



Aura
Heat pumps



Aura heat pumps

Aura heat pumps are units that use a bidirectional (reversible) compressor system to generate both heat and cooling. The basic type is air-to-water units, which allow the transfer of energy between air and water. Aura heat pumps can be used in most systems with water or glycol. This device can operate in temperatures as low as -25°C , and thanks to a wide range of accessories and options, it can meet most project requirements.



Heating capacity

up to 75 kW



Type

air-to-water



Versatility

Central heating system, Domestic hot water system, HVAC



Cooling capacity

up to 65 kW



Functions

heating and cooling



Design

monobloc

Why Aura?

Aura are heat pumps with a cooling function, prepared for use in various water installations. Easy to assemble, these monoblock units are suitable for use in the SYSTEM FLOWAIR and in combination with other devices. They are characterised by high COP and EER coefficients and operate in the temperature range from -25°C to $+45^{\circ}\text{C}$.



Application of heat pumps

Due to the high universality, the areas of application of air-to-water heat pumps should be considered in terms of installations and devices, rather than the facilities in which they can operate. Examples of installations for which an air-to-water heat pump can work include:

- central heating systems
- domestic hot water systems
- ventilation and air-conditioning systems,
- air heating and cooling systems.

Heat pump components

1. Complete compressor system – the unit is equipped with an autonomous compressor system, transferring energy between air and water.

2. Complete and independent control – FLOWAIR pumps are equipped with an autonomous automation system that supervises and controls the operation of the entire device. It allows communication with other elements of the installation, e.g. with heat/cold receivers.

3. Hydraulic pump – the basic pump covering the pressure drops of the part of the hydraulic system located in the device. Installed in a monoblock housing.

4. Accumulation tank – a buffer installed inside, used to ensure the continuity of operation of the device and its proper regulation.

5. Vibration isolators – rubber feet, mounted by the unit installer between the base of the heat pump and the place of its mounting. They are used to improve the quality of the entire installation.

6. Expansion vessel – installed in the unit. Together with the safety valves, they provide protection against unexpected changes in the system's operating parameters.





Optional equipment

Depending on the project requirements, Aura heat pumps can be equipped with the following options:

Backup circulating pump – a second pump serving the components inside the unit, serves primarily as a backup for the first pump. Installed in the unit in parallel with the primary pump. In this arrangement, the pumps operate alternately, reducing the number of operating hours and decreasing wear on the primary pump.

Inverter control of circulation pumps – smooth control of circulation pumps, control according to power demand. Allows to reduce the electricity consumption of the circulation pumps.

Additional freon-water exchanger – heat recovery of hot vapour refrigerant for domestic hot water heating during periods of facility cooling.

Accessories

Compressor soft start – soft start allows to limit the value of starting current in [A].

Control panel for operators – an additional panel that can be mounted on the unit or, for example, in the operator's room. It enables changing basic operating parameters and monitoring of the unit's operation.

Analogue refrigeration circuit pressure gauges – additional high and low pressure gauges. Indications on analogue clocks with a scale, independent of the digital sensors installed as standard. They serve as an additional independent control by the user.

Mechanical filter of the water / glycol circuit – a mechanical filter mounted outside the device, at the water inlet to the heat pump. Selected for a given type of device. Provides protection against mechanical contamination.

Hydraulic connection vibro-compensators – elements ensuring a flexible installation of the hydraulic system.

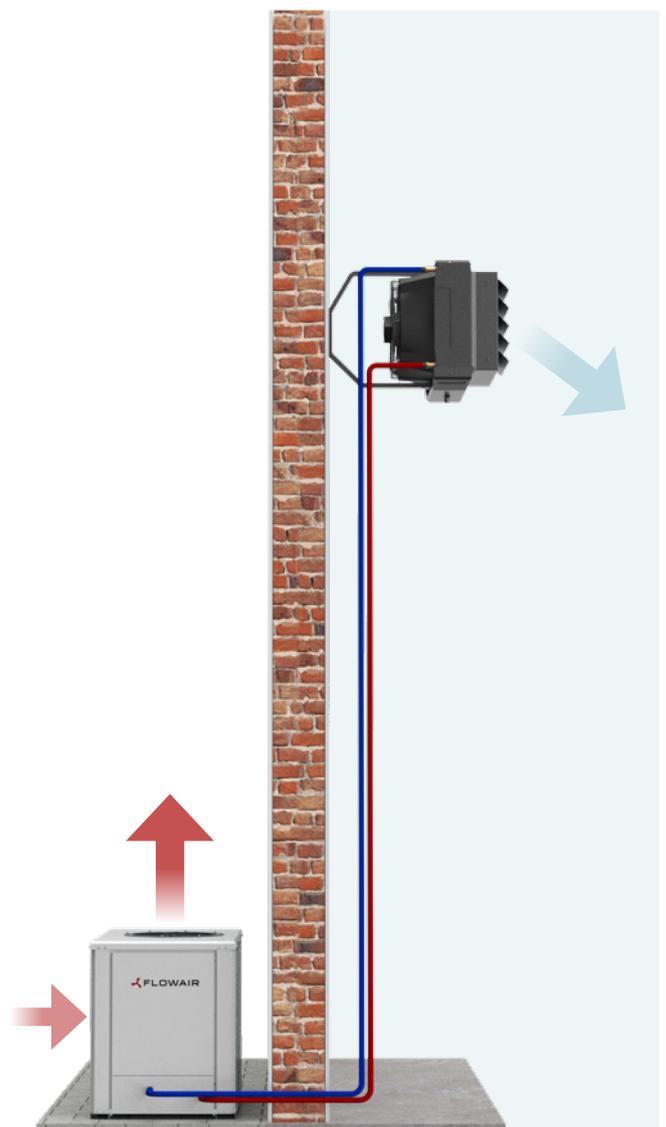
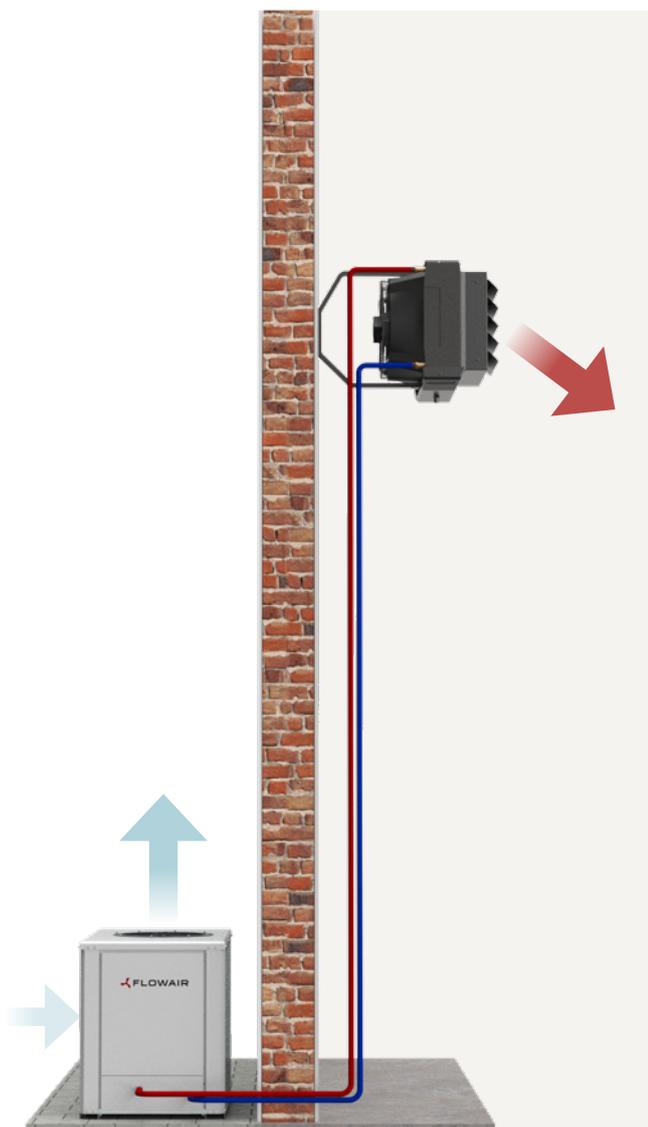
Heat pump operating mode

Heating mode

In heating mode, most often in winter, when there is a need to raise the temperature in the facility (to cover heat losses), the unit receives heat from the outside air and releases it into water (or glycol). Water / glycol heated in this way is ready to heat the facility in various installations, e.g. in LEO COOL cooler and heater.

Cooling mode

In cooling mode, most often in summer, when there is a need to lower the temperature in the facility (to remove heat gains), the device receives heat from the water (or glycol) and gives it back to the outside air. The water/glycol cooled in this way is ready to cool the facility in various installations, such as LEO COOL cooler and heater.



Application example - simplified view

Technical data

Series	HCS							
Model	113	219	325	332	444	454	563	575
General data								
Heating capacity [kW] ⁽¹⁾	12.5	18.4	24.8	31.7	43.1	53.2	62.6	74.6
Energy consumption [kW] ⁽¹⁾	3.4	5.1	6.9	8.6	12.4	15.2	18.2	21.4
COP	3.68	3.61	3.59	3.69	3.48	3.50	3.44	3.49
Energy efficiency class ⁽⁷⁾	A++							
Cooling capacity [kW] ⁽¹⁾	11.3	16.1	22.4	28.8	38.5	47.4	54.8	64.8
Energy consumption [kW] ⁽¹⁾	3.0	4.9	6.5	8.1	12.0	15.0	17.4	20.2
EER	3.77	3.29	3.45	3.56	3.21	3.16	3.15	3.21
Compressor circuit								
Compressors [n°]	1	2	2	2	2	2	2	2
Circuits [n°]	1	1	1	1	1	1	1	1
Evaporator [type]	Plate							
Fans [n°]	1	1	1	1	2	2	2	2
Hydraulic circuit								
Water flow [m ³ /h] ⁽³⁾	2.2	3.2	4.3	5.5	7.4	9.2	10.4	12.5
Pressure drop [kPa] ⁽³⁾	20.1	21.8	23.5	24.9	27.1	28.8	29.8	31.5
Hydraulic connection [DN]	25	32	40	40	40	40	50	50
Expansion vessel [dm ³]	8	8	12	12	18	18	25	25
Accumulation tank [dm ³]	50	80	130	130	200	200	250	250
Water pump power [kW]	0.30	0.55	0.75	1.10	1.50	2.20	2.20	2.20
Electrical data⁽⁶⁾								
Power supply [V/Ph/Hz]	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Maximum current [A]	12.0	16.2	22.1	26.2	39.2	45.8	52.6	62.6
Inrush current [A]	54.4	52.7	64.4	85.3	124.2	155.2	149.6	176.6
Acoustic data								
Sound power [dB(A)] ⁽⁴⁾	74.5	77.0	81.1	81.5	83.6	82.1	87.4	87.0
Sound pressure [dB(A)] ⁽⁴⁾	43.0	46.0	46.0	47.0	49.0	46.0	49.8	48.9
Dimensions and weight								
Length [mm] ⁽⁵⁾	1150	1550	2000	2000	2000	2000	2200	2200
Width [mm] ⁽⁵⁾	1000	1000	1100	1100	1100	1100	1100	1100
Height [mm] ⁽⁵⁾	1100	1100	1400	1400	1750	1750	2180	2180
Weight [kg] ⁽⁵⁾	283	371	484	508	597	633	779	806

(1) Water Inlet/outlet temperature 40/45 °C, ambient temperature 7 °C;

(2) Water Inlet/outlet temperature 7/12 °C, ambient temperature 35 °C;

(3) Flow rate for heating mode, water.

(4) Acoustic data in accordance with ISO9614. Sound pressure - standard execution (distance 10 m).

(5) Dimensions and weight for information purposes only. It is recommended to obtain a technical drawing before designing the installation.

(6) Unit with pump system data.

(7) For low-temperature applications in medium climate conditions (Regulation 811/2013)



Aura heat pumps and climate policy

Aura heat pumps are ready for the new climate policy of the European Union. The changes imply a significant reduction in the amount of refrigerants introduced to the market annually and a reduction in the types of refrigerants. This will result in the need to build water-based systems instead of freon-based ones.

Heat pumps control system

AURA heat pumps are equipped with a fully autonomous control and monitoring system. What is more, the unit can be equipped with an additional autonomous control panel or, when integrated into the SYSTEM FLOWAIR, with the T-Box controller. *



Installation

Thanks to the monoblock design of the Aura heat pumps, installation is simplified to just a few steps. The first is the preparation of the installation site. The heat pump is then positioned at the designated location. Once the unit is positioned, it is ready to be connected to the water system and power supply. The final step is the parameterisation and commissioning of the unit.



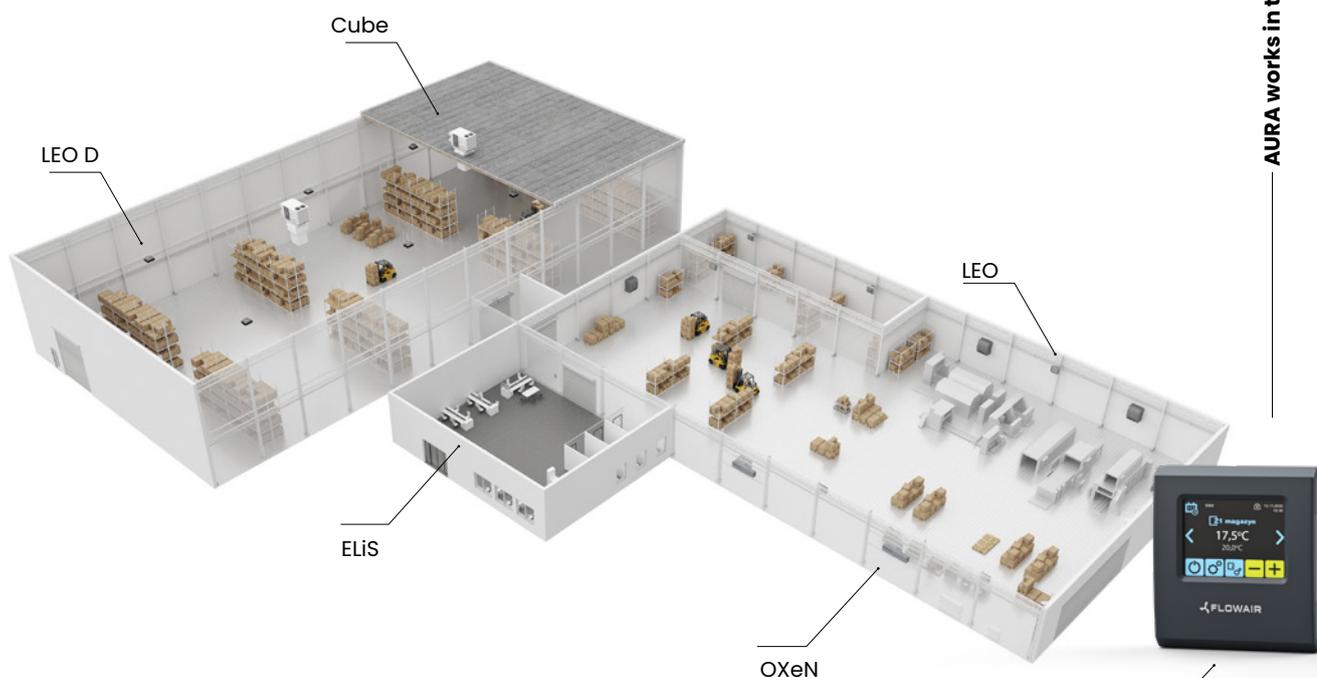
Installed heat pump – simplified view

* on request

SYSTEM FLOWAIR



The SYSTEM FLOWAIR is a complete range of heating and ventilation devices integrated by a single controller. The T-box Zone controller allows up to 31 devices from the range to work together in 31 independent zones.



AURA works in the SYSTEM

- LEO – Fan heaters
- LEO D – Destratificators
- ELiS and Slim – Air curtains
- OXeN – Ventilation unit with heat recovery
- Cube – Rooftop devices



Control of device operation with a single controller



Local adjustment of device operation



Advanced control of ventilation and heating devices



Adjustment of device operation schedule to individual needs



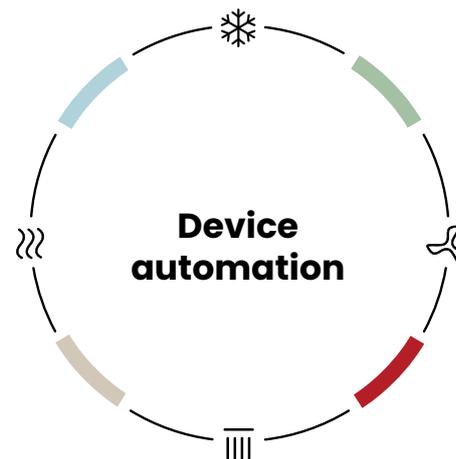
Antifreeze – Protection of the building and equipment against excessively low temperatures

* na zapytanie

Integration and interoperability of devices

The T-box Zone smart touch controller has a number of functions necessary to effectively manage the operation of the heating and ventilation system that until now were restricted to extensive Building Management Systems (BMSs).

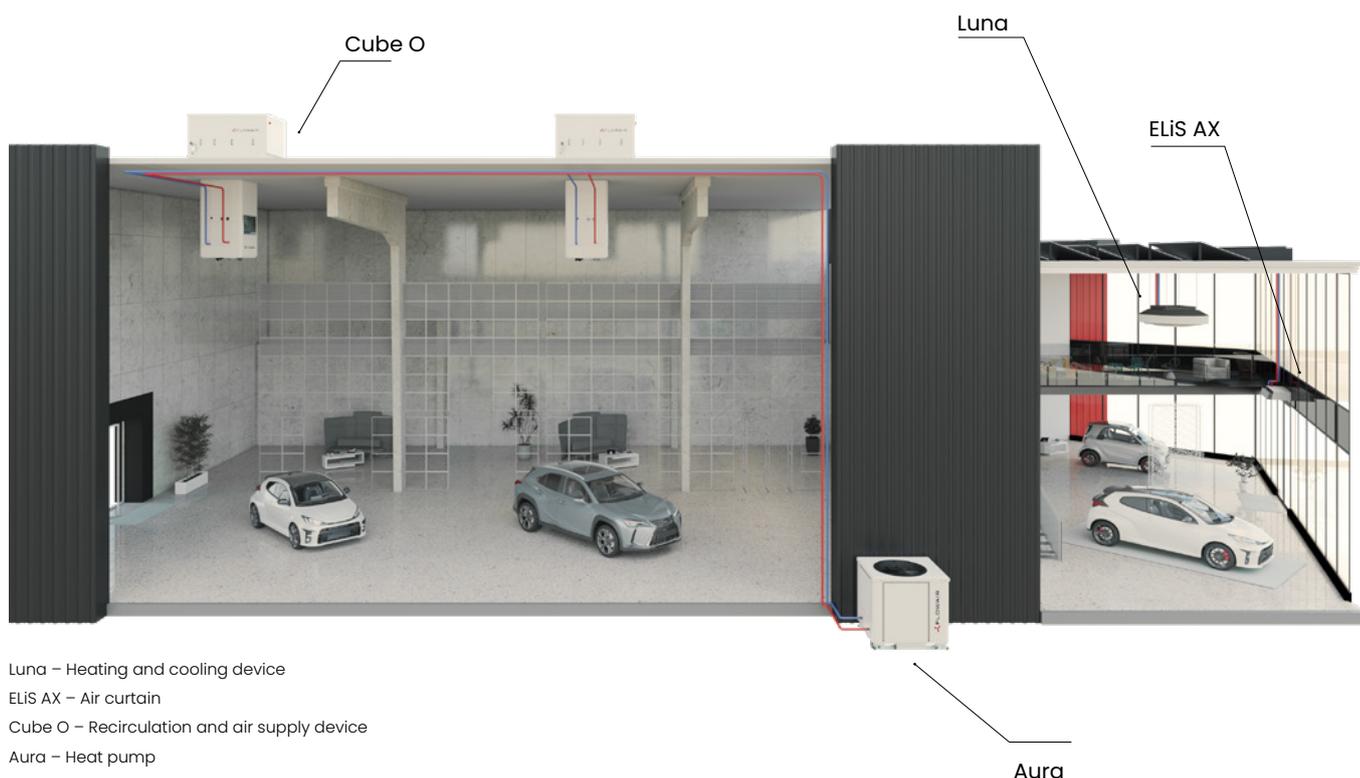
The SYSTEM enables devices to work together to ensure a higher thermal comfort and energy efficiency. The combined operation of heaters and destratifiers makes it possible to effectively utilize heat from the upper parts of the room, while saving the heat energy supplied by the heaters.



Cooperation with heat pumps

Cooperation with other devices from the FLOWAIR range – heat pumps can cooperate with all devices from the range that use water as a working medium. This applies to the heaters, coolers and heaters, curtains and water exchangers in the Rooftop Cube and Luna units.

Advanced control ensures trouble-free cooperation with AURA heat pumps. An additional advantage of this solution is the use of water as a heating or cooling agent, which ensures greater safety and has a lower environmental impact compared to freon air conditioning systems.





Manufacturer:

FLOWAIR Sp. z o.o.
Chwaszczyńska 135,
81-571 Gdynia

www.flowair.com

