MANIFOLDS WITH FLOWMETERS

Art. 3970
Chrome-plated brass modular supply manifold.
- Flowmeters and flow-rate balancing valves
- Interchangeable sizes for copper, plastic and multilayer pipes
- Connection: 1" - 1" 1/4 male-female
- Centre line between ports: 50 mm
- Available with 1/2" or 3/4" eurokonus connection, art.3980

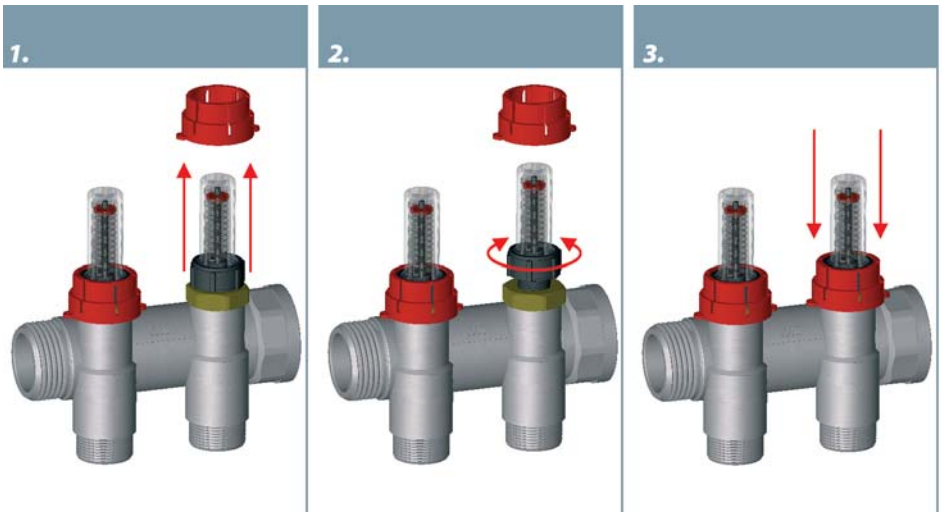
Art. 3972
Chrome-plated brass flanged modular supply manifold.
- Flowmeters and flow-rate balancing valves
- Interchangeable sizes for copper, plastic and multilayer pipes
- Screws and O-rings for connections
- Connection: 1" female-female
- Centre line between ports: 50 mm
- Available with 1/2" or 3/4" eurokonus connection, art.3982

1. DESCRIPTION

The Flowmeter is a device designed to control, measure and monitor the flow distribuited to each terminal within a heating and/or cooling system. This is possible because it is a combination of lockshield valve to control the flow of fluid in the circuit, and flowmeter to measure the quantity of fluid in the circuit (l/min). This makes for easier installation and system adjustment, reducing overall costs. Manifolds equipped with flowmeters should be installed on the supply pipeline (on underfloor heating systems); they ensure fast, accurate system balancing and thus optimised energy distribution.

2. INSTALLATION

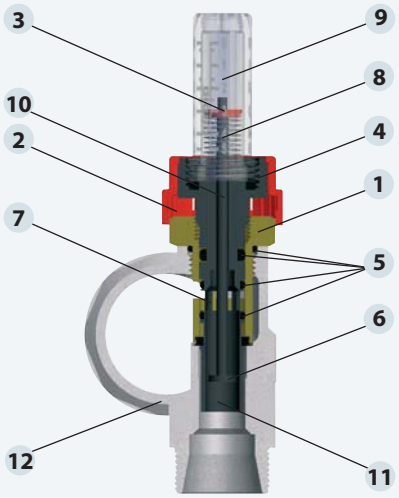
Manifolds equipped with a flowmeter can be installed in either vertical or horizontal configuration.
Installation should proceed as follows:
1) Assemble manifolds to create a distribution unit
2) Totally open both the flowmeter and the corresponding valve on the return manifold (keeping any other flowmeters closed). Activate flow to the system and bring it under pressure, leaving water circulating in the pipeline to protect the individual circuit from any air released into the pipes. Repeat the process for all circuits to ensure complete system deaeration
3) To carry out system balancing, adjust the flowmeters on each circuit by rotating the regulating valve
4) Lock the set position with the correct anti-tampering device

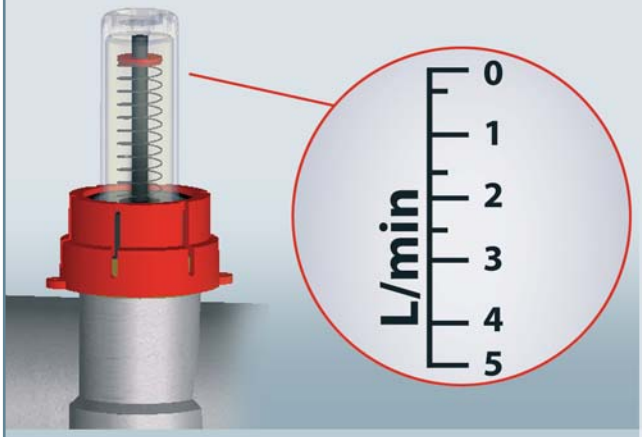


To complete open and then balance the flowmeters, remove the anti-tampering device (illustration No. 1) and turn the regulating valve clockwise to decrease flow, or counterclockwise to increase it (illustration No. 2). Once balancing has been carried out, lock off once again with the anti-tampering protection (illustration No. 3).

3. CONSTRUCTION FEATURES

1) Flowmeter body	*CW617N UNI EN 12165:1999 brass*
2) Anti-tampering device	*Heat-resistant plastic material*
3) Level indicator	*Heat-resistant plastic material*
4) Regulating valve	*Heat-resistant plastic material*
5) Sealing O-ring	*EPDM*
6) Shutter	*Heat-resistant plastic material*
7) Baffl e disc	*Heat-resistant plastic material*
8) Spring	*Stainless steel*
9) Indicator with scale	*Heat-resistant plastic material*
10) Level stem	*Heat-resistant plastic material*
11) Measuring pipe	*Heat-resistant plastic material*
12) Supply manifold	*CB753S UNI EN1982:2008 brass*





INDICATOR WITH GRADUATED SCALE: this allows a simple and quick reading of flow in l/min without need of special tools and calculations.

REGULATION LOCKING: this can be carried out with the anti-tampering device, which is simply fixed as shown in the illustration and then eventually sealed with lead for greater security.

REMOVAL OF INDICATOR AND SCALE: it is possible to remove the indicator and scale for maintenance or replacement. To do this, it is necessary to close off supply and return circuits, unscrew the indicator (there may be a slight outflow of water) and clean it or replace it with the spare part.

MAINTENANCE: in the event of flowmeter breakage or malfunction, replacement is possible. To do this, remove the anti-tampering device, unscrew the fl owmeter using a 24 mm wrench and replace it - do not apply a torque wrench setting in excess of 20 Nm.
P.S.: The flowmeter must be installed on the supply manifold, so that fl uid exerts pressure on the baffl e disc, keeping the spring in compression.

4. OPERATION

Flow measurement is based on the displacement principle using a baffle disc inserted in a measuring pipe. The position is conveyed to the indicator by means of a sliding stem, which connects the baffle disc to the indicator unit.
Flow enters the flowmeter in a radial configuration, depending to the working axis, and exits in an axial pettern towards the baffle disc.

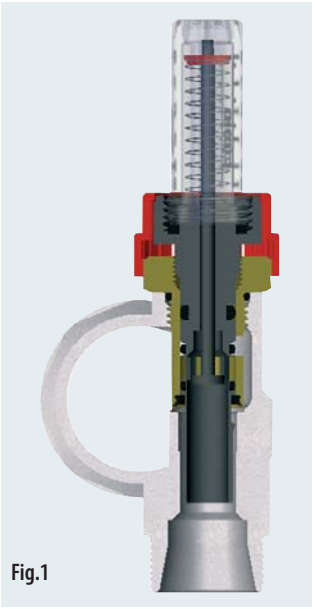


Fig.1

Fig.1
When circuit or flowmeter are closed, the shutter is not subjected to flow pressure. In this event spring action allows the level indicator to rise to the 0 position.

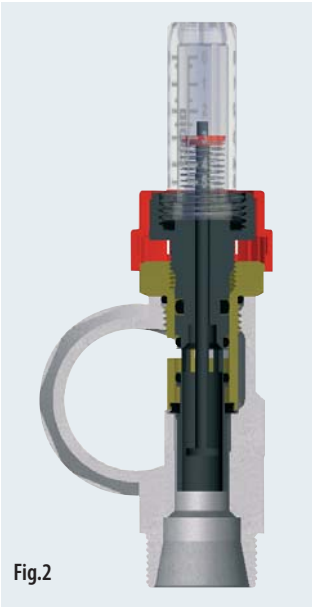


Fig.2

Fig.2
In the reverse situation with open circuit, flow pressure on the shutter overcomes spring force and thus lowers the level indicator.
Regulation by means of the regulating valve makes it possible to modify the impact of flow input on the baffle disc, with a resultant increase or decrease in flow within the circuit.

5. FLUID DYNAMIC FEATURES

FLOWMETER POSITION - TOTALLY OPEN

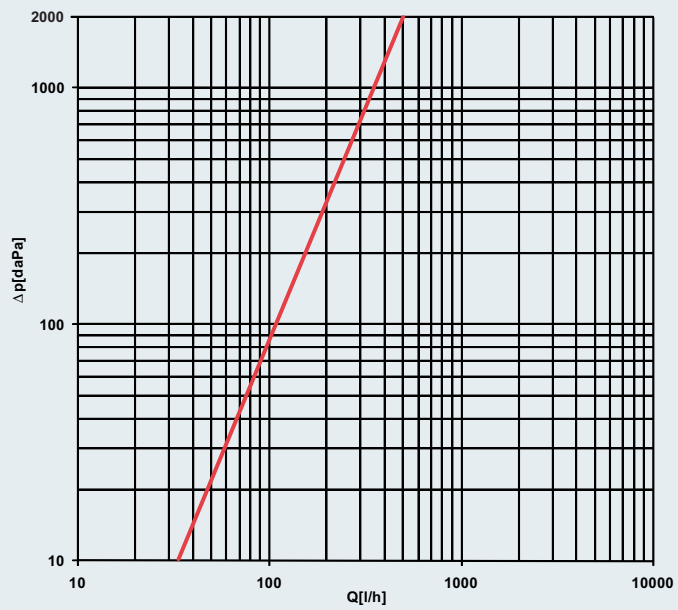
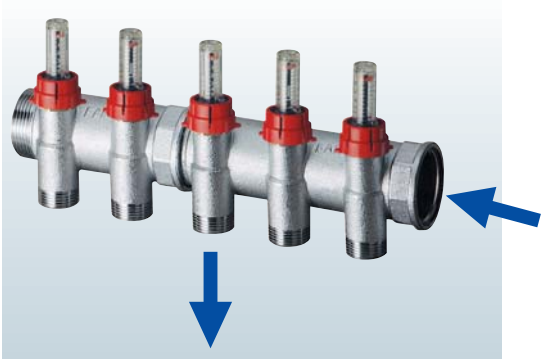


Diagram of flow resistances at individual outlets with max. opening
Kv = 1.13 m³/h
The diagram is valid for manifolds from 1" to 1"1/4.



Determination of flow resistances is carried out on individual outlets by circulation of the heating medium, as shown in the illustration.

6. TECHNICAL FEATURES

Medium temperature:	-10 ÷ 70°C
Max. working pressure:	6 bar
Measurement range:	0 - 5,0 l/min
Measuring accuracy:	±10% from final value
Compatible fluids:	heating water mixed with corron additives and antifreeze

7. PRODUCTS

In addition to Art. 3970 and 3972 the following versions are available:

Art. 3560

Chrome-plated brass modular supply manifold complete with:
- Flowmeters and flow-rate balancing valves
- Intermediate connection, art. 3438 complete with automatic air vent valve, temperature gauge with 0÷80°C scale and drain cock
- Interchangeable sizes for copper, plastic and multilayer pipes
- Connection 1"-1"1/4 female-female
- Centre line between ports: mm 50
- Available with 1/2" or 3/4" eurokonus connection, art. 3580

Art. 3971

Pre-assembled chrome-plated brass manifold complete with:
- Supply manifold with flowmeters and flow-rate balancing valves
- Return manifold with built-in shut-off valves suitable for thermo-electric actuators
- Fixing brackets, art. 7480
- Interchangeable sizes for copper, plastic and multilayer pipes
- Connection: 1"-1" 1/4 male-female
- Centre line between ports: mm 50
- Available with 1/2" or 3/4" eurokonus connection, art. 3981

Art. 3561

Pre-assembled chrome-plated brass manifold complete with:
- Supply manifold with flowmeters and flow-rate balancing valves
- Return manifold with built-in shut-off valves suitable for thermo-electric actuators
- Intermediate connection, art. 3438 complete with automatic air vent valve, temperature gauge with 0÷80°C scale and drain cock
- Fixing brackets, art. 7480
- Interchangeable sizes for copper, plastic and multilayer pipes
- Connection 1"-1"1/4 female-female
- Centre line between ports: mm 50
- Available with 1/2" or 3/4" eurokonus connection, art. 3581

Art. 3562

Chrome-plated brass fl anged modular supply manifold complete with:
- Flowmeters and flow-rate balancing valves
- Intermediate connection, art. 3438 complete with automatic air vent valve, temperature gauge with 0÷80°C scale and drain cock
- Screws and O-rings for connection
- Interchangeable sizes for copper, plastic and multilayer pipes
- Connection 1"-1"1/4 female-female
- Centre line between ports: mm 50
- Available with 1/2" or 3/4" eurokonus connection, art. 3582

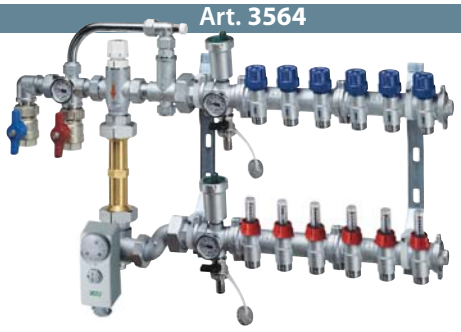
Art. 3973

Pre-assembled chrome-plated brass flanged manifold complete with:
- Supply manifold with flowmeters and flow-rate balancing valves
- Return manifold with built-in shut-off valves suitable for thermo-electric actuators
- Fixing brackets, art. 7480
- Interchangeable sizes for copper, plastic and multilayer pipes
- Screws and O-rings for connection
- Connection: 1" female-female
- Centre line between ports: mm 50
- Available with 1/2" or 3/4" eurokonus connection, art. 3983

Art. 3563

Pre-assembled chrome-plated brass flanged manifold complete with:
- Supply manifold with flowmeters and flow-rate balancing valves
- Return manifold with built-in shut-off valves suitable for thermo-electric actuators
- Intermediate connection, art. 3438 complete with automatic air vent valve, temperature gauge with 0÷80°C scale and drain cock
- Fixing brackets, art. 7480
- Interchangeable sizes for copper, plastic and multilayer pipes
- Screws and O-rings for connection
- Connection: 1" female-female
- Centre line between ports: mm 50
- Available with 1/2" or 3/4" eurokonus connection, art. 3583

Art. 3564



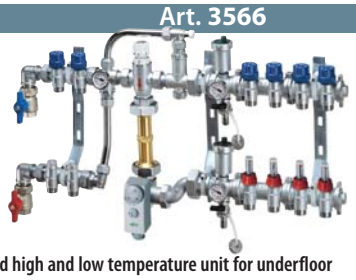
Pre-assembled unit for underfl oor heating systems complete with:
- Fix point regulating unit
- Low temperature supply manifold with flowmeters and flow-rate balancing valves
- Low temperature return manifold with built-in shut-off valves
- Fixing brackets, art. 7480
- Interchangeable sizes for copper, plastic and multilayer pipes
- Centre line between ports: mm 50
- 3/4" ball valve for connection to flow-return pipelines
- Template for pump installation, with 130 mm centre line between ports
- Available with 3/4" eurokonus connection, art. 3584

Art. 3565

Pre-assembled unit for underfl oor heating systems complete with:
- Fix point regulating unit
- Low temperature supply manifold with flowmeters and flow-rate balancing valves
- Low temperature return manifold with built-in shut-off valves
- Fixing brackets, art. 7480
- Painted sheet steel wall box
- Interchangeable sizes for copper, plastic and multilayer pipes
- Centre line between ports: mm 50
- 3/4" ball valve for connection to flow-return pipelines
- Template for pump installation, with 130 mm centre line between ports
- Available with 3/4" eurokonus connection, art. 3585

PRODUCTS

Art. 3566



Pre-assembled high and low temperature unit for underfloor heating systems complete with:
- Fix point regulating unit
- Low temperature supply manifold with flowmeters and flow-rate balancing valves
- Low temperature return manifold with built-in shut-off valves
- High temperature distribution manifolds
- Fixing brackets, art. 7480
- Interchangeable sizes for copper, plastic and multilayer pipes
- Centre line between ports: mm 50
- 3/4" ball valve for connection to flow-return pipelines
- Template for pump installation, with 130 mm centre line between ports
- Available with 3/4" eurokonus connection, art. 3586

Art. 3567

Pre-assembled high and low temperature unit for underfloor heating systems complete with:
- Fix point regulating unit
- Low temperature supply manifold with flowmeters and flow-rate balancing valves
- Low temperature return manifold with built-in shut-off valves
- High temperature distribution manifolds
- Fixing brackets, art. 7480
- Painted sheet steel wall box
- Interchangeable sizes for copper, plastic and multilayer pipes
- Centre line between ports: mm 50
- 3/4" ball valve for connection to flow-return pipelines
- Template for pump installation, with 130mm centre line between ports
- Available with 3/4" eurokonus connection, art. 3587

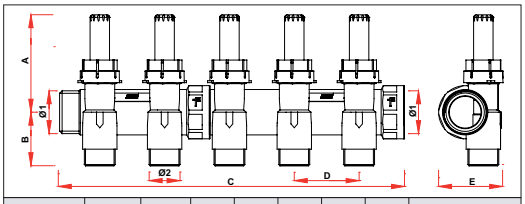
Art. 3569

Pre-assembled unit for underfloor heating systems complete with:
- 3 point actuator
- Control unit
- Outside temperature sensor
- Flow temperature sensor
- Safety thermostat
- Low temperature supply manifold with flowmeters and flow-rate balancing valves
- Low temperature return manifold with built-in shut-off valves
- Painted sheet steel wall box
- Interchangeable sizes for copper, plastic and multilayer pipes
- Centre line between ports: mm 50
- 3/4" ball valve for connection to flow-return pipelines
- Template for pump installation, with 130mm centre line between ports
- Available with 3/4" eurokonus connection, art. 3589

Art. 3571

Pre-assembled unit for underfloor heating systems complete with:
- 3 point actuator
- Control unit
- Outside temperature sensor
- Flow temperature sensor
- Safety thermostat
- Low temperature supply manifold with flowmeters and flow-rate balancing valves
- Low temperature return manifold with built-in shut-off valves
- High temperature distribution manifolds
- Painted sheet steel wall housing
- Interchangeable sizes for copper, plastic and multilayer pipes
- Centre line between ports: mm 50
- 3/4" ball valve for connection to flow-return pipelines
- Template for pump installation, with 130 mm centre line between ports
- Available with 3/4" eurokonus connection, art. 3591

8. DIMENSIONAL FEATURES



CODE	OUT.	Ø1	A	B	C	D	E	Ø2
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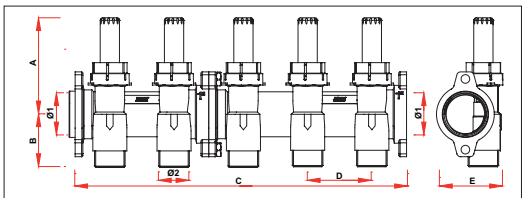
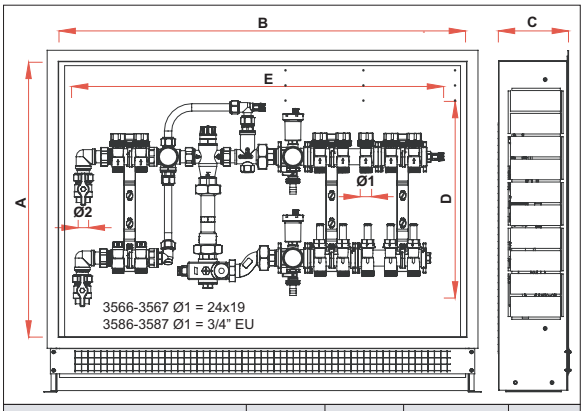
3970-3980	3	G1	75	40	166	50	50	24x19-G1/2-G3/4
3970-3980	4	G1	75	40	216	50	50	24x19-G1/2-G3/4
3970-3980	5	G1	75	40	266	50	50	24x19-G1/2-G3/4
3970-3980	6	G1	75	40	318	50	50	24x19-G1/2-G3/4
3970-3980	7	G1	75	40	368	50	50	24x19-G1/2-G3/4
3970-3980	8	G1	75	40	418	50	50	24x19-G1/2-G3/4
3970-3980	9	G1	75	40	470	50	50	24x19-G1/2-G3/4
3970-3980	10	G1	75	40	520	50	50	24x19-G1/2-G3/4
3970-3980	11	G1	75	40	570	50	50	24x19-G1/2-G3/4
3970-3980	12	G1	75	40	620	50	50	24x19-G1/2-G3/4
3970-3980	2	G1 1/4	77	39	116	50	60	24X19-G3/4
3970-3980	3	G1 1/4	77	39	166	50	60	24X19-G3/4
3970-3980	4	G1 1/4	77	39	216	50	60	24X19-G3/4
3970-3980	5	G1 1/4	77	39	266	50	60	24X19-G3/4
3970-3980	6	G1 1/4	77	39	318	50	60	24X19-G3/4
3970-3980	7	G1 1/4	77	39	368	50	60	24X19-G3/4
3970-3980	8	G1 1/4	77	39	418	50	60	24X19-G3/4
3970-3980	9	G1 1/4	77	39	470	50	60	24X19-G3/4
3970-3980	10	G1 1/4	77	39	520	50	60	24X19-G3/4
3970-3980	11	G1 1/4	77	39	570	50	60	24X19-G3/4
3970-3980	12	G1 1/4	77	39	620	50	60	24X19-G3/4



CODE	OUT.	Ø1	A	B	C	D	E	Ø2
3972-3982	2	G1	75	40	105	50	52	24X19-G3/4
3972-3982	3	G1	75	40	155	50	52	24X19-G3/4
3972-3982	4	G1	75	40	205	50	52	24X19-G3/4
3972-3982	5	G1	75	40	260	50	52	24X19-G3/4
3972-3982	6	G1	75	40	310	50	52	24X19-G3/4
3972-3982	7	G1	75	40	360	50	52	24X19-G3/4
3972-3982	8	G1	75	40	410	50	52	24X19-G3/4
3972-3982	9	G1	75	40	465	50	52	24X19-G3/4
3972-3982	10	G1	75	40	515	50	52	24X19-G3/4
3972-3982	11	G1	75	40	565	50	52	24X19-G3/4
3972-3982	12	G1	75	40	615	50	52	24X19-G3/4

DIMENSIONAL FEATURES



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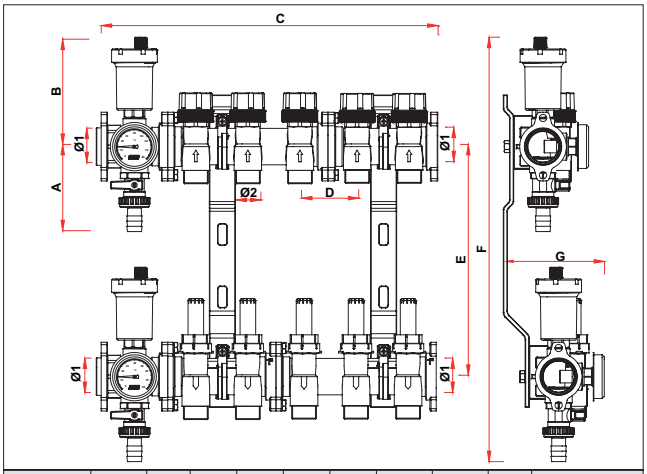
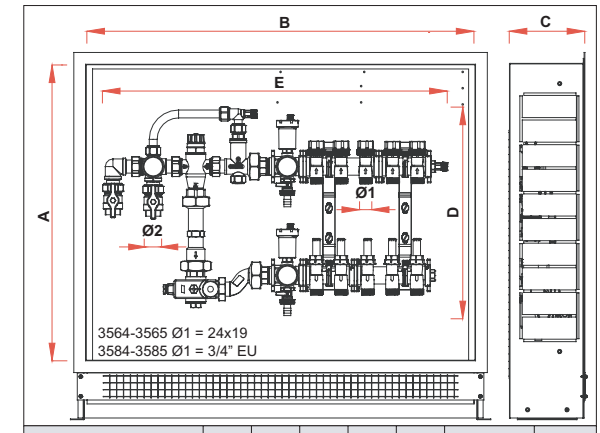
3566 10302 - 3586 1340302	450	710	24x19-G3/4	G3/4
3566 10402 - 3586 1340402	450	760	24x19-G3/4	G3/4
3566 10502 - 3586 1340502	450	810	24x19-G3/4	G3/4
3566 10602 - 3586 1340602	450	860	24x19-G3/4	G3/4
3566 10702 - 3586 1340702	450	910	24x19-G3/4	G3/4
3566 10802 - 3586 1340802	450	960	24x19-G3/4	G3/4
3566 10902 - 3586 1340902	450	1010	24x19-G3/4	G3/4
3566 11002 - 3586 1341002	450	1060	24x19-G3/4	G3/4
3566 11102 - 3586 1341102	450	1110	24x19-G3/4	G3/4
3566 10303 - 3586 1340303	450	760	24x19-G3/4	G3/4
3566 10403 - 3586 1340403	450	810	24x19-G3/4	G3/4
3566 10503 - 3586 1340503	450	860	24x19-G3/4	G3/4
3566 10603 - 3586 1340603	450	910	24x19-G3/4	G3/4
3566 10703 - 3586 1340703	450	960	24x19-G3/4	G3/4
3566 10803 - 3586 1340803	450	1010	24x19-G3/4	G3/4
3566 10903 - 3586 1340903	450	1050	24x19-G3/4	G3/4
3566 11003 - 3586 1341003	450	1110	24x19-G3/4	G3/4

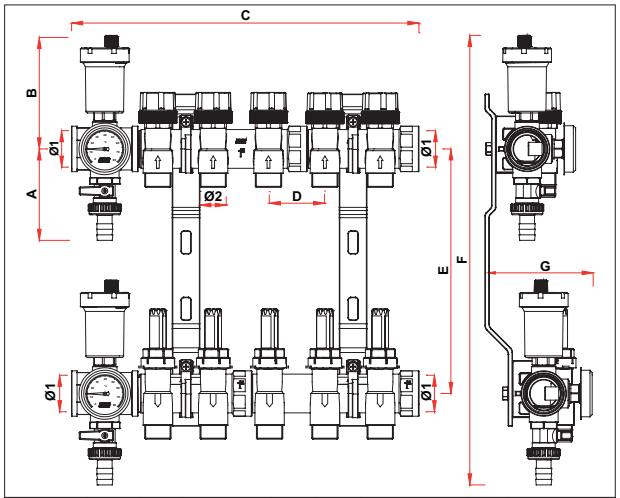
CODE	A	B	C	Ø1	Ø2
3567 10302 - 3587 1340302	600	800	150	24x19-G3/4	G3/4
3567 10402 - 3587 1340402	600	800	150	24x19-G3/4	G3/4
3567 10502 - 3587 1340502	600	900	150	24x19-G3/4	G3/4
3567 10602 - 3587 1340602	600	900	150	24x19-G3/4	G3/4
3567 10702 - 3587 1340702	600	1000	150	24x19-G3/4	G3/4
3567 10802 - 3587 1340802	600	1000	150	24x19-G3/4	G3/4
3567 10902 - 3587 1340902	600	1100	150	24x19-G3/4	G3/4
3567 11002 - 3587 1341002	600	1100	150	24x19-G3/4	G3/4
3567 11102 - 3587 1341102	600	1200	150	24x19-G3/4	G3/4
3567 10303 - 3587 1340303	600	800	150	24x19-G3/4	G3/4
3567 10403 - 3587 1340403	600	900	150	24x19-G3/4	G3/4
3567 10503 - 3587 1340503	600	900	150	24x19-G3/4	G3/4
3567 10603 - 3587 1340603	600	1000	150	24x19-G3/4	G3/4
3567 10703 - 3587 1340703	600	1000	150	24x19-G3/4	G3/4
3567 10803 - 3587 1340803	600	1100	150	24x19-G3/4	G3/4
3567 10903 - 3587 1340903	600	1100	150	24x19-G3/4	G3/4
3567 11003 - 3587 1341003	600	1200	150	24x19-G3/4	G3/4



CODE	OUT.	Ø1	A	B	C	D	E	F	G	Ø2
3563-3583	2	G1	83	101	170	50	210-230	395-415	97	24x19-G3/4
3563-3583	3	G1	83	101	220	50	210-230	395-415	97	24x19-G3/4
3563-3583	4	G1	83	101	270	50	210-230	395-415	97	24x19-G3/4
3563-3583	5	G1	83	101	325	50	210-230	395-415	97	24x19-G3/4
3563-3583	6	G1	83	101	375	50	210-230	395-415	97	24x19-G3/4
3563-3583	7	G1	83	101	425	50	210-230	395-415	97	24x19-G3/4
3563-3583	8	G1	83	101	475	50	210-230	395-415	97	24x19-G3/4
3563-3583	9	G1	83	101	530	50	210-230	395-415	97	24x19-G3/4
3563-3583	10	G1	83	101	580	50	210-230	395-415	97	24x19-G3/4
3563-3583	11	G1	83	101	630	50	210-230	395-415	97	24x19-G3/4
3563-3583	12	G1	83	101	680	50	210-230	395-415	97	24x19-G3/4



CODE	A	B	C	D	E	Ø1	Ø2
3564 103 - 3584 13403	--	--	--	424	600	24x19-G3/4	G3/4
3564 104 - 3584 13404	--	--	--	424	650	24x19-G3/4	G3/4
3564 105 - 3584 13405	--	--	--	424	700	24x19-G3/4	G3/4
3564 106 - 3584 13406	--	--	--	424	750	24x19-G3/4	G3/4
3564 107 - 3584 13407	--	--	--	424	800	24x19-G3/4	G3/4
3564 108 - 3584 13408	--	--	--	424	850	24x19-G3/4	G3/4
3564 109 - 3584 13409	--	--	--	424	900	24x19-G3/4	G3/4
3564 110 - 3584 13410	--	--	--	424	950	24x19-G3/4	G3/4
3564 111 - 3584 13411	--	--	--	424	1000	24x19-G3/4	G3/4
3564 112 - 3584 13412	--	--	--	424	1050	24x19-G3/4	G3/4
3565 103 - 3585 13403	600	700	150	424	600	24x19-G3/4	G3/4
3565 104 - 3585 13404	600	700	150	424	650	24x19-G3/4	G3/4
3565 105 - 3585 13405	600	800	150	424	700	24x19-G3/4	G3/4
3565 106 - 3585 13406	600	800	150	424	750	24x19-G3/4	G3/4
3565 107 - 3585 13407	600	900	150	424	800	24x19-G3/4	G3/4
3565 108 - 3585 13408	600	900	150	424	850	24x19-G3/4	G3/4
3565 109 - 3585 13409	600	1000	150	424	900	24x19-G3/4	G3/4
3565 110 - 3585 13410	600	1000	150	424	950	24x19-G3/4	G3/4
3565 111 - 3585 13411	600	1100	150	424	1000	24x19-G3/4	G3/4
3565 112 - 3585 13412	600	1100	150	424	1050	24x19-G3/4	G3/4



CODE	OUT.	Ø1	A	B	C	D	E	F	G	Ø2
3561-3581	2	G1	82	103	165	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	3	G1	82	103	215	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	4	G1	82	103	265	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	5	G1	82	103	315	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	6	G1	82	103	365	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	7	G1	82	103	415	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	8	G1	82	103	465	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	9	G1	82	103	515	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	10	G1	82	103	565	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	11	G1	82	103	615	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	12	G1	82	103	665	50	210-230	395-415	96	24x19-G1/2-G3/4
3561-3581	2	G11/4	89	107	165	50	210-230	406-426	107	24x19-G3/4
3561-3581	3	G11/4	89	107	215	50	210-230	406-426	107	24x19-G3/4
3561-3581	4	G11/4	89	107	265	50	210-230	406-426	107	24x19-G3/4
3561-3581	5	G11/4	89	107	317	50	210-230	406-426	107	24x19-G3/4
3561-3581	6	G11/4	89	107	367	50	210-230	406-426	107	24x19-G3/4
3561-3581	7	G11/4	89	107	418	50	210-230	406-426	107	24x19-G3/4
3561-3581	8	G11/4	89	107	468	50	210-230	406-426	107	24x19-G3/4
3561-3581	9	G11/4	89	107	518	50	210-230	406-426	107	24x19-G3/4
3561-3581	10	G11/4	89	107	568	50	210-230	406-426	107	24x19-G3/4
3561-3581	11	G11/4	89	107	618	50	210-230	406-426	107	24x19-G3/4
3561-3581	12	G11/4	89	107	668	50	210-230	406-426	107	24x19-G3/4

The dimensional features of art. 3566-3586-3567-3587-3564-3584-3565-3585 are the same as for art. 3569-3589-3571-3591 with mixing valve. There are only two differences i.e. add 25 mm to dimension D and 11 mm to dimension E.