HYDRAULIC SEPARATOR

Art. 2159

Hydraulic separator complete with automatic air vent valve with non-return valve and drain cock.
- 1/2" frontal connection for installation of temperature or pressure gauge
- Painted steel body
- Max. pressure=8bar
- Max. temperature=110°C

Art. 2160

Hydraulic separator complete with female unions, automatic air vent valve with non-return valve and drain cock.
- 1/2" frontal connection for installation of temperature or pressure gauge
- Painted steel body
- Max. pressure=8bar
- Max. temperature=110°C.

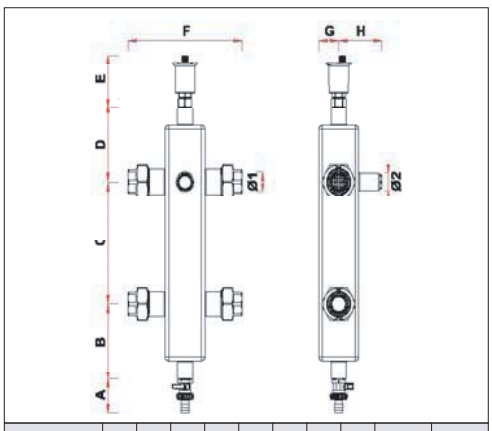
Art. 2161

Hydraulic separator complete with female unions, automatic air vent valve with non-return valve and drain cock.
- 1/2" frontal connection for installation of temperature or pressure gauge
- Painted steel body
- Max. pressure=8bar
- Max. temperature=110°C.
- Supplied with pre-formed PPE anti-condensation insulation

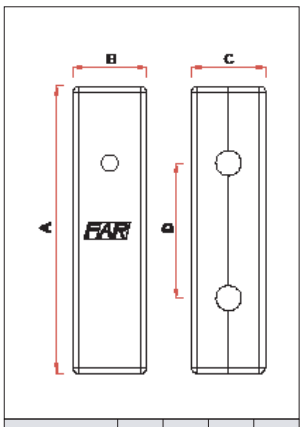
TECHNICAL FEATURES

Body:	painted steel			
Insulation:	PPE			
Main connections:	female unions			
Drain cock connection:	1/2"			
Air vent valve connection:	1/2"			
Front connection:	1/2"			
Nominal pressure:	8 bar			
Max. temperature without insulation:	110°C			
Max. temperature with insulation:	100°C			
Max. recommended flow:	1"	1" 1/4	1" 1/2	2"
	Q = 2,1 m³/h	Q = 3,5 m³/h	Q = 5,4 m³/h	Q = 6,5 m³/h

DIMENSIONAL FEATURES



CODE	A	B	C	D	E	F	G	H	Ø1	Ø2
2160 1	59	135	220	135	95	201	35	77	G1	G1/2
2160 114	59	145	240	145	95	236	40	81	G1 1/4	G1/2
2160 112	59	155	260	155	95	264	50	91	G1 1/2	G1/2
2160 2	59	185	320	185	95	335	60	101	G2	G1/2



CODE	A	B	C	D
2165 1	470	120	120	220
2165 114	510	130	130	240
2165 112	550	150	150	260
2165 2	670	170	170	320

2. OPERATION

As has already been made clear, the main function of the hydraulic separator is to separate primary and secondary circuit pumps, avoiding any interference to the pumps installed on the secondary circuit, and ensuring the proper functioning of each circuit.
If we consider a system without a separator, which has 3 pumps supplied with water from the same pipeline (Fig.2), we can see that when pumps 1 and 2 operate they drain water away from the delivery manifold and, therefore, the pressure difference (Δp) between supply and return manifolds increases (this increase will occur even if only one pump is operating).
Consequently, since pump 3 is switched off, the water in this circuit will flow in the opposite direction to that powered by the other two pumps which drain away from the supply manifold. Once pump 3 is switched on it will operate in adverse conditions - which could cause low flow rate to the circuit, or even a break in the circuit - as it must respond to the pressure differential generated by the other two circulators.

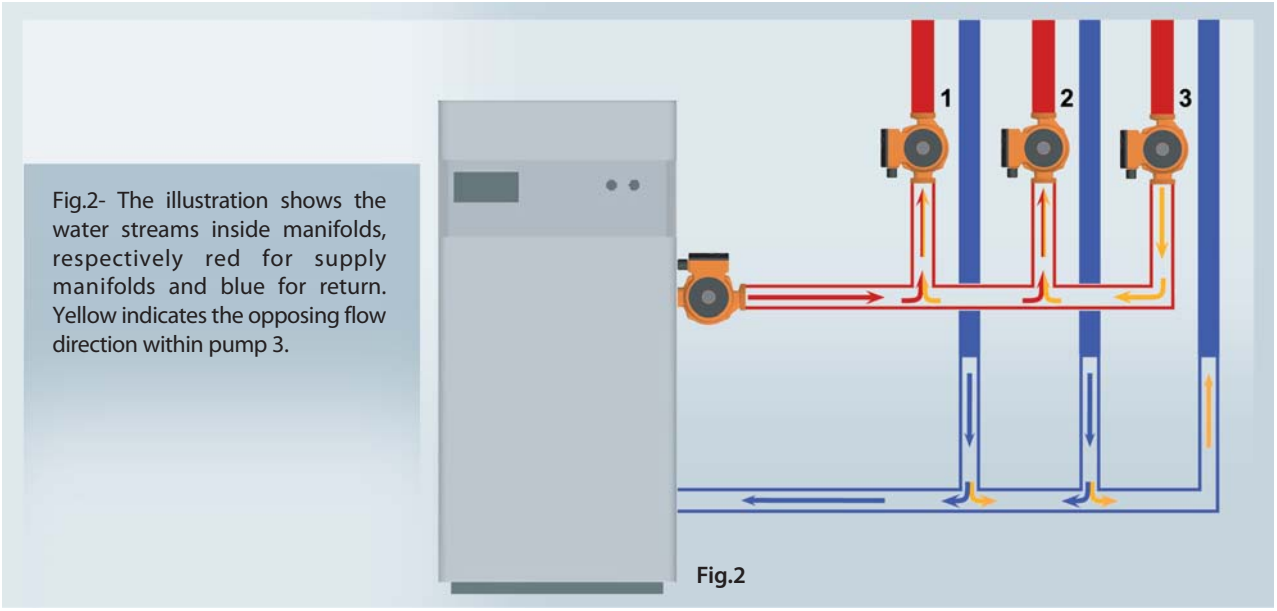


Fig.2- The illustration shows the water streams inside manifolds, respectively red for supply manifolds and blue for return. Yellow indicates the opposing flow direction within pump 3.

Fig.2

This kind of problem can be solved with the aid of a hydraulic separator properly designed for the system. If this is installed between the central heating and the supply manifolds, no pressure differential between supply and return manifolds can be occur (Δp=0), thus avoiding any chance of flow direction contrary to design requirements. Depending on the kind of system, there are different ways of operating of the separator.
In cases where the flow rate of the primary circuit is higher than that of the secondary circuit (for example: in low temperature systems), some water is by-passed on the return circuit, redirecting the fluid back to the primary circuit (Fig.3). In this event the temperature of the fluid flowing back to the boiler increases, avoiding steam condensation. Conversely, where the flow rate of the secondary circuit is higher, i.e. when outlets require a much higher flow rate than that produced by the boiler, flow will be by-passed to the secondary circuit (Fig.4). In this case the temperature of the water circulating in the secondary circuit will be lower than the temperature in the primary circuit, it is, therefore, recommended that this situation be considered during design of the system.

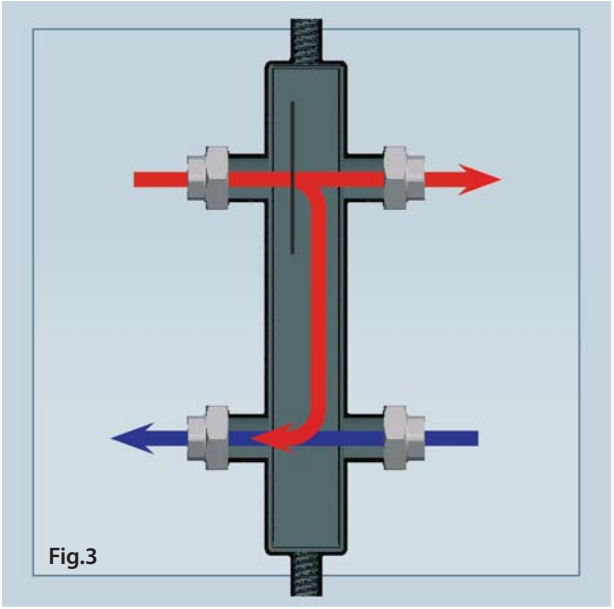


Fig.3

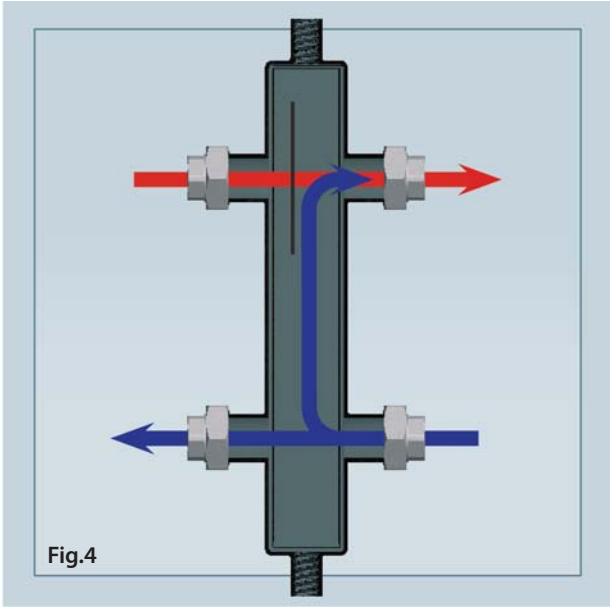


Fig.4

3. MANUFACTURING FEATURES

The FAR hydraulic separator comprises a central body with four lateral connections for the connection to the primary and secondary circuit pumps. The square shape of the body has been designed to combine good hydraulic compensation with easy installation. The FAR separator is equipped with a mesh type strainer, properly designed in order to remove any impurities, including bubbles in the water, from the system.

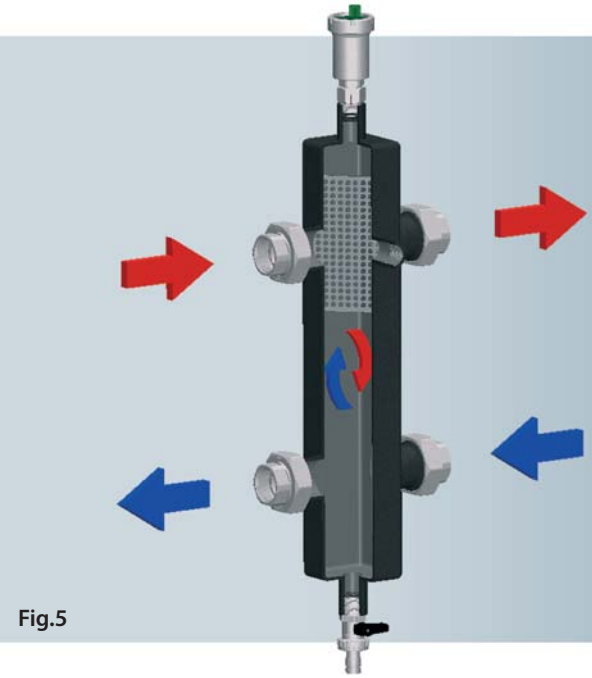


Fig.5

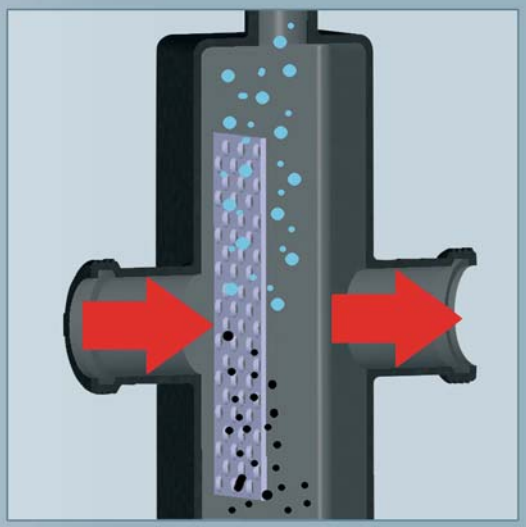


Fig.6

Fig.5 - The illustration shows a section of separator, in which it is possible to see the inner mesh. The figure shows also the flow directions under normal connection conditions: i.e. with high temperature supply water in the upper section and with low temperature return water in the lower part.

The inner mesh, through which the water flows fig.6, permits air bubbles to slow down and rise to the top of the separator where they can be vented out by the air vent valve.
Impurities drop down and, once deposited at the bottom of the separator, can be discharged via the drain cock.

Impurities can be discharged by a drain cock placed at the bottom of the separator (Fig.7).

An air vent valve in the upper section permits venting of any air present in the system. (Fig.8).

To simplify routine maintenance or component replacement, the air vent valve incorporates a non-return valve. The separator is equipped with a 1/2" in connection at the front, which permits installation of a temperature gauge. (Fig.9).

Fig.7

Fig.8

Fig.9

The separator must be installed in a vertical position to ensure correct working of the air vent valve.

Connection to the different circuits is made easier thanks to the flat-faced female unions.
These unions are also available as spare parts (Article code: 8346).

4. SUPPORT INSTALLATION

The galvanized bracket (Art.2162) is designed to support the separator during installation, maintenance or replacement, making installation easier.

Instructions for installation:

Fig.10-11: place the wall support in the position shown in the figure and fix by using Rawlplugs.

Fig.12-13: place the separator on the support through the connections to the delivery pipeline.

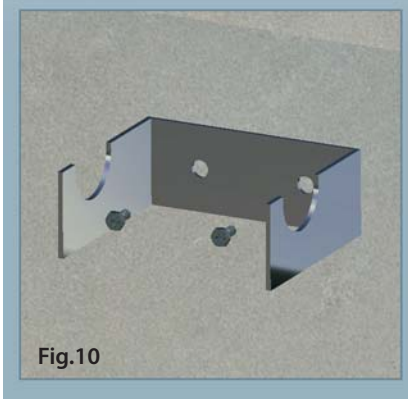


Fig.10


Fig.11

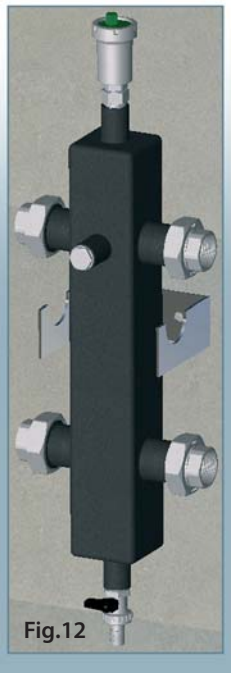


Fig.12

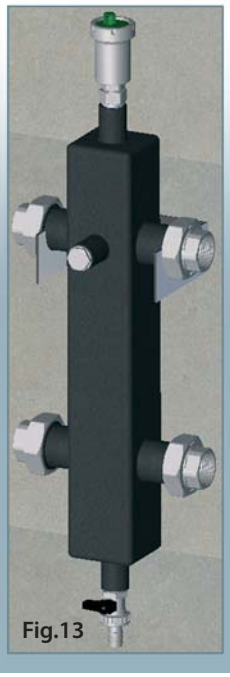


Fig.13

5. TECHNICAL FEATURES

Body:	painted steel
Insulation:	PPE
Main connections:	female unions
Drain cock connection:	1/2″
Air vent valve connection:	1/2″
Front connection:	1/2″
Nominal pressure:	8 bar
Max. temperature without insulation:	110°C
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Max. recommended flow:

1″	1″ 1/4	1″ 1/2	2″
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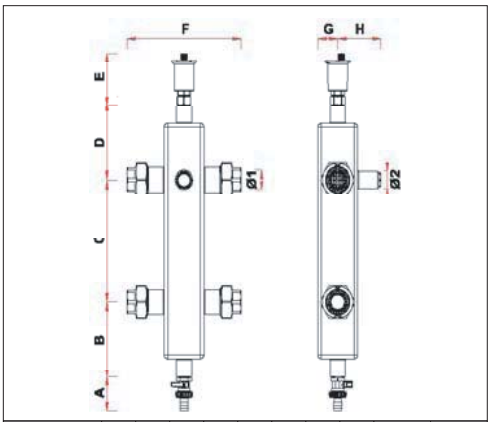
6. DIMENSIONAL FEATURES



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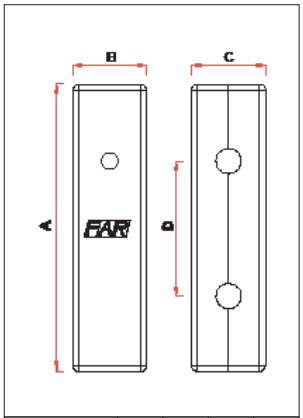

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