

Zeparo ZU

Automatic air vent | Separator for micro bubbles and/or sludge particles

Installation | Operation

Safety, Installation and Storage Information



These instructions are intended for qualified personnel. They must be read before commencing installation work and stored in a safe place by the operator. Personnel must possess the appropriate skills and training.

Store horizontally in dry rooms, in the original packaging. Before installing the Zeparo, carry out a visual inspection. If there is any major damage, the Zeparo should not be used. The appropriate measures must be taken in order to keep within the admissible temperatures TS and pressures PS. The local legislation in the case of a fire must be observed. Access to the plant room should be restricted to competent persons.

Before carrying out any installation, disassembly or maintenance work on the Zeparo, the system must be depressurised and allowed to cool. When carrying out installation and maintenance work, pay attention to the following symbols and information:



Important: High temperatures and pressurised hot water!



If using the Zeparo ZU...M with magnetic action: Protect data storage media and heart pacemakers!

Appliance | Setup

- Universal type, brass
- Zeparo ZUT|ZUP: Vent with leakfree safety pack for safe, dry venting
- Zeparo ZUV|ZUD|ZUM|ZUKM: Separator with helistill separator for separating micro bubbles and/or sludge
- Zeparo ZUCM: Low loss header for hydraulic decoupling
- Heating, solar and chilled water systems
- Up to 50 % antifreeze

Applications other than those described require prior agreement with IMI Hydronic Engineering.

Technical data

- Max. admissible temperature TS:
-10–110 °C ZUT|ZUTX|ZUP|ZUPN|ZUV|ZUD|ZUM
ZUKM|ZUCM
-10–160 °C ZUTS|ZUVS
- Max. admissible pressure PS:
0–10 bar ZUT|ZUTS|ZUTX|ZUP**|ZUPN|ZUV
ZUVS|ZUD|ZUM|ZUKM|ZUCM
**ZUP|ZUPN working pres. range DPP: 6 bar
- Function does not depend on flow direction
- Max. flow velocity in continuous operation: 1 m/s

Material

- Vent, body, linkage: Brass
- helistill separator: Stainless steel AISI 304 | 1.4301 or Plastic PP - 30 % glass fibre
- Gaskets: EPDM -10–110 °C | FPM (Viton) -10–160 °C
- Float: Plastic -10–110 °C | Stainless steel -10–160 °C

Regulations | Inspection

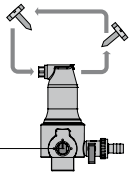
Zeparo ZU comes under Article 3 Paragraph 3 of pressure equipment guideline PED/2014/68/EU. There are therefore no standard inspection procedures. The local regulations and environmental requirements are to be observed.

Operation | Maintenance



Automatic air vent and separator with micro bubble separation

ZUT, ZUP automatic air vents and the vents for ZUV separator for micro bubbles, ZUKM combination separators and ZUCM low loss headers are maintenance-free. In the unlikely event that the vent valve leaks, the fluorescent plug screw will be very useful, as it temporarily stops the leak and gives a visible warning signal.



Automatic air vent ZUTX

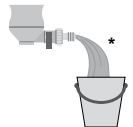
The multifunctional 3-way valve can be set to any of the three functions «Vent», «Service» or «Skim» using a spanner (sw 13).

Vent: Normal operating state. The vent is connected to the separator and releases the collected air.

Service: Operating state for service operations (de-sludging). The vent is disconnected from the separator.

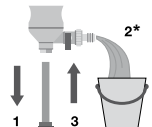
Skim: The vent ball valve is opened to the separator. This allows larger volumes of air and water to be drained off, and the vent connection to be flushed out.*

Separator with de-sludging function
ZUD, ZUM separators for sludge particles, ZUKM combination separators, and ZUCM low loss headers must be flushed out at regular intervals, depending on the quantity of sludge in the system water.*



If the ZU...M version with magnetic action is installed, read the special instructions!

- 1 Pull out magnetic rod
- 2 Flush out*
- 3 Insert magnetic rod



* The quantity of water drained off must be replaced, otherwise the pressure maintenance function will be impaired.



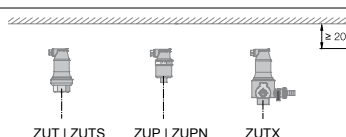
Zeparo ZU

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Installation

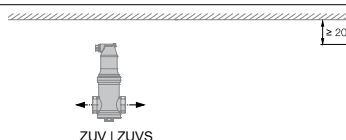
Automatic air vent

Suitable for initial venting at high levels when filling ①②③④⑥. Operational venting of radiators at higher levels (for small systems only) ②. As part of separators or degassers, for draining off the gases. Installed in the flow and return pipes at the end of risers. At relatively high levels in the system ②. Alternating with the radiator connection ②.



Separators for micro bubbles

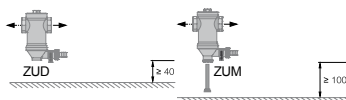
Suitable for operational venting. Its effectiveness is limited by static height Hstm above the separator » table below | Technical Guide Air. Preferably installed in the main flow pipe close to the heat generator ①③④.



In chilled water systems, in the warmer return pipe to the chiller.

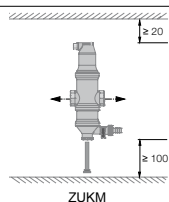
Separator for sludge particles

Suitable for in service de-sludging. Preferably installed upstream of the parts to be protected, for example heat generators, metering/heat measuring devices, pumps. Particularly effective in version ZU...M with magnetic action ①②④.



Separators for micro bubbles and sludge particles

Suitable for combined operational venting and de-sludging. Preferably installed in chilled water systems upstream of the heat generator ⑥. This protects the generator from sludge accumulation, and the relatively high temperatures there are optimal for separation for micro bubbles. Roof top heating installations also provide outstanding operating conditions for combined initial/operational venting and de-sludging ⑥. Separation for micro bubbles can only be guaranteed if the Hstm values are not exceeded » table below | Technical Guide Air.



Low loss header

Suitable for hydraulic decoupling of the generator and consumer circuits in combination with operational venting and de-sludging. Installed between the generator and consumer circuits. The integrated separation for micro bubbles can only be guaranteed if the Hstm values are not exceeded » table below | Technical Guide Air. For optimal operation, the indicated volumetric flow conditions must be set between q1 and q2.

Case A | » page 4:

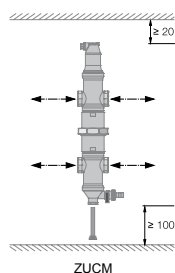
Primary volumetric flow $q_1 >$ Secondary volumetric flow q_2

To be used where secondary flow q_2 is so reduced by mixing with the return flow at the consumer circuits, that the effectiveness of the generators is no longer ensured. Not suitable for condensing boilers » case B.

Case B | » page 4:

Primary volumetric flow $q_1 <$ Secondary volumetric flow q_2

Used primarily with condensing boilers in combination with underfloor heating systems. Secondary volumetric flow q_2 of underfloor heater is greater than volumetric flow q_1 produced by the condensing boiler. Water heaters should be connected on the boiler side before the header.



Hstm Static height

Hstm = static height to ensure separation for micro bubbles at max. temperature t_{max} upstream of separator

t_{max} °C	90	80	70	60	50	40	30	20	10
Hstm mWs	15,0	13,4	11,7	10,0	8,4	6,7	5,0	3,3	1,7

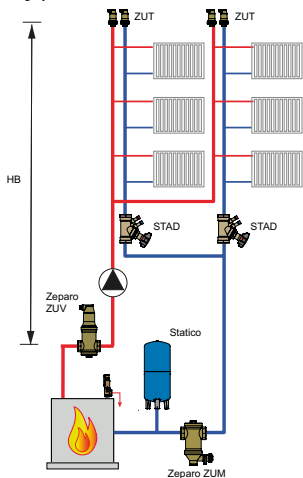
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Example circuits ① ② ③ ④ ⑤ ⑥

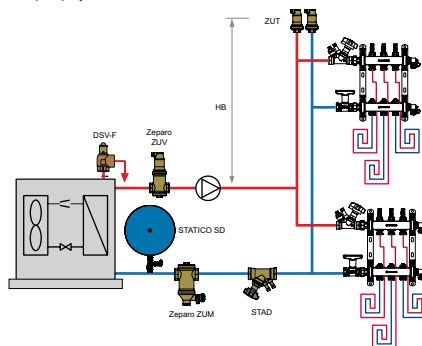


The example circuits shown are the preferred solutions. Variations are possible, provided the limit values indicated in the descriptions are maintained (H_{stm} , q_1 , q_2).

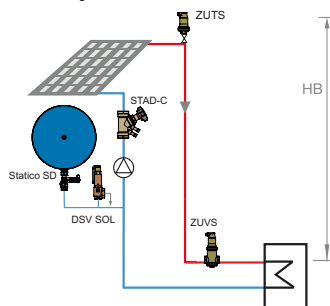
Heating system



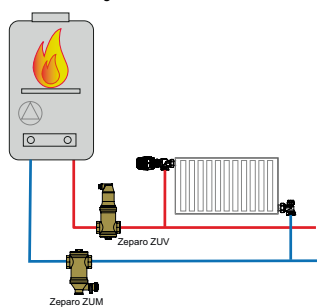
Heat pump system



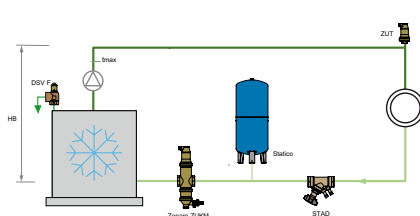
Solar heating



Wall-mounted gas boiler



Cooling system



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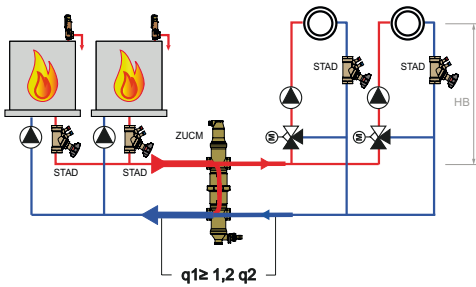
Installation

Example circuits Case A | Case B



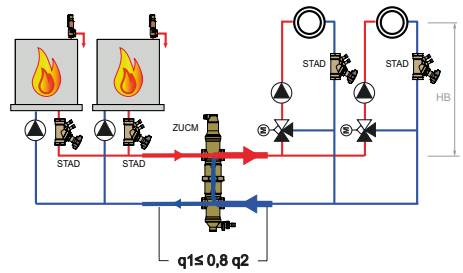
The example circuits shown are the preferred solutions. Variations are possible, provided the limit values indicated in the descriptions are maintained (H_{stm} , q_1 , q_2).

Case A: $q_1 > q_2$



$$q_1 \geq 1,2 q_2$$

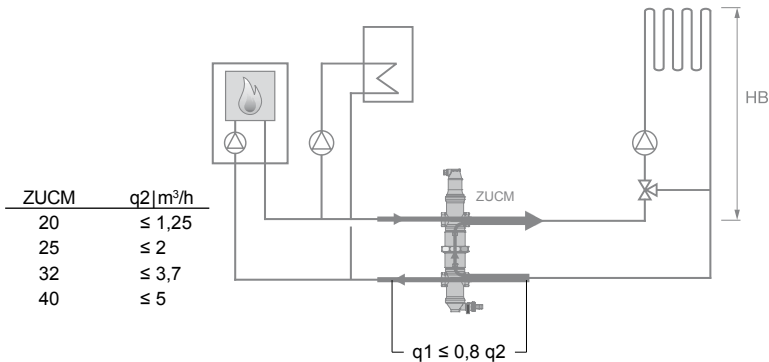
ZUCM	q_1 m ³ /h
20	$\leq 1,25$
25	≤ 2
32	$\leq 3,7$
40	≤ 5



$$q_1 \leq 0,8 q_2$$

ZUCM	q_1 m ³ /h
20	$\leq 1,25$
25	≤ 2
32	$\leq 3,7$
40	≤ 5

Case B: $q_1 > q_2$



ZUCM	q_2 m ³ /h
20	$\leq 1,25$
25	≤ 2
32	$\leq 3,7$
40	≤ 5

$$q_1 \leq 0,8 q_2$$