



## LIBERTY AIR HANDLING UNITS & CIRCULARITY

SUSTAINABLE TECHNOLOGY FOR FUTURE GENERATIONS



# WHY COMPOSITE?

It is our vision that circularity starts with extending the lifespan of our air handling units. After all, this provides a longer service life (under similar conditions) which is always better than replacement by new products.

Liberty air handling units are made of composite. This results in air handling units that are cold bridge-free, strong and lightweight. They are designed to last extremely long, even in the most corrosive environment: CX extreme.

Most metals will rust immediately upon exposure to the environment. This is a natural process that can be prevented by unnatural coating or environmentally harmful galvanising or coating. Composite is completely corrosion resistant and therefore does not require any surface treatment. Choosing composite minimizes our carbon footprint by at least 54%, compared to metal.

**LIBERTY AIR HANDLING UNITS:  
SUSTAINABLE SOLUTIONS ENGINEERED  
FOR DURABILITY, EVEN IN THE MOST  
DEMANDING CIRCUMSTANCES.**



**THERMAL TRANSMISSION**

**T1**



**THERMAL COLD BRIDGE**

**TB1**



**MECHANICAL STRENGTH**

**D1**



**AIR TIGHTNESS**

**L1**



**FILTER BYPASS LEAKAGE**

**F9**

**FIRST CLASS PERFORMANCES**



# MATERIALS

Our modular designs allow for easy adjustments and partial replacements, providing flexibility for renovations and extending the lifespan of your installation.

The hygienic inner wall is composed of 80% granules from recycled consumer and industrial waste (PCR/PET), compliant with legislation (EC) 1935/2004 and (EU) No 10/2011.

Our knowledge center is dedicated to enhancing circularity and increasing the use of sustainable materials.



# CLIMATE NEUTRAL

In order to guarantee well-designed and efficient air handling units, we are EUROVENT certified. This enables us to design with certified and minimal energy consumption, along with the corresponding reduction in CO<sub>2</sub> emissions.

**“THE CARBON FOOTPRINT OF COMPOSITE IS MORE THAN HALF (54% !) LOWER THAN METAL.”**

Source: EUCia

Thanks to our focus on energy use, we are able to exceed the European Ecodesign legislation 1253/2014, resulting in lower energy use and associated lower CO<sub>2</sub> emissions: essential for achieving climate neutrality. Helping you with these energy-conscious decisions, we can support you with detailed Life Cycle Cost calculations.

LIFE CYCLE COST CALCULATION		Customer: AIR to Go	
SWIMMING POOLS		Project number: 20242042	
Leisure center		Position number: #	
		Created by: Lars Morten	
		Date: 24-10-2024	
		Design airflow: 77 000 m <sup>3</sup> /h	
		Heating airflow (design hours): 6,156 m <sup>3</sup> /h	
		Or 98 in the reduced air flow outside opening hours pursuant to	
<b>1. Energy prices for this project</b>			
Electricity price ex VAT but incl. delivery, transport and energy tax	€ 0.23 per kWh		
Gas price ex VAT but incl. delivery, transport and energy tax	€ 0.23 per m <sup>3</sup>		
Heat price based on the annual return of a gas-fired central heating system	€ 0.08751 per kWh		
<b>2. Opening hours for this project</b>			
Opening hours between 6:00 AM and 8:00 PM	10 hours		
Opening hours between 6:00 PM and 8:00 AM	4 hours		
Open days a week	7 days		
Open weeks a year	52 weeks		
Operating hours design airflow per year	4,900 hours		
Operating hours reduced airflow per year	3,856 hours		
<b>3. CO<sub>2</sub> emission factor for this project</b>			
Electricity based locations	0.649 kg CO <sub>2</sub> / kWh		
Natural gas for heating locations	0.243 kg CO <sub>2</sub> / kWh		
<b>4. Investment costs per AHU concept</b>			
Type of heat recovery	Basic solution	Energy label A+	
Investment costs from less to more	Cross Flow	Cross Flow	Cross Flow
	€ 60,000	€ 60,000	€ 0
<b>5. Electricity costs fans</b>			
Absorbed electrical power supply fan incl. losses FC, at design flow	10 kW	6 kW	0 kW
Absorbed electrical power exhaust fan incl. losses FC, at design flow	11 kW	4.5 kW	0 kW
Total fan power consumption	21 kW	11.5 kW	0 kW
Electricity costs of fans on average total per year	€ 24,893	€ 13,032	€ 0
<b>6. Heat costs</b>			
Temperature efficiency heat recovery (dry, sensible) (summer)	70 %	78.3 %	100 %
Temperature efficiency heat recovery (wet, sensible and latent winter)	86 %	90 %	100 %
Swimming pool room temperature (usually 24 above bath water in accordance with VDI 2086)	32 °C	32 °C	32 °C
Absolute moisture content in the swimming room in accordance with design	15 g/kg	15 g/kg	15 g/kg
Heat costs per year excluding transmission losses	€ 15,271	€ 10,965	€ 0
Total electricity costs fans and heating costs	€ 40,164	€ 24,997	€ 0
<b>7. Total costs with Heat pump option</b>			
Air handling unit equipped with an external heat pump ?	YES	NO	NO
Heat pump size heating capacity condenser	132 kW	kW	kW
Power consumption of the heat pump	30 kW	kW	kW
Full load hours heat pump	3,500 hours	hours	hours
Net heat pump output (thermal - electric)	€ 14,310		
Electric costs of fans on average total per year	€ 24,893		
Heat costs per year excluding transmission losses	€ 15,271		
Additional heat pump maintenance costs + depreciation of heat pump	€ 2,150		
Total of Electricity, Heat and Maintenance costs	€ 58,954		
<b>8. CO<sub>2</sub> emissions</b>			
CO <sub>2</sub> emissions per year power consumption fans	70,242 kg	38,460 kg	0 kg
CO <sub>2</sub> emissions per year power consumption heat pump	68,145 kg	0 kg	0 kg
CO <sub>2</sub> emissions per year heating gas	42,075 kg	30,213 kg	0 kg
Total amount of CO <sub>2</sub> per year	180,462 kg	68,773 kg	0 kg
<b>9. Payback periods</b>			
Payback time AHU2 compared to AHU1	6.08 year	NO	
Payback time AHU3 compared to AHU2	NO	NO	
Payback time AHU3 compared to AHU1	NO	NO	

Remarks: The payback times have been calculated using the "SDP" method in accordance with ISO publication 13. Heat pump consumption generated heat can be used for both of the above AHU concepts. Further heating of the supply air must cover the transmission losses. The same goes for the heating of the bath water. Note this amount of heat required is the same for both concepts. This has been left out of the equation. CO<sub>2</sub> emissions in accordance with www.milieuatlas.com. This calculation has been drawn up with the greatest possible care, but the results are indicative and intended as a good comparison between different AHU concepts. Knowledge Center Heating v.t.a. 30 okt 2020



**THE UP TO 40% LOWER WEIGHT HAS A POSITIVE EFFECT THROUGHOUT THE CHAIN.**

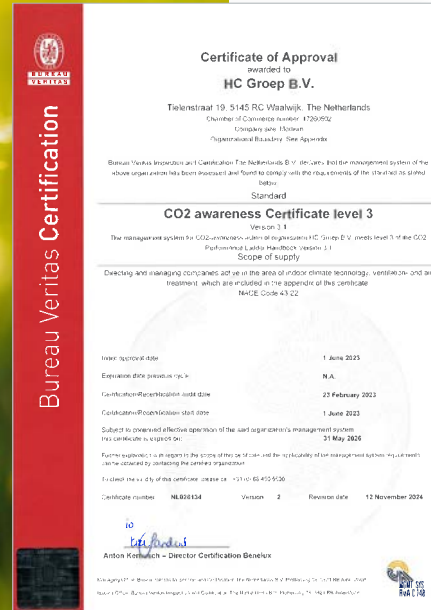


# ABOUT US

Since our start in 1983, we have supplied a wide range of fans. After the successful introduction of composite roof fans, we started developing and producing the Liberty product line: our unique series of fully composite air handling units. The Liberty air handling units are successfully used in our Dutch home market and abroad in both new construction and renovation projects. In addition to the chemical and food industry, we are also strongly represented in non-residential construction, swimming pools and healthcare and educational institutions.

Our company pays a lot of attention to quality and innovation. We hold relevant certifications for this purpose, including ISO 9001 and Eurovent. With the use of our own assembly and production lines, custom-built is possible. By continuously developing products, investing in employee expertise and considering customer feedback, we are able to supply the market with energy-saving solutions that are designed and built to last.

Since 2023, we have become a subsidiary of the HC Groep, market leader in the field of indoor climate technology in the Netherlands.



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PLEASE TRY OUR ONLINE  
SELECTION TOOL!

