COTES STANDARD FLEXIBLE RANGE

LARGE-SCALE HUMIDITY CONTROL

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COTES DRY-AIR SOLUTIONS

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LARGE-SCALE HUMIDITY CONTROL

Cotes Standard Flexible dehumidifiers are designed for large-scale humidity management projects, where effectiveness, versatility and reliability are crucial.

This range presents 4 sizes of powerful streamlined dehumidifiers with air volume capacities ranging from 3,300 m^3/h to 35,000 m^3/h, with moisture removal capacities from 65 kg/h to 173 kg/h. All 4 sizes can be ordered as left-to-right (LtoR) or right-to-left (RtoL).

Cotes Standard Flexible units come with complete control system including sensors, Siemens PLC and HMI with an option for Secomea remote control. All this allows for easy integration into an HVAC system of cooling, heating and filtration.

Rectangular duct connections provide the possibility of easily adding cooling or heating coils in the duct system both before and after the unit (PRE/POST), controlled by the Cotes Standard Flexible PLC.

Keeping the coils outside the dehumidifier cabinet results in compact stainless steel dehumidifiers with only core adsorption technology kept inside. The benefits from a smaller compact-size dehumidifier are both practicality in needing less space and flexibility in placing extra coils else-where (e.g. in an adjacent room).

If a hot water, or steam, source is available locally, an external regeneration pre-heating coil can also be installed and controlled by the built-in standard controller, supporting cost-friendly and green regeneration power.

THE COTES STANDARD FLEXIBLE RANGE

Designed for flexibility
This range of Cotes adsorption dehumidifiers is designed so you can easily specify the exact configuration you need for your particular installation and your precise air flow requirements.

Cotes Standard Flexible units enable you to install world-class dehumidification capabilities – exactly as you want them. You can choose the air flow or moisture removal capacity you need, based on cost-saving, pre-defined modular configurations.

Designed to give you full control over air conditions Cotes Standard Flexible units are ideal for managing levels of humidity inside large spaces where it's important to control the levels of moisture in the air, and for use in industrial and manufacturing processes that require a steady, reliable flow of dry air with a low dew point. You can add your own external fans and pre-cooling and/or post-cooling equipment to tackle particular requirements about air flow and air moisture levels, the control system is ready for this. Variable-speed EC fans are installed to make it easy to adapt to fluctuations in requirements.

You can also specify a range of control, monitoring and warning options, so you can integrate your dehumidification systems with other PLC and web-based plant control set-ups. Alternatively, the Cotes Standard Flexible units can be used as a stand-alone climate control system - including temperature, humidity, and indoor air quality - without the need for a separate HVAC system. This solution reduces space requirements as well as investment and operational costs. By allowing operation with a mix of fresh and recirculated air, the system minimises unnecessary treatment of outdoor air, resulting in substantial energy savings.

Designed for efficiency
The inside of the cabinets are designed to ensure the unhindered, energy-efficient passage of air through the unit, as well as good hygiene, low noise and minimal vibration. All fans and other equipment that generate vibration and noise are placed inside the unit, which is insulated and can be equipped with external noise silencer.

Designed for cleanliness and good hygiene
Cotes Standard Flexible cabinets and panels are designed for smoothness and ease of cleaning, making them ideal for use in the food industry and in pharmaceutical production, where hygiene requirements are particularly stringent.

All outer panels are made of AISI 304 stainless steel and internal panels are made of galvanised steel as standard.

Cost-effective energy inputs
An advantage of Cotes Flexible dehumidifiers is that you can use virtually any kind of thermal input to remove moisture from the rotor. These can include electricity, gas, steam, district heating, recovered thermal energy and waste heat, which can be installed in the duct work prior to the regeneration inlet.

This energy optimisation paves the way to big savings on energy bills, as well as giving you the freedom to switch energy source if and when cost profiles change.

Ideal for customisation
The Cotes Standard Flexible configuration is designed to be easy to integrate with a wide range of heaters, cooling systems, fans and other equipment.

This boosts the dehumidifier's capabilities and usefulness for each individual customer, and makes it easy to customise your solution with the Cotes Standard Flexible units to your specific requirements and priorities.

Durable, low-maintenance solution
Both the cabinet and all components are designed to be robust and reliable, to make sure of a long service life and the best possible return on investment.

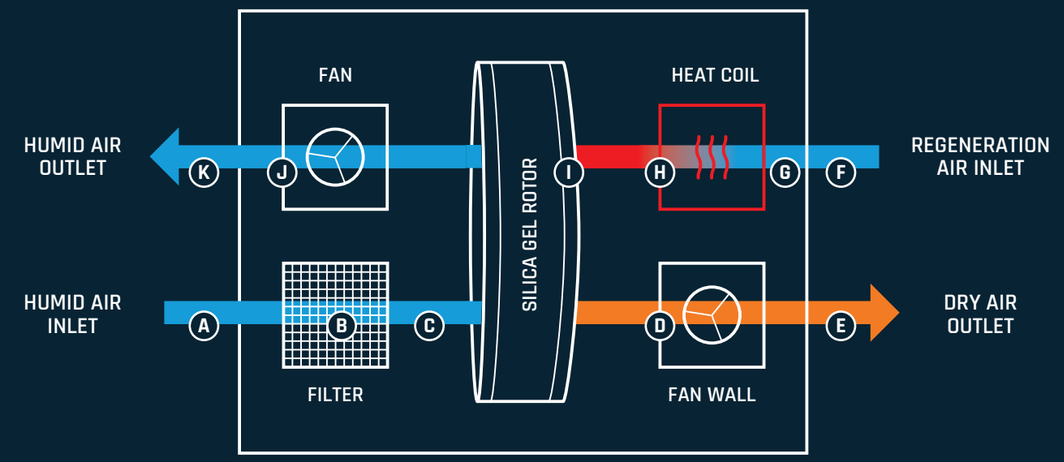
Large doors and panels provide rapid, easy access, and all filters are easy to get at and easy to change quickly.

All key components are standardised, easily available units that keep service and maintenance easy and inexpensive.

HOW IT WORKS

TWO FLOWS OF AIR

The effect of Cotes adsorption dehumidifiers basically stems from the action of two flows of air.



THE DRYING PROCESS - (A) TO (E)

The incoming moisture-laden flow of air (process air) **(A)** enters one side of the cabinet and gets filtered by a process air filter **(B)**. The air then passes through a slowly turning rotor **(C)** whose inner surfaces are coated with desiccant silica crystals that attract the water molecules passing through.

When the moist air passes through the rotor, water molecules are adsorbed and lodge in the pores on the surface of the silica gel. This means the air leaves the rotor **(E)** containing less moisture (humidity) than when it entered. The process air is controlled by a fan wall of process air fans **(D)**.

THE REGENERATION PROCESS - (F) TO (K)

The second air flow (the regeneration air) **(F)** is filtered by a regeneration air filter **(G)**, and heated by heating elements **(H)**. On its way through the rotor **(I)**, this heat evaporates the moisture previously adsorbed by the silica crystals in the rotor. The resulting water vapour now leaves the dehumidifier in the outgoing regeneration air **(K)**. The regeneration air is controlled by a regeneration air fan **(J)**.

ADVANCED CONTROL FUNCTIONALITY – THE HEART OF CLIMATE CONTROL

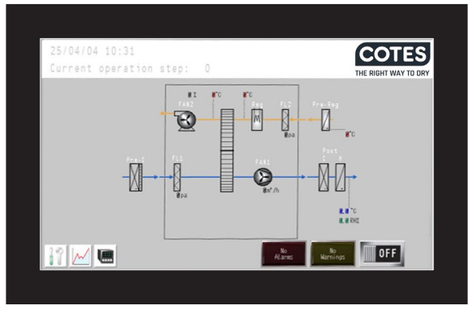
The Cotes Standard Flexible dehumidifier range features an intelligent control system based on the reliable Siemens S7-1200 PLC platform, offering seamless integration, precise regulation, and advanced connectivity. The Cotes Standard Flexible can directly replace a conventional HVAC system and function as the centralised climate controller in various process industries.

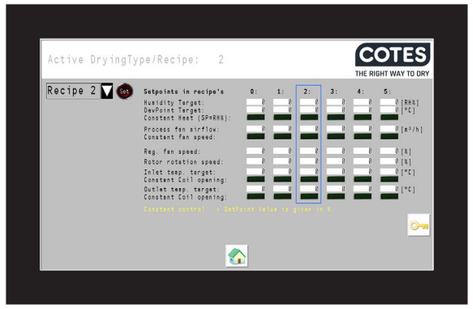
A 10" HMI touch panel provides intuitive operation, with optional embedded Secomea remote access for off-site monitoring and support. Full compatibility with Modbus TCP and Profinet ensures smooth integration with DCS and SCADA systems, while direct control of fans and heaters via external communication is also supported.

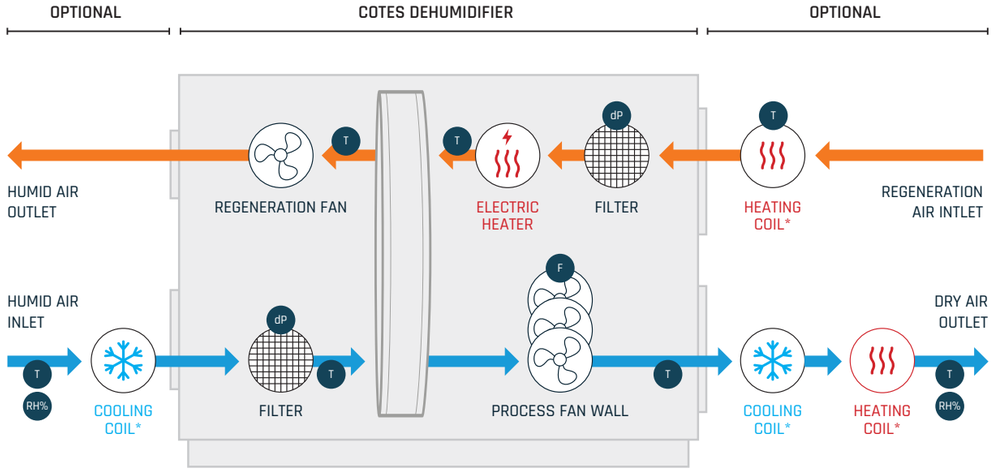
Designed with flexibility in mind, the system regulates external temperature control and manages signals for up to three external coil valves, as well as steam or alternative heat sources. Terminals are included for five external sensors—supporting standard temperature/RH% readings and coil return temperature for antifreeze protection.

Recipe-based setpoint adjustments allow quick changes to operating conditions, while humidity can be controlled by relative and/or dew point. Easily select the desired sensor input for humidity regulation and benefit from robust datalogging of all key process parameters.

From integration of additional heating or cooling coils to reliable external valve control, this system puts you in complete control of your air handling performance.







Points of measurement: T Temperature · RH% Relative Humidity · dP Differential Pressure · F Air flow · *Optional - not delivered by Cotes

- Based on Siemens S7-1200 PLC configuration
- 10" HMI panel with Option to enable Remote Access (Embedded Secomea).
- Modbus TCP & Profinet communication protocols are available for DCS and SCADA systems.
- Option for Direct control of heaters and fans by external communication.
- Easy process setpoint changes using recipes.
- Included regulation of external temperature control
- External coil valve control signals also provided as "register values" in communication.
- Terminals for 5x external sensor signals 2x standard temp/RH% *1x Coil return temp. for antifreeze protection.
- Flexible control system enabling easy integration of additional cooling and heating coils
- Power and control signals for up to 3 external coil valves.
- Power and control signals for external steam coil valve, gas or hot water or other alternative heating sources for the reg. heating.
- Humidity control by Relative and/or DewPoint.
- Easy selection of sensor input as reference for Humidity regulation.
- Datalogging process parameters.

BUILT TOUGH.
DESIGNED SMART.
ENGINEERED TO PERFORM.

Flexibility, integration and customisation options

Features	How you benefit
Compact design prepared for installation of a wide range of heaters, cooling systems, fans filters, control options, etc.	· Rational, cost-effective dehumidification installations. · Maximum reliability due to focus on quality components and processes
Designed with Siemens PLC incl. web-based control, warning and monitoring systems, ready for integration to BMS systems	· Easy to control and monitor from virtually anywhere, with a minimum of manpower requirements.
Rectangular duct connections for easy implementation of additional coils or filters	· Rectangular duct connections allow seamless integration of extra coils or filters, giving you complete control over your air treatment setup

Durability, reliability and easy maintenance

Features	How you benefit
Robust structure.	· Able to withstand tough treatment and harsh operating environments. · Longer service life and a better return on your investment.
All key components are standardised units easily available.	· Easy service and minimised downtime.
Large doors and panels ensure rapid, easy access for service staff.	· Less downtime during service, resulting in greater operating efficiency. · Savings on maintenance and service work.
Filters are easy to get at, and quick to change.	· Greater operating efficiency. · Savings on maintenance and service work.
Fan-wall for redundancy and easy maintenance	· Built for reliability, the fan-wall design enhances system redundancy and simplifies maintenance

Energy efficiency and connectivity

Features	How you benefit
Effective rotor	· Opportunities for recovering costly energy. · Savings on energy bills. · Improved environmental footprint.
Any kind of additional thermal input for regeneration heating can be controlled by the PLC – electricity, gas, steam, district heating, recovered thermal energy, waste heat, etc.	· Significant savings on energy bills. · Freedom to switch energy source if cost profiles change.
Thermal recovery installations can be fitted.	· Opportunities for recovering costly energy. · Savings on energy bills. · Improved environmental footprint.
Built-in variable-speed EC fan wall.	· Makes it easier to deal with fluctuating conditions, optimises air flow and keeps energy consumption to a minimum.

Cabinet and design

Features	How you benefit
Eye-catching industrial design	· Attractively designed unit that stands out from the crowd and can be mounted in highly visible positions.
Rotor inspection window.	· Easy to check that the rotor is in prime condition and working exactly as intended.
Stainless AISI304 outer cabinet	· Designed to deliver powerful performance in demanding environments. Encased in a robust AISI304 stainless steel cabinet, these units offer exceptional durability and corrosion resistance– perfect for industrial and commercial applications.
Cabinets and panels are designed for smoothness, ease of cleaning and good hygiene.	· Ideal for use in the food industry and in pharmaceutical production, where hygiene requirements are particularly stringent.

Soundproofing and vibration dampening

Features	How you benefit
Fans are mounted in fan wall inside the cabinet.	· This keeps sound levels down, and means you can mount Cotes Flexible units virtually anywhere – even places with public access, etc.
Straight, unhindered passage of air through the unit.	· Reduces energy consumption, pressure losses and noise.
Easy to mount additional insulation and noise suppression equipment.	· Sound levels can be tailored to specific project requirements, and can be as low as 60 dB.
Insulated cabinet reducing thermal and noise emissions	· The insulated cabinet minimizes both thermal and acoustic emissions, ensuring quieter operation and better energy efficiency.

CASE – FISH FACTORY DEHUMIDIFICATION

ENSURING OPTIMAL PROCESSING CONDITIONS IN A MODERN SEAFOOD FACILITY

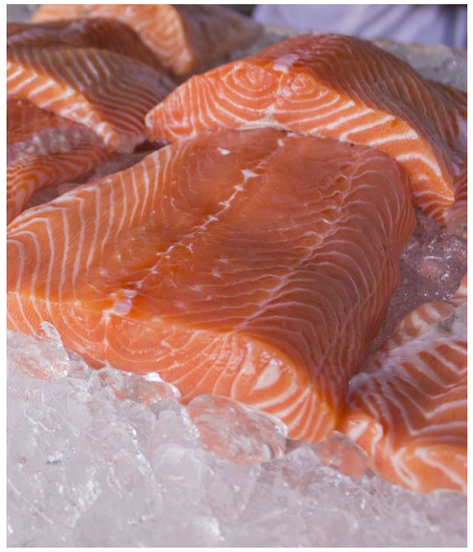
A leading seafood producer operates a state-of-the-art processing plant that plays a central role in its global value chain. The facility is recognised for its high standards of quality, hygiene, and efficient processing – helping deliver millions of seafood meals to consumers worldwide every day

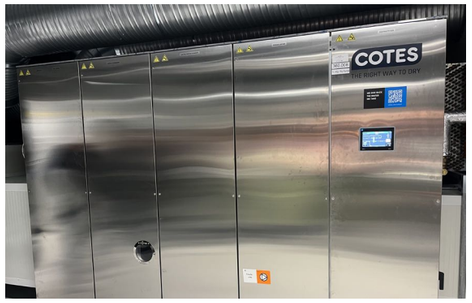
Creating the right climate for quality
Inside the facility, production areas are maintained at approximately 10 °C. The environment is naturally humid, with large amounts of water used in daily operations. To ensure hygiene and control aerosols, particles, and humidity, the air must be replaced at least five times per hour.

Because both evaporation and outside air add extra moisture, process air must be supplied with a very low dew point – around 0 °C or lower. This enables effective moisture control and stable conditions throughout the production areas, reducing downtime and safeguarding product quality.

Solution: Cotes Standard Flexible
In the gutting department, a Cotes Modular C105 unit operates alongside an upgraded Cotes Standard Flexible C194, equipped with a dedicated control system.

This solution provides reliable and energy-efficient humidity control – maintaining stable air quality and temperature, reducing condensation, and supporting optimal hygiene. Built for high-humidity environments, Cotes adsorption-based dehumidifiers deliver dry, low-dew-point air where conventional systems cannot – ensuring consistent performance and product safety.





CASE – ICE RINK DEHUMIDIFICATION

ENSURING THE BEST EXPERIENCE IN MODERN ICE RINK FACILITIES

A modern ice rink facility provides ideal conditions for both athletes and spectators throughout the year. The arena is designed to deliver the highest standards of comfort, safety, and ice quality – ensuring consistent performance and a pleasant experience, regardless of outdoor weather conditions.

Creating the right climate for performance
In ice rinks, excess humidity can lead to fog, dripping from ceilings, condensation on glass, corrosion of metal structures, and soft or uneven ice surfaces. These issues affect visibility, safety, and energy efficiency, while also increasing maintenance costs. To maintain ideal conditions, indoor humidity must be precisely controlled, keeping the dew point below the ice temperature and relative humidity typically under 65%.

Solution: Cotes Standard Flexible
The Cotes Standard Flexible C125 was configured to match the project's specific layout and airflow requirements, providing a tailored and energy-efficient solution for large-scale humidity management. With its exceptional process air capacity and robust design, it ensures consistent air quality, prevents condensation, and maintains ideal ice conditions throughout the facility.

VISIT OUR WEBSITE TO LEARN MORE ABOUT ADSORPTION TECHNOLOGY AND OUR COTES STANDARD FLEXIBLE RANGE

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