



Stefano Filippini – LU-VE GROUP Technical Director



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LU-VE S.p.A.
Uboldo (VA), Italia
Heat exchangers for commercial
and industrial refrigeration, air
conditioning and industrial
applications.

- ❑ 2,400 skilled employees
- ❑ 390,200 sqm. total surface area
- ❑ More than 160,300 sqm. covered area
- ❑ 2,350 sqm. of R&D Laboratories
- ❑ More than 70% of production exported to 100 countries
- ❑ Consolidated Turnover € 258 million





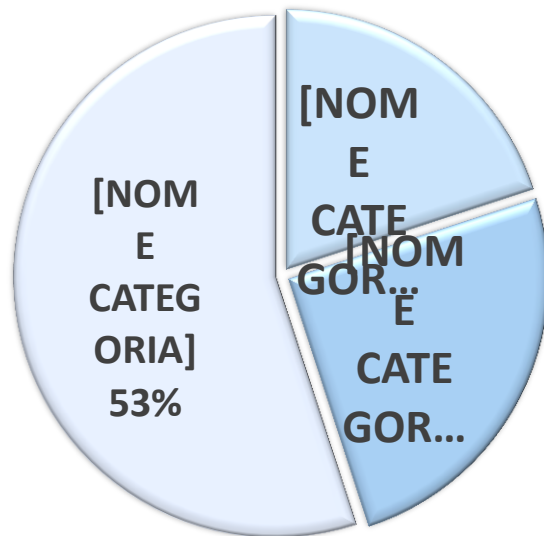
July 2015 Listing on Milan Small Cap Market

June 2017 Listing on Milan Stock Exchange Market

LU-VE sells its products in more than 100 countries

Germany is its main export market (9% of total sales)

Breakdown of sales 2016 by geographical area



10 PRODUCTION FACILITIES

- ITALY (2) - UBOLDO (VA)
- ITALY - LIMANA (BL)
- ITALY - TRAVACÒ SICC. (PV)
- POLAND - GLIWICE
- CZECH REPUBLIC - NOVOSEDLY NA MORAVE
- SWEDEN - ASARUM
- RUSSIA - LIPETSK
- CHINA - CHANGSHU
- INDIA - BHIWADI (RAJASTHAN)

13 SALES COMPANIES

- AUSTRALIA - MELBOURNE
- AUSTRIA - VIENNA
- CHINA - CHANGSHU
- UAE - DUBAI
- FRANCE - LYONS
- GERMANY - STUTTGART
- INDIA - NEW DELHI
- POLAND - WARSAW
- POLAND - GLIWICE
- RUSSIA - MOSCOW
- SPAIN - MADRID
- UK/EIRE - FAREHAM HANTS
- THAILAND - BANGKOK

Market Segmentation



Refrigeration (Commercial / Industrial)

Commercial and industrial refrigeration, All fresh conservation, Freezing processes, Foodstuff processes, Storage & Logistics, Seasoning, Display case units, Cabinet units, Dispenser units, Ice makers, **OEM**



Air conditioning

HVAC for buildings and industry units, Data Centres, Hospitals, Transport, Heat pumps, Telecommunications



Energy & Power

Energy production, Chemical cooling, Motor cooling







AIR CONDITIONING FOR TRAINS



MOBILE AIR-CONDITIONING



REFRIGERATED TRANSPORT





Storage of fresh foods
in general and fast
freezing of
perishable foods



AGORA Shopping Center
Bytom (Slesia) POLAND



Air conditioning for Frankfurt Exhibition Centre - Dry coolers for Hall 4 and 11



ORC Condenser - Spain

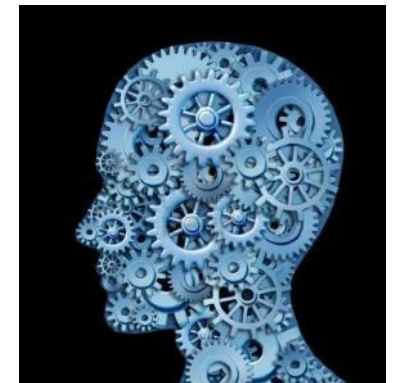


Motor cooling plant - Bangladesh



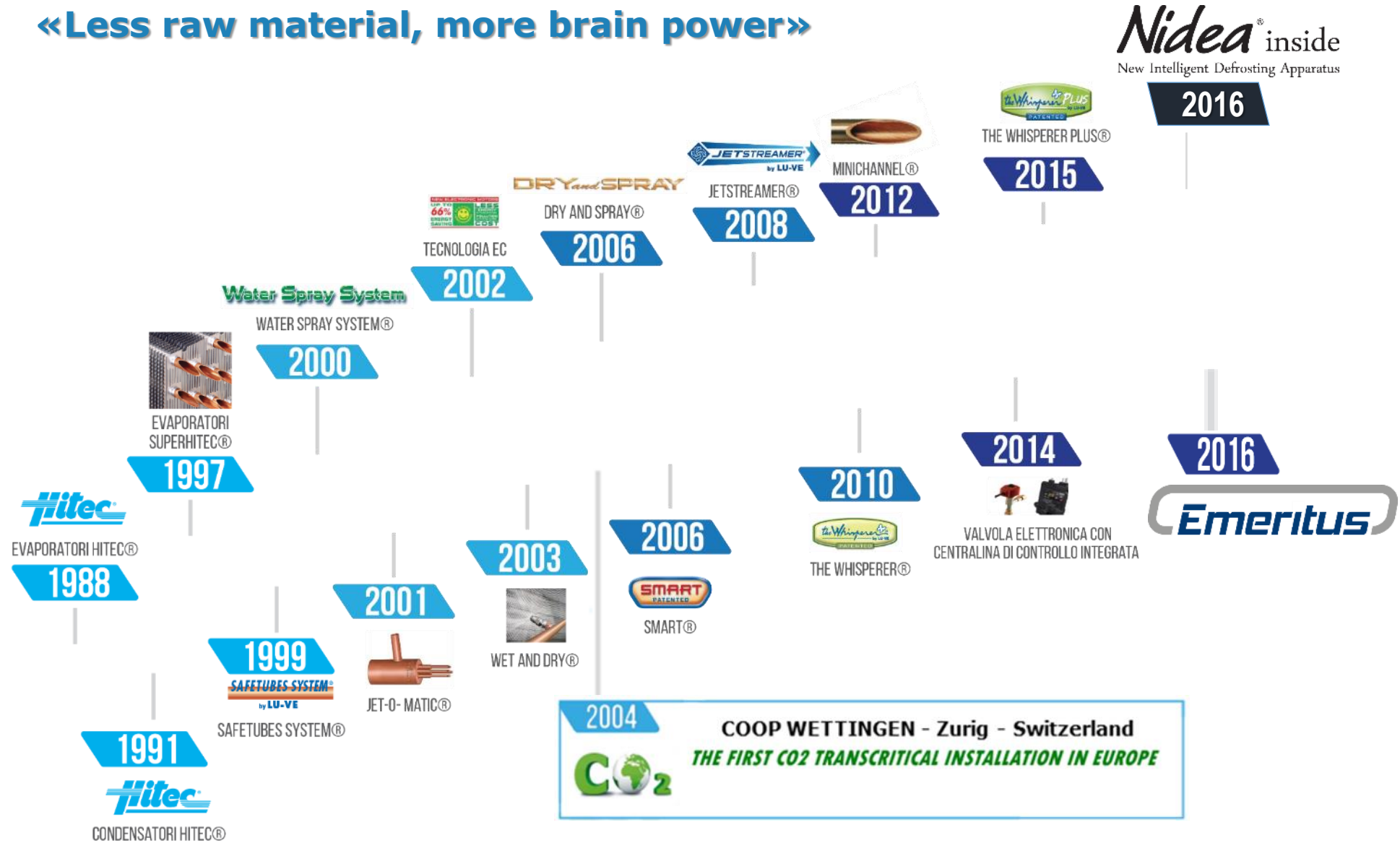
Research & Development activity

The basis of the industrial philosophy of the LU-VE Group is the principle that:
“IT’S THE GREY MATTER THAT MATTERS MOST!”



Patents & Innovation

«Less raw material, more brain power»



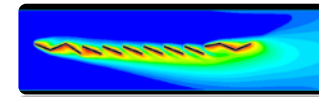


R&D Activities



C.F.D. method (Computational Fluid Dynamics)

The use of C.F.D. to increase the understanding of the fluid dynamic phenomena

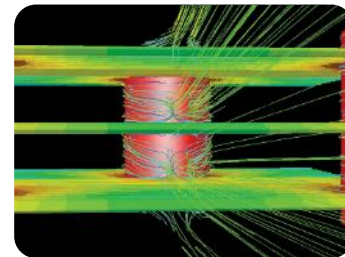


Calorimeter room tests

The results of the C.F.D. analyses have consistently been confirmed in experimental tests

Fin performance tunnel

To study optimized specialized surfaces



Tube performance device

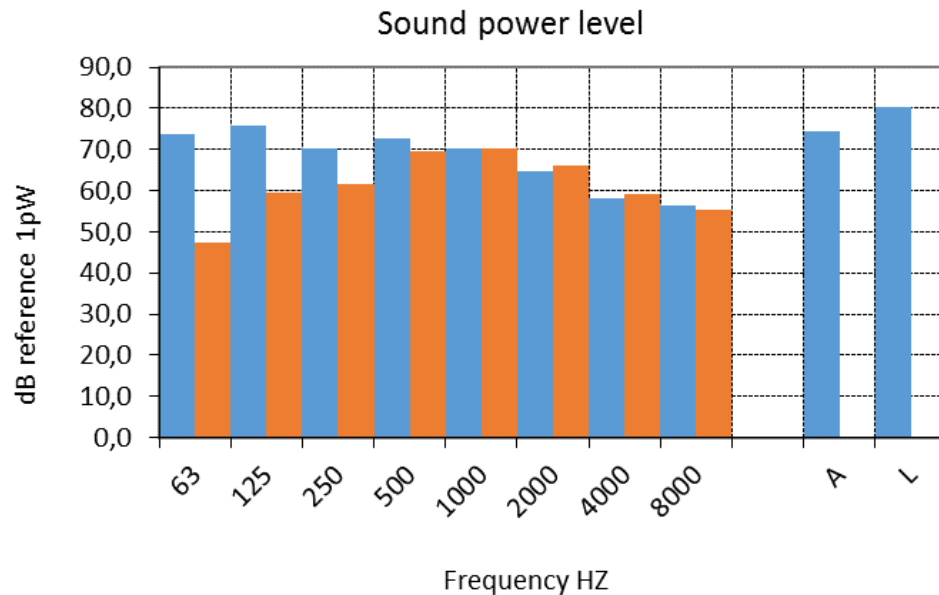
To study and optimize grooved tube technology



CO2 TEST

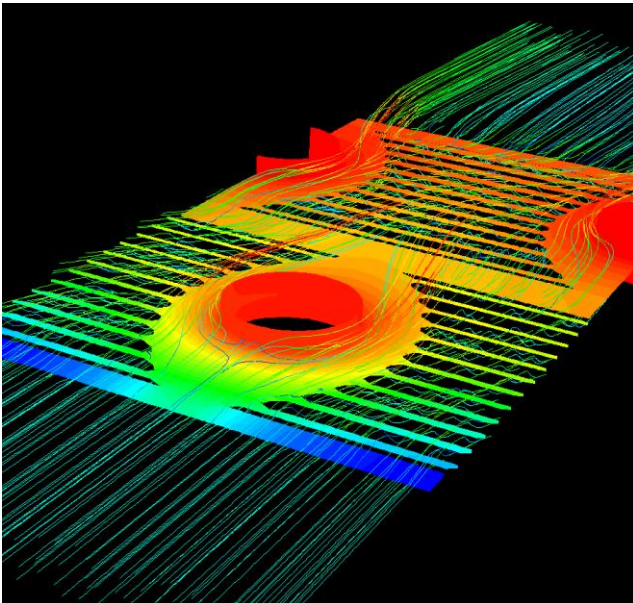
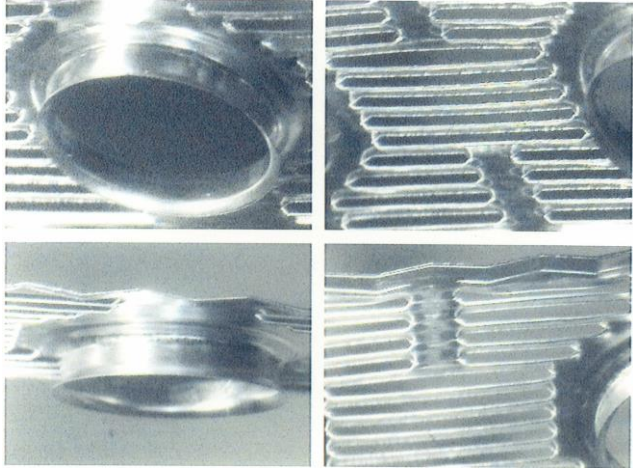
To study in detail the behaviour of CO2 in the heat exchanger

- Used to take away the sound pressure or power level.
- The test is complying with EN 23741 specifications, which agree measures with reference sound source
- The measured band pressure levels shall be corrected for the influence of background noise level ($\Delta < 10\text{dB}$)
- The values of sound pressure can be determined to octave band or 1/3 octave band, from 63 Hz to 8000 Hz
- The sound power is calculated with A-weighted whether in “free field” or in “semi-reverberation field”
- Measurement uncertainty is less then ± 2 dB.



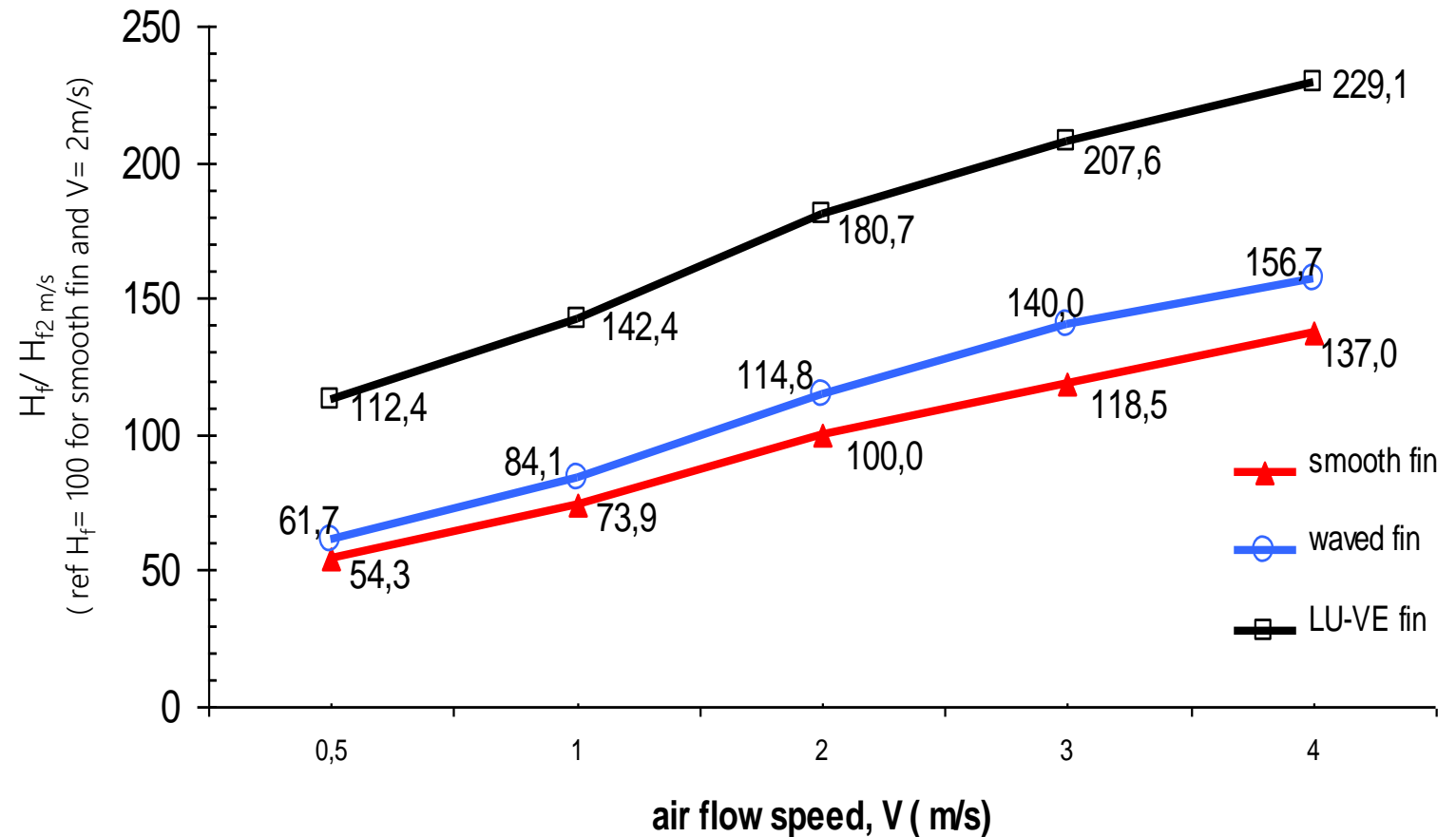
- Used to determinate the heat performance of dry-coolers in according to the ENV1048 specification
- The tested unit will be positioned on an external area and it will be connected with the hot producing plant that consists of a boiler, a heat exchanger, a tank and other measure equipment
- The boiler unit has a capacity of 230 kW; the tank has a capability of 3.500 l, while the heat exchanger has a maximum power of 205 kW



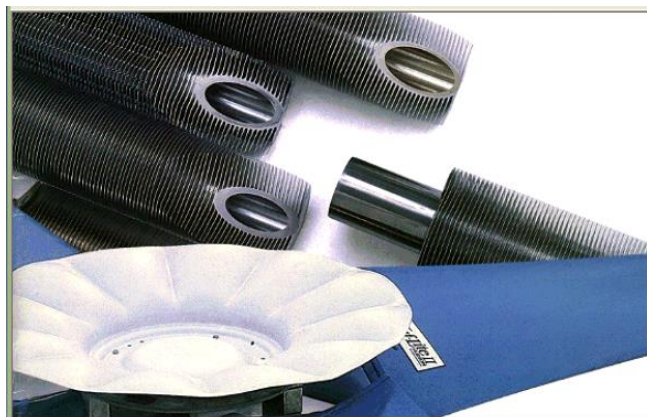


Increase of the external heat transfer coefficient H_f

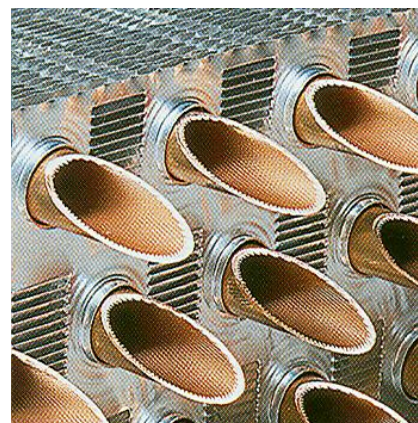
Comparison with same tubes and rows interaxes, fin thickness



Actual geometry



LU-VE pattern



- n° bay: 42
- Foot print: 4129 m²
- U: 29,64 W/m²K
- Air flow: 44.952.000 m³/h
- Internal volume: 155,2 m³
- External surface: 509.157 m²
- Weight: 1.528.200 kg
- Power consumption: 3.780 kW

- n° bay: 64
- Foot print: 3633 m²
- U: 46,8 W/m²K
- Air flow: 35.379.200 m³/h
- Internal volume: 64,7 m³
- External surface: 422.217 m²
- Weight: 353.543 kg
- Power consumption: 3.435 kW

- 12%

+ 58%

- 21%

- 73%

- 17%

- 85%

- 8%

Constant parameters:

TOT capacity: 292.500kW

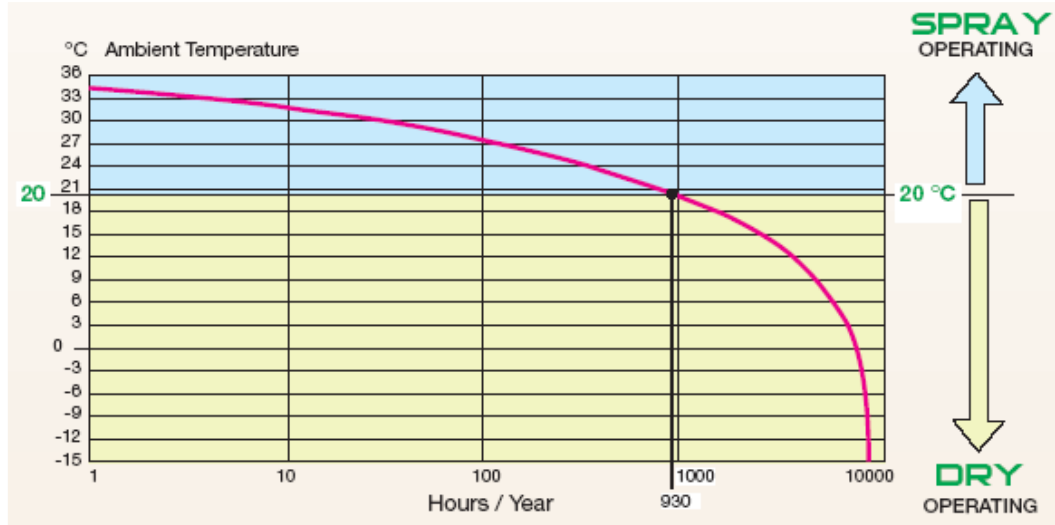
Air inlet temper. 29°C

Fluid: propane

Propane inlet temper. 66,3°C

Propane condens temper 60,3°C

Water spray condenser is fin-and-tube heat exchanger, operating with dry surface when the ambient temperature is lower than a selected design value.



For higher ambient temperatures, the water spray system is activated, allowing significant performance improvements.

EUROVENT CERTIFICATION

“CERTIFY ALL PROGRAMME”



Some brands have
nothing to hide...

...and the others ?



CAPACITY

SOUND PRESSURE LEVEL

ENERGY CONSUMPTION





SWEDEN



CZECH REP.



ITALY



CHINA



ITALY



POLAND



RUSSIA



CHINA



INDIA



ITALY



ITALY



ITALY



AUSTRALIA



AUSTRIA



FRANCE



GERMANY



INDIA



POLAND



RUSSIA



SPAIN



THAILAND



UAE



UK - EIRE

www.luvegroup.com



THANK YOU!

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