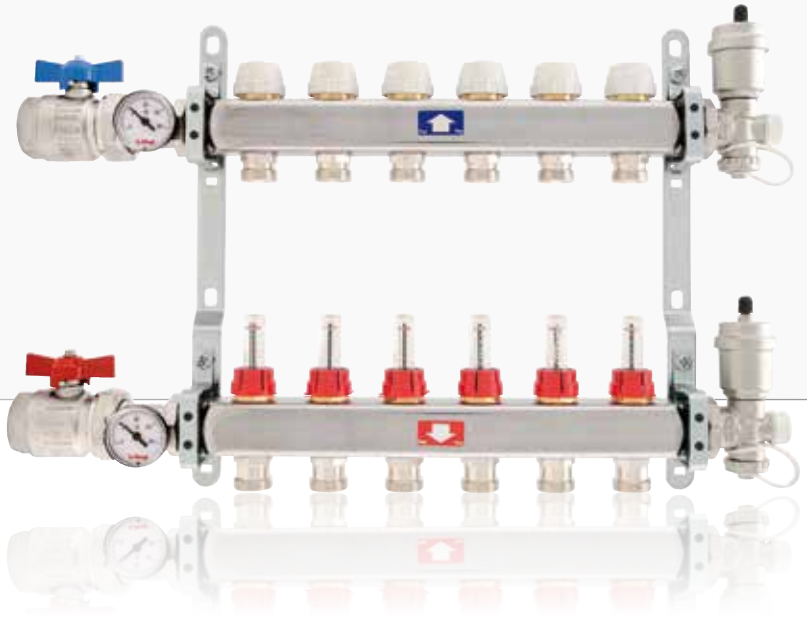

TECHNICAL BROCHURE

aesthetic performance

flexibility

thermal comfort

PREMIUM QUALITY

savings

low and high temperature systems

FULL FLOW

STAINLESS STEEL MANIFOLDS

MECHANICAL STRENGTH

IMPROVE

CHANGE

LIGHTNESS

high resistance to corrosion

recyclable

CONTROL

Innovation Technology And People


aesthetic performance
flexibility
thermal comfort
PREMIUM QUALITY
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FULL FLOW
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RAW MATERIAL
PREMIUM QUALITY

Stainless steel, used and appreciated in various usages, industrial and not, is now a basic solution for the implementation of underfloor radiant systems and their components; **expressing the evolution of high comfort heating systems.**

Stainless steel is resistant to corrosion and to low or high temperatures; it is light, 100% recyclable, complying with the strictest sanitary standards and with high aesthetic performance.

Stainless steel manifolds ensure high thermal comfort, they allow full control of design parameters and provide the perfect balancing of each outlet, avoiding any waste of energy.

Another prominent advantage is the remarkable cost savings stainless steel allows, compared with manifolds made of other materials.

STAINLESS STEEL

18% < CHROME < 20%
8% < NICKEL < 12%
2% MANGANESE
0,1% CARBON

STAINLESS STEEL VS BRASS

Stainless steel manifolds have several advantages compared to brass, **under both economical and technical respects.**

STAINLESS STEEL +20,93%

MECHANICAL RESISTANCE

AISI 304L steel features a tensile strength of 520 N/mm2.
CW614N brass (used for manifolds) features a tensile strength of 430 N/mm.
Stainless steel has a mechanical strength 20,93% higher than brass.

STAINLESS STEEL - 50%

WEIGHT

A pre-assembled stainless steel manifold is up to 50% lighter than a brass manifold with the same size and features.

STAINLESS STEEL - 15 %

PRICE

A pre-assembled stainless steel manifold costs up to 15% less than a brass manifold with the same size and features.

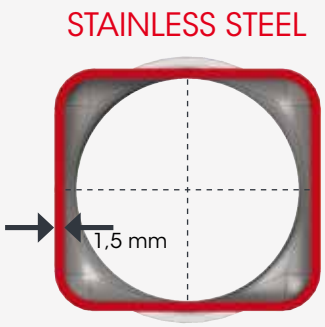
CORROSION

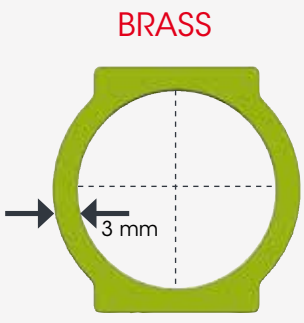
NO STRESS CORROSION CRACKING: stainless steel manifolds avoid internal stresses thanks to a cold production process. In order to avoid stress corrosion in brass manifolds a stress relieving heat treatment must be performed (a cycle that increases the cost of the manifolds).
NO ELECTROLYTIC CORROSION: in the newest radiant heating systems many components are made of stainless steel (i.e. condensing boilers). Stainless steel manifolds allow the continuity of the materials employed, ruling out any event of electrolytic corrosion, phenomenon caused by the proximity of different materials.

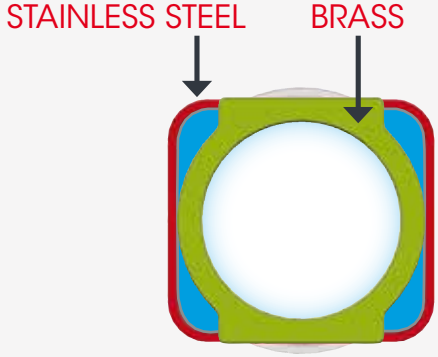
STAINLESS STEEL +20%

FLOW RATE

Thanks to an increased cross-section, stainless steel manifolds have a 20% higher flow rate than brass manifolds. 1" stainless steel manifolds flow rate is 5m^3/h, 1" brass manifolds flow rate is 4,2m^3/h.







STAINLESS STEEL VS POLYMER

In order to try and overcome the above mentioned limitations, many manufacturers of radiant systems have developed a special manifold made of composite material. The market offers polymer modules, usually reinforced with glass fibre, which must be jointed together via fastening systems (for example, blocks embedded in the modules or fixing screws). The hydraulic seal between modules is guaranteed by elastomers.

TEMPERATURES

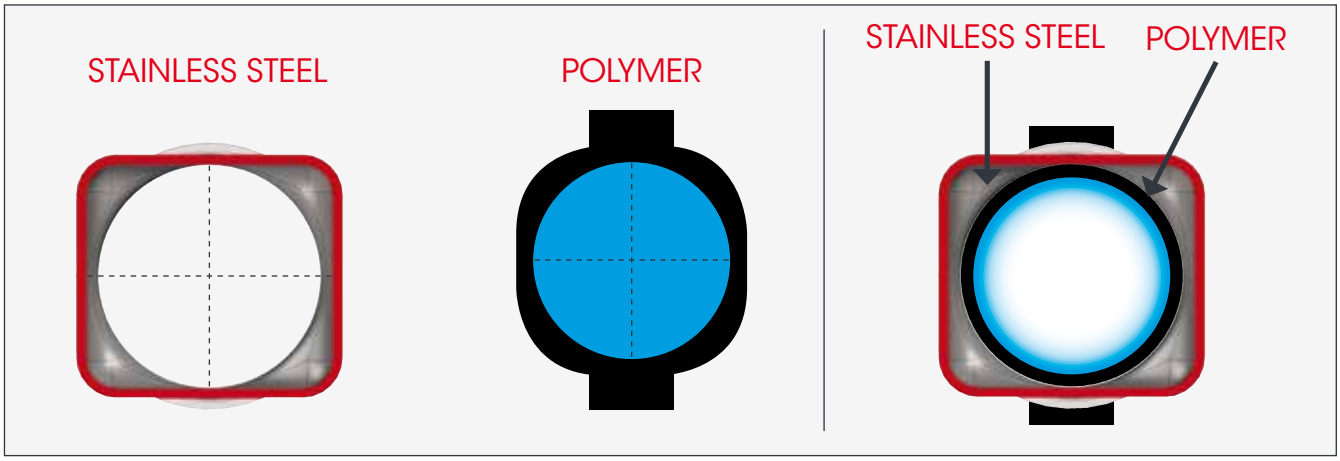
Polymeric manifolds can only work at low temperatures (if a high-temperature outlet is needed, the distribution control unit must be equipped with metal manifolds).

LEAKAGE POINTS

Plastic manifolds are sold in polymeric modular elements, usually reinforced with fiberglass; they must be jointed together by fixing elements (i.e. blocks or fixing screws). Hydraulic seal is guaranteed by elastomers. This means that every joint is a possible leakage point. Stainless steel manifolds are produced in one single bar in every size from 2 through 13 outlets.

FLOW RATE

Compact manifolds (offering the most competitive price) feature low flow rates. If a higher flow rate is needed you must upgrade to modular manifolds (more expensive than the compact ones).



STAINLESS STEEL: GUARANTEED OVER TIME & 100% RECYCLABLE

Respect for and protection of the environment, along with superior technical features will definitely facilitate the spread of stainless steel manifolds for radiant heating.

Stainless steel production process minimizes waste and enables a 100% recyclable product. At the end of its life cycle, the stainless steel manifold becomes raw material for new productions.

The evaluation of costs related to the life cycle of a system is a major issue for technicians and engineers. The "Life Cycle Cost" concept can be fully implemented employing stainless steel, since its use rules out any corrosion phenomenon (either electrolytic or due to stress within the alloy).
In the light of such features it is easy to see how the number of engineers and companies installing stainless steel manifolds is going to grow exponentially.
Stainless steel combines all the targets a modern system must aim to: protecting the environment, reducing the manufacturing and management costs, high thermal comfort.

STAINLESS STEEL MANIFOLDS

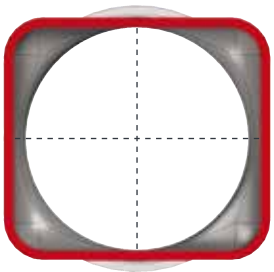
ITAP pre-assembled manifolds are used to distribute heat-transfer fluid inside a system. They can be used in traditional radiator systems or innovative under-floor radiant systems. As ITAP manifolds are made of stainless steel, they are particularly suitable for heating systems. If used in cooling systems, they must be insulated to prevent the formation of condensate on their surface.

The use of ITAP manifolds also allows all of the project parameters to be controlled, providing the perfect balance of each outlet. This avoids any unnecessary waste and ensures an elevated level of thermal comfort.

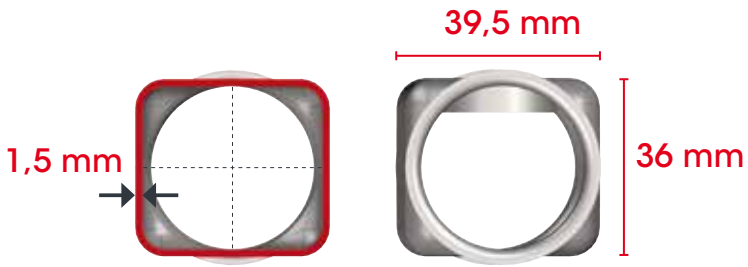
In the complete version the manifolds are equipped with flow rate regulation valves (flow meters), with preset cut-off valves set-up for electro-thermal actuator and with drain and air vent units. As an alternative to flow meters, it is possible to request the installation of regulation lockshields. Thanks to their increased cross-section, the flow and return bars allow a higher flow rate.

PREMIUM QUALITY MATERIAL:
STAINLESS STEEL AISI 304L (1.4301)

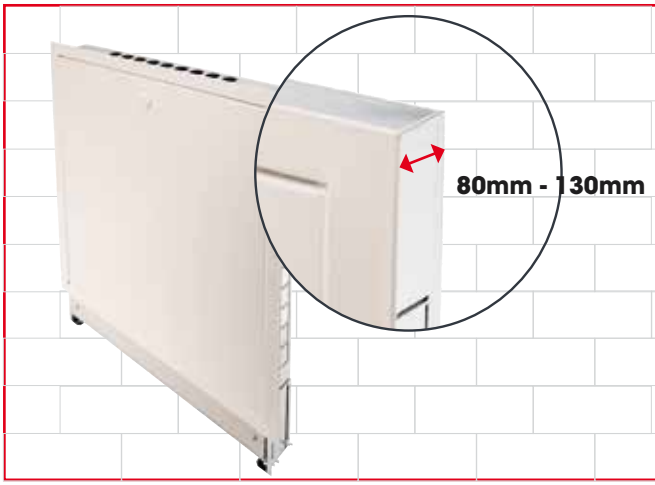
FULL FLOW
1" SIZE



MAXIMUM INLET FLOW RATE:
5m³/h



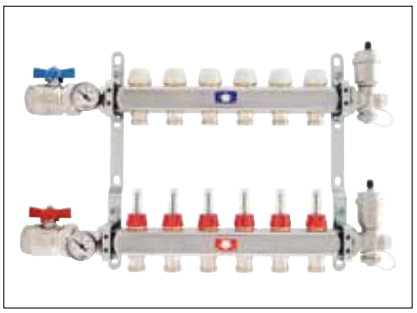
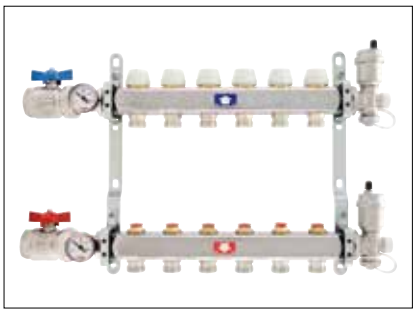
CONDITIONS OF USE	
Required fluid	water (maximum admissible percentage of glycol: 30%)
Maximum operating pressure with installed flow meters	6 bar
Maximum operating pressure with installed lockshields	10 bar
Maximum operating temperature with installed flow meters	70°C
Maximum operating temperature with installed lockshields	80°C
Main ISO 228 connections	1"
3 to 13 outlets	3/4" EUROKONUS
Outlet centre-distance	50 mm
Flow meter regulation	0-5 l/m
Flow meter precision	+/- 10%

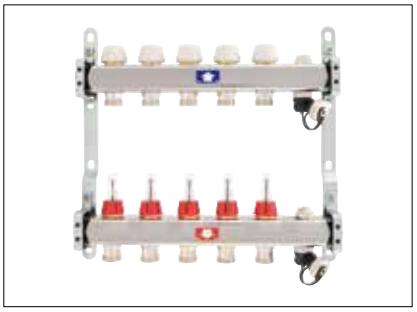
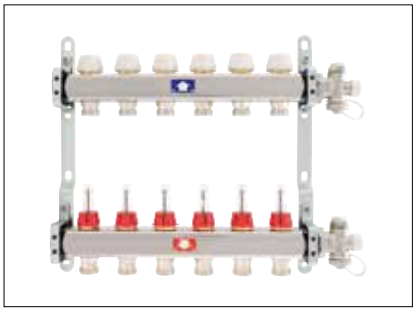
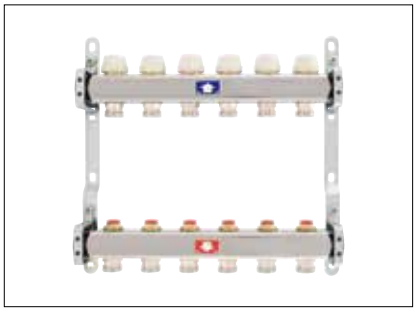
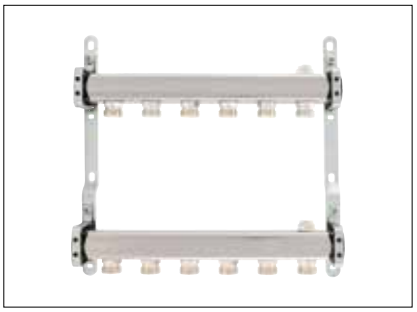
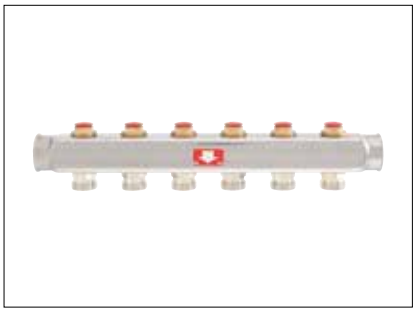


MAXIMUM CHOICE

ITAP manifolds, available with 1" main connections, can be placed in **90mm-deep** metal boxes. This provides a significant advantage: the boxes can be positioned not just in the perimeter walls of the building, but **in the inside dividing walls as well.** This means maximum freedom of choice for designers and installation technicians.

PRE-ASSEMBLED STAINLESS STEEL MANIFOLDS



COMPOSED BY	
AISI304L stainless steel flow manifold	equipped with flow meters or regulation lockshields
AISI304L stainless steel return manifold	equipped with cut-off valves set up for electro-thermal actuator
Ball valves CW617N nickel-plated brass	full flow - equipped with thermometer
End pieces	with drain valve and air vent valve
Complete metal brackets	pre-assembled - heavy model (thickness 3mm)

TACONOVA FLOW METER	
Complete with the device to adjust the flow. Memory ring.	
Body	brass
Scale	0-5 l/m
Kv	1,1
Accurancy of reading	+/- 10%
Maximum working temperature	70°C
Thread	ISO228

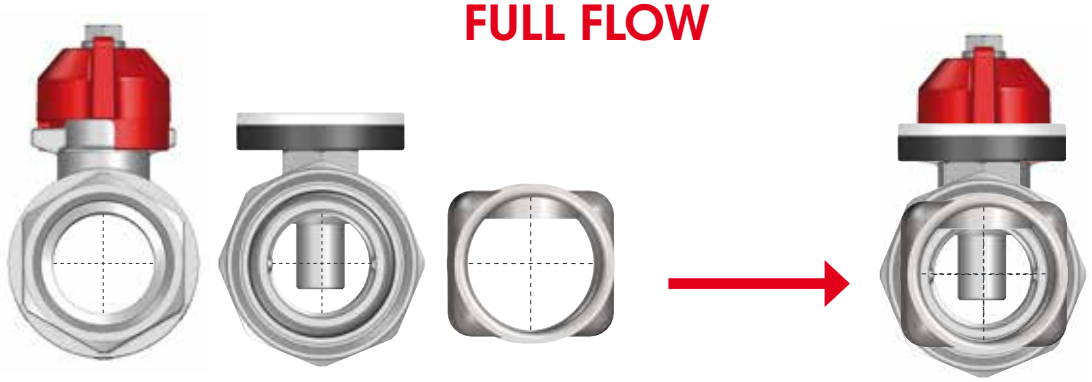
CONVERTIBLE CONTROL SPINDLE	
Kv	1,35
Suitable for electrothermal actuators with:	
Thread	M30x1,5
Closing stroke	11,7 mm

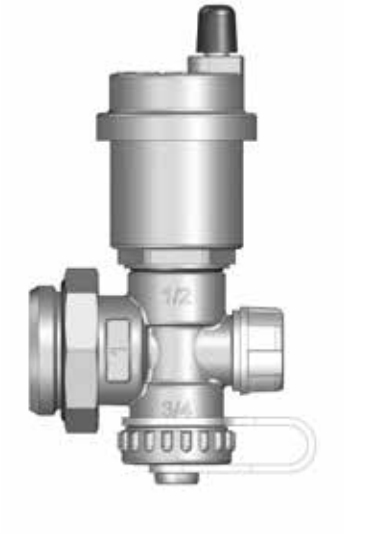
LOCKSHIELD	
Regulation (rpm)	**Kv (m^3/h)**
0,25	0,09
0,5	0,19
0,75	0,27
1	0,36
1,5	0,60
2	0,83
3	1,45
TA (open)	1,65

BALL VALVE	
Threads	ISO228 (DIN EN ISO 228 and EN ISO 228)
Male thread	conical seat
Handle	T in alluminium - red or blue
Body	Nickel-plated brass
Temperatures	-20°C / 150°C

THERMOMETER UNION	
Threads	ISO228 (DIN EN ISO 228 and EN ISO 228)
O-ring	NBR
Body	Nickel-plated brass
Thermometer scale	0°C, 80°C
Thermometer diameter	mm. 40
Maximum working temperature	80°C

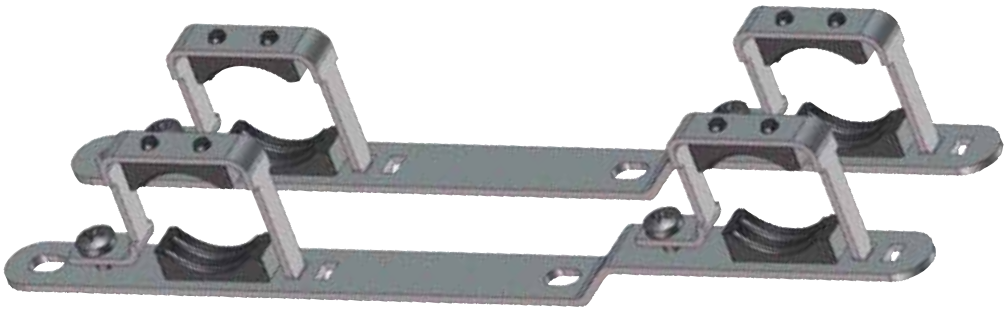
FULL FLOW



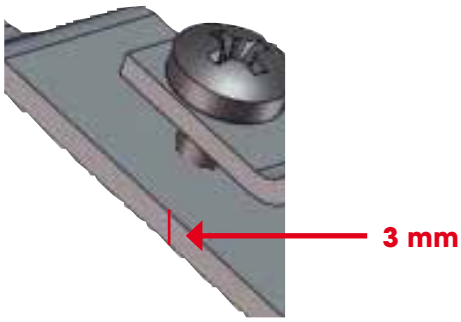


AUTOMATIC ADJUSTABLE END PIECE	
Threads	ISO228 (DIN EN ISO 228 and EN ISO 228)
Composed by	adjustable male end fitting
	automatic air vent valve
	drain valve
Maximum working temperature	80°C

MANUAL ADJUSTABLE END PIECE	
Threads	ISO228 (DIN EN ISO 228 and EN ISO 228)
Composed by	adjustable male end fitting
	manual air vent valve
	drain valve
Maximum working temperature	80°C



MOUNTING BRACKETS	
The SET includes a pair of brackets with screws and fixings	
Already mounted on manifolds	
Material	steel
Thickness	3 mm - heavy model
Sizes	Centres distance mm. 200 Offset: mm. 12 Suitable for outlets pipe up to mm. 20 (if manifolds are installed into metal boxes)
	Centres distance mm. 200 Offset: mm30 Suitable for outlets pipe up to mm. 25 (if manifolds are installed into metal boxes)
	Centres distance mm. 211 Offset: mm30 Suitable for outlets pipe up to mm. 25 (if manifolds are installed into metal boxes)



For further information and specifications visit the website www.itap.it or send an e-mail to info@itap.it.

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