



Q V A N T U M
HEAT PUMPS FOR SUSTAINABLE CITIES

Q V A N T U M – E T K

Efficient exhaust air heat pumps in a compact format

- ✓ For both new build and replacement of existing heat pump
- ✓ Inverter technology for high and economical heat output
- ✓ One of the quietest exhaust air heat pumps
- ✓ Low height enabling cost-efficient and flexible installation
- ✓ Easy to control





GENERAL

Quantum-ETK exhaust air heat pump provides heat recovery, space heating and hot water at a very high efficiency and low noise level. It is available in three sizes, suitable for all dwellings up to 220 m²*

Quantum-ETK is both stylish and compact. The low height of 1,960 mm, enables unique flexibility in terms of installation options and placement.

The heat pump's inverter control and unique design provide a very high and economical heating output while the noise level is minimal.

The inbuilt buffer tank of 190 liters in combination with direct heating of the hot water in a sling tank provide high comfort and economic output as well as elimination of legionella bacteria.

APPEARANCE

The standard appearance of Quantum-ETK is white lacquered. Brushed stainless steel is available as an option.

PIPE CONNECTIONS

Quantum-ETK have pipe connections on the underside of the unit.

EXHAUST AIR VENTILATION FAN

Quantum-ETK is equipped with a stepless ventilation regulator. The speed is regulated based on the need of the ventilation of the dwelling. The fan is pressure-controlled which means that the speed is regulated as a function of the pressure in the system.

CONTROL SYSTEM

The control system in Quantum-ETK takes care of all functions while ensuring an optimal heat economical output.

All settings are made easy through a touch screen. Quantum-ETK operates based on the floating condensing principle. This means that the heat pump regulates the output temperature depending on the need of the house.



During winter a higher temperature is produced than in autumn and spring when the demand is lower.

OPTIONS

Several options are available such as ventilation connection on the side of the unit instead of the top. Also, connection to PV and other energy sources are available.

TESTING

The heat pump is tested during minimum 12 hours ensuring that all requirements regarding efficiency and function are fulfilled.



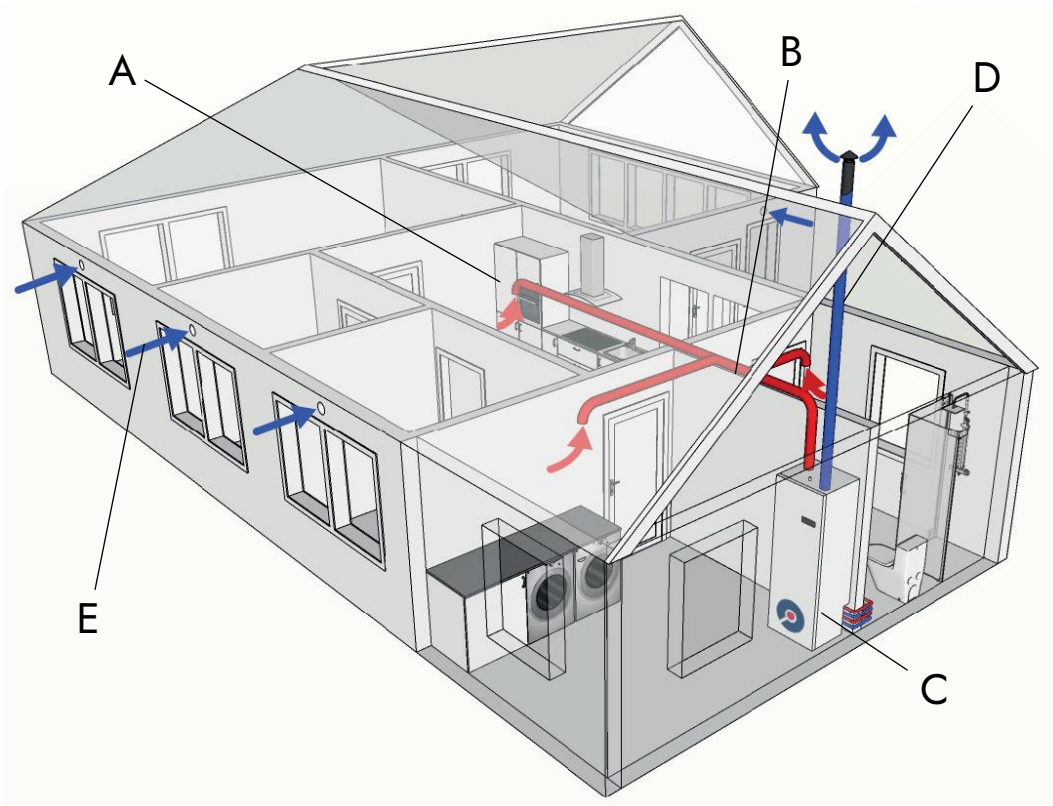
ENERGY SAVINGS UP TO 65%

Quantum-ETK can reduce energy consumption up to 65 % independent on the insulation and dwelling size.

* Based on ventilation flow rate of 0,35 l/s,m²



This is how Quantum-ETK works



- A Indoor air is drawn into the ventilation duct through exhaust air valves.
- B Indoor air is fed to Quantum-ETK.
- C Quantum-ETK supplies the house with space heating and hot water.
- D The air is released when it has passed Quantum-ETK. The air temperature has then been reduced since Quantum-ETK has extracted the energy from the indoor air.
- E As indoor air is drawn into the air duct system (A) a negative pressure is formed and fresh outdoor air is drawn into the house through outdoor devices. Also, air is transported from rooms with outdoor devices to rooms with exhaust air valves.



OPERATION PRINCIPLE

Indoor exhaust air is fed to the evaporator via a filter. When the exhaust air passes the evaporator, refrigerant evaporates because of its low boiling point. Hence, heat is transferred from indoor air to the refrigerant.

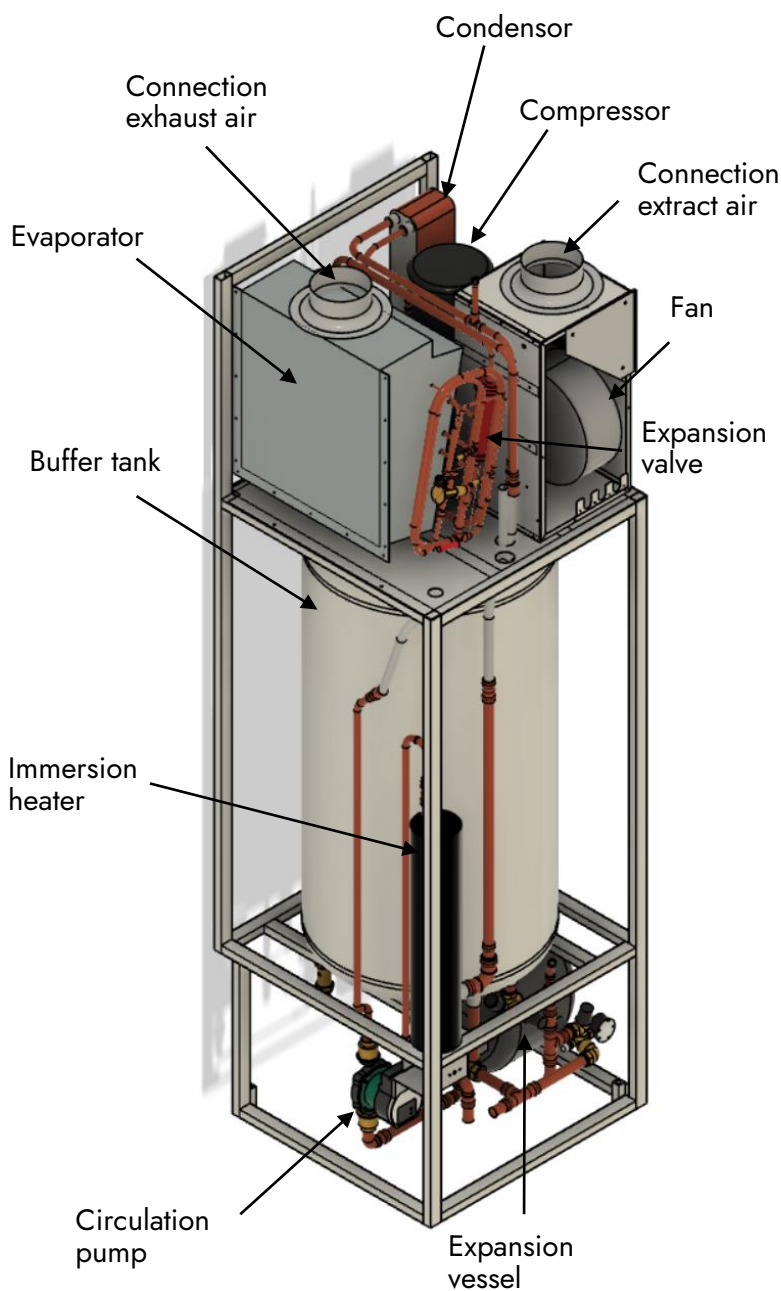
The refrigerant is then compressed in the compressor whereupon temperature rises significantly.

The warm refrigerant is led to the condenser. The refrigerant condenses, and energy is released to heating system water. The heat pump regulates the heat by a switching valve to either space heating or hot water. At cold weathers as well as high consumption of hot water, the immersion heater is connected step-by step, ensuring the comfort in the house.

The liquid refrigerant has completed its circulation cycle and passes the evaporator again.

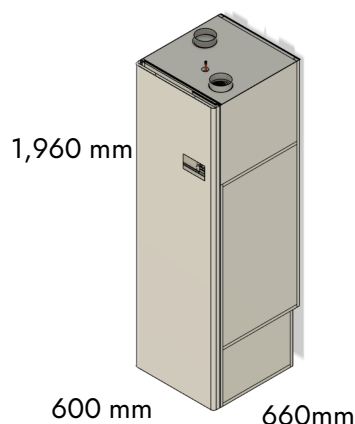
UNIQUE FUNCTIONS FOR QUANTUM-ETK

- Quantum ETK is equipped with a diffuser that distributes the heat evenly over the entire evaporator.
- Generously dimensioned evaporator, enabling a superior rate of heat recovery compared to conventional exhaust air heat pumps
- Low noise level, approx. 44 dB (A) at maximum power due to a larger compressor, which means lower speeds.



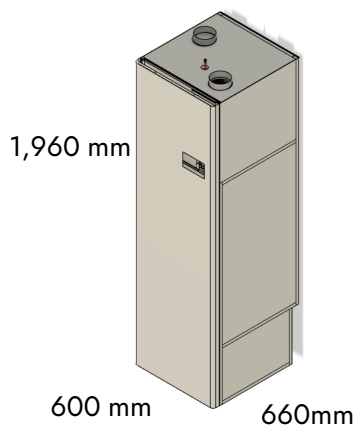


Quantum-ETK³⁵⁰⁰



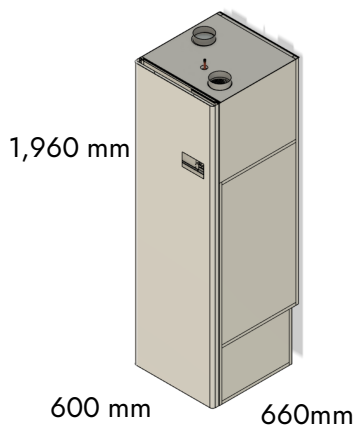
- For dwellings ranging from ca 70 - 100 m²*
- Heat output heat pump 3,5 kW, immersion heater 9 kW
- Frequency controlled compressor and adjustable ventilation fan minimizing consumed energy regardless operation mode
- Noise reduction design and components
- Low height

Quantum-ETK⁵⁰⁰⁰



- For dwellings ranging from ca 100 - 160 m²*
- Heat output heat pump 5 kW, immersion heater 9 kW
- Speed controlled compressor and ventilation fan minimizing consumed energy regardless operation mode
- Noise reduction design and components
- Low height

Quantum-ETK⁶⁵⁰⁰



- For dwellings ranging from ca 160 - 220 m²*
- Heat output heat pump 6,5 kW, immersion heater 9 kW
- Speed controlled compressor and adjustable ventilation fan minimizing consumed energy regardless operation mode
- Noise reduction design and components
- Low height

* Based on ventilation flow rate of 0,35 l/s,m²



TECHNICAL DATA

Quantum-ETK³⁵⁰⁰ Quantum-ETK⁵⁰⁰⁰ Quantum-ETK⁶⁵⁰⁰

General

Recommended living area*	m ²	70-100	100-160	160-220
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Heating capacity, EN14511-3:2013

Output/supplied power at 35°C	kW	3.5 / 0.9	5 / 1.3	6.5 / 1.7
Output/supplied power at 50°C	kW	3.5 / 1.1	5 / 1.7	6.5 / 2.2
ErP ranking, mid range climate, domestic hot water		A		
ErP ranking, mid range climate, space heating		A++		

Immersion heater

Max power incl. immersion heater	kW	12,5	14	15,5
Immersion heater (total three steps)	kW	9		

Hot water

Overheating protection	°C	96		
Domestic hot water, adjustable temperature	°C	45-60		
Domestic hot water 40°C, 8 l/min	liters	250	320	345

Refrigerant

Type of refrigerant		R-134a		
Amount of refrigerant	kg	1.1	1.2	1.3
GWP		1,300		
CO ₂ (e)	tons	1.43	1.56	1.69

Dimensions & appearance

Length	mm	600		
Width	mm	660		
Height	mm	1 960		
Additional ventilations outlet, height	mm	ca 30		
Required ceiling height	mm	2,060		
Weight	kg	ca 220	ca 225	ca 230
Colour		White alternatively brushed stainless steel		

Sound level (LWA), EN12102:2013

Sound power level	dB(A)	44		
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Ventilation

Minimum ventilation air flow*	l/s	24	35	56
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Components

Compressor		Speed-controlled		
Ventilation fan, stepless adjustable		Pressure-controlled		
Circulation pump		Pressure-controlled		
Expansions vessel	liters	18		

Electrical data

Fuse (depending on immersion heater)	A	16	16	20
Earth fault protection (minimum)	mA	300		
Rated voltage	V	3x400 VAC+ N		

Dimensions, connections

Pipe dimensions, heating supply/return	mm	Cu 22.0		
Pipe dimensions, cold/hot water	mm	Cu 22.0		
Pipe dimensions, exhaust air/extract air	mm	DN125		

* Based on ventilation flow rate of 0,35 l/s,m²



Solution and Heat Pump Experts

Quantum was founded 1993 with a vision to develop innovative high quality heat pumps. Today Quantum continues on this path developing the solutions needed for decarbonization of our cities.

Quantum is also a company with leading experts in the design of the next generation (5th) district heating and cooling solutions for dense urban areas.

By combining these competence areas, Quantum can provide solutions that will make it easier for Engineering consultants, Installers, Project developers and Utilities, to decarbonize the heating and cooling of our cities.



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