after the number set.

Insert the forked pin inside these two holes and push until com-pletely inserted.
The knob can now be move from 0 to the number set.

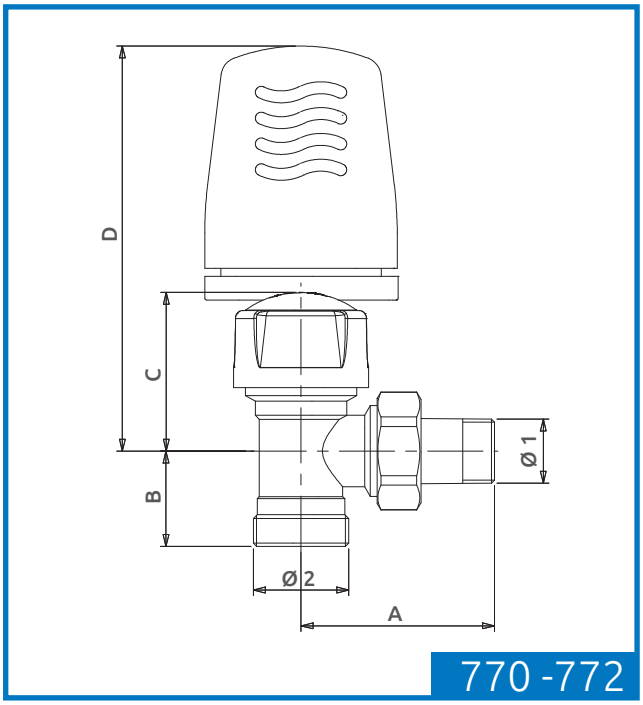


The forked pin is sold separately from the control device.

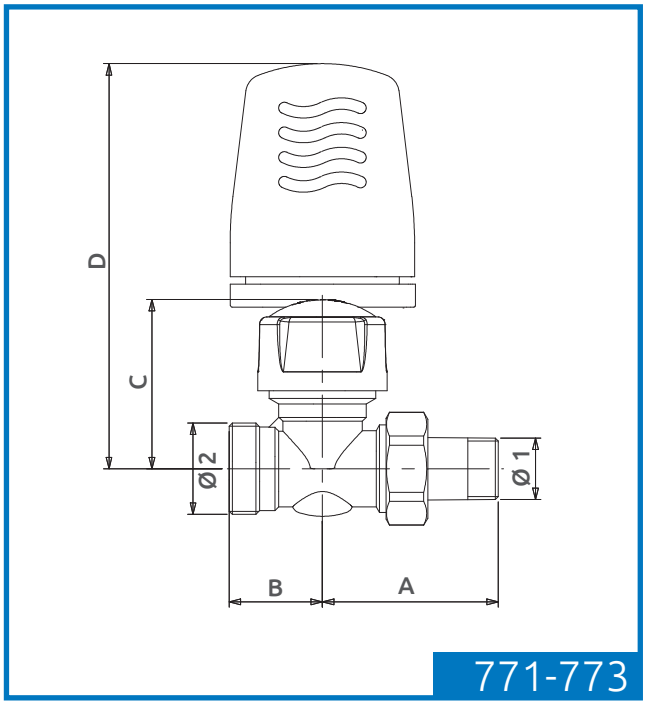
FORKED PIN CODE: 111100AC06

Dimensions and codes articles

Thermostatic valves for copper, multi-layer, Pe-x



770 -772



771-773

CODE	Ø1	Ø2	A	B	C	D
82770AC06	G3/8"	M24X1,5	49	24	40	102
82770AD06	G1/2"	M24X1,5	51	24	40	102
82772AC06	G3/8"	G1/2"	49	22	40	102
82772AD06	G1/2"	G1/2"	51	22	40	102

CODE	Ø1	Ø2	A	B	C	D
82771AD06	G3/8"	M24X1,5	46	25	45	107
82771AD06	G1/2"	M24X1,5	48	25	45	107
82772AC06	G3/8"	G1/2"	46	25	45	107
82772AD06	G1/2"	G1/2"	48	25	45	107

Thermostatic valves for iron pipe

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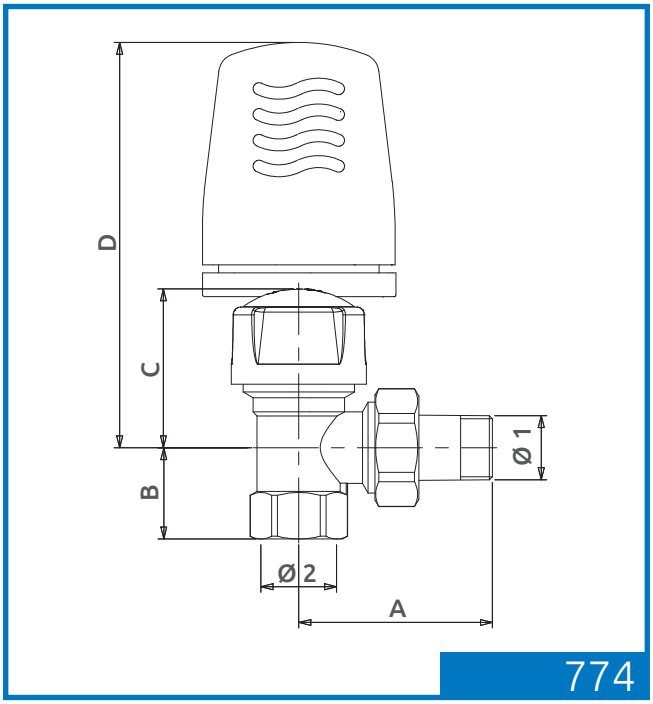
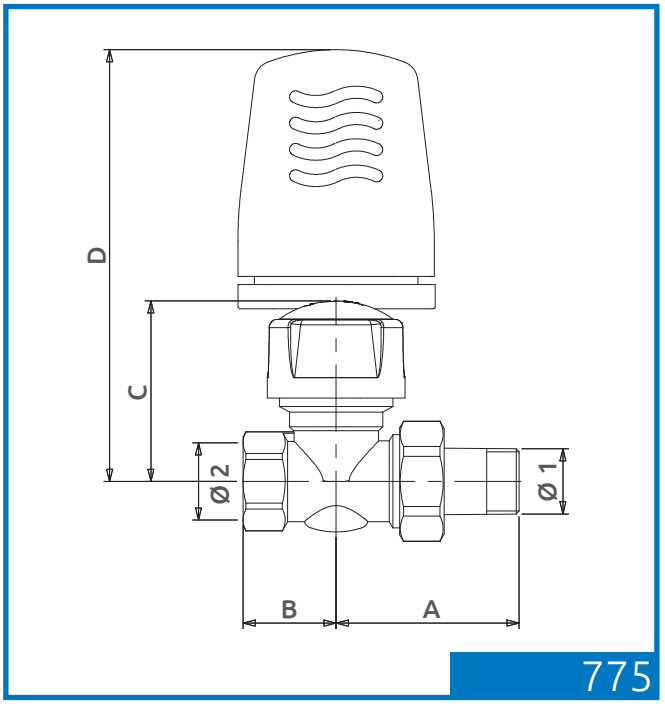


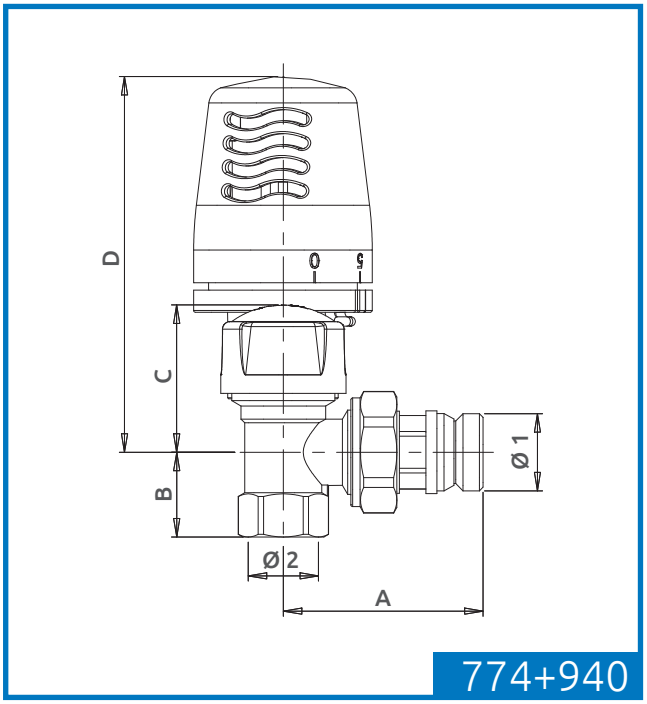
774

CODE	Ø1	Ø2	A	B	C	D
82774AC06	G3/8"	G3/8"	49	23	40	102
82774AD06*	G1/2"	G1/2"	51	23	40	102
82774AE06	G3/4"	G3/4"	57	25	40	102



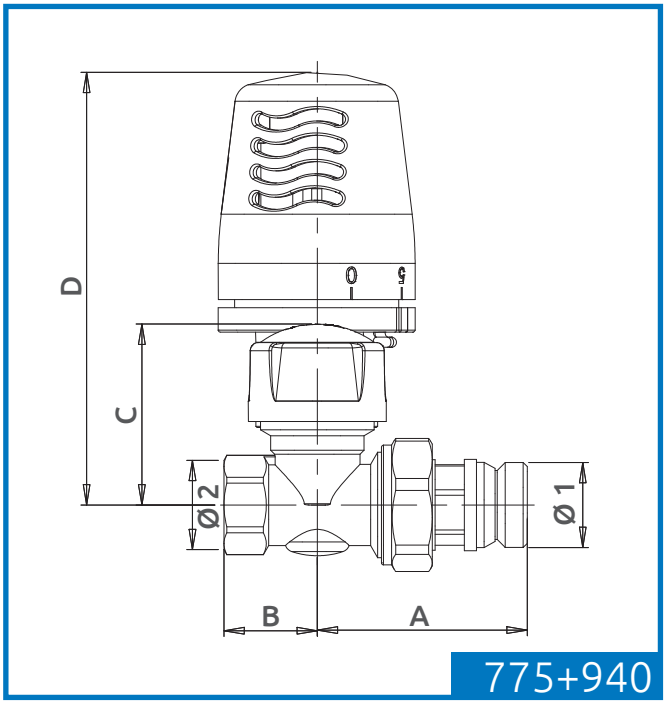
775

CODE	Ø1	Ø2	A	B	C	D
82775AC06	G3/8"	G3/8"	45	23	45	107
82775AD06*	G1/2"	G1/2"	48	24	45	107
82775AE06	G3/4"	G3/4"	54	25	45	107



774+940

CODE	Ø1	Ø2	A	B	C	D
82774AD06	G1/2"	G1/2"	51	23	40	102
82774AE06	G3/4"	G3/4"	57	25	40	102



775+940

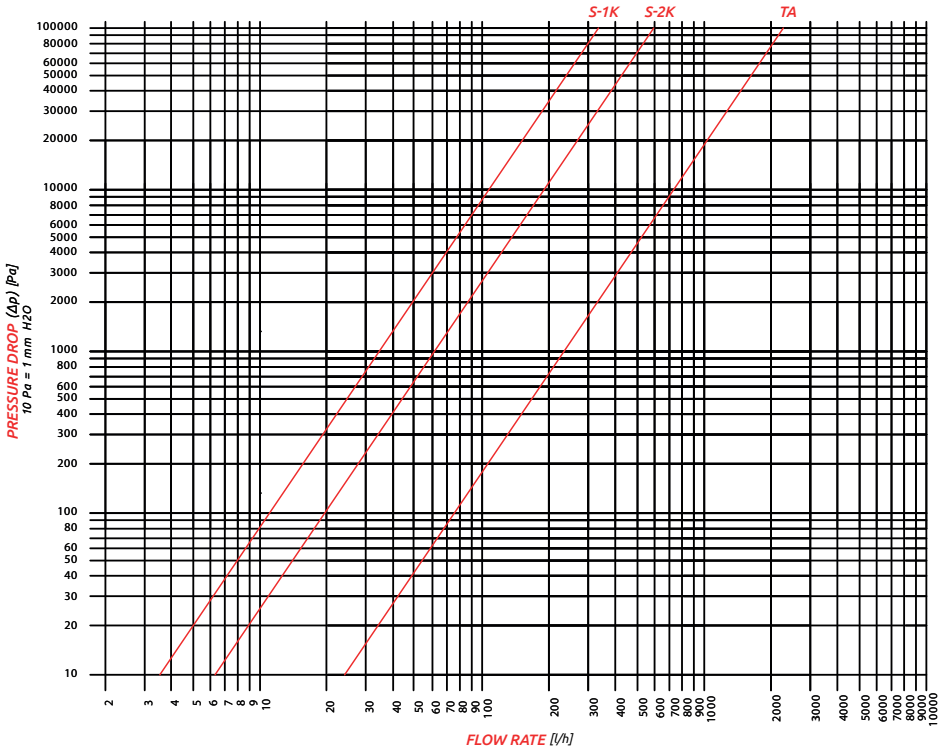
CODE	Ø1	Ø2	A	B	C	D
82775AD06	G1/2"	G1/2"	48	24	45	107
82775AE06	G3/4"	G3/4"	54	25	45	107

Hydraulic characteristics

Kv = Flow rate in m³/h which generates a pressure drop of ¹ bar.

Angled thermostatic valves G3/8" - Art. 770-772-774

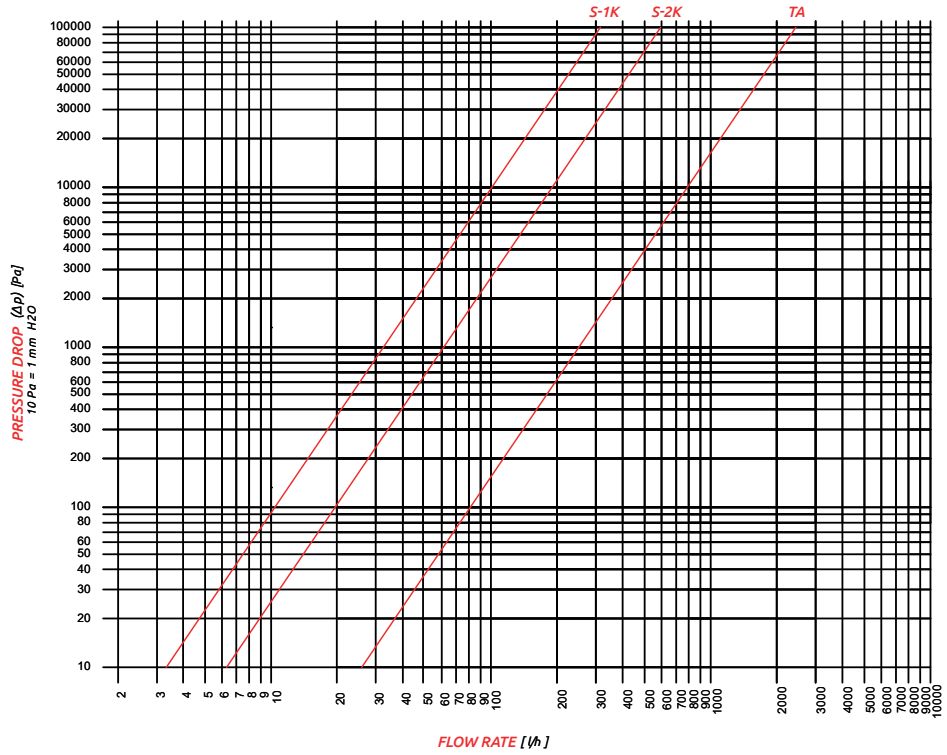
PRESSURE DROP DIAGRAM



Kv [m³/h]	
TA	2,11
S-2K	0,60
S-1K	0,33

Angled thermostatic valves G 1/2" - Art. 770-772-774-774+940

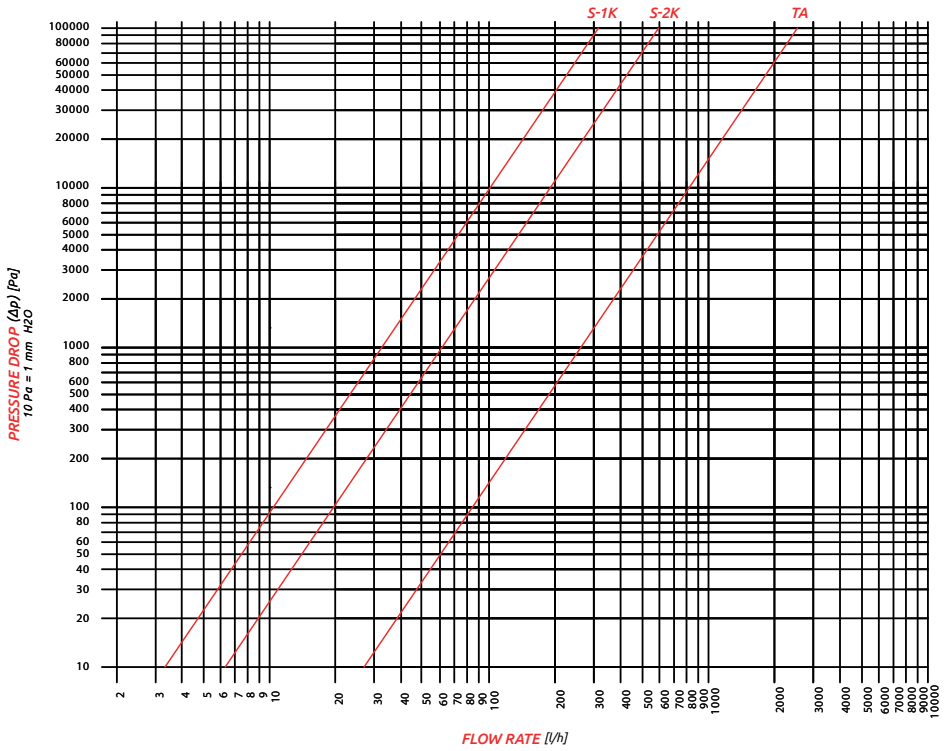
PRESSURE DROP DIAGRAM



Kv [m³/h]	
TA	2,21
S-2K	0,60
S-1K	0,33

Angled thermostatic valves G3/4" - Art. 774-774+940

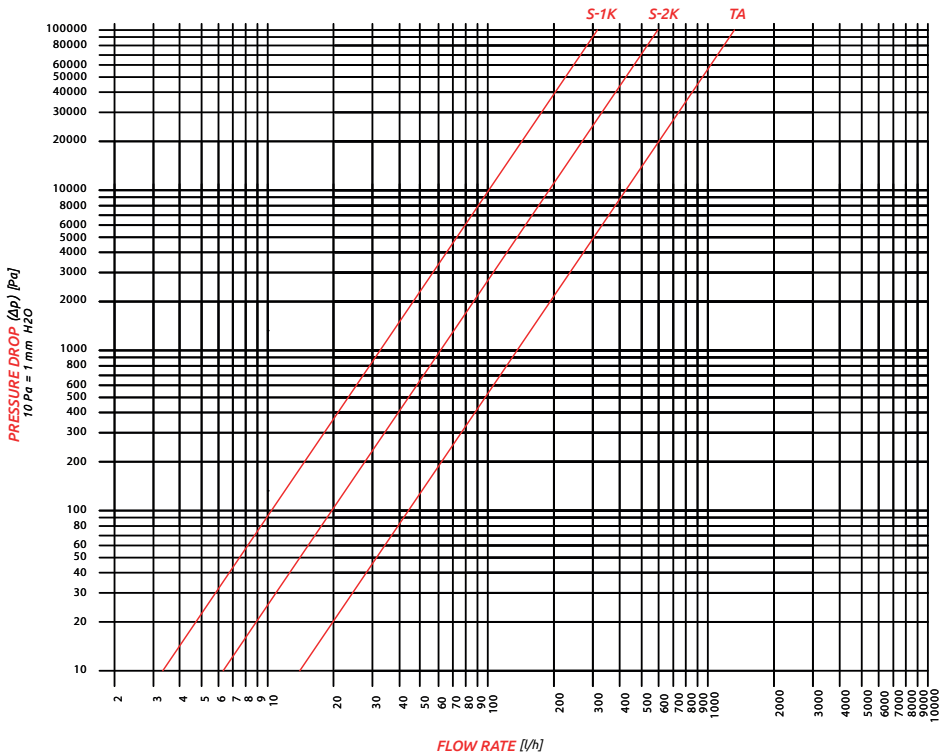
PRESSURE DROP DIAGRAM



Kv [m³/h]	
TA	2,53
S-2K	0,60
S-1K	0,33

Straight thermostatic valves G 3/8" - Art. 771-773-775

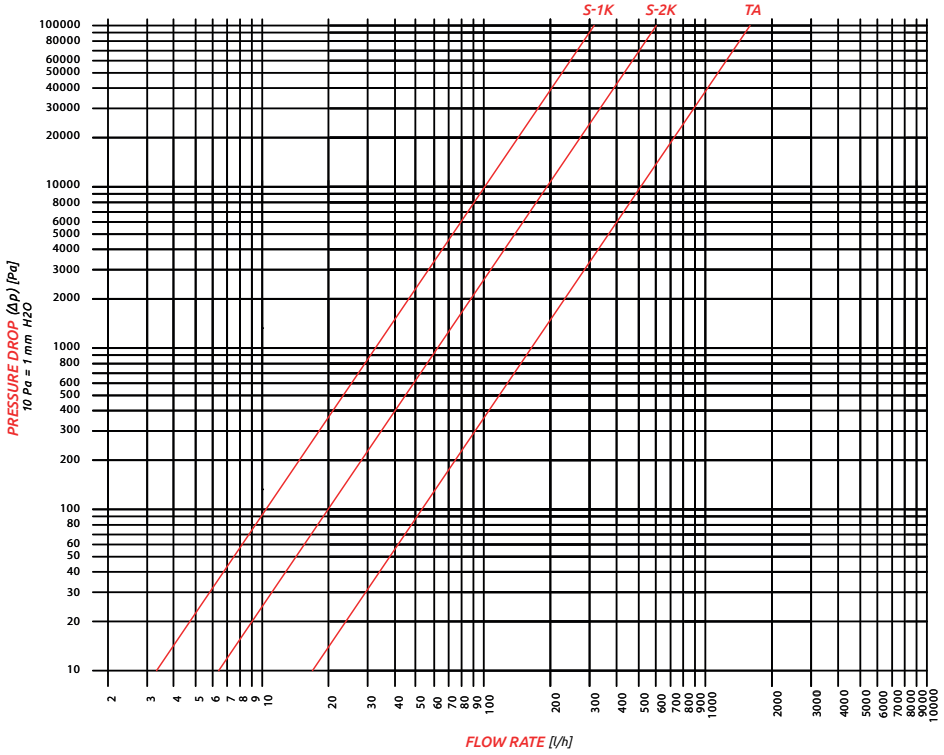
PRESSURE DROP DIAGRAM



Kv [m³/h]	
TA	1,12
S-2K	0,60
S-1K	0,33

Straight thermostatic valves G3/8" - Art. 771-773-775-755+940

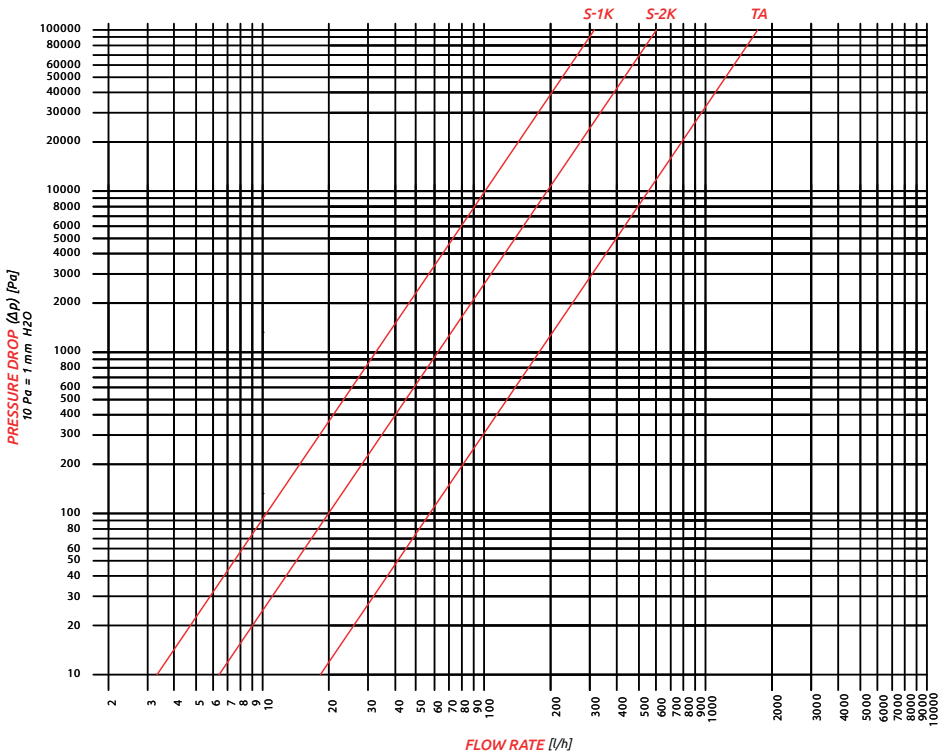
PRESSURE DROP DIAGRAM



Kv [m³/h]	
TA	1,58
S-2K	0,60
S-1K	0,33

Straight thermostatic valves G3/4" - Art. 775-775+940

PRESSURE DROP DIAGRAM



Kv [m³/h]	
TA	1,77
S-2K	0,60
S-1K	0,33