



STAINLESS STEEL MANIFOLDS

PRODUCT & INSTALLATION GUIDE



WE MAKE RADIANT SIMPLE

America's Authority on Radiant Heating Systems and Designs for over 30 years



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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. The 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 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 for: protecting the environment, reducing the manufacturing and management costs, and providing high thermal comfort.

Introduction

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

The use of Infloor stainless steel 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-control and with drain and air vent units. The ball valve and air vents are not attached, allowing for design freedom to tie into the manifold from the right or the left, which is a great benefit.

Thanks to their increased cross-section, the bars that comprise the flow and return manifolds allow elevated flow rate values to be obtained. If necessary, a differential by-pass can be installed between the flow and return manifolds. This reduces any overpressure in the circuits to a minimum, protecting the service life of all of the parts and avoiding bothersome noises in the rooms where the heating system is installed.

Infloor manifolds, available with 1" main connections, can be housed in 3 ½" metal boxes. This provides an extremely significant advantage: boxes having a similar depth can be positioned not only in the perimeter walls of the building, but also in the inside dividing walls. This translates into maximum freedom of choice for designers and installation technicians.

The Benefits of Infloor Stainless Steel Manifolds:

HIGH RESISTANCE TO CORROSION

Absence of internal stresses due to cold processing (no stress corrosion cracking). Metallic continuity with the other components, in the event of next generation radiating systems (absence of electrolytic corrosion).

EXTREME LIGHTNESS

Up to 50% lighter than a brass manifold of the same size.

HIGH FLOW RATE LEVELS

Up to 50% higher compared to compact manifolds made of composite material. Up to 20% higher compared to brass manifolds.

GOOD FOR LOW & HIGH TEMPERATURE SYSTEMS

Suitable for under-floor radiant heating systems and radiator systems.

HIGH MECHANICAL STRENGTH

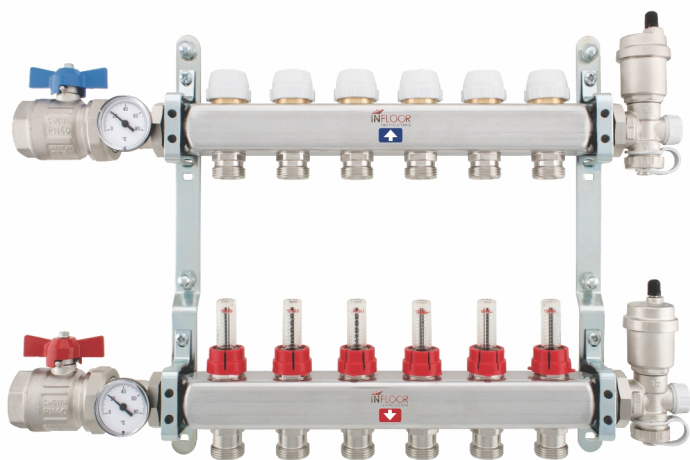
AISI 304L steel features a tensile strength of 520 N/mm² - while CW614N brass (used for manifolds) features a tensile strength of 430 N/mm².

DESIGN FREEDOM

Attach the manifold from the right or left.

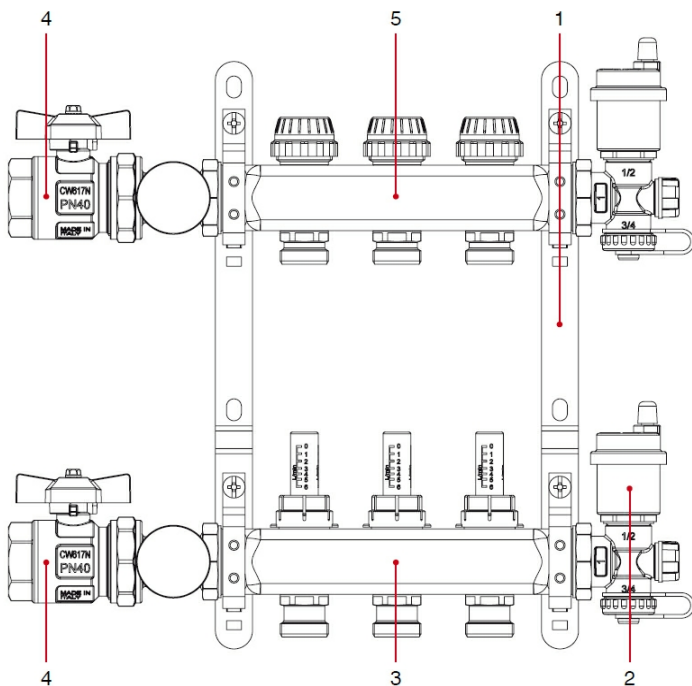
Product Information

Complete Pre-Assembled Stainless Steel Manifold with Flow Meters



SIZE	PRESSURE	CODE	PACKING
1"x3/4"x3	6bar/87psi	3PORTSSMAN	1/1
1"x3/4"x4	6bar/87psi	4PORTSSMAN	1/1
1"x3/4"x5	6bar/87psi	5PORTSSMAN	1/1
1"x3/4"x6	6bar/87psi	6PORTSSMAN	1/1
1"x3/4"x7	6bar/87psi	7PORTSSMAN	1/1
1"x3/4"x8	6bar/87psi	8PORTSSMAN	1/1
1"x3/4"x9	6bar/87psi	9PORTSSMAN	1/1
1"x3/4"x10	6bar/87psi	10PORTSSMAN	1/1
1"x3/4"x11	6bar/87psi	11PORTSSMAN	1/1
1"x3/4"x12	6bar/87psi	12PORTSSMAN	1/1
1"x3/4"x13	6bar/87psi	13PORTSSMAN	1/1

MATERIALS



TECHNICAL SPECIFICATIONS

Each pre-assembled stainless steel manifold consists of:

- 1 return manifold in stainless steel AISI 304L with shut-off valves preset for electrothermal actuators
- 1 flow manifold in stainless steel AISI 304L with flow meters
- 2 complete metal brackets
- 2 shut-off ball valves
- 2 unions with thermometers
- 2 end pieces with air vent valve and drain cock
- Available on demand with deeper mounting brackets
- Available size: 1"
- Maximum working pressure: 87 psi (145 psi for installation test)
- Maximum working temperature: 158°F
- Threads: ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228)
- Outlets: from 3 to 13, 3/4" Eurokonus
- Outlet center distance: 2"

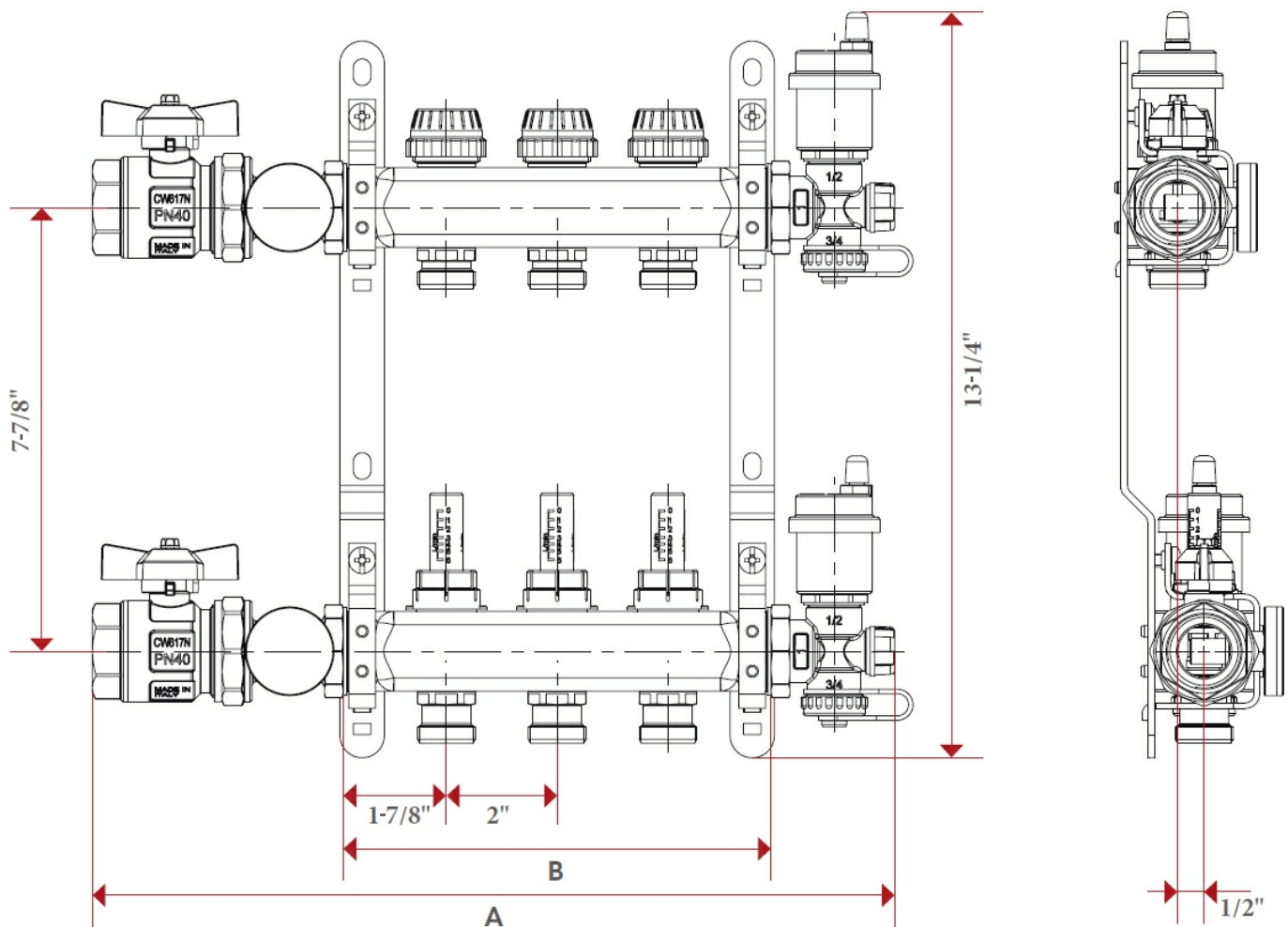
In case of use of electric actuators THERMALACTUATOR, it is suggested to use a pressure differential pump.

POS.	DESCRIPTION	N.	MATERIAL
1	Mounting brackets	1	Steel P11
2	Automatic air vent group	2	Nickel-plated brass CW617N
3	Single manifold with flow-meters	1	Stainless steel AISI 304L
4	Kit form manifolds	1	Nickel-plated brass CW617N
5	Single manifold with shut-off valves	1	Stainless steel AISI 304L

ATTENTION: Manifolds will be supplied mounted on the brackets; accessories will be supplied separately, inside the same box.

Technical Features

OVERALL DIMENSIONS

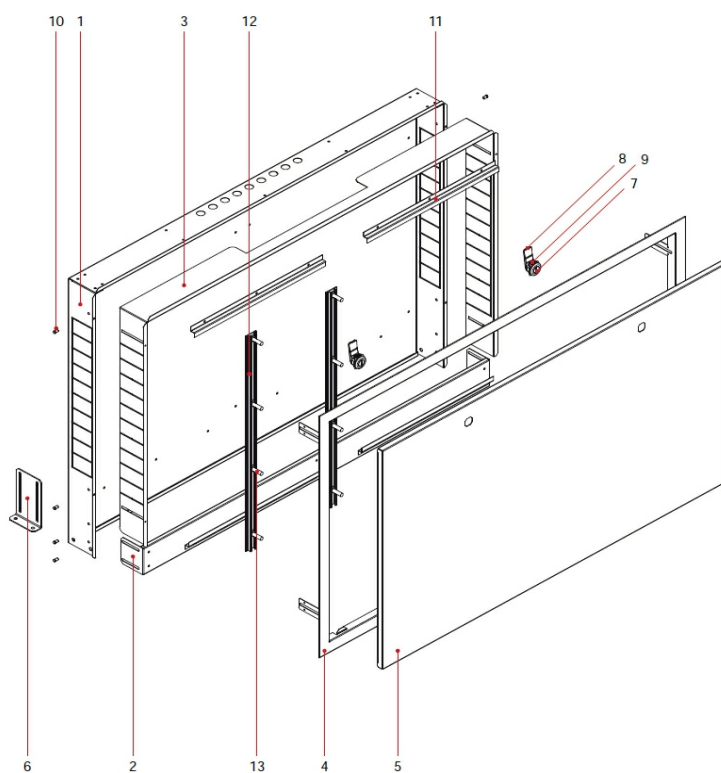


	1" x 3/4"	
	A	B
3	14 1/4"	7 5/8"
4	16 1/4"	9 5/8"
5	18 1/8"	11 1/2"
6	20 1/8"	13 1/2"
7	22 1/8"	15 1/2"
8	24 1/8"	17 7/16"
9	26 1/16"	19 3/8"
10	28"	21 3/8"
11	30"	23 3/8"
12	32"	25 3/8"
13	33 7/8"	27 1/4"

Technical Features

Metal Cabinet for Manifolds

Infloor stainless steel manifolds, available with 1" main connections, can be placed in 3 ½"-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.



SIZE (LxW)	CODE	PACKING
19 5/8" x 23 5/8"	MANCAB3TO4	1/1
23 5/8" x 23 5/8"	MANCAB5TO6	1/1
27 1/2" x 23 5/8"	MANCAB7TO8	1/1
31 1/2" x 23 5/8"	MANCAB9TO10	1/1
39 3/8" x 23 5/8"	MANCAB11TO12	1/1
43 1/4" x 23 5/8"	MANCAB13	1/1

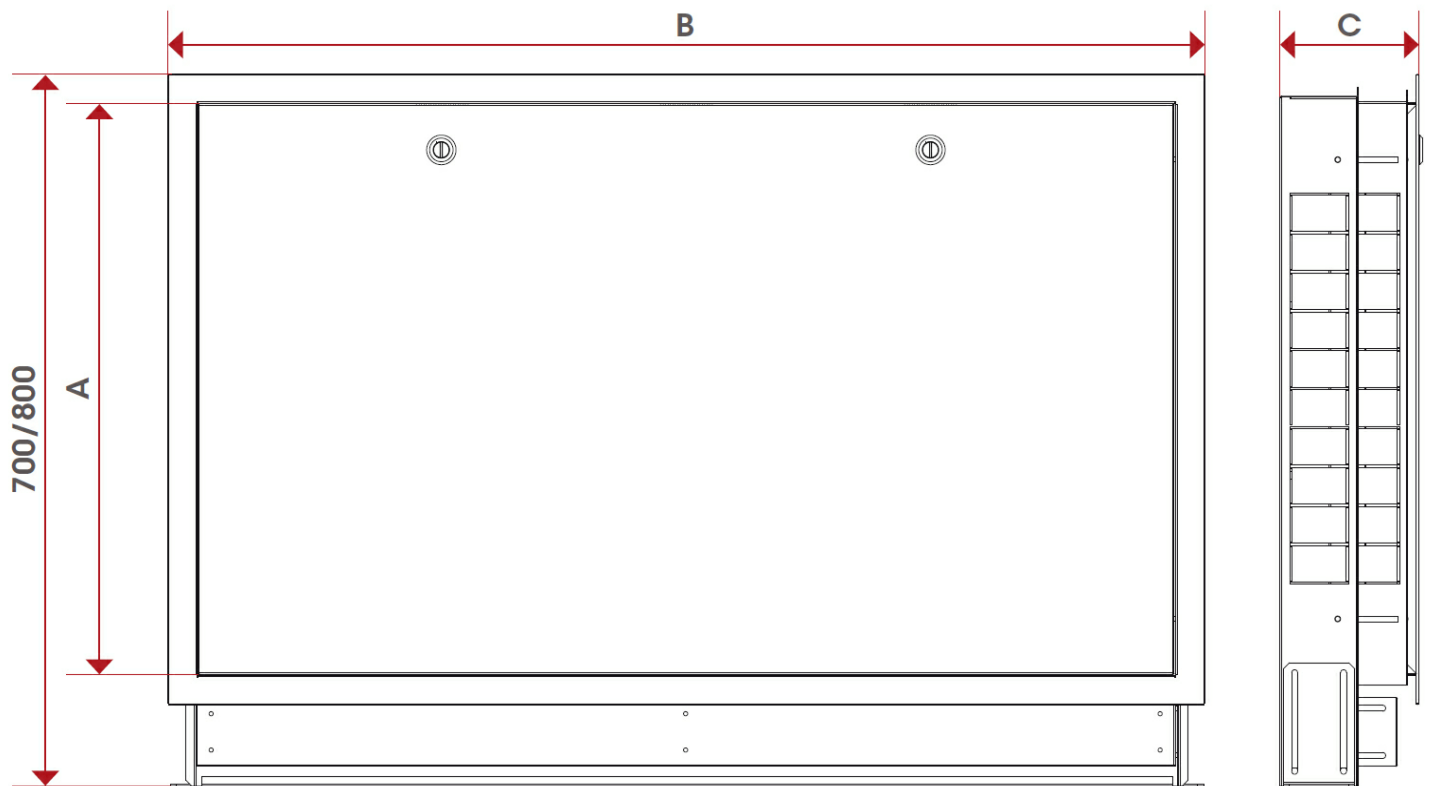
TECHNICAL SPECIFICATIONS

- Complete with basement and support for floor installation. Equipped with plaster protection.
- Enclosure, telescopic door frame and door in zinc-plated steel. The telescopic door frame and the door are painted. Adjustable depth: from 3 ⅛" to 5 ⅛".
- Minimum depth for manifold installation: 3 ½". Adjustable height: from 27 ½" to 31 ½".

POS.	DESCRIPTION	N	MATERIAL
1	Outside framework	1	Zinc-plated steel EN 10346 DX51+Z140
2	Bottom framework	1	Zinc-plated steel EN 10346 DX51+Z140
3	Inside framework	1	Zinc-plated steel EN 10346 DX51+Z140
4	Frame	1	Zinc-plated steel EN 10346 DX51+Z140
5	Cover	1	Zinc-plated steel EN 10346 DX51+Z140
6	Bracket	2	Zinc-plated steel EN 10346 DX51+Z140
7	Sleeve	2	Polymer
8	Lever	2	Polymer
9	Lever locker	2	Polymer
10	Pin	8	Steel 8.8
11	Guide	4	Zinc-plated steel EN 10346 DX51+Z140
12	Stick	2	EN AW-6061
13	Screw	8	Steel 8.8
—	Daubing mesh	1	Polypropylene

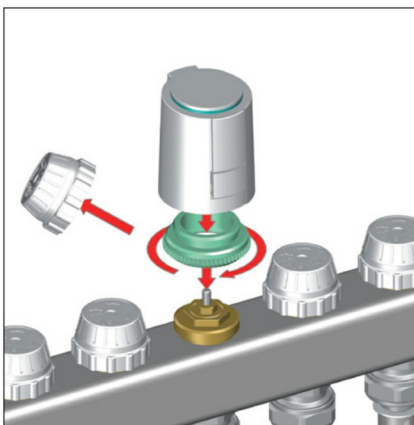
Technical Features

OVERALL DIMENSIONS



	MANCAB 3TO4	MANCAB5TO6	MANCAB7TO8	MANCAB9TO10	MANCAB11TO12	MANCAB13
A	23 5/8"	23 5/8"	23 5/8"	23 5/8"	23 5/8"	23 5/8"
B	19 5/8"	23 5/8"	27 1/2"	31 1/2"	39 3/8"	43 1/4"
C	3 1/8" - 5 1/8"	3 1/8" - 5 1/8"	3 1/8" - 5 1/8"	3 1/8" - 5 1/8"	3 1/8" - 5 1/8"	3 1/8" - 5 1/8"

Electrothermal Actuator Installation and Specifications



TECHNICAL SPECIFICATIONS

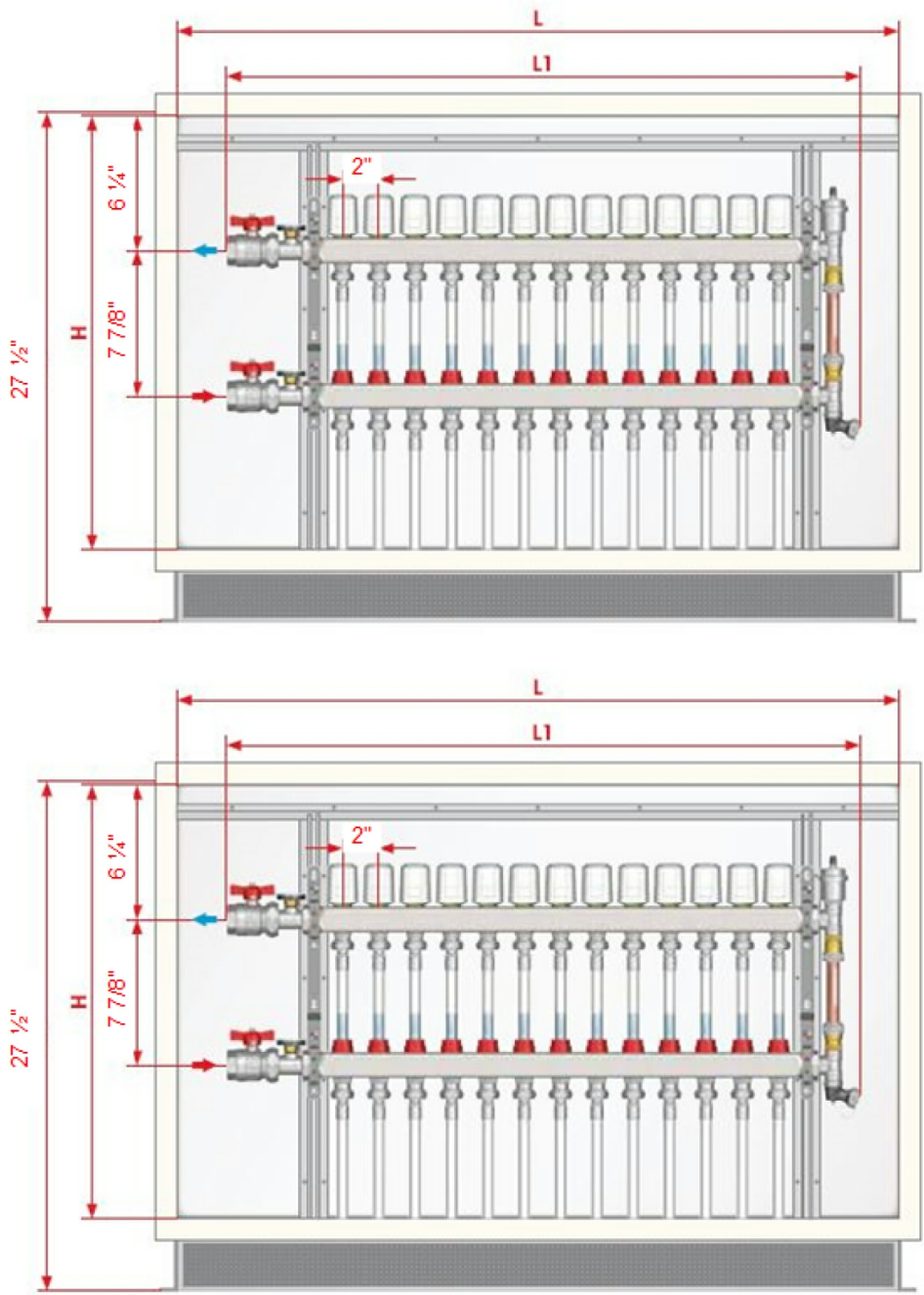
- Normally closed, on-off operation
- Power supply voltage: 24V
- Power consumption: 1W
- Minimum working ambient temperatures: 32°F
- Maximum working ambient temperature: 140°F
- Maximum differential pressure: 21.7 psi
- Class of protection IP54
- Available with 4 cables with an auxiliary micro-switch
- Capacity of the auxiliary connection: 300ma
- CE marked





Installation

Positioning the Stainless Steel Manifolds into Metal Cabinet

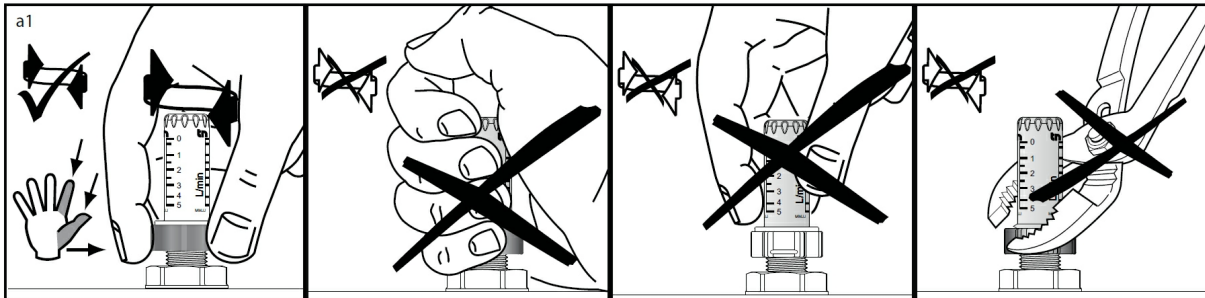


CODE	MANCAB3TO4	MANCAB5TO6	MANCAB7TO8	MANCAB9TO10	MANCAB11TO12
LxH (mm)	19 5/8" x 23 5/8"	23 5/8" x 23 5/8"	27 1/2" x 23 5/8"	31 1/2" x 53 5/8"	39 3/8" x 23 5/8"
N° outlet	3-4	5-6	7-8	9-10	11-12
Manifold	1"	1"	1"	1"	1"
L1	16 3/4"	20 3/4"	24 5/8"	28 1/2"	34 1/2"

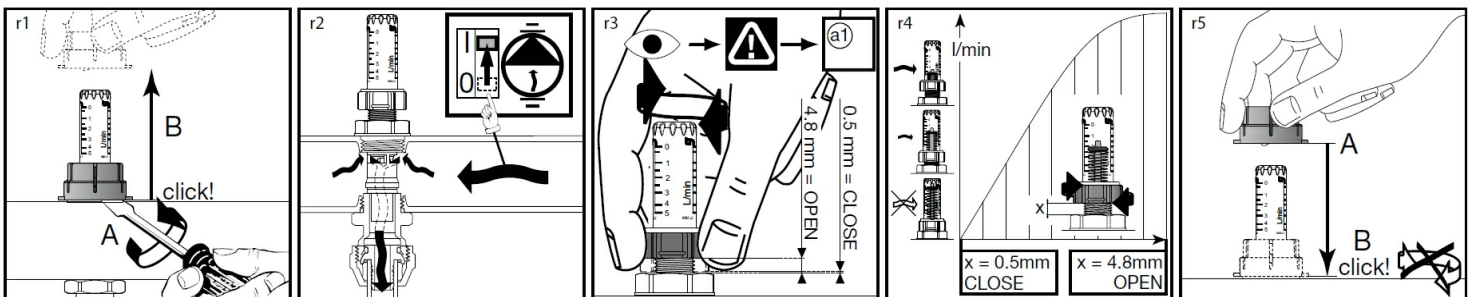
Installation

Flow Meter Installation and Adjustment

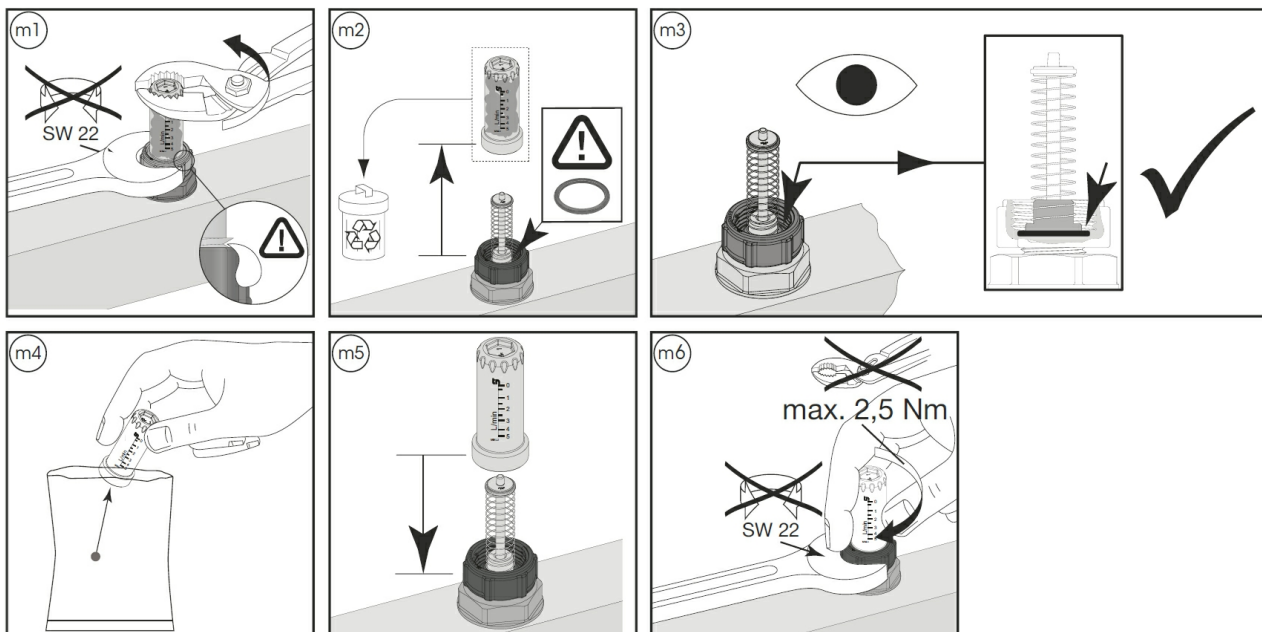
How to Handle the Flow Meter



How to Adjust the Flow Rate



How to Replace the Sight Glass

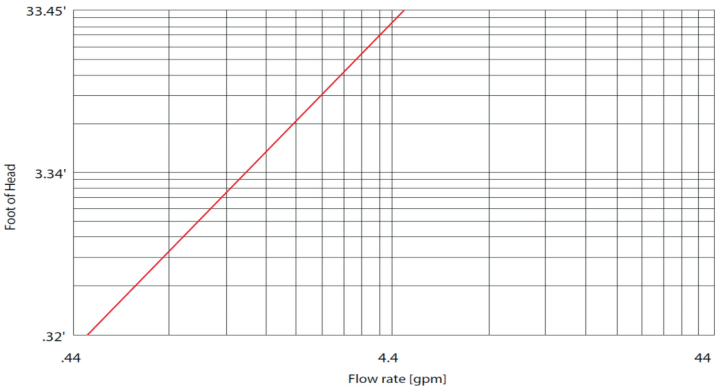




Diagrams

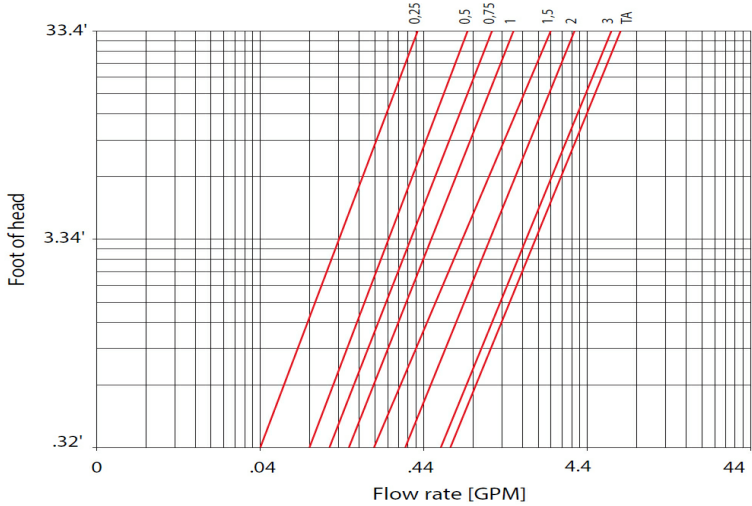
Below are the flow rate / pressure drop diagrams relative to pre-assembled manifolds with main 1" connections.

Diagram of flow meter fully open (flow manifold)



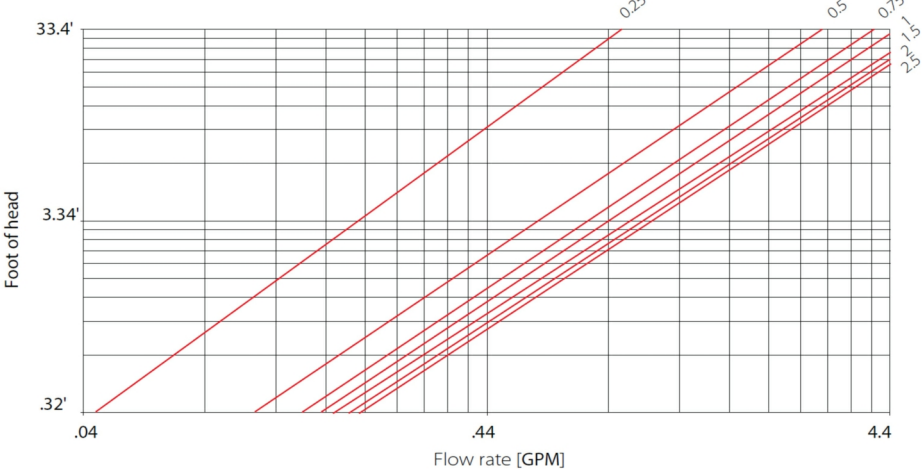
$CV = [GPM] [PSI]$

Diagram of flow meter fully open (flow manifold)



Regulation (rpm)	cv
0.25	0.1
0.5	0.22
0.75	0.31
1	0.42
1.5	0.69
2	0.96
3	1.67
TA (open)	1.91

Diagram of flow meter fully open (flow manifold)



Regulation (rpm)	cv
0.25	0.25
0.5	0.79
0.75	1.05
1	1.21
1.5	1.41
2	1.5
2.5	1.56



Notes

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Bringing You The Very Best In Radiant Heating

Infloor Heating Systems® is a pioneer in the radiant heating industry, designing and providing systems since 1984. Infloor specializes in electric and hydronic radiant heating, snowmelt systems, and energy-saving solutions such as solar and geo thermal additions. The benefits of radiant heating are superior to conventional forced-air and baseboard systems. Radiant heating is energy-efficient, reducing gas and electric bills, eliminates duct work and duct losses, creates a quieter home, and is a healthier way of living for those with allergies. Infloor Heating Systems is proud to offer premium, innovative radiant heating systems and products designed to improve your everyday living and comfort.



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