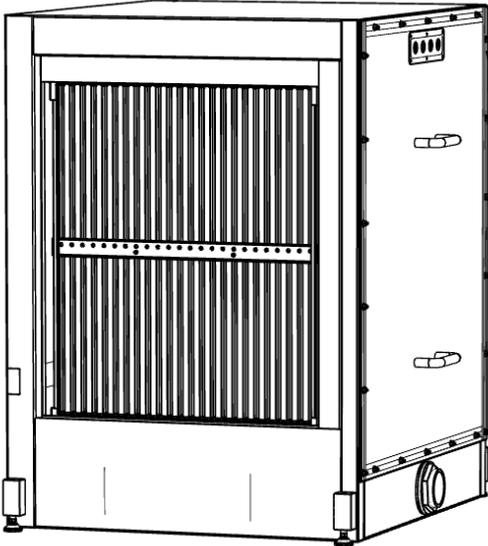


NE DRY

Energy-efficient dehumidification
Reduce your electricity consumption by 50% to 75%

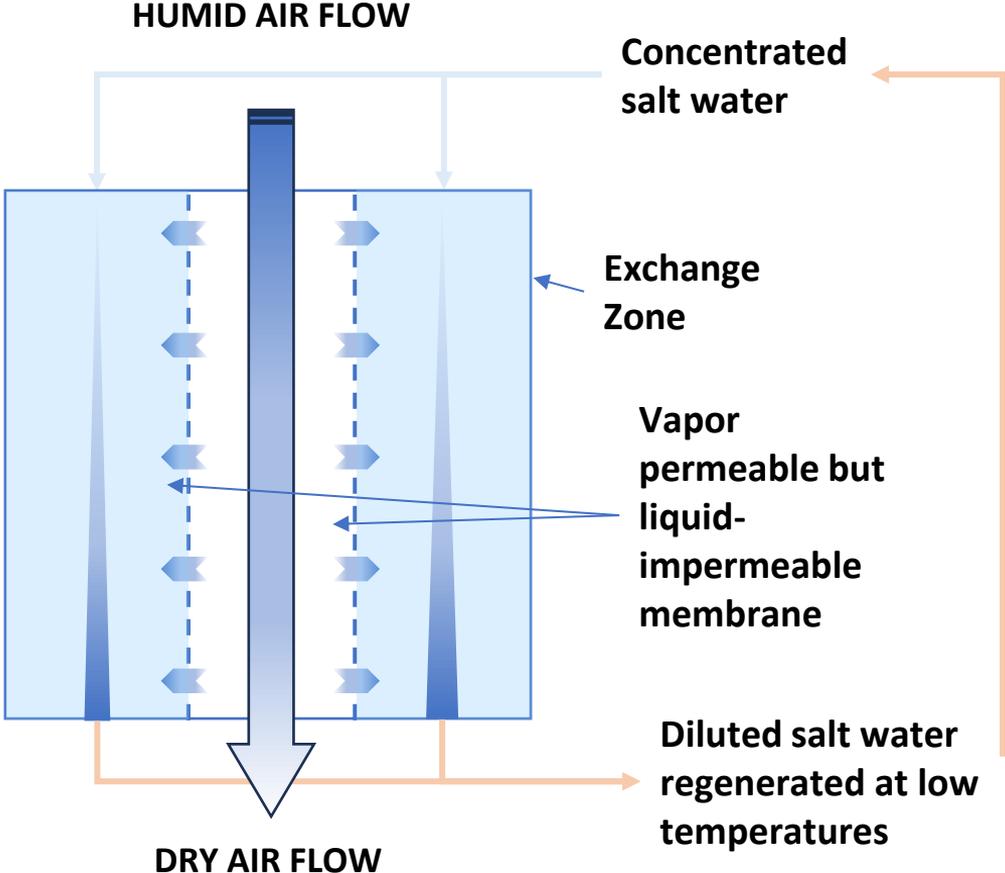


AIR TREATMENT



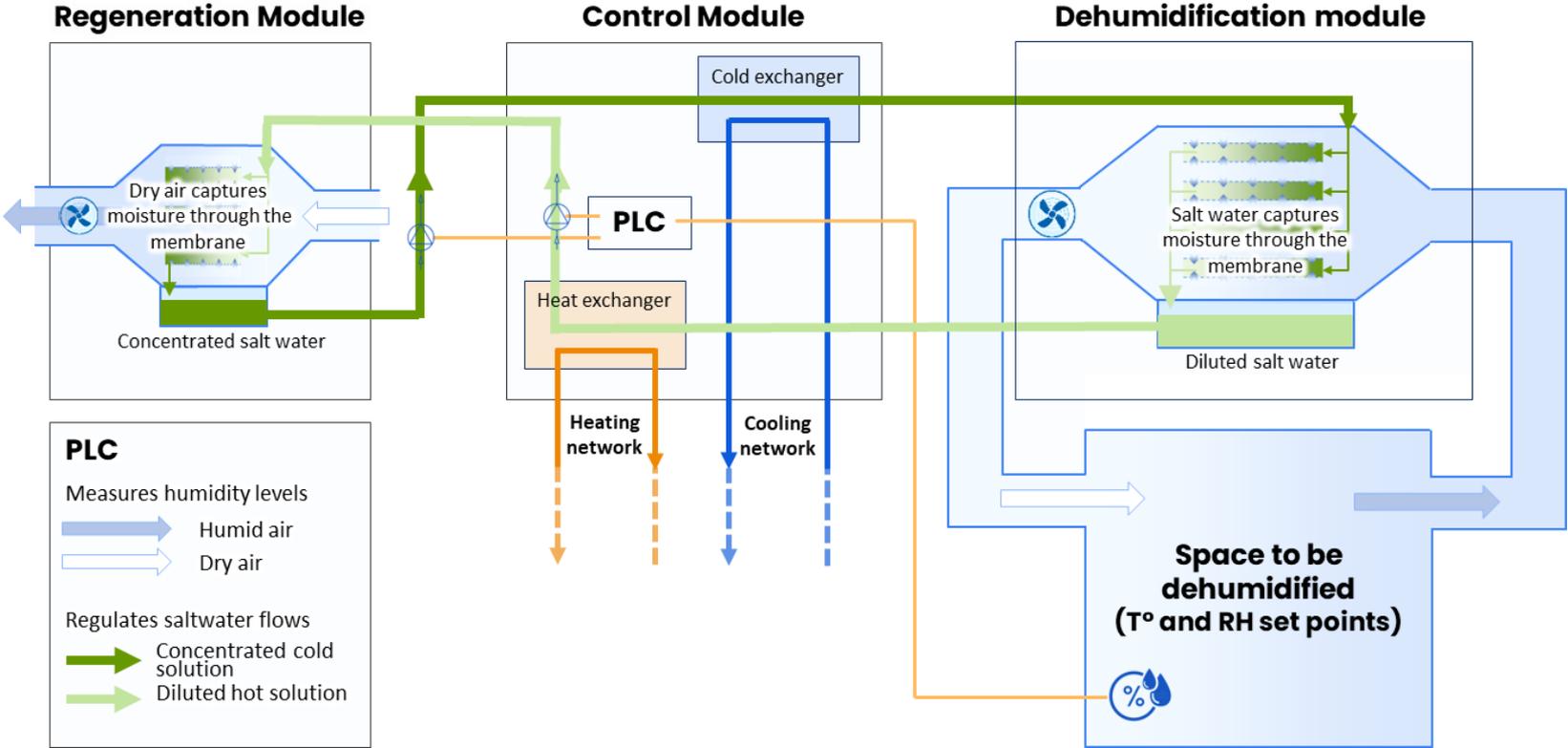
Example of a NEODRY module

Water vapour
in the air
passes
through the
membrane

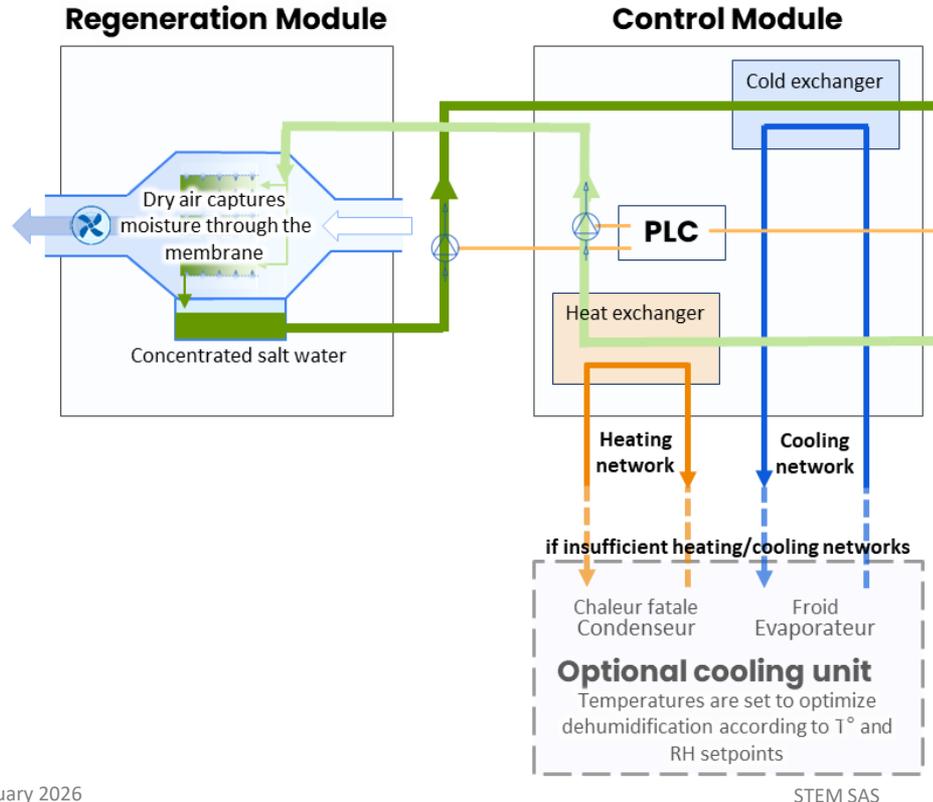


OPERATIONAL LAYOUT

PLC : Programmable Logic Controller
RH : Relative humidity



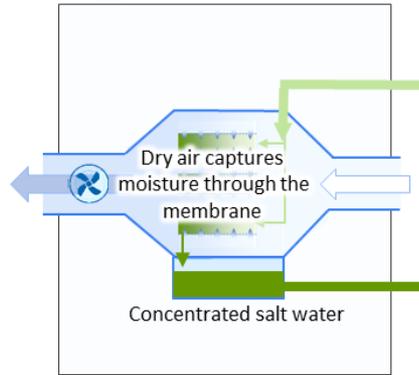
ENERGY SAVINGS 1/3



- ✓ The **regeneration** of the desiccant solution takes place at temperatures of the **order of 30-40°C**. This heat is directly available on the condenser of the refrigeration unit and therefore at **no extra cost**
- ✓ A low regeneration temperature contributes to **up to 4x lower power consumption** than desiccant wheels (with the optional refrigeration unit)

ENERGY SAVINGS 2/3

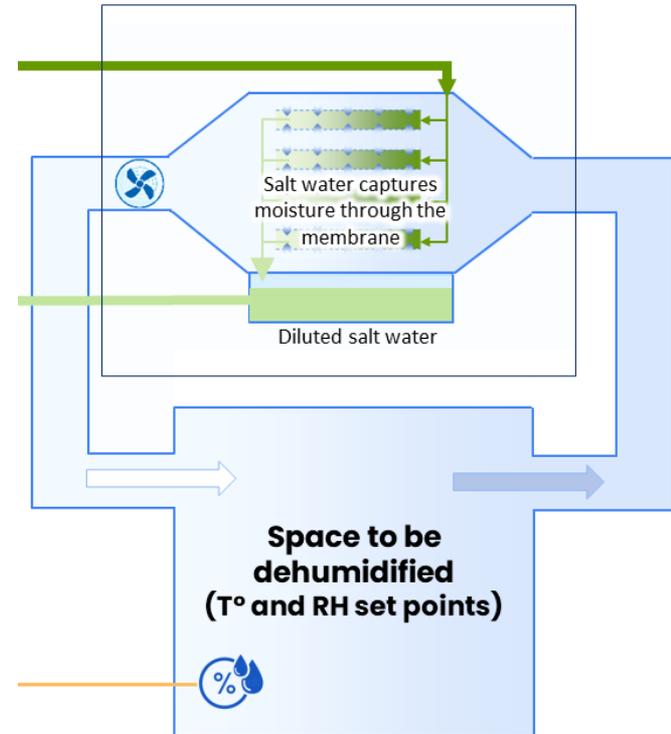
Regeneration Module



✓ **The pressure drop is limited,** which optimizes the sizing of the fans

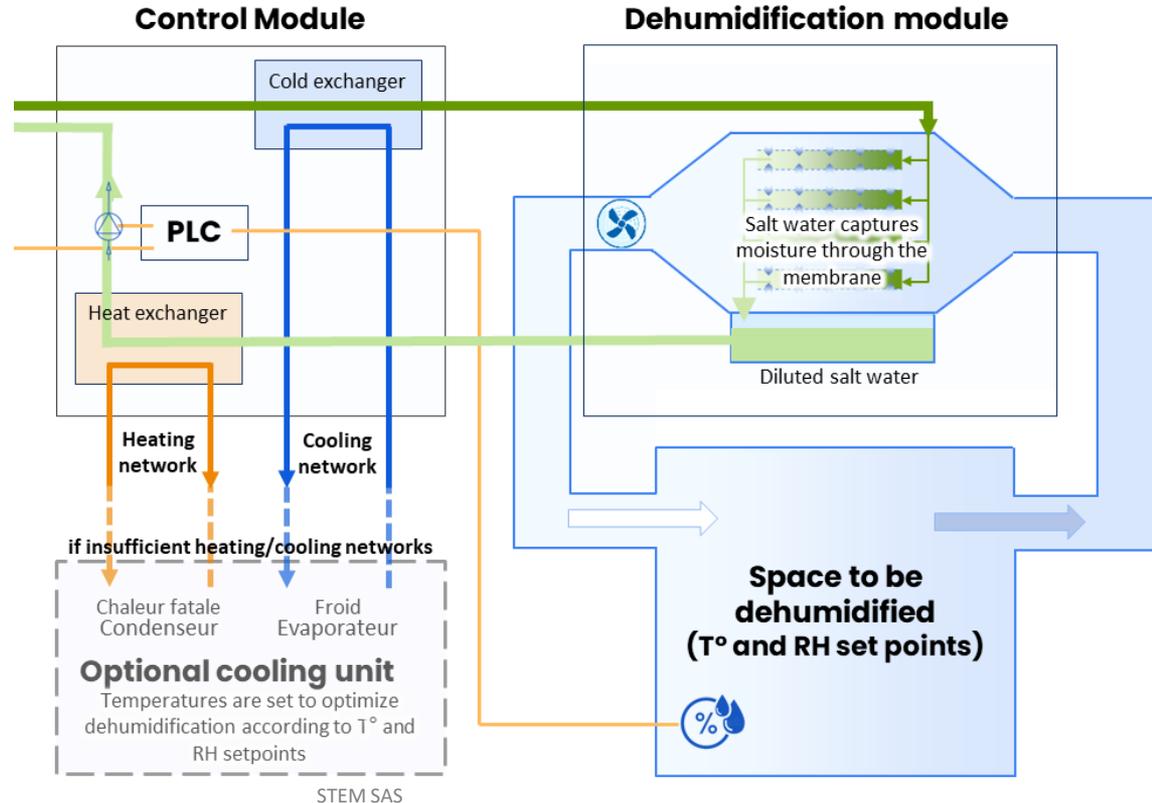
✓ The regeneration does not interfere with the flow of cooled air, which does **not cause overconsumption** on the cold

Dehumidification module



ENERGY SAVINGS 3/3

- ✓ Air cooling is possible by lowering the saline water temperature in the dehumidification
- ✓ Cooling power is useful for dehumidification and room temperature. This relieves existing refrigeration systems





EQUIPPED SITE

Ice cream manufacturing site

Control targets:

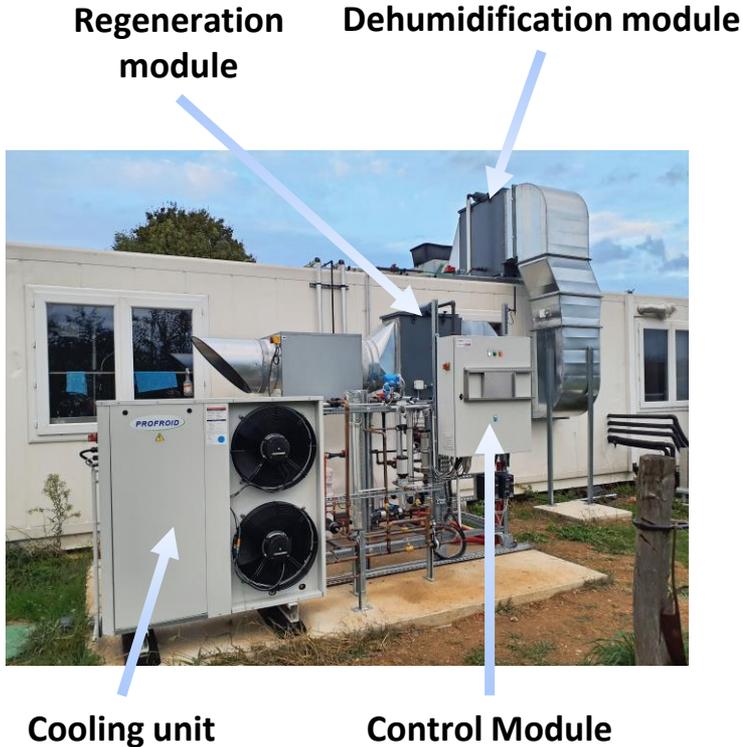
- T° maintained at 15°C
- 60% relative humidity (6.3 g/kg)
- Moisture source : regular cleaning of equipment
- Continuous operation with an air flow rate of 5,000 m³/h

Operating Parameters

- Cold solution temperature: -3°C (supplied by the cooling unit)
- Hot solution temperature: 35°C (heat recovery from the cooling unit condenser)

PILOT UNIT

In operation since January 2024



Operational status:

- Condition of the membranes: NTR
- Nozzle condition: NTR

Estimated lifespan of more than 3 years

Consumption report

	AHU	NEODRY
ANNUAL CONSUMPTION	16MWh *	6,5 MWh *
ENERGY SAVINGS		60%

Reference technology: AHU with cooling and heating coils

*Based on on-site power measurements when both systems are operating at full load



USE CASE #1

Poultry Cutting Plant

Control targets:

- Temperature maintained at 2°C and 70% relative humidity (3g/kg)
- Continuous operation with an air flow rate of 15,000 m³/h

Operating Parameters

- Cold solution temperature: -6°C (supplied per cooling unit)
- Hot solution temperature: 35°C (heat recovery from the refrigeration unit condenser)

Energy comparison

	DESICCANT WHEEL	NEODRY
ANNUAL CONSUMPTION	192 MWh *	48 MWh
ENERGY SAVINGS		75%

Reference technology: Desiccant wheel

*Based on Munters MLT30 data sheet



IN PHARMA INDUSTRY

Dietary Supplement Manufacturing Plant

Control targets:

- Temperature maintained at 20-22°C - 36% relative humidity (5.2 g/kg)
- Continuous operation with an air flow rate of 7,500 m³/h

Operating Parameters

- Cold solution temperature: 2 °C (supplied by the cooling unit)
- Hot solution temperature: 45°C (heat recovery from the refrigeration unit condenser)

Energy comparison

	DESICCANT WHEEL	NEODRY
ANNUAL CONSUMPTION	397 MWh *	161 MWh
ENERGY SAVINGS		60%

Reference technology: Desiccant wheel

*Based on Munters MX255 datasheet

PERFORMANCES 1/2

- Can achieve a **very low absolute humidity level (up to 1 g/Kg - dry air)** at any room set temperature (-15°C to 20°C)
- Dehumidification possible at **negative dew temperatures** without doubling systems for continuous operation
- **Simultaneous cooling** of dehumidified air possible **without overconsumption** for regeneration

PERFORMANCES 2/2

- **High energy efficiency**
 - Dehumidification by desiccant solution at room temperature
 - Regeneration at very low temperatures (between 30°C and 40°C)
 - Thus reduces the carbon footprint
- **Simplified installation management**
 - BMS connection via Modbus
 - Built-in alarm detection and management
 - Very quick return to instructions
- **Simplified maintenance**
 - Inexpensive polymer membrane, easily replaceable
 - CaCl₂ desiccant solution for food and beverage compatibility

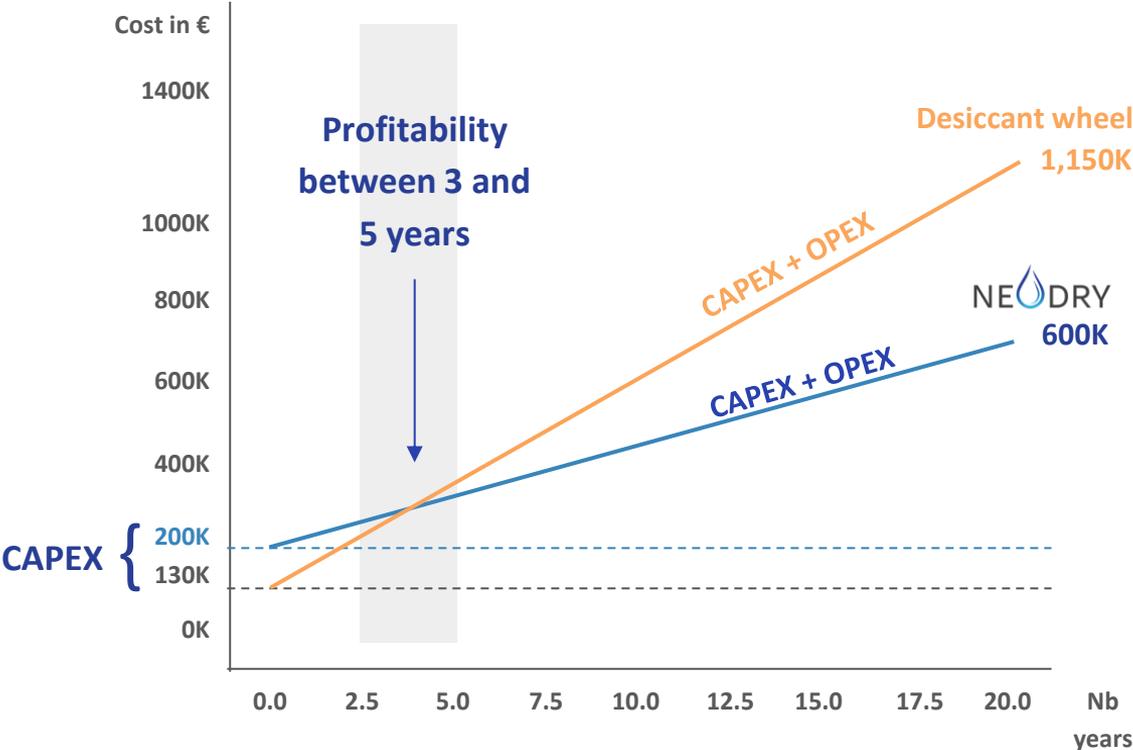
AN INVESTMENT TO REDUCE THE CARBON FOOTPRINT



With a larger investment at the start

NEODRY becomes more economical after 3 to 5 years

Calculation based on €130/MWh electric.



PARTNERS



Installers

 **dalkia**
GROUPE edf

 **ENGIE**

 **EQUANS**

 **AXIMA**
REFRIGERATION
UNE MARQUE DE EQUANS

 **Cram**
L'EFFICACITÉ ÉNERGÉTIQUE

 **TotalEnergies**



Design offices

 **GreenFlex**

 **LEMON**
> ENERGY <

 **SOBRIN**

 **Ferest Energies**
BUREAU D'ÉTUDES TECHNIQUES

TIMELINE

- Data Collection Form
- Pre-study, technical exchanges, feasibility analysis,
- Presentation of the solution: configuration chosen and possible energy savings,
- Site visit and quotation,



CONCLUSION

The **best solution** to achieve low humidity levels particularly at low temperature **while significantly reducing your energy bill**



STEM SAS

Contact us:
sales@stem-tech.fr