

COMBINED SOLUTION

A dehumidifier based on overpressure establishes and maintains a dry, salt-free environment within offshore wind turbines.



PAYOFFS FROM OVERPRESSURE DEHUMIDIFICATION

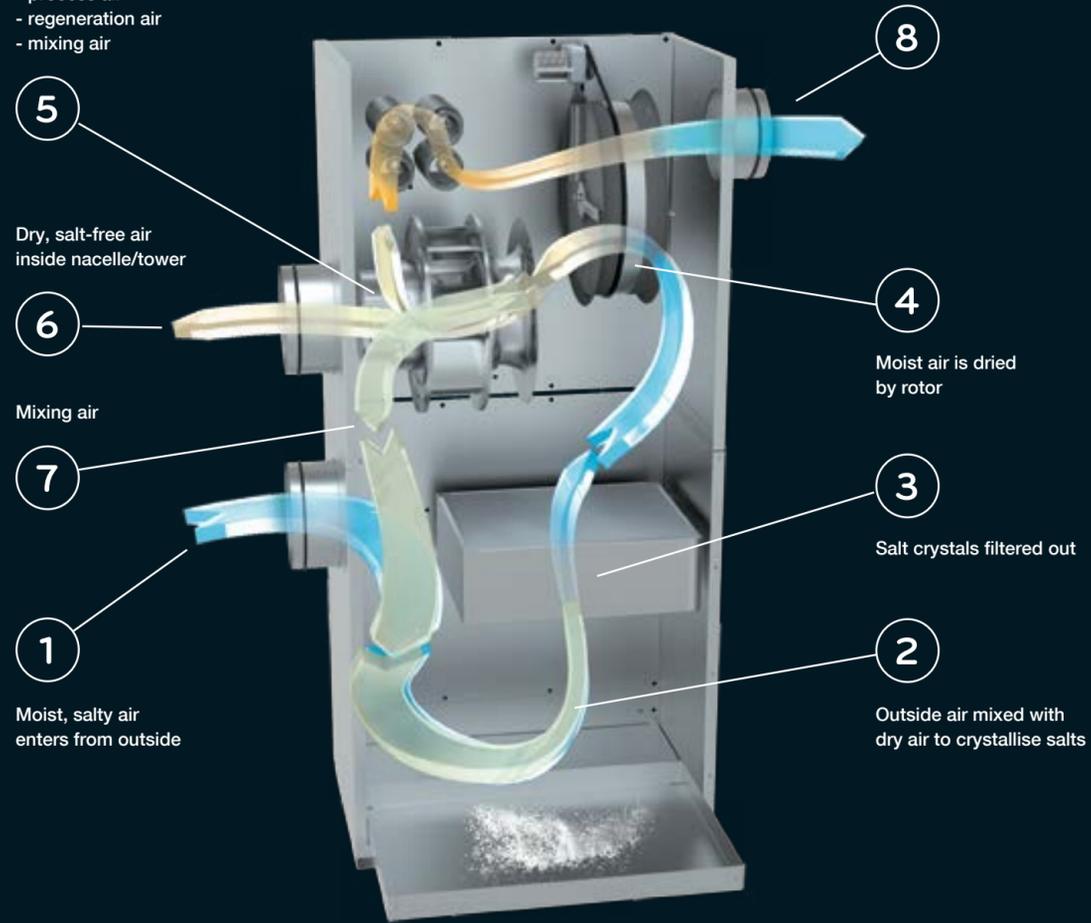
Big-time manufacturer payoffs

- > Lower costs for equipment, fittings, materials and coatings
- > Lower development costs and faster time-to-market
- > Protection against corrosion during transport and storage
- > Faster, glitch-free commissioning
- > Better uptime statistics and increased availability
- > More attractive sales package

Practical operating benefits

- > Lower ISO 9223 corrosion classifications
- > Better control of conditions throughout the nacelle and tower
- > Condensation-free surroundings
- > Safer working environment
- > Full protection during idle and power-down
- > Lower maintenance/service costs
- > Longer service life

Flow of dry air is split into
- process air
- regeneration air
- mixing air



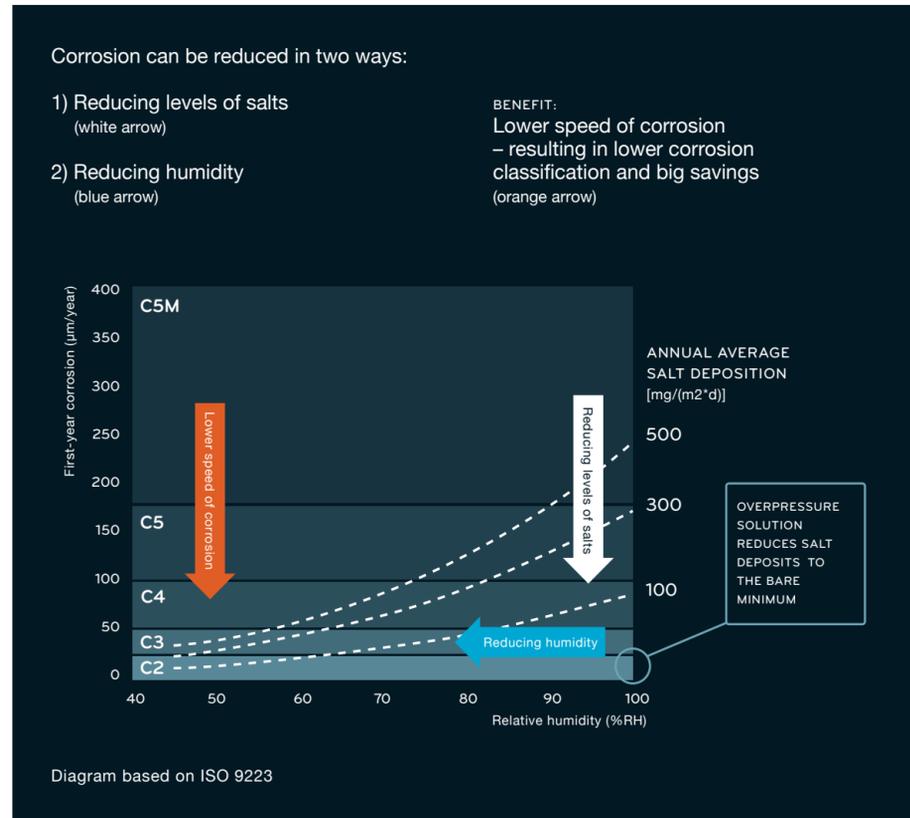
DEALING WITH CORROSION AND SALT IN OFFSHORE WIND TURBINES

COTES

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REDUCING CORROSION IN OFFSHORE WIND TURBINES



TWO WAYS OF REDUCING CORROSION

- 1) Reduce humidity of the air present
- 2) Reduce amounts of salts present

WHY GETTING RID OF HUMIDITY AND SALTS IS IMPORTANT

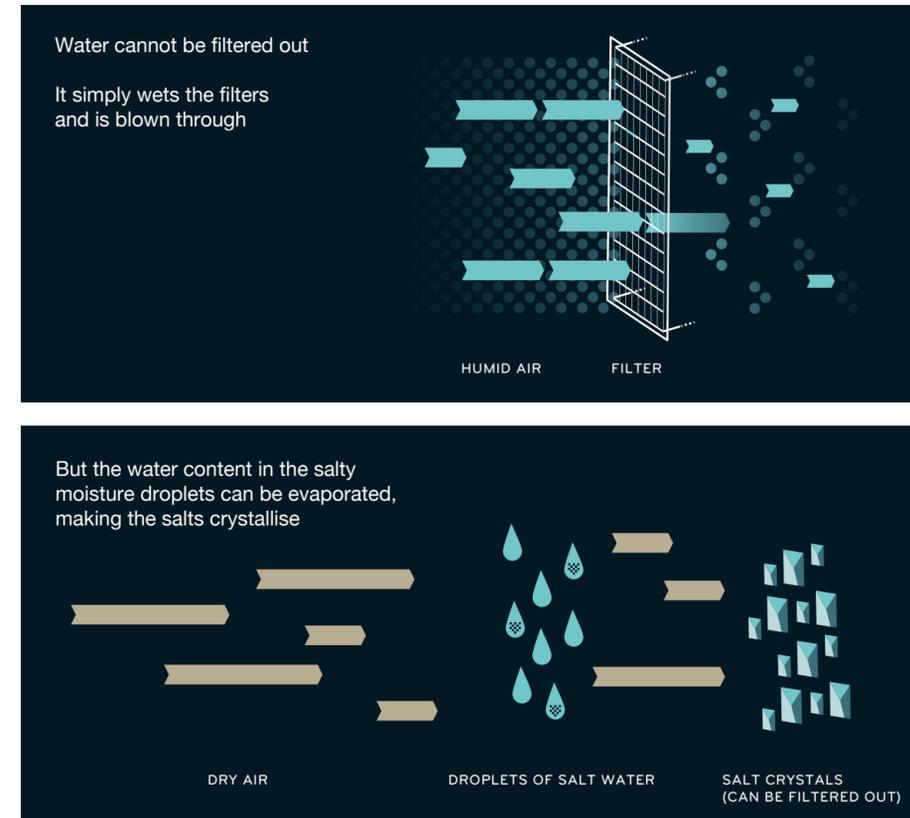
Humidity causes

- > corrosion
- > condensation

Airborne salts are hygroscopic

- > attract moisture in all forms
- > accelerate corrosion processes

DEALING WITH AIRBORNE SALTS



SALT WATER

The salts normally present in sea air are dissolved within small droplets of water.

SALTS CANNOT BE FILTERED OUT

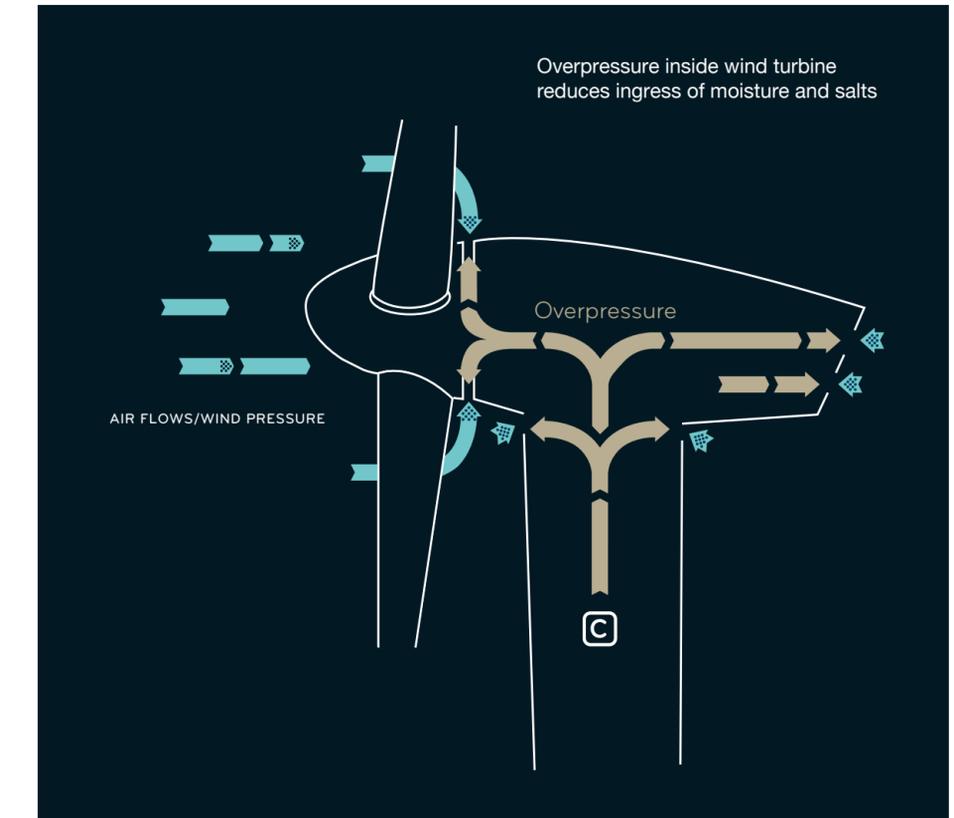
Because they are dissolved in water, such salts are particularly difficult to filter out. They either form a sticky layer that tends to clog up the filter, or pass right through the filter in water form.

SALTS CAN BE CRYSTALLISED

The water content of the salt-laden droplets can be evaporated using drier air.

The salts then crystallise, and can be filtered out effectively.

DEALING WITH HUMIDITY AND SALTS VIA OVERPRESSURE



OVERPRESSURE SYSTEM

The patented Cotes overpressure system is the most effective salt filtering system currently available anywhere.

This system ensures that the air inside a wind turbine is both dry and free of airborne salts.

The overpressure minimises the ingress of salt and moisture through gaps and holes in the nacelle and tower, and results in a well-controlled, protective atmosphere free of moisture and salts inside the structure.

This greatly reduces all kinds of operating problems, and significantly increases the service life of the wind turbine.