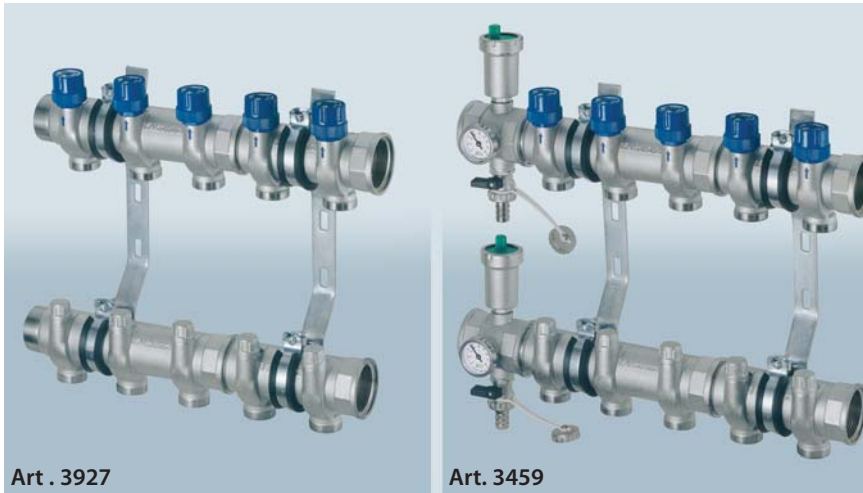


1 1/2" MODULAR MANIFOLDS FOR UNDERFLOOR HEATING SYSTEMS FOR LARGE AREAS



Art . 3927

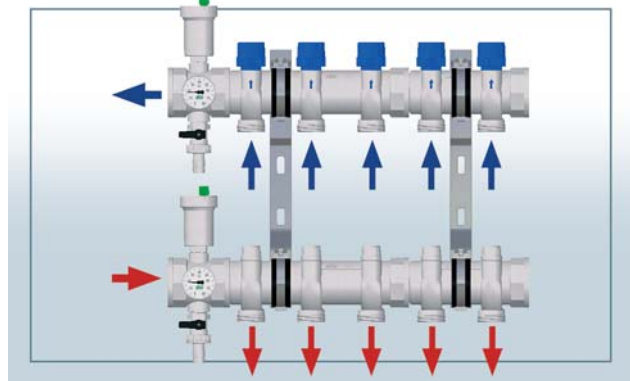
Art. 3459

Pre-assembled chrome-plated brass manifold complete with:

- supply manifold with built-in regulating valves
- return manifold with built-in shut-off valves suitable for thermo-electric actuators
- fixing brackets, Art. 7470
- interchangeable sizes for Ø 25-26 plastic and multilayer pipes
- connection: 1 1/2" male-female
- centre line between ports: 70 mm
- Art. 3459 is also provided with an intermediate connection with a built-in automatic air vent valve, a temperature gauge and a drain cock.

1. DESCRIPTION

FAR offers a range of 1 1/2" chrome-plated brass modular manifolds with interchangeable sizes for Ø 25-26 plastic and multilayer pipes and a 70 mm centre line between ports. They are suitable for installation in underfloor heating systems serving large surface areas. Ø 25-26 pipe connections permit longer circuit flows than those normally designed for use in public buildings. The special manifold shape also ensures low flow resistance at the outlets and along the manifold. It generates a balanced, even flow to the various outlets. Return connections to the manifolds always feature blue regulating handles with flow direction following the arrow printed on the outlet.



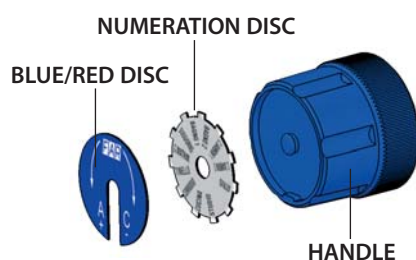
2. CONSTRUCTION FEATURES



Art . 3910

Return modular manifold with capacity for installation of a thermo-electric actuator on each outlet.

In order to identify the outlets, set the grey disc numbered from 1 to 22 on the handle to identify the individual circuit within the heated area. Now press the second blue/red disc, positioning the slot on the chosen number.



Art . 3920

Supply modular manifold with built-in regulating valves for circuit balancing.



When system balancing, the position of the micrometric lockshield valves can be set with the aid of a 5 mm Allen wrench. To carry out calibration just remove the protective cap - no need for a wrench.

In the following pages you will see resistance diagrams relating to manifolds with built-in lockshield valves - varying according to the number of lockshield valve turns.

3. INSTALLATION COMPONENTS

3.1 THERMO-ELECTRIC ACTUATORS

Thermo-electric actuators are available in a 2-wired version, with phase and neutral wire, or in a 4-wired version, with connection to an auxiliary micro-switch. Opening /closing time is 180 seconds, with an option of 90 seconds, but only with a micro-switch. The actuators range comprises two types ie with working voltages of 24V or 230V. Both are available in Normally Closed (NC) or Normally Open (NO) versions.

Without an electrical supply, If the actuator is of the Normally Closed (NC) type, the valve, or in case of manifolds the outlet will remain shut; while, with an electrical supply an actuator of NC type will open the valve. Conversely, if the actuator is of the Normally Open (NO) type, without an electrical supply, the valve will remain open.

Thermo-electric actuator with 2 wires



Code	Voltage	Type	Opening time
1909	24V	N.C.	180s
1919	230V	N.C.	180s
1929	24V	N.O.	180s
1939	230V	N.O.	180s

Thermo-electric actuator with 4 wires and auxiliary micro-switch



Code	Voltage	Type	Opening time
1913	24V	N.C.	90s
1914	24V	N.C.	180s
1923	230V	N.C.	90s
1924	230V	N.C.	180s

INSTALLATION ON MANIFOLD

Fig.1

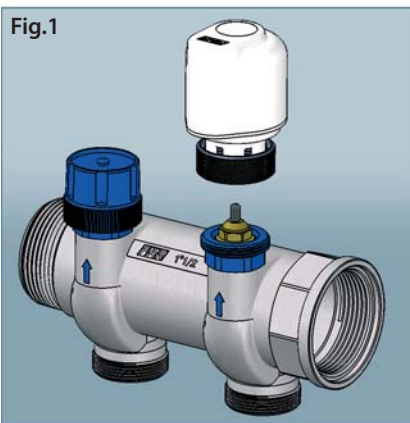


Fig.2

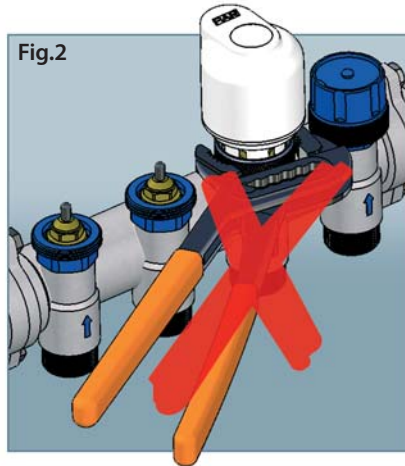
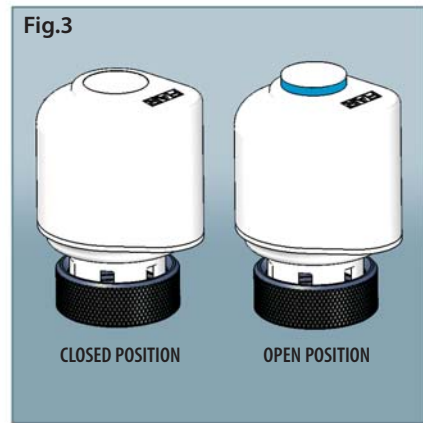


Fig.3



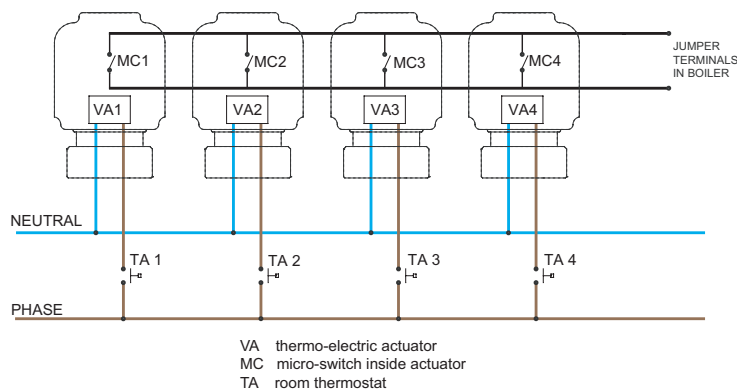
No adapter is required in order to install the actuator. Simply unscrew the blue handle from the manifold and then screw the actuator on the ring (Fig.1). The actuator must be lightly hand-tightened. Do not use any wrenches, which could damage the actuator itself (Fig.2). Open and closed positions can be easily established with the aid of a blue strip located on the indicator (Fig.3). If any further details are needed, consult the Technical Sheet ST.04.05.00.

Thermo-electric actuators can open single circuits by means of a thermostat. Use of an auxiliary microswitch in the actuator

makes it possible to shut down other equipment, such as circulating pumps, when valves close.

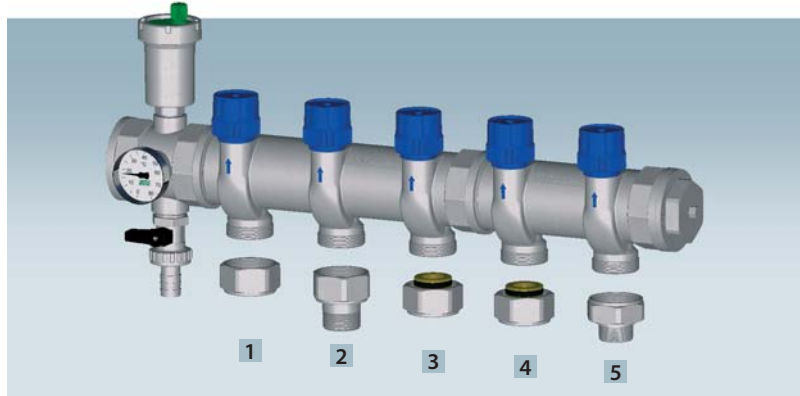
The illustration below shown examples connections of some thermo-electric actuators equipped with an auxiliary micro-switch.

Parallel connection makes it possible to set up the system such that once the last actuator closes, the pump or the boiler will also shut down. In this arrangement, once the first actuator opens it will permit the system to switch on, thus avoiding waste of electricity and reducing consumption.



3.2 ADAPTERS AND REDUCTIONS FOR 1 1/2" MANIFOLDS WITH M33X1,5 CONNECTIONS

- 1 Art. 4101 126
Blind plug
- 2 Art. 8791 34
Male reduction from 33x1,5 to 3/4" thread
- 3 Art. 6049
Adapter for plastic pipe
- 4 Art. 6057
Adapter for multilayer pipe
- 5 Art. 8852 30
Reduction from 33x1,5 to 24x19 thread for plastic and multilayer pipe up to Ø 20mm



3.3 TEMPERATURE GAUGE FITTING



Balancing is generally designed around the dimension of the pipe used in each circuit, but a more detailed calibration is required once system is complete by means of lockshield valves and temperature gauges installed on the return manifold from boiler. Regulating the flow via micrometric lockshield valves on the supply manifold, it is possible to increase or decrease the circulating flow rate and thus the return temperature of each circuit can also be regulated to the design value.

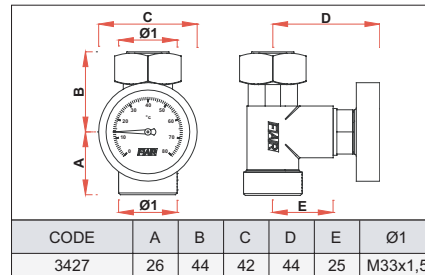
During installation it is essential to screw the nut on the corresponding outlet with the aid of a 38mm wrench. Sealing is guaranteed by an O-ring.

Ø 25-26 mm plastic and multilayer pipes can be connected to the bottom of temperature gauge fitting.

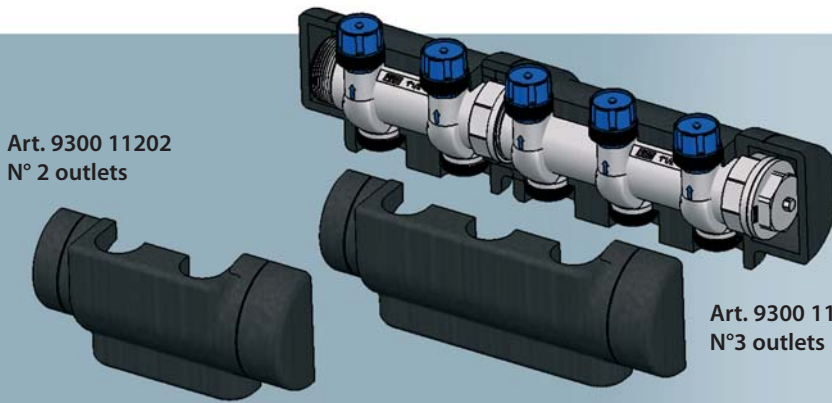
Technical features

Temperature range: 0-80°C
Max. working pressure: 10 bar
Body material: CW617N
Temperature gauge housing: zinc-coated steel
Accuracy rating: 2,5

Dimensional features



3.4 INSULATION



Art. 9300 11202
N° 2 outlets

Art. 9300 11203
N°3 outlets

PPE pre-formed anti-condensation insulation can be used to thermally isolate manifolds.

Insulation is available for modular 2 and 3 port manifolds and must be assembled in the box after manifold installation.

4. MANUFACTURING MATERIALS AND TECHNICAL FEATURES

Materials

Manifold body: CB753S brass
Step bolt: CW614N brass
O-ring: EPDM
Handle and ring: ABS

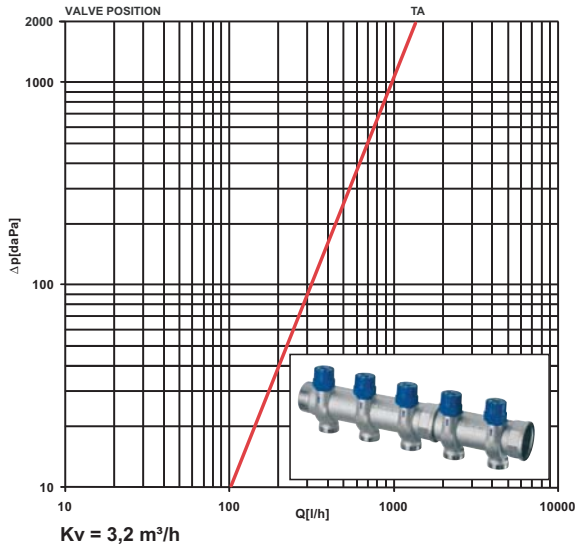
Technical features

Nominal pressure: 10 bar
Working temperature range: 5÷95°C
Compatible media: water, water with glycol

5. FLUID-DYNAMIC FEATURES

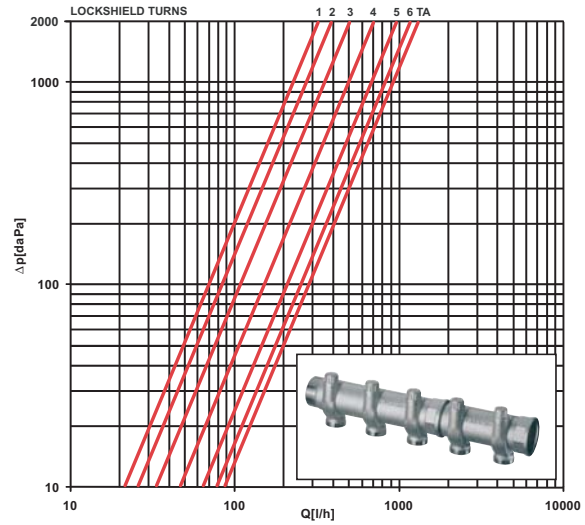
The below diagrams show flow resistances for each manifold.

ART. 3910



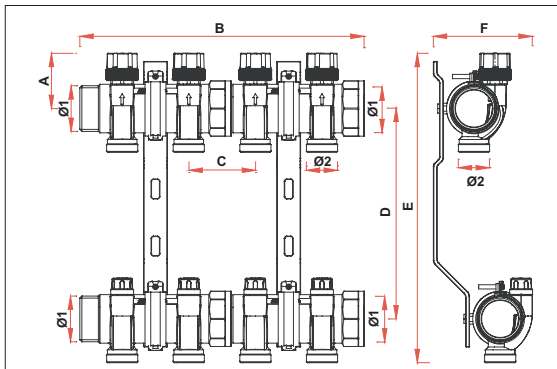
$K_v = 3,2 \text{ m}^3/\text{h}$

ART. 3920

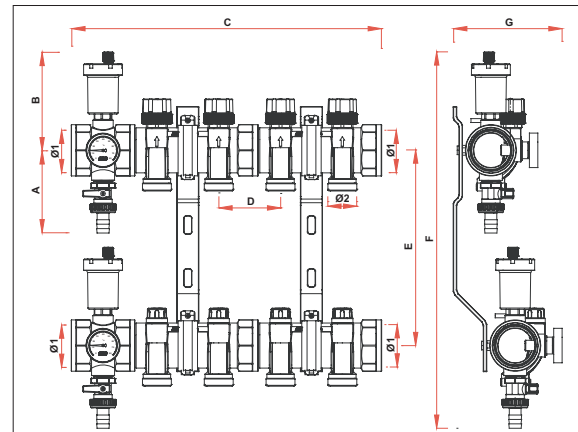


TURNS	1	2	3	4	5	6	TA
$K_v \text{ [m}^3/\text{h]}$	0,7	0,85	1,1	1,6	2,1	2,55	2,87

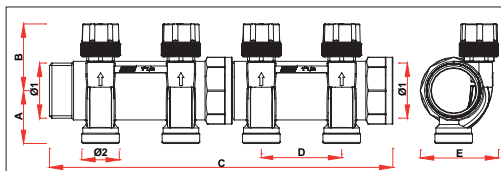
6. DIMENSIONALI FEATURES



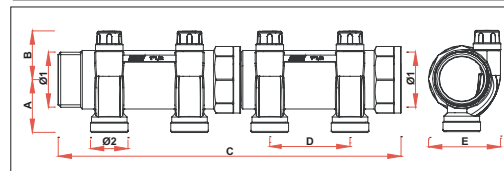
CODE	NR. VIE	Ø1	A	B	C	D	E	F	Ø2
3927 11202	2	G11/2	58	159	70	210/230	315/335	91	M33x1,5
3927 11203	3	G11/2	58	229	70	210/230	315/335	91	M33x1,5
3927 11204	4	G11/2	58	299	70	210/230	315/335	91	M33x1,5
3927 11205	5	G11/2	58	369	70	210/230	315/335	91	M33x1,5
3927 11206	6	G11/2	58	439	70	210/230	315/335	91	M33x1,5
3927 11207	7	G11/2	58	509	70	210/230	315/335	91	M33x1,5
3927 11208	8	G11/2	58	579	70	210/230	315/335	91	M33x1,5
3927 11209	9	G11/2	58	649	70	210/230	315/335	91	M33x1,5
3927 11210	10	G11/2	58	719	70	210/230	315/335	91	M33x1,5
3927 11211	11	G11/2	58	789	70	210/230	315/335	91	M33x1,5
3927 11212	12	G11/2	58	859	70	210/230	315/335	91	M33x1,5



CODE	VIE	Ø1	A	B	C	D	E	F	G	Ø2
3459 11202	2	G11/2	94	112	211	70	210-230	417-437	109	M33x1,5
3459 11203	3	G11/2	94	112	281	70	210-230	417-437	109	M33x1,5
3459 11204	4	G11/2	94	112	351	70	210-230	417-437	109	M33x1,5
3459 11205	5	G11/2	94	112	421	70	210-230	417-437	109	M33x1,5
3459 11206	6	G11/2	94	112	491	70	210-230	417-437	109	M33x1,5
3459 11207	7	G11/2	94	112	561	70	210-230	417-437	109	M33x1,5
3459 11208	8	G11/2	94	112	631	70	210-230	417-437	109	M33x1,5
3459 11209	9	G11/2	94	112	701	70	210-230	417-437	109	M33x1,5
3459 11210	10	G11/2	94	112	771	70	210-230	417-437	109	M33x1,5
3459 11211	11	G11/2	94	112	841	70	210-230	417-437	109	M33x1,5
3459 11212	12	G11/2	94	112	911	70	210-230	417-437	109	M33x1,5



CODE	NR. VIE	Ø1	A	B	C	D	E	Ø2
3910 11202	2	G11/2	46	58	159	70	68	M33x1,5
3910 11203	3	G11/2	46	58	229	70	68	M33x1,5
3910 11204	4	G11/2	46	58	299	70	68	M33x1,5
3910 11205	5	G11/2	46	58	369	70	68	M33x1,5
3910 11206	6	G11/2	46	58	439	70	68	M33x1,5
3910 11207	7	G11/2	46	58	509	70	68	M33x1,5
3910 11208	8	G11/2	46	58	579	70	68	M33x1,5
3910 11209	9	G11/2	46	58	649	70	68	M33x1,5
3910 11210	10	G11/2	46	58	719	70	68	M33x1,5
3910 11211	11	G11/2	46	58	789	70	68	M33x1,5
3910 11212	12	G11/2	46	58	859	70	68	M33x1,5



CODE	NR. VIE	Ø1	A	B	C	D	E	Ø2
3920 11202	2	G11/2	46	43	159	70	63	M33x1,5
3920 11203	3	G11/2	46	43	229	70	63	M33x1,5
3920 11204	4	G11/2	46	43	299	70	63	M33x1,5
3920 11205	5	G11/2	46	43	369	70	63	M33x1,5
3920 11206	6	G11/2	46	43	439	70	63	M33x1,5
3920 11207	7	G11/2	46	43	509	70	63	M33x1,5
3920 11208	8	G11/2	46	43	579	70	63	M33x1,5
3920 11209	9	G11/2	46	43	649	70	63	M33x1,5
3920 11210	10	G11/2	46	43	719	70	63	M33x1,5
3920 11211	11	G11/2	46	43	789	70	63	M33x1,5
3920 11212	12	G11/2	46	43	859	70	63	M33x1,5