HYDROGEN HEATING SYSTEM

AIR**FLOX** air handling unit (AHU) with 10 kW or 50 kW heating capacity

Visualization of AIR**FLOX** 50*

HYDROGEN-FUELED AIR HEATING SYSTEMS BY HYTING

Pioneering the future with carbon-free heating solutions

We have radically simplified the use of hydrogen by applying the principle of flameless oxidation to generate heat. Our patent-pending technology utilizes a specially developed catalyst where hydrogen and oxygen from the air react to release heat. This allows us to offer CO_2-free heating across all performance ranges, even at high heating capacity requirements.

*Design and dimensions not final

SIMPLE

Our technical design is highly innovative yet not complex. Field-tested and volume-proven components are used in a newly conceived catalytic system which works with commercial-grade hydrogen at low pressures, thus enabling broad utilization.

SAFE

The catalytic reaction process works at all operating points with non-flammable hydrogen concentrations below 3%. Proven, series-produced components from the automotive and heating industries offer high reliability, long service life, and inherent safety.

EFFICIENT

By utilizing the enthalpy of vaporization of hydrogen, we achieve a heat output of 114% of its net calorific value. As the heated air is used directly and without a heat exchanger, we generate 37.4 kWh of thermal energy from 1 kg of hydrogen – more than any other hydrogen heating system.

CLEAN

Our technology does not produce any emissions – neither CO_2 nor NOx, nor particulate matter. The only by-product is water. This gives it considerable advantages over conventional hydrogen burner technologies.

APPLICATION AREAS

Primary Heating, Hybrid System, or Backup Solution

Our technology is extremely versatile and can be used as a primary, peak-load, or backup heating system. It can also be easily retrofitted into existing ventilation systems.

✓ **PRIMARY HEATING:** Short heat-up times; consistent, efficient performance at all outdoor temperatures; ideal for buildings that are difficult to renovate energetically.

✓ **HYBRID SYSTEM:** Complements heat pumps or CHP systems during peak demand on cold days; reduces CAPEX by allowing for a smaller dimensioning of these units.

✓ **BACKUP SOLUTION:** Suitable as an immediately deployable backup heating system, e.g. for greenhouses, thanks to its simple design and low standby costs.

TECHNICAL DATA FOR HYTING AIRFLOX*

	AIR**FLOX 10**	AIR**FLOX 50**
Heating capacity	0.5 to 10 kW	2.5 to 50 kW
Length	1,880 mm	2,300 mm
Height	960 mm	1,420 mm
Width	540 mm	1,450 mm
Weight	260 kg	650 kg
Airflow	max. 1,200 m^3/h	max. 6,000 m^3/h
Hydrogen consumption	0.01 to 0.26 kg/h	0.07 to 1.3 kg/h
Maximum electrical power consumption**	~ 0.5 kW	~ 1.2 kW
Generated thermal energy from 1 kg hydrogen	37.4 kWh	
Thermal efficiency***	114%	
Efficiency of heat recovery	80-89 %	
Nominal voltage	230 V	
Nominal frequency	50 Hz	
Gas connection pressure	20 mbar	
Maximum allowable gas connection pressure	60 mbar	
Hydrogen class minimum requirement	Group A	
Operating temperature range	-20 °C to +40 °C	

* expected values ** temporarily during system start *** in % of the net calorific value of hydrogen

PORTFOLIO – AVAILABLE HEATING CAPACITIES

as of 2024

- 10 kW
- 50 kW

as of 2025

- 25 kW
- 150 kW
- 300 kW

Higher heat outputs can be achieved by combining multiple units.

AIRFLOX 10/50-E-V2-07.24

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