

OT DaseTECH



TwinCross

Multi-function Hydraulic Separators
for Air, Micro-bubbles, Dirt and Sludge

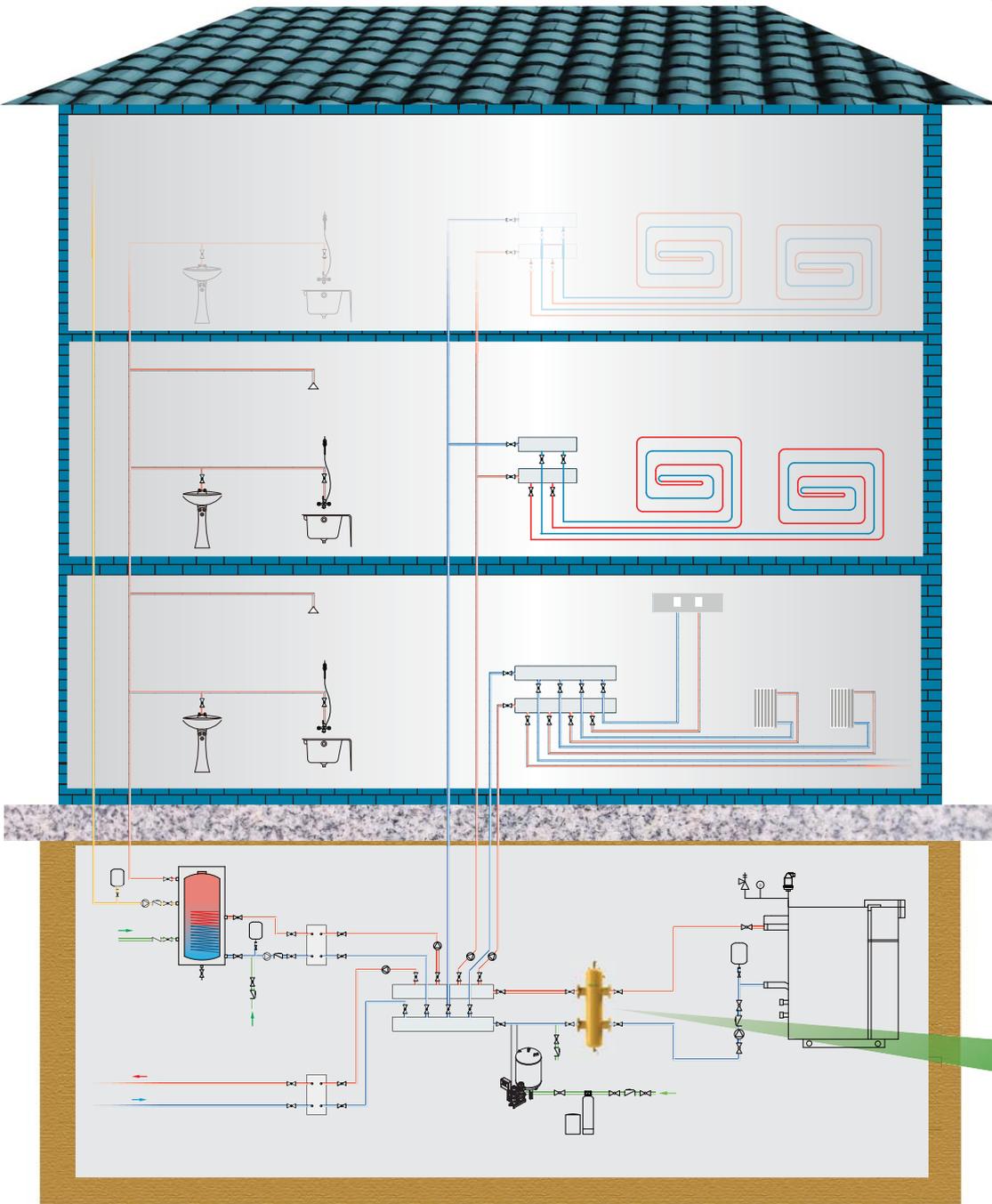
Multi-function Hydraulic Balance Separators

OaseTECH Multi-function Hydraulic Balance Separators can effectively solve hydraulic power interference problems caused by temperature and pressure difference between two different circuits, when multiple energy supplying device and water pumps exist and operate simultaneously in the system or where primary or secondary circulating pumps operate at the same time in the system. Multi-function Hydraulic Balance Separators perform the character of air separator and dirt separator as well, which make it convenient and efficient.



Benefits of the Multi-function Hydraulic Balance Separators:

- Solve hydraulic power interference caused by simultaneous operation of constant flow and variable flow;
- Make each branch circuit operate autonomously without interference;
- Enable each kind of equipment be in best operating condition;
- The minimum constant pressure loss;
- Greatly reduce cavitation phenomenon in the system and operational noise;
- Impurities can be discharged during system circulation to improve heat exchange efficiency of heat-exchange equipment;
- Protect precision instrument valves against damage;
- Eliminate the phenomenon of air blockage in the system to make a better supply of cooling or heating of the system;





The formula of pressure loss

$$\Delta P = \left(\frac{\dot{Q}}{K_{VS}} \right)^2 \cdot 100 \text{kPa}$$

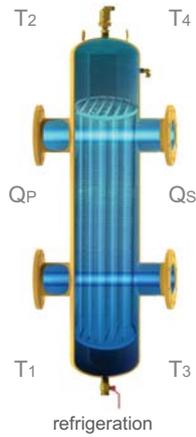
Note:

1. \dot{Q} : The flow of system
2. K_{VS} : The flow coefficient
3. $Q \leq Q_{max}$

Look-up table of the flow rate coefficient

Connection	K_{VS} in m ³ /h	Connection	K_{VS} in m ³ /h	Connection	K_{VS} in m ³ /h
Rp1	17.2	DN 125	351.3	DN 350	2155.7
DN 50	72.2	DN 150	487.9	DN 400	2668.4
DN 65	121.7	DN 200	780.6	DN 450	3148.8
DN 80	158.5	DN 250	1185.7	DN 500	3589.6
DN 100	244.3	DN 300	1696.4	DN 600	4630.6

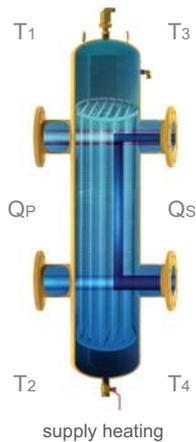
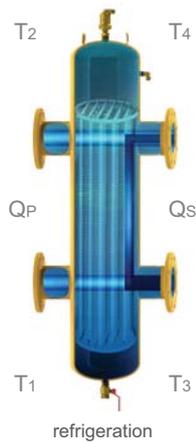
Connection Type and Design Features



- $Q_P = Q_S$ $T_1 = T_3$ $T_2 = T_4$

This is an operating condition where primary circulation flow and secondary circulation flow is same.

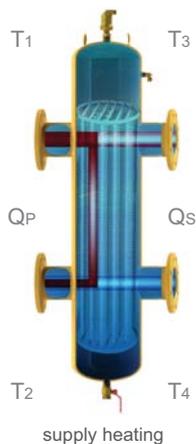
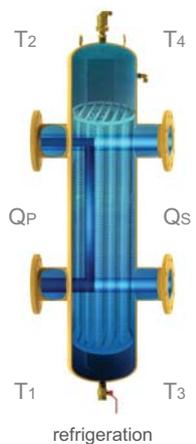
This is an ideal condition, where temperature of primary side supply water/return water is the same as the temperature of the secondary side and the hydraulic separator doesn't need to be installed at this time.



- $Q_P < Q_S$ $T_1 > T_3$ $T_2 = T_4$

This is an operating condition where primary circulation flow is less than secondary circulation flow.

Energy supply by the device can't meet energy requirement under this operating condition, and partial secondary return water will enter into the secondary supply water, which makes the temperature of secondary supply water lower (supply heating) or higher (cooling) than the temperature of the primary supply water.



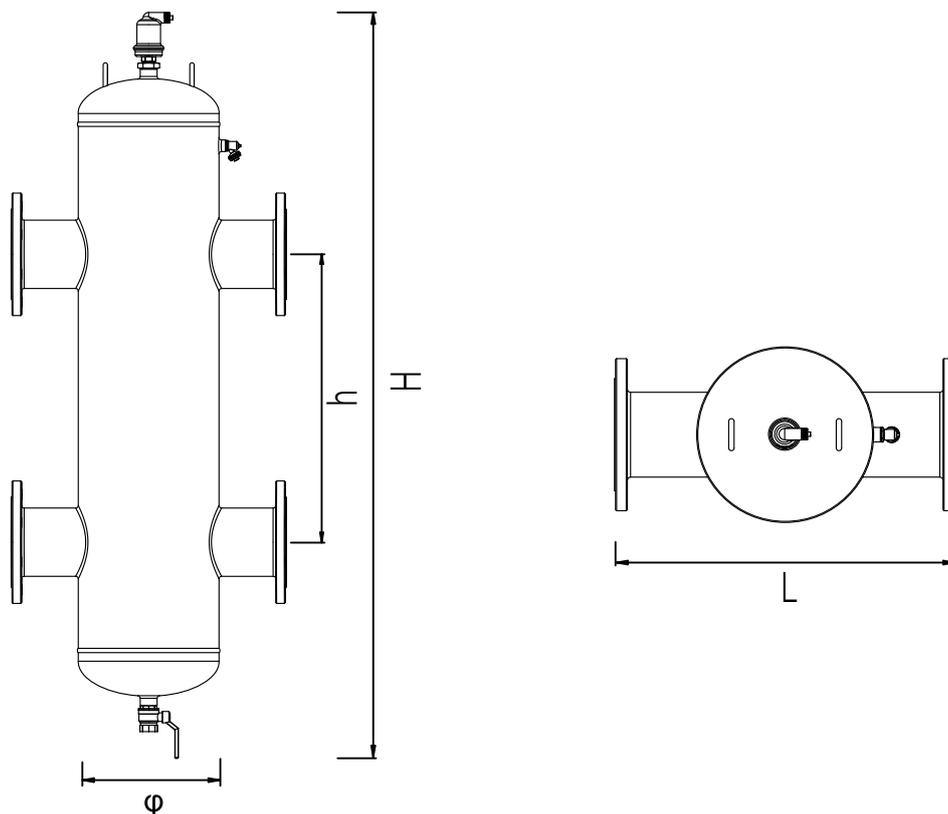
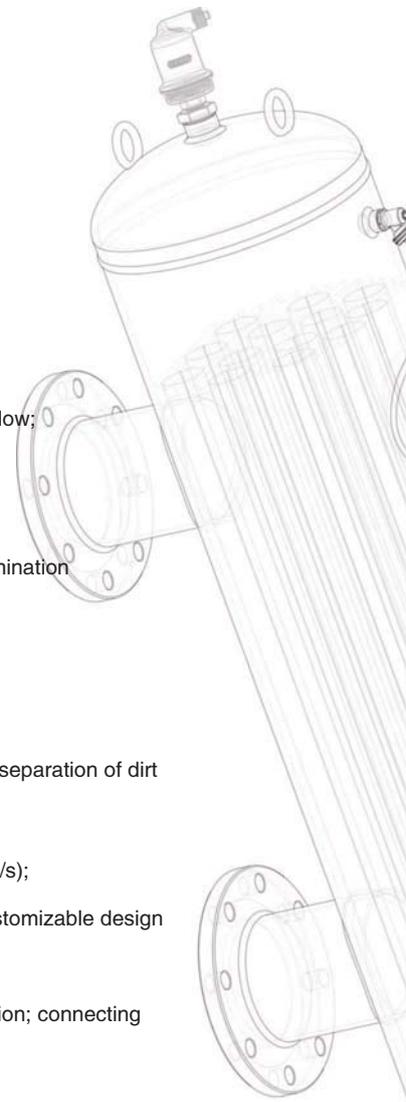
- $Q_P > Q_S$ $T_1 = T_3$ $T_2 > T_4$

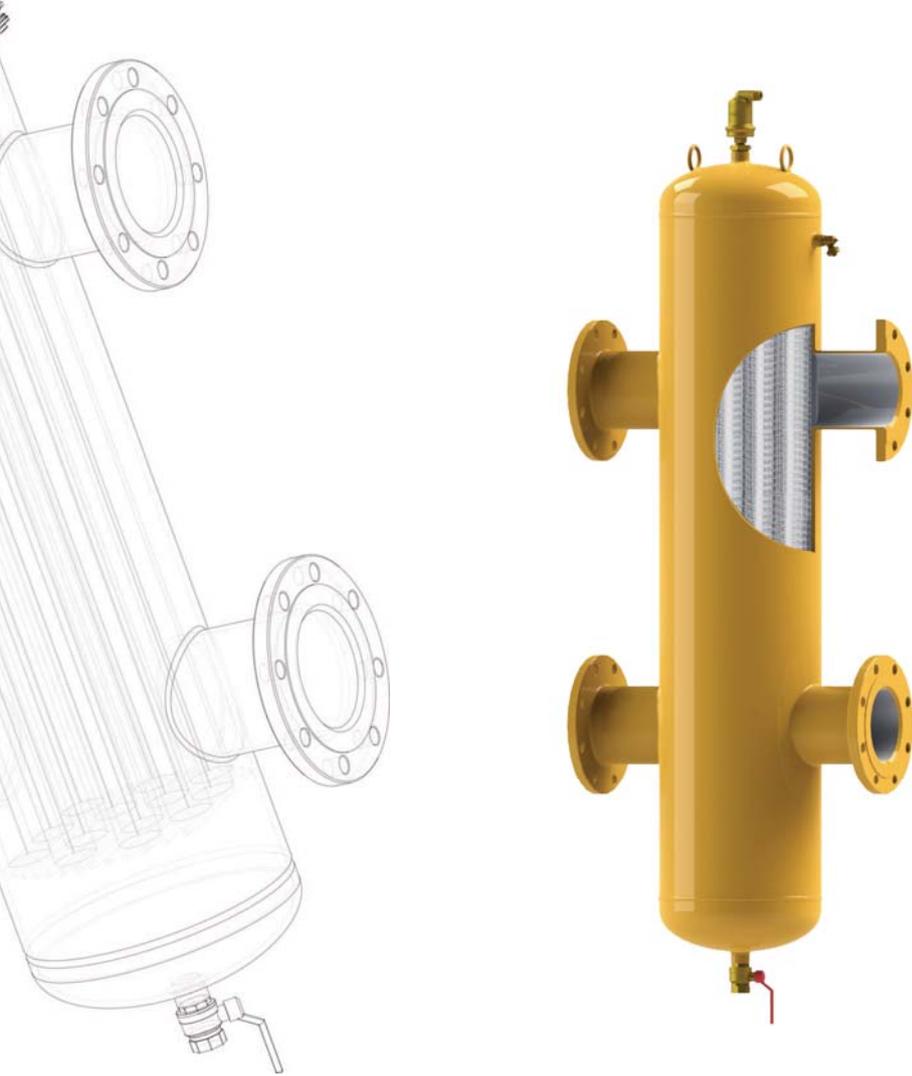
This is an operating condition where primary circulation flow is greater than secondary circulation flow.

Partial primary supply water will enter the primary return water, which makes the temperature of the primary return water higher (supply heating) or lower (cooling) than the temperature of the secondary return water, which will avoid problems caused by boiler flue gas reaching condensing temperature when the boiler is under low load condition.

Multi-function Hydraulic Separators

- Balance hydraulic power interference caused by simultaneous operation of constant flow and variable flow;
- Effectively prevent evaporator from freezing caused by flow reduction of water chilling unit;
- Effectively prevent smoke from condensing caused by low return water temperature of boiler;
- The minimum diameter of removed air bubbles is $10\ \mu\text{m}$ and the minimum diameter of removed contamination particles is $5\ \mu\text{m}$;
- The discharge rate of primary-gas produced by water passing through air release assembly is 80%;
- The gas content can be reduced by half or more after the system has been running 4–6hours;
- The gas content in the system can be reduced to 0.4% after a period of operation, exhausting gas and separation of dirt at the same time, and then discharge dirt after accumulation;
- The content of dirt is reduced to 4% or less of the initial after 50 circulations(with a flow velocity of 0.5m/s);
- Maximum working temperature: 110°C , maximum allowable working pressure: 10bar; the maximum customizable design conditions are 150°C or 25bar;
- For water and water/glycol mixtures (max. 50% glycol share), horizontal installation and flange connection; connecting diameter of pipeline is above DN50;
- The product meets PED/DEP 97/23/EC(CE) standard;
- General structure, built-in copper filter element with specially helical structure, or stainless steel rhombus filter element, barrel is made of carbon steel, with superior powder spraying on the surface and air valve at the top is made of brass.





TwinCross Multi-function Hydraulic Separators

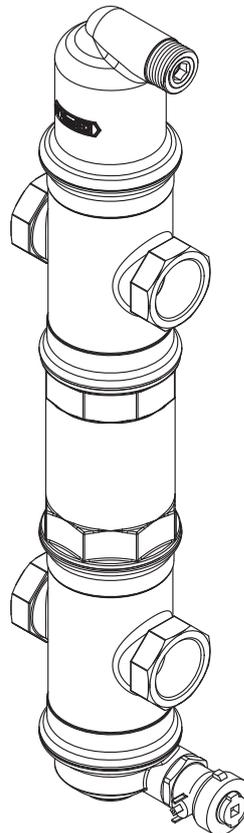
Type	DN	L mm	φ mm	H mm	h mm	Flow m ³ /h	Weight kg	Type	DN	L mm	φ mm	H mm	h mm	Flow m ³ /h	Weight kg
TC 50	50	350	150	950	240	12.5	32	TC 250	250	890	500	2700	1100	288	300
TC 65	65	350	150	950	305	20	35	TC 300	300	1005	600	3200	1295	405	445
TC 80	80	470	200	1200	360	27	50	TC 350	350	1100	600	3400	1400	500	530
TC 100	100	475	200	1200	460	47	53	TC 400	400	1200	800	4000	1800	650	775
TC 125	125	635	300	1600	560	72	115	TC 450	450	1300	800	4400	2000	850	950
TC 150	150	635	300	1600	670	108	125	TC 500	500	1400	1000	4900	2200	1060	1430
TC 200	200	775	400	2000	870	180	220	TC 600	600	1600	1200	5800	2600	1530	2030

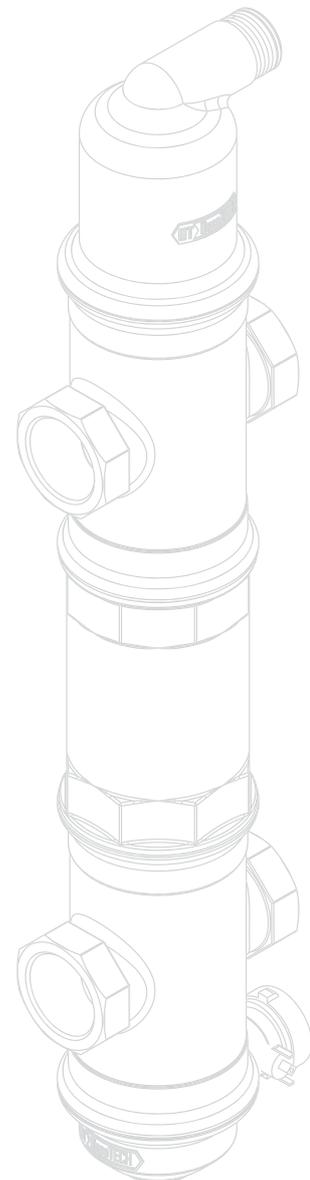
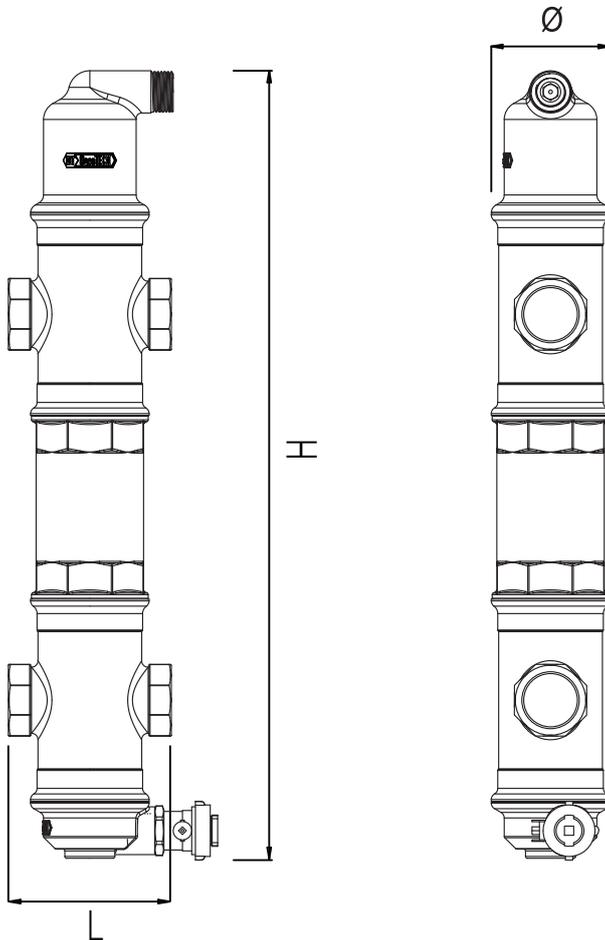
Note: φ is the inner diameter.

The above parameters are for the condition where the maximum working pressure is 10 bar and the maximum working temperature is 110°C. Please consult us for pressure of 16 bar, 25 bar or temperature of 150°C.

Multi-function Hydraulic Valves

- Balance hydraulic power interference caused by simultaneous operation of constant flow and variable flow;
- The minimum diameter of removed air bubbles is 10 μ m and the minimum diameter of removed contamination particles is 5 μ m;
- The discharge rate of primary-gas produced by water passing through air release assembly is 80%;
- The gas content can be reduced by half or more after the system has been running 4–6hours;
- The gas content in the system can be reduced to 0.4% after a period of operation, exhausting gas and separation of dirt at the same time, and then discharge dirt after accumulation;
- The content of dirt is reduced to 4% or less of the initial after 50 circulations(with a flow velocity of 0.5m/s);
- Maximum working temperature: 110°C, maximum allowable working pressure: 16bar; the maximum customizable design conditions are 180°C or 25bar;
- For water and water/glycol mixtures (max. 50% glycol share), horizontal installation and flange connection; connecting diameter of pipeline is above DN50;
- The product meets PED/DEP 97/23/EC(CE) standard;
- General structure, built-in copper filter element with specially helical structure, valve, air separator and dirt separator are all made of brass.





TwinCross

(Brass, Horizontal Installation, 110°C, 16bar)

Type	H mm	L mm	Ø mm	Weight kg	Connection
TC 1	429	88	64	3.1	Rp1

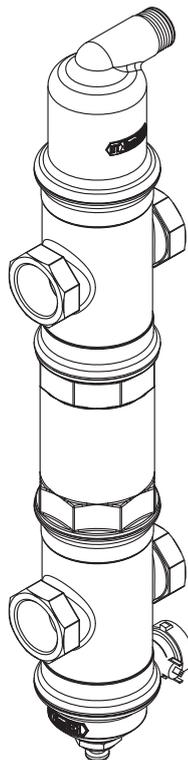
TwinCross Solar

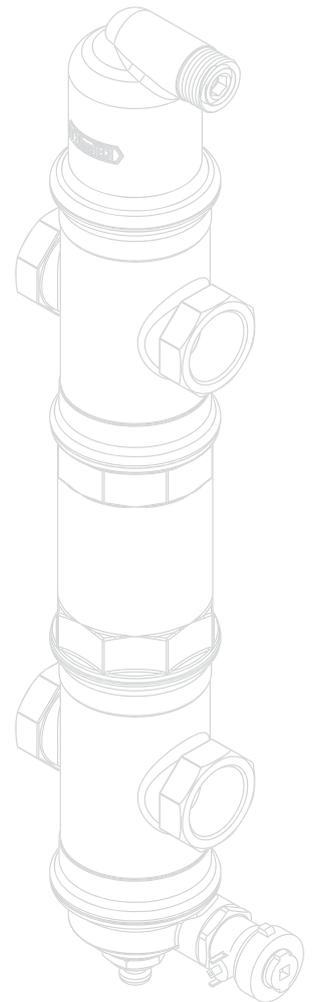
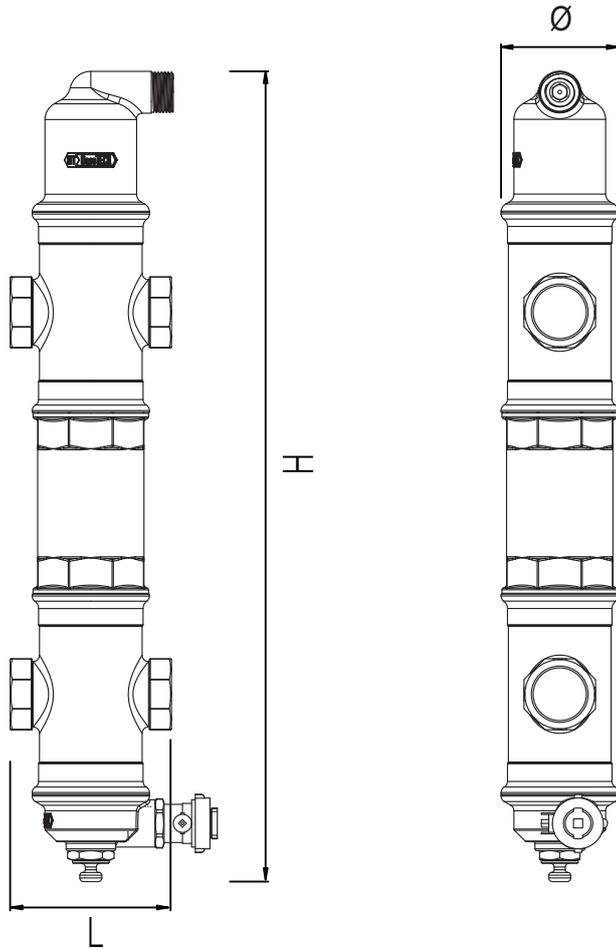
(Brass, Horizontal Installation, 180°C, 16bar)

Type	H mm	L mm	Ø mm	Weight kg	Connection
TC 1S	429	88	64	3.1	Rp1

Magnetic Multi-function Hydraulic Valves

- Balance hydraulic power interference caused by simultaneous operation of constant flow and variable flow;
- The minimum diameter of removed air bubbles is 10 μ m and the minimum diameter of removed contamination particles is 5 μ m;
- The discharge rate of primary-gas produced by water passing through air release assembly is 80%;
- The gas content can be reduced by half or more after the system has been running 4–6hours;
- The gas content in the system can be reduced to 0.4% after a period of operation, exhausting gas and separation of dirt at the same time, and then discharge dirt after accumulation;
- The content of dirt is reduced to 4% or less of the initial after 50 circulations(with a flow velocity of 0.5m/s);
- Maximum working temperature: 110°C, maximum allowable working pressure: 16bar; the maximum customizable design conditions are 180°C or 25bar;
- For water and water/glycol mixtures (max. 50% glycol share), horizontal installation and flange connection; connecting diameter of pipeline is above DN50;
- The product meets PED/DEP 97/23/EC(CE) standard;
- With a magnetic induction function, the filter element can absorb slight iron particles,powder and other magnetic material;
- General structure, built-in copper filter element with specially helical structure, valve, air separator and dirt separator are all made of brass.





TwinCross Magnet

(Brass, Horizontal Installation, 110°C, 16bar)

Type	H mm	L mm	Ø mm	重量 kg	接口尺寸
TC 1M	446	88	64	3.2	Rp1



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