

Cotes dehumidifier **CRP/CRT**

Manual number: 140729

Revision: A

COTES CRP/CRT FLEXIBLE

How to install, set up, operate and service your
Cotes CRP/CRT Flexible dehumidifier



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SECTION 1 / GENERAL BACKGROUND

ABOUT THIS HANDBOOK

This is the installation and service handbook for your Cotes dehumidifier.

You should read the whole handbook before installing and/or starting the dehumidifier unit for the first time. It is important that you and your colleagues are familiar with the correct operating procedures and all precautionary safety measures, in order to avoid any damage to the surroundings, materials or installations, as well as to prevent any personal injury.

This handbook is mainly intended for use by technicians who install and operate this Cotes dehumidifier unit, who carry out preventive maintenance and who replace defective parts.

Anyone using Cotes dehumidifier units, or whose responsibilities include supervising their operation, will also benefit from reading this handbook and from consulting it as a practical help should the need arise.

Product number for this handbook

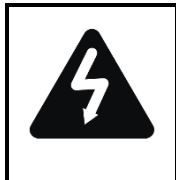
The product number of this particular service handbook is 140729.

This is the number you need to give us if you would like to order additional copies for your staff, colleagues or service personnel, or for technical staff from outside your company.

SYMBOLS USED IN THIS HANDBOOK



This tells you to perform a particular action



Important to note, because items in the dehumidifier can cause injury or affect people's health



You need to pay special attention to this



NOTE

It is each operator's responsibility to read and understand this manual and other information and to employ the correct operating and maintenance procedures.

ABOUT MANAGING HUMIDITY

Cotes humidity management technology – cost-effective and energy-efficient

The moisture in the air all around us has surprising – and often costly – effects on the materials, structures and processes at the heart of virtually all business processes and industrial activity.

Cotes humidity management technologies enable you to control the levels of moisture in the air inside any building, installation or facility, using only a bare minimum of energy.

And effective control of the basic parameters for your operations is good business.

ABOUT COTES

World leader

Cotes is one of the world's leading experts in the field of adsorption dehumidification, providing technology and expertise that enable companies to achieve better control of the humidity always present in the air.

Better management of the humidity in the air also makes it possible to improve and optimise a wide range of industrial processes, prevent damage and corrosion in many types of structures, and reduce energy consumption in all kinds of installations where air specifications are important.

Big benefits

Cotes dehumidification units provide exceptional advantages.

- Our know-how and experience make sure each customer gets the right equipment to tackle all the practical needs and operating priorities associated with the specific installation
- Our units are exceptionally reliable, and can withstand even harsh treatment unusually well
- They are very easy to maintain and service
- They only use a minimum of energy in order to achieve maximum effect.

We aim to provide our customers with the most technically effective and energy-efficient solution for the best price. This ensures the best possible return on investment, as well as peace of mind about having made the best decision.

SECTION 2 / THE DEHUMIDIFIER

ABOUT THE COTES CRP/CRT RANGE OF DEHUMIDIFIERS

Dehumidifiers in the CRP/CRT Flexible range are designed to remove undesirable humidity from ambient air at normal atmospheric pressure. Typical uses can include moisture control for an unheated store room, in a waterworks building, in a production space in which hygroscopic materials are present.

Dehumidifiers of this kind can also be used as a part of a larger air treatment setup, in which the dehumidifier serves as a by-pass to the main system. In such cases, the pressure in the main system exerts an influence on the dehumidifier – and your supplier must be contacted, as this can affect the capacity of the dehumidifier.

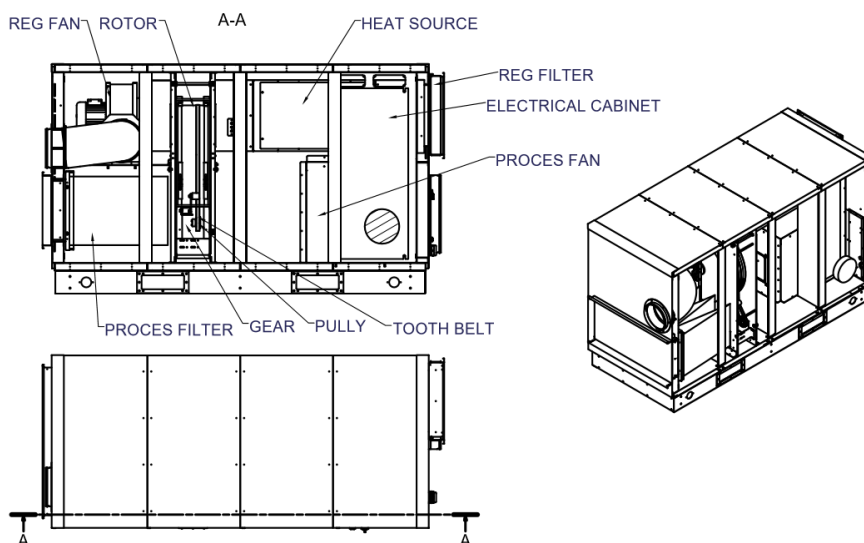
CRP/CRT dehumidifiers are normally placed on the floor with the rear against a wall, with due consideration for the free space necessary to ensure easy service access.

The air to the dehumidifier must be free from solvents or other explosive components, and should be free from pollution from solid particles, chemical substances, oil fumes and exhaust gases from diesel engines.

The CRP and CRT ranges provide an effective choice between reducing the humidity to a much lower level (quickly), or reducing the humidity more slowly but using less energy.

Dehumidifiers in the CRP/CRT Flexible range can be powered by different energy sources. Cotes provides models fueled by Electricity (E), Steam (D) or Gas (G) as standard – but the use of other energy sources or mixed-energy configurations *can* be designed to meet customer request.

The last letter in the product name indicates the main source of energy used for regeneration of the rotor material. A CRT1200E is powered by electricity, for example.



Design priorities

The Cotes CRP/CRT Flexible range features an eye-catching modern industrial design appearance, along with exceptional reliability.

It is designed to ensure the unhindered passage of air through the unit, which reduces

- Energy consumption
- Pressure losses
- Noise levels.

All the components, ancillary equipment and features are optimized for better performance, exceptional service life and easy maintenance.

All components (except HR module) are mounted inside the Cotes CRP/CRT cabinet, which can be extended to house extra components if needed.

Capacities

The Cotes CRP/CRT range currently features models with process air flows of between 2,000 m³/hour and 40,000 m³/hour. Higher air flows of up to 100,000–150,000 m³/hour are available on request.

At process air inlet conditions of 20°C and 60% relative humidity (%RH), the capacities (the amount of water vapour that can be removed from the air) of these CRP/CRT units are between 13 kg/hour and >300 kg/hour. For details about a specific capacity or particular requirements, please consult Cotes or your Cotes dealer.

Configurations

STANDARD configuration

The STANDARD configuration provides:

- High dehumidification capacity
- High energy efficiency
- Stainless steel cabinet on the outside
- Easy installation
- Low-noise running
- Low maintenance costs, reducing overall operating costs
- Easy cleaning
- Attachment of external humidity sensor (external humidity control and sensors are not included as standard, but are available for purchase from Cotes)
- Mechanical hour counter, to keep track of how long the unit has been in operation
- Overheating alarm
- Remote start/stop option
- External fault signal and operation signal

CAPACITY CONTROL configuration

In addition to the STANDARD configuration, the CAPACITY CONTROL configuration provides:

- Modulating capacity by a 0-10 V external signal. Can be controlled by BMS system or Cotes controller

FLEXIBLE configuration

All dehumidifiers in the CRP/CRT Flexible range can be customised to suit a specific need – hence the name. They are easily equipped with:

- Extra sensors – filter guard, rotor guard, temperature, dew point
- Extra filters or filters with different specifications
- Multiple heat sources
- Heating and cooling coils
- Customised control system – PLC, or signalling for BMS system
- Equipment for outdoor installation

All components are mounted inside the Cotes Flexible cabinet, which can be extended to house extra components if needed.

Operating conditions

For the process and regeneration air inlet, the following operating conditions must be respected:

Relative humidity	0–100%
Temperature	0–35°C
Pressure	Ambient \pm 500 Pa

It is only possible to deviate from these ranges if such deviations were specifically mentioned when the order was placed, and special considerations have been incorporated into the unit in order to deal with this.



NOTE

Operating conditions for the air inlet flows must be respected.

Storage conditions

For storing the dehumidifier, the following conditions must be respected:

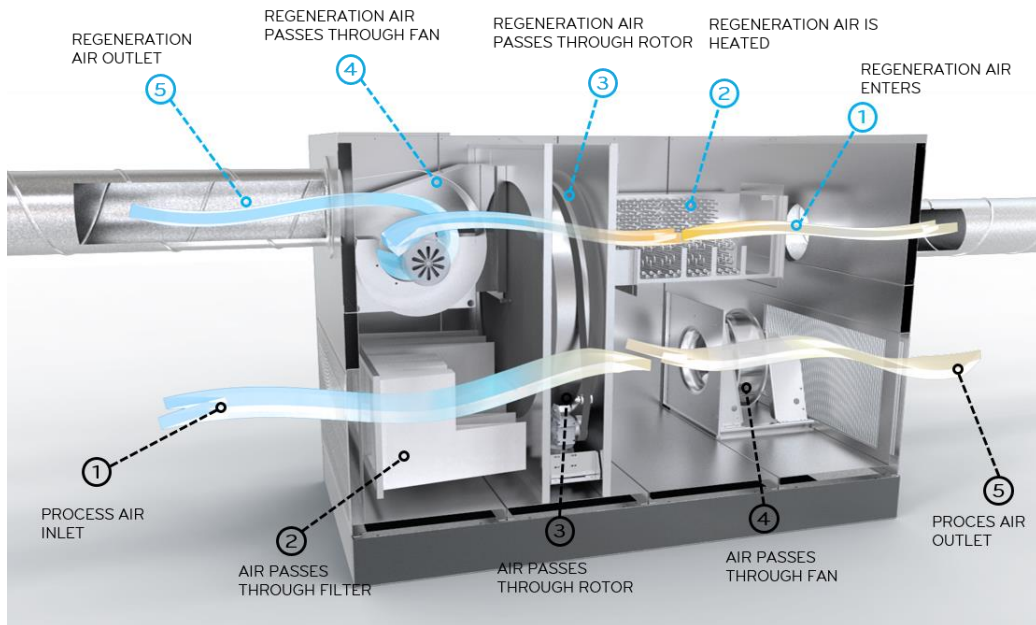
Relative humidity	0–90%
Temperature	-20°C to 50°C

It is only possible to deviate from these ranges if such deviations were specifically mentioned when the order was placed, and special considerations have been incorporated into the unit in order to deal with this.

**NOTE**

Storage conditions for the dehumidifier must be respected.

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 (1–5, black)

The incoming moisture-laden flow of air (process air) enters one side of the cabinet and gets filtered by a process air filter. The air then passes through a slowly turning rotor 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 containing less moisture (humidity) than when it entered. And because the adsorption process releases energy to the air, the temperature increases during the process. The process air is controlled by a process air fan.

The regeneration process (1–5, blue)

The second air flow (the regeneration air) is filtered by a regeneration air filter, and heated by heating elements to reduce its relative humidity.

On its way through the rotor, 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. The regeneration air is controlled by a regeneration air fan.

Fans

All units in the CRP/CRT range of adsorption dehumidifiers are fitted with two fans as standard.

Cotes adsorption dehumidifiers are always configured with a certain amount of “external pressure” to make sure that ducting does not cause a reduction in the amount of air.

For details about the fans fitted to this particular Cotes dehumidifier, see section 3.

Filters (1)

All models of Cotes adsorption dehumidifiers are fitted with filters to remove undesirable particles or other pollutants from the incoming process and regeneration air.

For details about the filters fitted to this particular Cotes dehumidifier, see section 3.

Heating units

Cotes CRP/CRT dehumidifiers are fitted with an electrical, steam or gas-driven heating source as standard, to control the temperature of the regeneration air entering the unit.

For details about the heating units fitted to this particular Cotes dehumidifier, see section 3.

Heating/cooling modules

Being able to control the exact specifications of the air leaving the dehumidifier enables you to extract maximum benefit from Cotes humidity management.

If it is important to keep the process air at a consistently high temperature, a post-heating unit can be fitted after the adsorption rotor, as optional equipment.

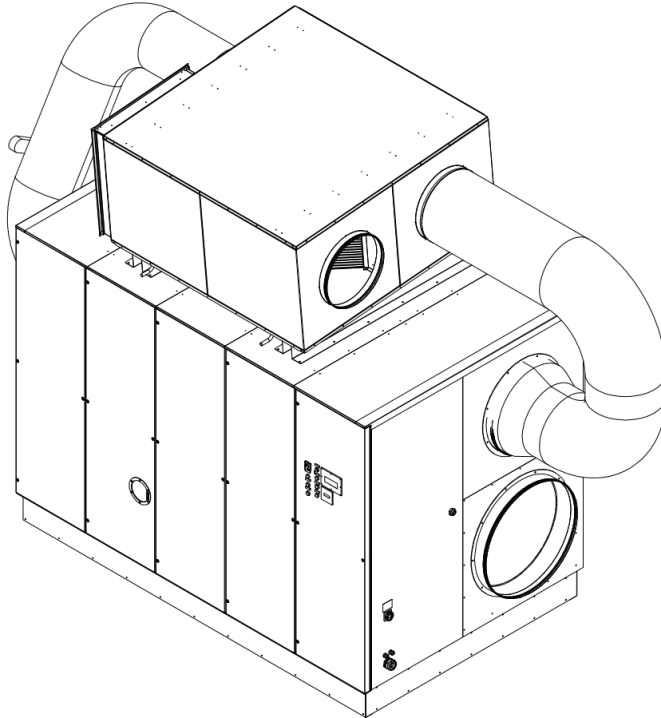
A post-heating unit is normally in combination with a post-cooling coil, in order to ensure 100% control of both relative humidity and temperature.

For details about any post-heating units fitted to this particular Cotes dehumidifier, please contact your Cotes dealer, or Cotes.

Heat recovery unit (HR module)

Cotes adsorption dehumidifiers can be fitted with a heat exchanger to make sure that part of the thermal energy from the regeneration air leaving the unit is extracted, and reused for preheating the incoming regeneration air.

The heat exchanger is placed in an external box equipped with inlets and outlets for the incoming and outgoing regeneration air. The unit is designed for positioning on top of the dehumidifier, as standard. The heat recovery unit can save as much as 20–25% on energy consumption.



The heat recovery unit can be fitted to any CRP/CRT dehumidifiers, but you have to install the appropriate ducting and damper for outgoing regeneration air.

For details about the heat recovery unit fitted to this Cotes dehumidifier, please contact your Cotes dealer, or Cotes.

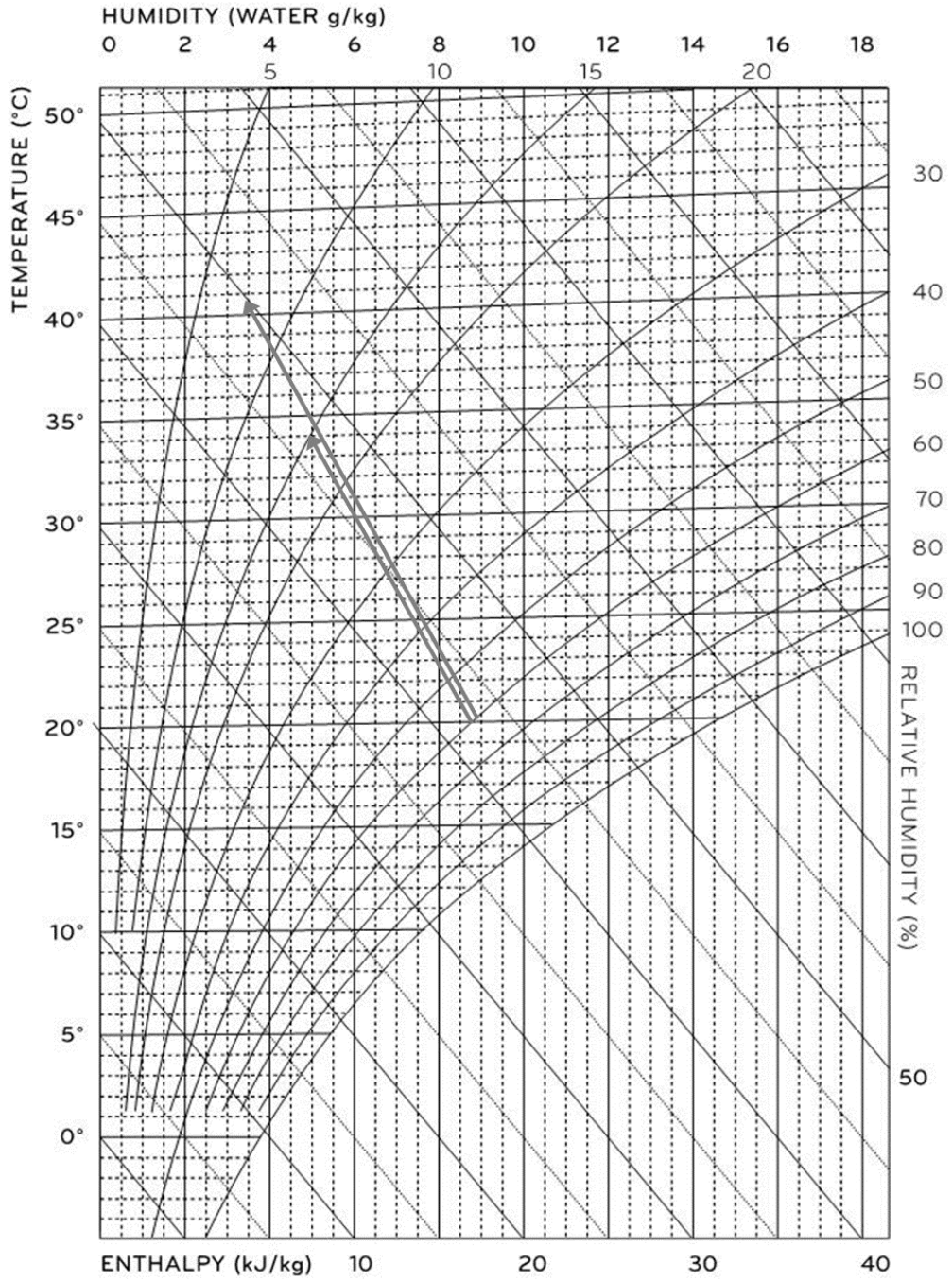
Difference between CRP and CRT (between CRP6000 and CRT9000, for example)

As shown in the diagram below, CRP dehumidifiers reduce the humidity to a lower level than the corresponding CRT units. This process means the heating source (electricity, steam or gas) has to create a higher temperature, and a lower process air flow is required.

The CRT does not reduce the level of humidity as quickly as the CRP model, because a larger amount of process air is warmed up to a lower temperature.

In short:

- **CRP** dehumidifiers: rapid reduction of humidity levels
- **CRT** dehumidifiers: lower energy costs



FEATURES AND BENEFITS

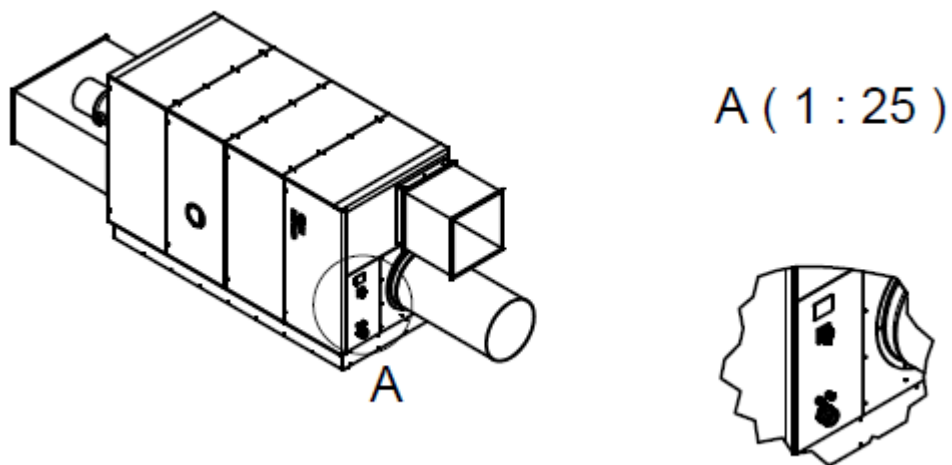
Highlighted features	How customers benefit
Appearance/cabinet	
Eye-catching industrial design.	Visually attractive units that can be mounted in highly visible positions.
Outer surfaces made of stainless steel, as standard.	Helps keep technical installations looking modern and attractive. Reinforces impression of quality.
Robust structure.	Longer service life. Better return on investment.
Inner surfaces made of galvanized steel, as standard.	Easy cleaning saves on time and manpower.
Equipment configurations inside the cabinet	
All fans are mounted inside the cabinet.	Can be mounted in a wider range of positions and structures, even where there is public access, etc.
Easy to mount additional insulation and noise suppression equipment.	Configurations individually customised to each project/installation.
Key components are standardised units easily available throughout the world.	Less downtime. Savings on maintenance and service work.
Most effective rotor currently available anywhere in the world.	Most humidity removed from the flow of air at lowest cost.

Highly durable rotor bushes.	Savings on maintenance and service work. Greater operating efficiency.
Air flow	
Available with frequency-controlled ventilator.	Savings on energy costs. Less noise.
Access	
Large door that provide rapid, easy access.	Savings on maintenance and service work. Less downtime means greater operating efficiency.
Filters that are easy to get out, and quick to change.	Savings on maintenance and service work. Greater operating efficiency.
Connectivity	
Compatible with all standard electrical voltages and frequencies <ul style="list-style-type: none"> • 230V/400V/440V • 50Hz/60Hz. 	Savings on installation costs. More rapid commissioning.
Modular design prepared for installation of control systems, heaters, cooling systems, hygrometers, sensors, etc.	Rational, cost-effective dehumidification installations. Maximum reliability.
Energy sources	
Thermal recovery installations can be fitted.	Savings on energy costs. Improved environmental footprint.

SECTION 3 / TECHNICAL DETAILS

SERIAL NUMBER/IDENTIFICATION

The serial number/identification code for your particular model is located on the end of the dehumidifier marked with A on the drawing.



SOUND LEVEL

The sound level is measured in accordance with EN292-2.

The dehumidifier is placed on the floor while the sound level is being measured. Ducts for regeneration air and for process air/dry air are installed and led out of the measuring room.

The sound level is then measured 1 metre outside the front of the cabinet (outside the big cabinet cover), and 1.6 metres above the floor.

See appendix 1 for sound data for this particular unit. For selecting silencers, see technical data for fans.

CAPACITY

The inlet conditions of the air to be dried determine how much water vapour the dehumidifier will remove. The capacity diagram below shows how much water vapour will be removed per kg air passing through. The nominal capacity is shown in appendix 1, however, the following procedure can be useful when estimating the capacity at other design points.

Example, CRT:

- Inlet air conditions 20°C, 60% RH gives absolute water content X_u = 7.3 g/kg

- The diagram (below) then shows dry air conditions of X_i = 2.8 g/kg

- Water vapour removed per kg air is then: $(7.3 - 2.8)$ = 4.5 g/kg

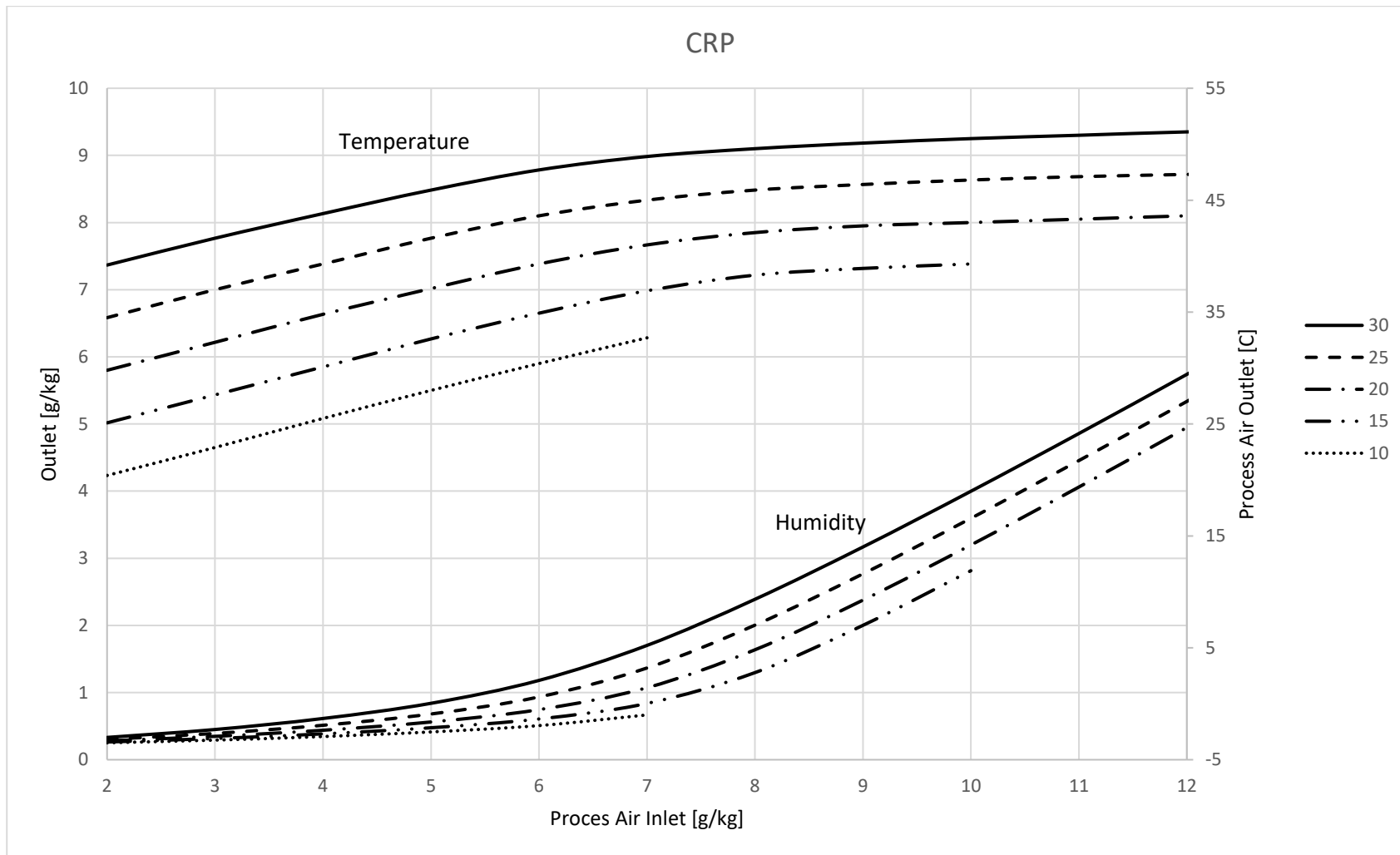
Capacity CRT3000E under these conditions:

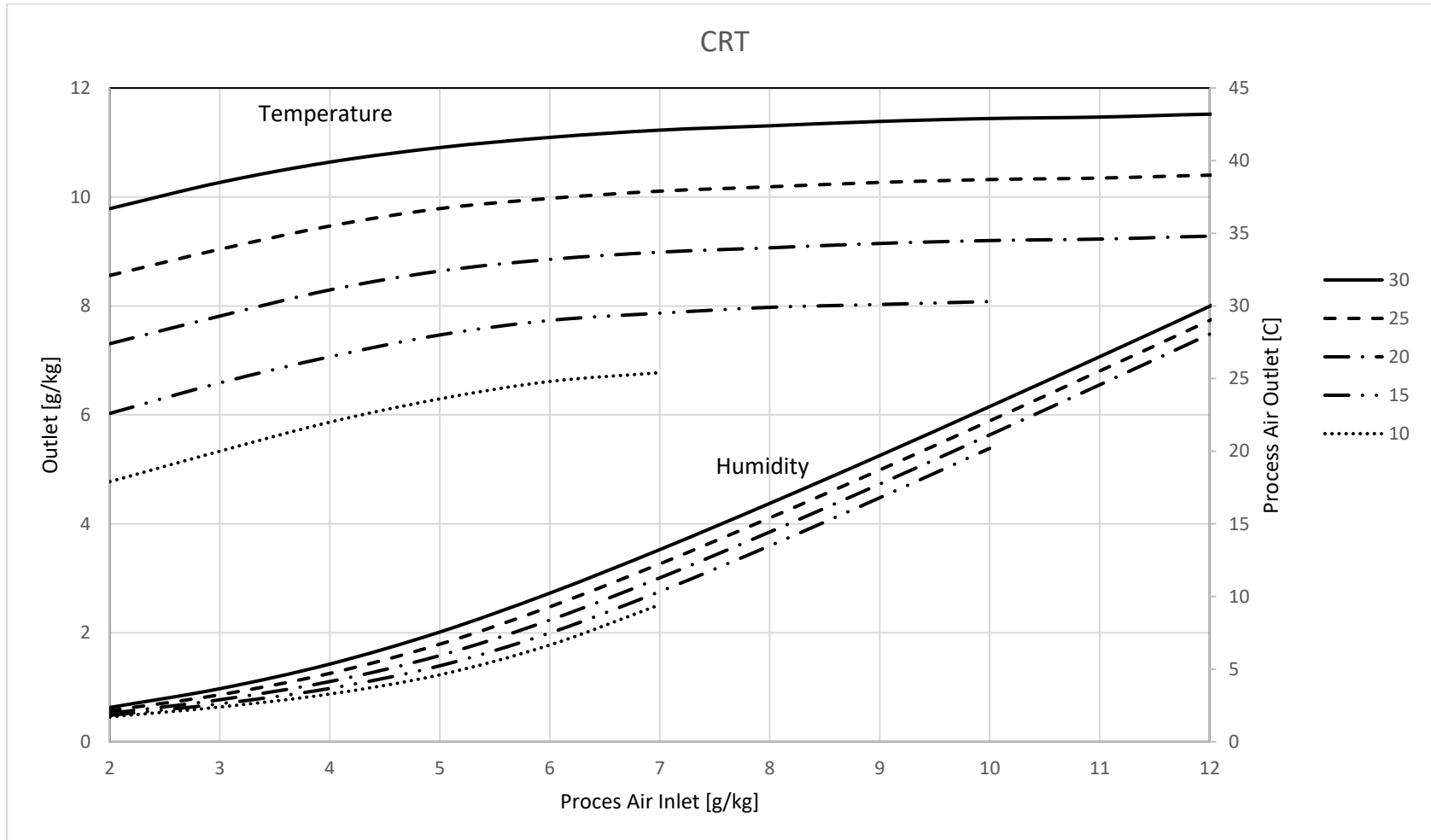
Dry air flow (nominal) is 3000 m³/hour = (x 1.2) = 3600 kg/hour

Capacity (water vapour removed per hour) = (7200×4.5) = 16200 g/hour

= 389 kg/24 hours

The temperature of the dry air is higher than for the inlet air. This stems from the evaporation heat release and the heat gain from the rotor. The temperature is shown to be 35°C.





ASSEMBLIES AND COMPONENTS

Customised to meet your needs

Cotes dehumidifier units are based on a modular design that enables our customers to select from a broad range of carefully selected components and assemblies, to meet specific installation and operating requirements.

Your Cotes CRP/CRT Flexible dehumidifier has been configured to meet the particular requirements of your installation.

INCLUDED APPENDICES AND SPECIAL NOTES

This manual gives general data regarding all dehumidifiers in the CRP/CRT range. For data concerning the specific dehumidifier please see the appendix section.

The following data are found in the appendix:

Appendix 1: Data of components and performance

Appendix 2: Flow chart

Appendix 3: Drawing

Appendix 4: Spare part drawing

Appendix 5: Electrical diagram

Appendix 5→: Datasheets

SECTION 4 / INSTALLATION

HOW TO INSTALL THIS DEHUMIDIFIER

Removing the packaging

Cotes CRP/CRT Flexible dehumidifier units are delivered in a wooden box. Please dispose of this packaging responsibly, and recycle it if possible.

Handling

Cotes dehumidifiers are built to be very robust, so there is no need for special handling, apart from normal sensible care and attention.

Note the weight of the dehumidifier as specified in appendix 1. We recommend that you use a forklift to move the dehumidifier around and place it in position.

Where to mount this dehumidifier

Cotes adsorption dehumidifiers are designed for installation indoors.

The back of the dehumidifier should be placed against an outer wall to make it easier to install the regeneration air ducts. For some installations shock absorbers should be placed under the cabinet.

Where not to mount it

Unless it has been arranged with Cotes and special considerations have been made, the unit should not be placed outdoors. The unit can be installed outdoor if a special outdoor protection has been installed.

The unit should not be placed inside an office or in other locations where the sound pressure level must be kept to a minimum.



NOTE

The dehumidifier must – unless special agreement have been made - be placed indoors, and protected from rain and water.

Things to be careful about

Electrical work should only be carried out by an authorised electrician.

**NOTE**

Electrical work should only be carried out by an authorised electrician.

Connections needed – electrical

First, make sure that the main switch is OFF.

**NOTE**

Make sure the power is switched off before carrying out any installation and service work.

The dehumidifier is manufactured to operate under a specific power supply, so please check that the power supply present and the data on the name plate are identical.

The power circuit cable can now be connected to the main switch of the dehumidifier.

Connections needed – ductwork**NOTE**

To ensure low pressure drop and low sound pressure levels, please request assistance from a company that specialises in ductwork.

The regeneration air inlet (Reg. in) comes from outside the room, and the regeneration air outlet (Reg. out) should lead back to outside. The dehumidifier should therefore be placed close to an outer wall through which these connections are possible. Ductwork may be needed.

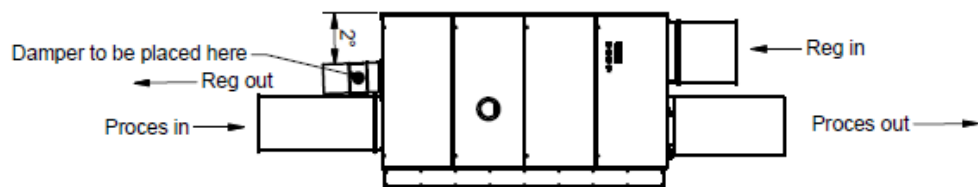
The regeneration air inlet should be fitted with a filter (the filter installed as standard can be used). See appendix 1 for of the inlet dimensions required for connecting ductwork.

The regeneration air outlet should be made to drain towards the outlet, to allow condensation to leave the dehumidifier. If this is not possible, you may have to drill a DN6 hole on the lowest part of the duct so that any water can drain away.

A damper for adjusting the regeneration air flow must be installed unless an inverter for regeneration is included in the dehumidifier (not standard). If not, the regeneration air flow will – in most cases – be too high, making it impossible to reach the desired temperature for the regeneration air and thus making the unit less efficient. Use a standardised tool for measuring the velocity according to specifications.

The ductwork for the dry air should be selected regarding to the external pressure available from the process air fan, and to the space available for ducting. Choose dry air duct size for an air velocity of 4–6 metres/second.

If ducts are needed for inlet process air, see appendix 1 for the dimensions of the outlet.



Note

If the dehumidifier is to be connected to another air treatment system, the air pressure of this system will have an effect on the dehumidifier. In that case, contact your supplier for advice before installation.

Silencers

Enclosed in this manual are the sound data (see appendix 1) for the standard two-fan configuration. Please check the maximum sound level permitted for the installation, and select the silencers needed for the dry air outlet duct and the regeneration air outlet duct accordingly.



NOTE

The regeneration air outlet should be made to drain downwards towards the outlet.

If this is not possible, drill a $\varnothing 6\text{mm}$ hole in the lowest part of the duct, so that any accumulated water can drain away.

Safety precautions

Dehumidifiers in the CRT/CRP range weigh approximately > 700 kg and should therefore only be moved using a forklift or similar equipment.

Any work in the electrical cabinet should only be carried out by authorised electricians.

Any duct connections to and from the dehumidifier should only be carried out by authorised plumbers.

Connection of steam (only steam models)

The CRP/CRT models with steam reactivation are delivered without a steam regulation valve, as standard, because the steam adjustment system must be configured to match with the steam supply installation. Please consult appendix 1 for details about how to connect the steam coils.

Cotes recommend that the installation be fitted with a valve that closes the flow of steam when the dehumidifier is not operating.

If the steam pressure is too low or the steam flow is too low, the dehumidifier will underperform.

**IMPORTANT**

Steam must be saturated and at the dimensioning pressure – described in appendix 1.
Excessive steam pressure will damage the dehumidifier.

Connection of pre- and post-cooling/heating coils

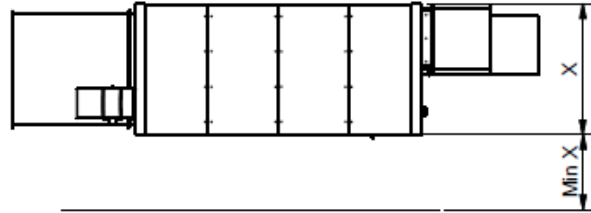
The CRP/T models with pre- and post-cooling/heating coils are delivered as standard without a regulation valve, because the valve must comply with the cooling/heating installation. Please consult appendix 1 for details regarding the coil connection.

Cotes recommends that the installation be fitted with a valve that closes the flow of cooling/heating media when the dehumidifier is not operating.

Service area

Min X shows the minimum service distance in order to ensure that the dehumidifier doors can be opened (see appendix 1). This service area must be kept free of obstructions at all times – especially

while servicing the machine.



HOW TO INSTALL HEAT RECOVERY UNIT

Removing the packaging

Cotes heat recovery units (HR module) are delivered in a wooden box. Please dispose of this packaging responsibly, and recycle it if possible.

Handling

Cotes HR heat recovery units are built to be very robust, so there is no need for special handling, apart from normal sensible care and attention.

Note that the weight of the heat recovery module is found in appendix 1. We recommend that you use a forklift to move such units around and to place them in position on top of the unit (recommended) or in another suitable place.

Where to mount the heat recovery unit

The unit is designed to be fitted on the top of the unit. After installation please ensure that the unit is fastened in the dehumidifier lid.

Connection needed for heat recovery unit – drain

The HR condensation unit is equipped with a single drain connection that should be connected to a drain in the building, because small amounts of condensation may form inside the unit.

It is possible to install an airlock to prevent any regeneration air entering the room. This airlock should be filled with water prior to use.

HOW TO COMMISSION THIS DEHUMIDIFIER



NOTE

Only trained/authorised electricians are allowed to carry out any work required in the electrical box of this Cotes dehumidifier.

When the cover of the electrical cabinet is open, the power supply must be switched off at the mains switch and the switch must be locked by using a lock.

Procedure

a) Check the electrical installation before starting the dehumidifier, switch on the mains switch

- Check the voltage between the terminals L1, L2, L3 (= 400V dehumidifiers)
- Is the ground cable connected, and of the correct specifications?
- Is any hygrometer (if fitted) correctly connected?

b) Check the connected duct system

- Is the recommended damper installed in the regeneration air outlet duct?
- Is the recommended damper installed in the process air outlet duct?
- Do the regeneration air outlet ducts drain away from the dehumidifier, to make sure that any condensed water flows away?
- If the regeneration air outlet does not drain away from the dehumidifier, check whether there is a 6mm-diameter hole drilled in the lowest part of the duct, so that any accumulated water can drain away.

c) Set damper positions/air flow settings at commissioning

Dampers/settings should initially be set in the following positions.

- Damper in the regeneration air outlet: fully open
- Damper in the process air outlet: half closed

Some units process flow less than 12,000 m³/h are equipped with an adjustable EC fan for the process air. In such cases, adjust the flow by regulating the potentiometer. Start by setting it to 60%.

If the unit is equipped with inverter for the process fan or the regeneration fan, adjust the flow by changing the frequency of the inverter output.

d) Start up the dehumidifier

Switch on the selector switch (MAN position for continuous operation, and AUTO position for automatic operation using a hygrostat).

When the selector switch is switched on, the process air fan, regeneration air fan and gear motor/rotor will be operating. The heating source will not be turned on at this point.

e) If the dehumidifier starts up as described above, then go to f)

If the dehumidifier does not start, you should check the humidity set point. If the set point is higher than measured by the humidity sensor, the dehumidifier will not start (unless the "Always On" program has been chosen – see below).

f) Once the dehumidifier is operating, you should adjust the air flows

Adjust the process air flow for the nominal value – see appendix 1.

Adjust the regeneration air flow to the nominal flow, by using the dampers or the frequency inverter (if installed) – see appendix 1.

g) Switch on the heat source

Switch on the heat source.

The temperature should now rise as shown on the display.

Make the final adjustments on the regeneration air flows to set the right values.

Example: 120°C at 25°C inlet temperature.

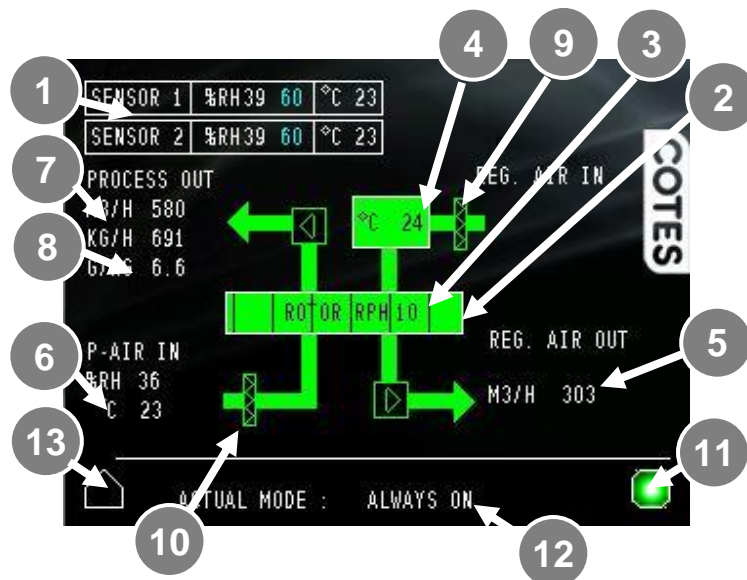
SECTION 5 / OPERATION

HOW TO OPERATE THIS DEHUMIDIFIER

The dehumidifier needs to be turned on at the main switch.

After a while the PLC overview screen will appear (Configuration-B, Configuration-C and Configuration-D only).

Overview menu



What you see:

1. **Actual measurement and Target value for %RH and temperature** within the space concerned (as registered by external sensors not part of the dehumidifier).

In Configuration-B, Configuration-C and Configuration-D, the display can show the dew point of the space concerned, as an alternative measurement.

In Configuration-C and Configuration-D, more sensors can be used to provide measurements of %RH and temperature.

The blue number is the **Target value for %RH** within the space concerned. Pressing the blue number results in a pop-up menu where you can type in a new target value – complete by pressing ENTER.

If you wish to alter the threshold value, you do this on the HUMIDITY/SENSOR1 menu. In Configuration-B, Configuration-C and Configuration-D, you can select dew point instead of %RH – or a combination of these.

2. **Rotor.** If the rotor is turning, this moves. The rotor turns clockwise.

3. **Rotor speed** in rph.
4. **Regeneration air temperature.** Shows the temperature of the heated regeneration air. If the temperature is shown in red, an overheating alarm is triggered.
5. **Regeneration air flow** (Configuration-C and Configuration-D only). The white number indicates the air flow, given by the chosen program. In the CUSTOM program, the regeneration air flow can be manually adjusted in % relation to maximum setting, m³/hour or kg/hour.

In Configuration-B (only) the regeneration air fan can be adjusted in % in relation to maximum setting. This should only be used for initial adjustment, and should not be changed subsequently.
6. **Inflow process air conditions** (Configuration-D only). Actual process air inlet conditions measured in %RH and temperature. This measurement is taken directly after the process air is passing through the process filter.
7. **Adjustment of process flow** (Configuration-C and Configuration-D only). The white number indicates the air flow, given by the chosen program.

In the CUSTOM program, the process air flow can be manually adjusted in % relation to maximum setting, m³/hour or kg/hour.
8. **Adjustment of process air conditions**, measured in g/kg (Configuration-D only). A blue number is visible if you disconnect the external humidify sensor(s). This makes it possible to adjust the process air according to desired g/kg. The blue number is where you adjust the target value. Pressing the blue number results in a pop-up menu where you can type in a new target value – complete by pressing ENTER.
9. **Regeneration air filter** If this is yellow, this filter should soon be replaced. If this is red, the service interval has been exceeded. A mechanical pressure switch triggers a warning (yellow alarm) if the set point is reached. The set point can be manually adjusted at the pressure switches located inside the dehumidifier.
10. **Process air filter** If this is yellow, this filter should soon be replaced. If this is red, the service interval has been exceeded. A mechanical pressure switch triggers a warning (yellow alarm) if the set point is reached. The set point can be manually adjusted at the pressure switches located inside the dehumidifier.

Alarm/warning. Green = everything is OK. Yellow = warning = a service will soon be required (the dehumidifier continue to operate). Red = alarm = there is a fault or malfunction somewhere (the dehumidifier stops immediately). The most likely causes are that the regeneration air heater is over-heating, the filter is blocked, or the service interval has been exceeded.
11. **Actual mode.** Indication of chosen program. See more information on page 39.
12. **Return to main menu**

Note that if you attempt to change values, you will be asked to enter an operator code (1234 is standard/default).

MAIN menu

What you see:

START/STOP Turn the dehumidifier on and off.

HUMIDITY menu. This is where you decide the levels of humidity that the dehumidifier provides.

PROGRAMS menu. This is where you decide how you want the dehumidifier to operate (Always On, RH On/Off, Capacity Control (Configuration-B only), Energy, Quiet, or Custom programs (Configuration-C and Configuration-D only), and Energy+ (Configuration-D only)).

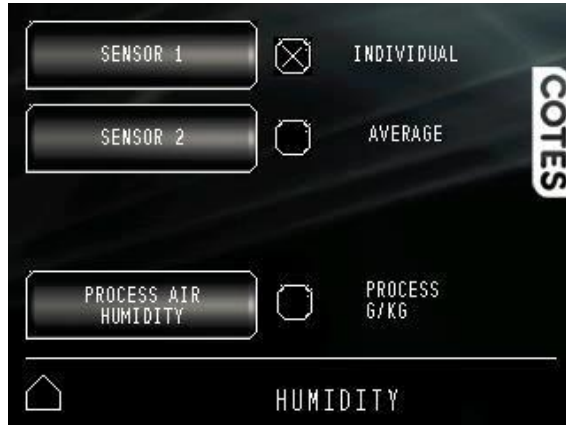
SERVICE menu. This is where you can see the status of service, and also where you reset the timer after a time-expired component has been replaced. Green = everything is OK. Yellow = service is needed (the dehumidifier continue to operate). Red = critical alarm and service is needed immediately (the dehumidifier stops operating).

ALARM menu. This is where you check any alarms, and reset the alarm after dealing with the warning message.

SET-UP menu. This is where you set the date and time, language setting and login menu. An advanced menu and timer function are also available.

INFO. This is where you can read product details such as dehumidifier type, serial number, build date, software revision and running hours. Contact information is also available for you to enter (customer and dealer information). A performance log is available with indications of %RH and dew point. The performance log registers data every hour.

Return to overview

HUMIDITY menu

What you see:

SENSOR 1. This button is only shown when a sensor is connected. Pressing this button leads to a pop-up menu where you can adjust the humidity target values for that particular sensor.

SENSOR 2 (Configuration-C and Configuration-D only). This button is only shown when a sensor is connected. Pressing this button leads to a pop-up menu where you can adjust the humidity target values for that particular sensor.

PROCESS AIR HUMIDITY (Configuration-D only). Pressing this button leads to a pop-up menu where you can adjust the humidity target values (g/kg) for the process air leaving the dehumidifier. This button is only visible if there is no SENSOR 1 and/or SENSOR 2 connected.

INDIVIDUAL and **AVERAGE** buttons are only visible if both SENSOR 1 and SENSOR 2 are connected. The standard setting is INDIVIDUAL.

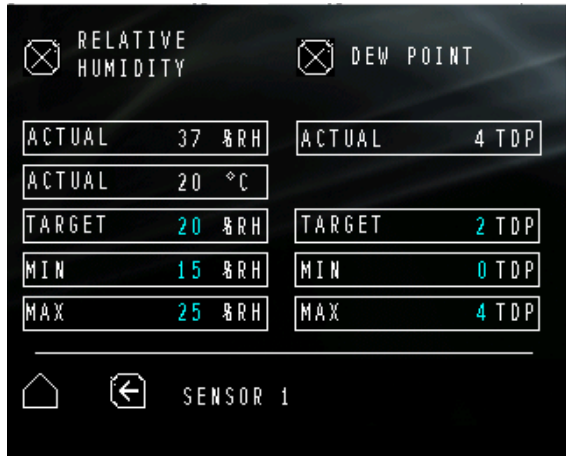
INDIVIDUAL means that the dehumidifier is controlled by the value measured by each individual sensor. If the air humidity level increases above the threshold value set for one of the sensors, the dehumidifier starts running.

If you press AVERAGE, it means that the dehumidifier is controlled by the average of the values measured by each individual sensor, in relation to the designated threshold values. If the average values actually measured fall below the threshold values, the dehumidifier starts running. The designated threshold values defined in the SENSOR 1 menu are copied to the SENSOR 2 menu, which means that it is only possible to adjust the overall average values by adjusting the values in the SENSOR 1 menu.

This is important in cases where (for example) one of the sensors takes measurements near a door or other entry point into the building, and where the level of humidity can go up for a short while, without this necessarily representing a problem.

So, in AVERAGE, the target values for the sensors are identical.

Return to main menu

HUMIDITY / SENSOR 1 menu

What you see:

ACTUAL values measured by sensor 1 Measures both %RH and °C. Dew point measurement is available in Configuration-B, Configuration-C and Configuration-D.

Controlling RELATIVE HUMIDITY with the dehumidifier. Pressing the RELATIVE HUMIDITY checkbox at the top makes the dehumidifier control relative humidity as measured by the sensor (default setting).

TARGET value can be changed by pressing the blue number. A keyboard then pops up where you can type in a desired value. MAX and MIN values automatically change in ± 5 increments in relation to the entered target value. You should adjust the TARGET value first, followed by the MAX and MIN values afterwards.

Threshold values (MIN and MAX) The MIN and MAX values can be changed the same way, by pressing the blue numbers. Threshold values define the hysteresis for RH On/Off, Constant Process Air, Energy, Quiet and Custom programs. When the actual %RH measured by the external sensor exceeds the MAX value (+1%), the dehumidifier starts. When the %RH measured by the external sensor is below the MIN value (-1%), the dehumidifier stops.

If the Capacity Control program is selected (Configuration-B only), the TARGET and MIN values are the only ones shown. Here the target value is the desired target value that the dehumidifier must reach. The dehumidifier stops when the actual %RH is below the MIN value. If the dehumidifier must be kept operating at all times, the MIN value is set to (for example) 1%RH. If the relative humidity falls dramatically and the heating is not active for 1 minute, the regeneration air will shut down (when the temperature in the heating box falls below 60°C) and enable constant process air ventilation.

The MIN value defines when the dehumidifier is turned off (-1% below MIN) in the Energy, Quiet and Custom programs (only for Configuration-C and Configuration-D). See page 39 for more information.

Controlling DEW POINT with the dehumidifier The MIN and MAX values can be changed the same way, by pressing the blue numbers. Threshold values define the hysteresis for RH On/Off, Energy, Quiet and Custom programs. When the actual dew point measured by the external sensor exceeds the MAX value (+1 TDP), the dehumidifier starts. When the dew point measured by the external sensor is below the MIN value (-1 TDP), the dehumidifier stops.

If the Capacity Control program is selected (Configuration-B only), the TARGET and MIN values are the only ones shown. Here the target value is the desired target value that the dehumidifier must reach. The dehumidifier stops when the actual dew point is below the MIN value (-1 TDP). If the dehumidifier must be kept operating at all times, the MIN value is set to (for example) -6 dew point. If the dew point falls dramatically and the heating is not active for 1 minute, the regeneration air will shut down (when the temperature in the heating box falls below 60°C) and enable constant process air ventilation.

The MIN value defines when the dehumidifier is turned off in Energy, Quiet and Custom programs (only for Configuration-C and Configuration-D). See page 39 for more information.

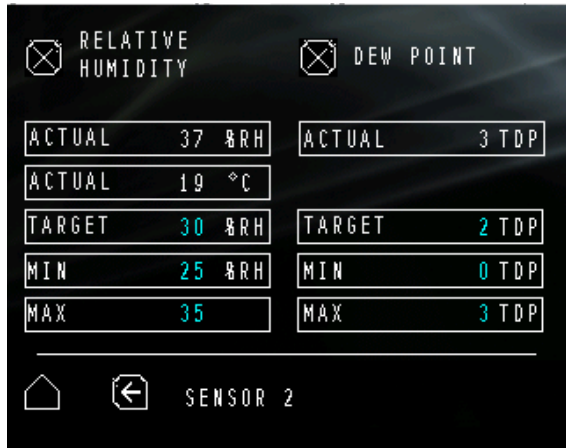
Controlling both RELATIVE HUMIDITY and DEW POINT with the dehumidifier If required, you can control the dehumidifier on the basis of both %RH and dew point measurements at the same time. In such cases, both checkboxes should be marked.

Return to main menu

Return to HUMIDITY menu

HUMIDITY / SENSOR 2 menu

(Configuration-C and Configuration-D only)



What you see:

ACTUAL values measured by SENSOR 2 Measures both %RH and °C. Dew point measurement is available in Configuration-C and Configuration-D for sensor 2.

Controlling RELATIVE HUMIDITY with the dehumidifier. Pressing the RELATIVE HUMIDITY checkbox at the top makes the dehumidifier control relative humidity, as measured by the sensor (default setting).

TARGET value can be changed by pressing the blue number. A keyboard then pops up where you can enter a desired value. The MAX and MIN values automatically change in ± 5 increments in relation to the entered target value. You should adjust the TARGET value first, followed by the MAX and MIN values afterwards.

Threshold values (MIN and MAX) The MIN and MAX values can be changed the same way, by pressing the blue numbers. Threshold values define the hysteresis for RH On/Off, Constant Process Air, Energy, Quiet and Custom programs. When the actual %RH measured by the external sensor exceeds the MAX value (+1%), the dehumidifier starts. When the %RH measured by the external sensor is below the MIN value (-1%), the dehumidifier stops.

If the Capacity Control program is selected (Configuration-B only), the TARGET and MIN values are the only ones shown. Here the target value is the desired target value that the dehumidifier must reach. The dehumidifier stops when the actual %RH is below the MIN value (-1% of MIN). If the dehumidifier must be kept operating at all times, the MIN value is set to (for example) 1%RH. If the relative humidity falls dramatically and the heating is not active for 1 minute, the regeneration air will shut down (when the temperature in the heating box falls below 60°C) and enable constant process air ventilation.

The MIN value defines when the dehumidifier is turned off (-1% below MIN) in the Energy, Quiet and Custom programs (only for Configuration-C and Configuration-D). See page 39 for more information.

Controlling DEW POINT with the dehumidifier The MIN and MAX values can be changed the same way, by pressing the blue numbers. Threshold values define the hysteresis for RH On/Off,

Energy, Quiet and Custom programs. When the actual dew point measured by the external sensor exceeds the MAX value (+1 TDP), the dehumidifier starts. When the dew point measured by the external sensor is below the MIN value (-1 TDP), the dehumidifier stops.

If the Capacity Control program is selected (Configuration-B only), the TARGET and MIN values are the only ones shown. Here the target value is the desired target value that the dehumidifier must reach. The dehumidifier stops when the actual dew point is below the MIN value. If the dehumidifier must be kept operating at all times, the MIN value is set to (for example) -6 in dew point. If the dew point falls dramatically and the heating is not active for 1 minute, the regeneration air will shut down (when the temperature in the heating box falls below 60°C) and enable constant process air ventilation.

The MIN value defines when the dehumidifier is turned off in the Energy, Quiet and Custom programs (only for Configuration-C and Configuration-D). See page 39 for more information.

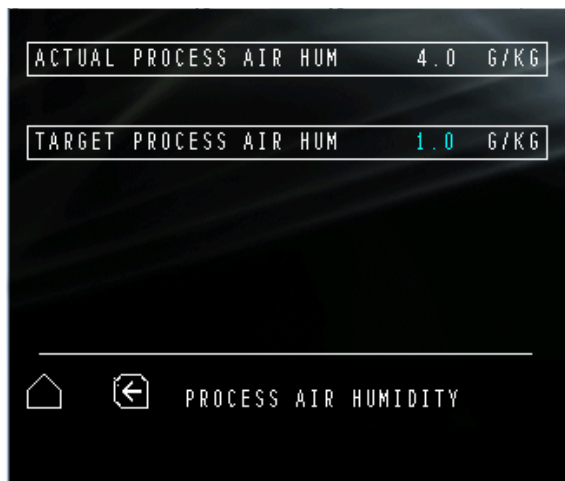
Controlling both RELATIVE HUMIDITY and DEW POINT with the dehumidifier If required, you can control the dehumidifier on the basis of both %RH and dew point measurements at the same time. In such cases, both checkboxes should be marked.

Return to main menu

Return to HUMIDITY menu

PROCESS AIR HUMIDITY

(Configuration-D only, and only when no external sensors are mounted)



What you see:

- 1) **Actual PROCESS AIR HUMIDITY (g/kg)**
- 2) **Target PROCESS AIR HUMIDITY (g/kg)**

There are no threshold values shown because the dehumidifier is running all the time, and does not make adjustments in relation to threshold values.

PROGRAMS menu (when at least SENSOR 1 is attached)

What you see:

ALWAYS ON The dehumidifier is running at full power all the time.

RH ON/OFF The dehumidifier is controlled by an external sensor. When the values measured by this sensor are below the MIN value you have set, the dehumidifier is turned off. When the values measured by this sensor are above the MAX value you have set, the dehumidifier is turned on, and running at full power. See more details of targets and threshold on page 35 and 37.

CONSTANT PROCESS AIR The main purpose is to enable air circulation even though dehumidification is not required. The CONSTANT PROCESS AIR selection is not a standalone program and is only operating in collaboration with another program selection. If RH ON/OFF program is chosen and the dehumidifier stops operating due to achieved humidity levels – the process fan continue to operate when the CONSTANT PROCESS AIR selection is enabled.

CAPACITY CONTROL (Configuration-B only). The focus here is on removing unwanted humidity, so the fans are running at all times if the MIN value is set to (for example) 1%RH. When the values measured by this sensor are below the MIN value you have set, the dehumidifier is turned off. The heating increases slowly in order to carry out dehumidification according to capacity needed. If the TARGET value is lower than actual %RH measured by the external sensor, the dehumidifier's heating capacity will be fully activated within approximately 10–15 minutes (100% heating capacity). When the actual %RH is within the TARGET value, the heating capacity is automatically adjusted to meet requirements. For detailed instructions about how to set up target values in the Capacity Control program, see page 35.

ENERGY (Configuration-C only). In addition to removing unwanted humidity, the focus here is on removing such humidity in a more energy-efficient manner. When turned on, the speed of the rotor and the level of heat are adjusted to meet requirements and to save energy.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

ENERGY+ (Configuration-D only). The focus here is on removing unwanted humidity and keeping overall energy consumption to a minimum. In the program used in the Configuration-D, the flow of air, the level of heat and the rotation of the humidity-absorbing rotor are all controlled by measurements made by high-precision internal sensors.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

QUIET (Configuration-C and Configuration-D only). The focus here is on making sure the dehumidifier runs as quietly as possible. The dehumidifier is only turned on when the values measured by an external sensor are above the target you have set.

In this configuration, all the air flows are reduced as much as possible, in order to keep noise levels to a minimum.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

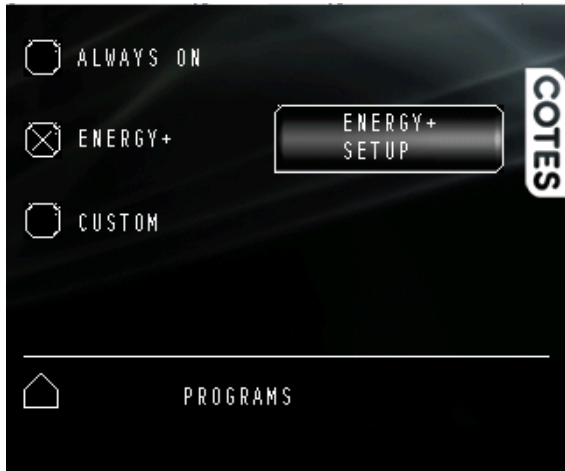
CUSTOM SETUP (Configuration-C and Configuration-D only). In this configuration, you can adjust all the values individually, within predefined limits. See page 43 for more details.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

Return to main menu

PROGRAMS menu in PROCESS mode

(for Configuration-D when no external sensors are attached)



What you see:

ALWAYS ON The dehumidifier is running at full power all the time.

ENERGY+ The focus here is on keeping a target absolute humidity (g/kg), as defined in the humidity menu. The target process air flow (kg/hour) can be specified by pressing the ENERGY+ SETUP button. See page 42 for more details.

In ENERGY+, the flow of air, the level of heat and the rotation of the humidity-absorbing rotor are all controlled by measurements made by high-precision internal sensors.

CUSTOM SETUP. In this configuration, you can adjust all the values individually, within predefined limits. See page 43 for more details.

Return to main menu

PROGRAMS / PROCESS MODE / PROCESS FLOW

(For Configuration-D when no external sensors are attached)



What you see:

% in relation to maximum fan speed

m³/hour

kg/hour

Return to main menu

To **PROGRAMS** menu

The setting you have selected appears in blue.

The values in this setting remain constant while the dehumidifier is running, but the other values can change.

You change the values by pressing on the blue number, and you change the function by pressing anywhere else on the button.

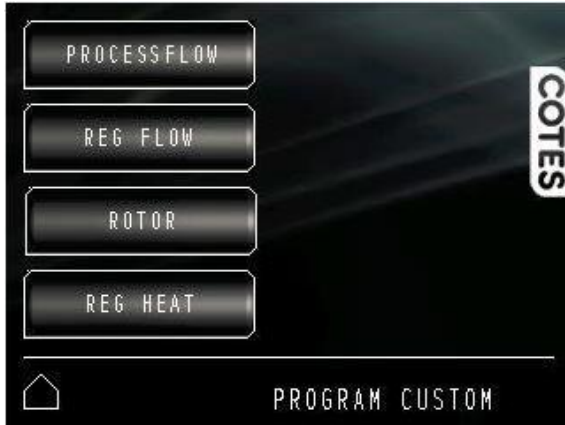
NOTE

You should only change the process air flow if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.



PROGRAM / CUSTOM

What you see:

Adjustment of process flow (Configuration-C and Configuration-D only)

Adjustment of regeneration air flow (Configuration-B, Configuration-C and Configuration-D only)

Adjustment of rotor speed (Configuration-C and Configuration-D only)

Adjustment of levels of heat in regeneration air flow (Configuration-C and Configuration-D only)

Return to main menu

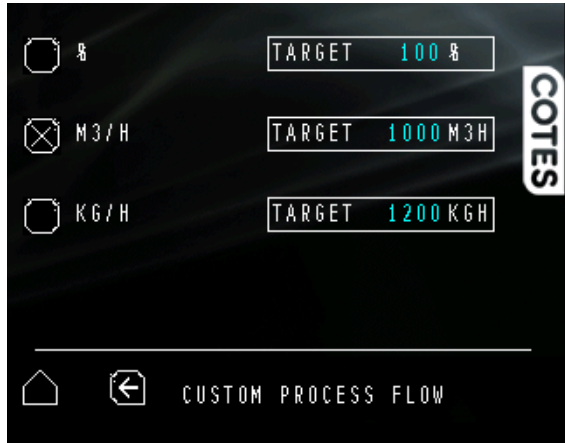
Return to PROGRAMS menu

**NOTE**

You should only use the CUSTOM menu to make changes to the operating settings if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.

PROGRAMS / CUSTOM / PROCESS FLOW

What you see:

% in relation to maximum fan speed (Configuration-C and Configuration-D only)

m³/hour (Configuration-C and Configuration-D only)

kg/hour (Configuration-C and Configuration-D only)

Return to main menu

To **CUSTOM** menu

The setting you have selected appears in blue.

The values in this setting remain constant while the dehumidifier is running, but the other values can change.

You change the values by pressing on the blue number, and you change the function by pressing anywhere else on the button.

In the CUSTOM program the dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

NOTE

You should only change the process air flow if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.



PROGRAMS / CUSTOM / REG FLOW



What you see:

% in relation to maximum fan speed (Configuration-C and Configuration-D only)

m³/hour (Configuration-C and Configuration-D only) (based on normal m³ [20°C])

kg/hour (Configuration-C and Configuration-D only)

Return to main menu

The setting you have selected appears in blue.

The values in this setting remain constant while the dehumidifier is running, but the other values can change.

You change the values by pressing on the blue number, and you change the function by pressing anywhere else on the button.

In the CUSTOM program the dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

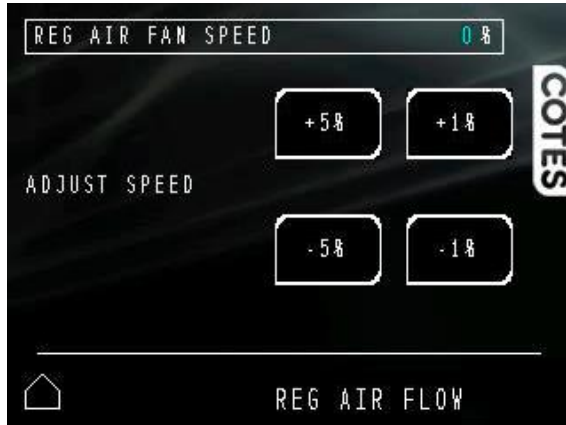
NOTE

You should only change the regeneration air flow if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.



PROGRAMS / CUSTOM / REG AIR FLOW

You can reach this screen in two different ways:

- Choose % fan speed figure on the CUSTOM REG AIR menu
- Choose the blue % fan speed figure in the OVERVIEW menu (Configuration-B only)

You use it to adjust the fan that delivers the regeneration air that dries the rotor.

If, for example, you wish to achieve a value of 200 m³/hour, you place a flow measuring device in the duct and press the setting figure until it corresponds with a 200 m³/hour flow.

In the CUSTOM program the dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

NOTE

You should only use the CUSTOM menu to make changes to the operating settings if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.



PROGRAMS / CUSTOM / ROTOR

What you see:

RPH – this is where you select rotor speed (Configuration-C and Configuration-D only), by pressing the blue number, and entering the new value.

AUTO – automatically calculates the ideal rotor speed (rph).

The rotor always turns clockwise. Check the rotation of the rotor when installing the dehumidifier.

Return to main menu

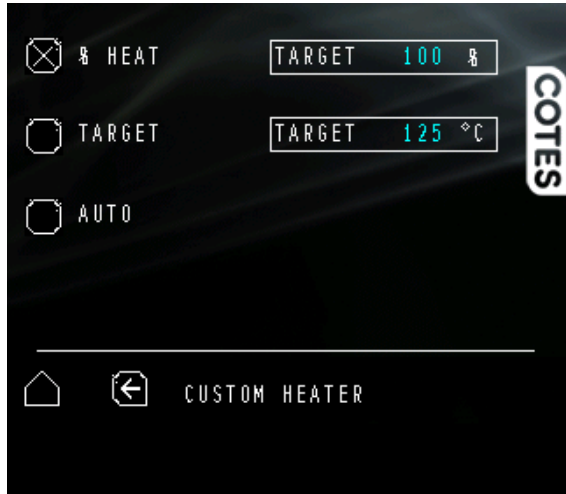
In the CUSTOM program the dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

NOTE

You should only change rotor speed if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.

PROGRAMS / CUSTOM / HEAT

What you see:

% HEAT Select heat setting as % of maximum possible heat effect.

TARGET Select desired temperature (fixed temperature). NB you may not be able to achieve the desired temperature, because this can depend on air conditions outside. However, the dehumidifier will use this value as a target that it will attempt to achieve.

AUTO Automatically calculates the ideal level of heat in relation to the setting for regeneration air flow.

Return to main menu

In the CUSTOM program the dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

NOTE

You should only change the heater temperature if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.



SERVICE menu

What you see:

REG AIR FAN

PROCESS FAN

GEAR

REG FILTER

PROCESS FILTER

ROTOR

SERVICE HISTORY

Return to main menu

What the colours mean (on the SERVICE menu)

If your Cotes dehumidifier is operating perfectly, the frame surrounding each button will be **green**.

If a particular component in your Cotes dehumidifier is approaching the end of its planned service life, the frame surrounding the particular button will be **yellow** (a warning indication).

If a particular component in your Cotes dehumidifier has exceeded its planned service life and now needs replacing, the frame surrounding the particular button will be **red**.

The filters and rotors are fitted with mechanical alarms that provide information on the display if any kind of service is due.

If a particular component in your Cotes dehumidifier has stopped operating correctly, resulting in a critical alarm, the frame surrounding the particular button will be **red** (indicating a critical alarm that stops the dehumidifier completely).

SERVICE / REGENERATION AIR FAN



What you see:

REMAINING LIFE = Estimated service life left for the component or group of components.

ORDER to get details about how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

REPLACE (and reset actual service hours counter). Press the REPLACE button followed by the blue number in Set New Time. Set a new time, based on the estimated service life left for the component. A list of the remaining service lives is shown on page 31. Press the REPLACE button to update the timer.

When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default).

Return to main menu

Return to SERVICE



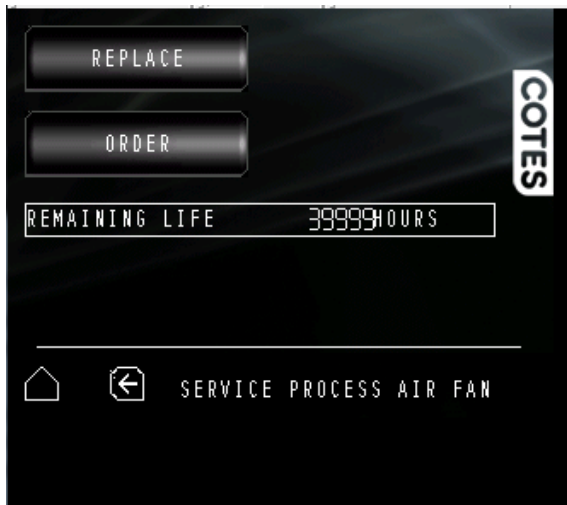
When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

SERVICE / PROCESS AIR FAN



What you see:

REMAINING LIFE = Estimated service life left for the component or group of components.

ORDER to get details about how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

REPLACE (and reset the actual service hours counter). Press the REPLACE button followed by the blue number in Set New Time. Set a new time based on the estimated service life left for the component. A list of the remaining service lives is shown on page 31. Press the REPLACE button to update the timer.

When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default).

Return to main menu

Return to SERVICE



When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

SERVICE / REGENERATION AIR FILTER

What you see:

REMAINING LIFE = Estimated service life left for the component or group of components.

ORDER to get details about how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

REPLACE (and reset the actual service hours counter). Press the REPLACE button followed by the blue number in Set New Time. Set a new time based on the estimated service life left for the component. A list of the remaining service lives is shown on page 31. Press the REPLACE button to update the timer.

When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default).

Return to main menu

Return to SERVICE



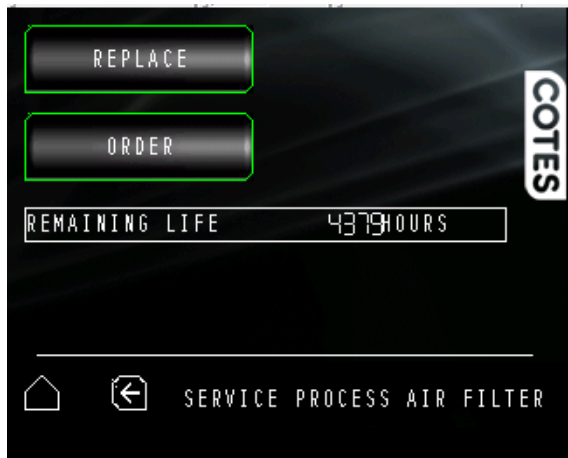
When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

SERVICE / PROCESS AIR FILTER



What you see:

REMAINING LIFE = Estimated service life left for the component or group of components.

ORDER to get details about how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

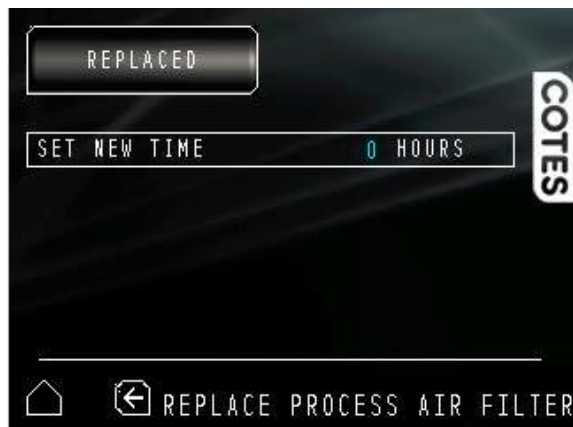
REPLACE (and reset the actual service hours counter). Press the REPLACE button followed by the blue number in Set New Time. Set a new time based on the estimated service life left for the component. A list of the remaining service lives is shown on page 31. Press the REPLACE button to update the timer.

When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default).

Return to main menu

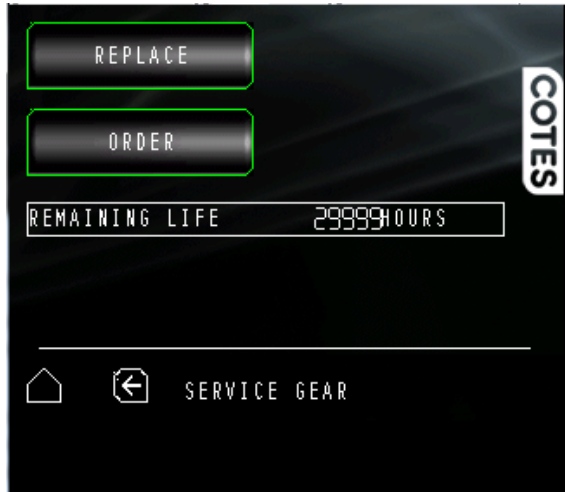
Return to SERVICE

When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

SERVICE / GEAR

What you see:

REMAINING LIFE = Estimated service life left for the component or group of components.

ORDER to get details about how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

REPLACE (and reset the actual service hours counter). Press the REPLACE button followed by the blue number in Set New Time. Set a new time based on the estimated service life left for the component. A list of the remaining service lives is shown on page 31. Press the REPLACE button to update the timer

When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default).

Return to main menu

Return to SERVICE



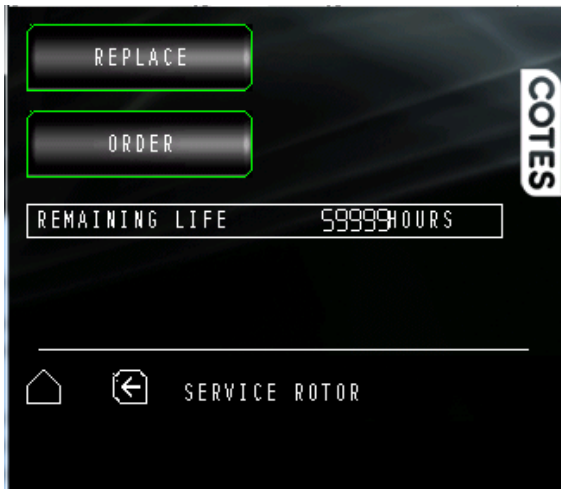
When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

SERVICE / Rotor



What you see:

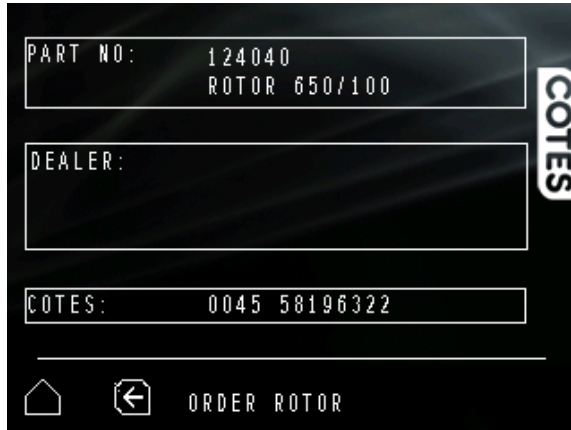
REMAINING LIFE = Estimated service life left for the component or group of components.

ORDER to get details about how to order spare parts. When you press the ORDER button, you get the appropriate part number, and details of where to contact your Cotes dealer and/or Cotes to order the part.

REPLACE (and reset the actual service hours counter). Press the REPLACE button followed by the blue number in Set New Time. Set a new time based on the estimated service life left for the component. A list of the remaining service lives is shown on page 31. Press the REPLACE button to update the timer.

When you press the REPLACE button, you will be asked to enter an operator code (1234 is standard/default).

Return to main menu

Return to SERVICE

When you have pressed the ORDER button, you will see ordering details.



When you have pressed the REPLACE button and entered the appropriate operator code, you will see the screen shown above.

This is where you reset the remaining service life for the component, using a drop-down keyboard.

ALARM



This is where you can see any alarms relevant to the operation of your Cotes dehumidifier.

What you see:

INFORMATION ALARMS These are solely for your information, and you do not have to do anything. Example: “out of reach”.

After you have read the information, you can delete the alarm by pressing ALARM RESET.

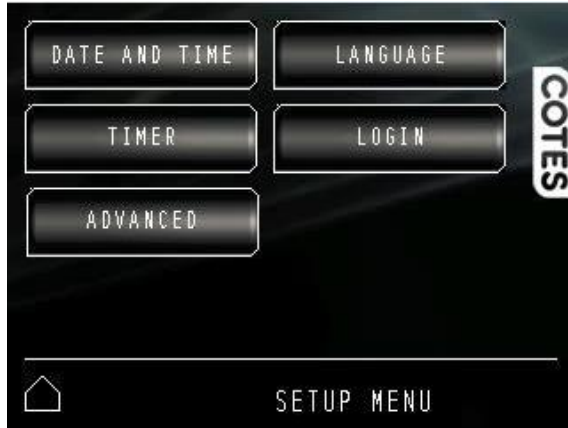
REPLACE ALARMS These tell you that a particular component will soon exceed, or has exceeded, its service life and must be replaced.

All alarms are shown. When you press ALARM RESET, all information alarms disappear.

NB: The safety thermostat will appear as an alarm if the temperature in the heating box around the filter exceeds 176°C. If this happens, you will have to reset this alarm manually.

This is done by pressing the release button on the safety thermostat located on the cable tray on the back of the dehumidifier. This is why you cannot reset the alarm on the PLC itself – it can only be done after it has been done on the actual thermostat.

You should also check the condition of the regeneration air filter if an overheating alarm has been triggered.

SETUP menu

What you see:

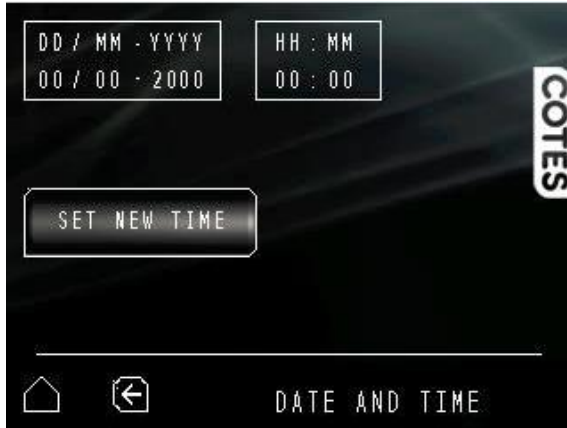
DATE AND TIME – this is where you adjust the date and time, if necessary.

TIMER – this is where you adjust the timer setting.

ADVANCED – this is where you enter the height above mean sea level, and the regeneration air fan (Configuration-B only).

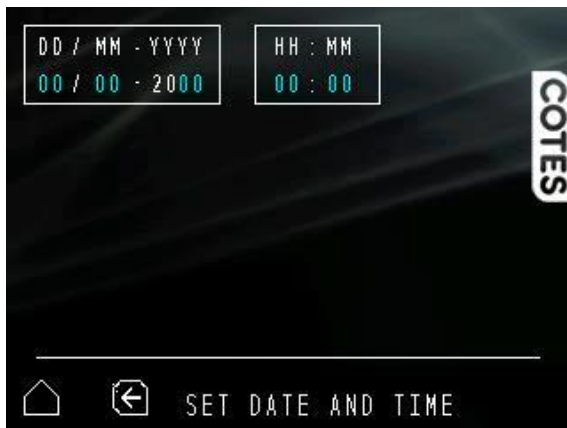
LANGUAGE – you can choose between English, German, French and Danish.

LOGIN – this is where you can log in to change settings.

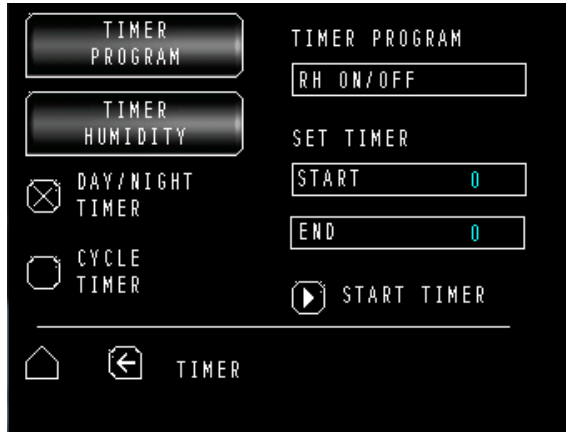
SET / DATE / TIME

What you see:

You see actual settings of date and time. If you want to change these, press SET NEW TIME.



When you press on any blue number, a drop-down keyboard appears. Enter a new value, and complete the operation by pressing ENTER.

SET / TIMER

What you see:

TIMER PROGRAM – this is where you select which program is to run when the timer is on. Pressing on this button brings up the TIMER PROGRAM MENU. You can see the chosen timer program in the upper right corner. The timer function is available in Configuration-B, Configuration-C and Configuration-D.

TIMER HUMIDITY – this is where you define the targets when the timer is on.

DAY/NIGHT TIMER – this is the day and night timer function. It works by using an internal clock, meaning that the START is set to (for example) 7 and the END is set to (for example) 16 (using the 24-hour clock). It will now start the selected TIMER PROGRAM at 7.00 and stop it at 16.00.

CYCLE TIMER – this is the cycle timer, which operates in working minutes (1 minute as minimum and 10080 minutes as maximum, corresponding to 1 week). As with the DAY/NIGHT TIMER, a TIMER PROGRAM is selected in which the CYCLE TIMER continues to switch between programs when the defined cycle has ended.

START – this is where you select when the timer starts running (DAY/NIGHT TIMER only).

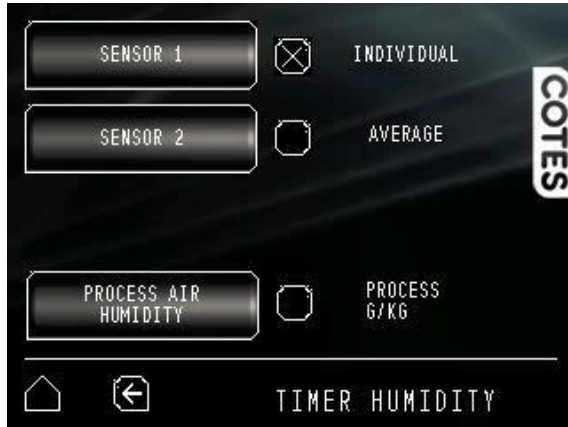
END – this is where you select when the timer stops running (DAY/NIGHT TIMER only).

NORMAL – this is the normal (standard) selected program set point, in minutes (CYCLE TIMER only).

TIMER – this is the timer selected program set point, in minutes (CYCLE TIMER only).

START TIMER – this is where you start the timer function.

STOP TIMER – this is where you stop the timer function.

SET / TIMER / HUMIDITY

What you see:

SENSOR 1. This button is only shown when a sensor is connected. Pressing this button leads to a pop-up menu where you can adjust the humidity target values for that particular sensor.

SENSOR 2 (Configuration-C and Configuration-D only). This button is only shown when a sensor is connected. Pressing this button leads to a pop-up menu where you can adjust the humidity target values for that particular sensor.

PROCESS AIR HUMIDITY (Configuration-D only). Pressing this button leads to a pop-up menu where you can adjust the humidity target values (g/kg) for the process air leaving the dehumidifier. This button is only visible if there is no SENSOR 1 and/or SENSOR 2 connected.

INDIVIDUAL and **AVERAGE** buttons are only visible if both SENSOR 1 and SENSOR 2 are connected. The standard setting is INDIVIDUAL.

INDIVIDUAL means that the dehumidifier is controlled by the value measured by each individual sensor. If the air humidity level increases above the threshold value set for one of the sensors, the dehumidifier starts running.

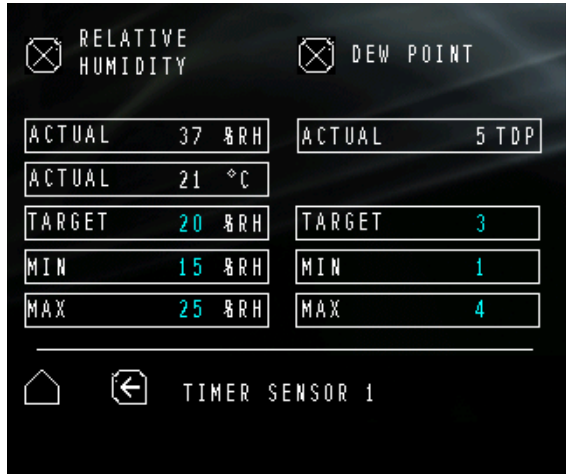
If you press AVERAGE, it means that the dehumidifier is controlled by the average of the values measured by each individual sensor, in relation to the designated threshold values. If the average values actually measured fall below the threshold values, the dehumidifier starts running.

This is important in cases where (for example) one of the sensors takes measurements near a door or other entry point into the building, and where the level of humidity can go up for a short while, without this necessarily representing a problem.

In AVERAGE, the TARGETS values for the sensors must be identical.

Return to main menu

SET / TIMER / HUMIDITY / SENSOR1



What you see:

Actual values measured by sensor 1 (measures both %RH, °C and actual dew point temperature).

Controlling RELATIVE HUMIDITY with the dehumidifier. Pressing the RELATIVE HUMIDITY checkbox at the top makes the dehumidifier control relative humidity as measured by the sensor (default setting).

The TARGET value can be changed by pressing the blue number. A keyboard then pops up where you can enter a desired value. The MAX and MIN values change automatically in ± 5 increments in relation to the entered target value. You should adjust the target value first, followed by the MAX and MIN values afterwards.

Threshold values (MIN and MAX) The MIN and MAX values can be changed in the same way, by pressing the blue numbers. The threshold values define the hysteresis for the RH On/Off, Energy, Quiet and Custom programs. When the actual %RH measured by the external sensor exceeds the MAX value (+1%RH), the dehumidifier starts. When the %RH measured by the external sensor is below the MIN value (-1%RH), the dehumidifier stops.

If the Capacity Control program is selected (Configuration-B only), only the TARGET and MIN values are shown. Here the target value is the desired target value that the dehumidifier must reach. The dehumidifier stops when the actual %RH is below the MIN value (-1%RH). If the dehumidifier must be kept operating at all times, the MIN value is set to (for example) 1%RH. If the relative humidity falls dramatically and the heater is not active for 1 minute, the regeneration air will shut down (when the temperature in the heating box falls below 60°C) and enable constant process air ventilation.

The MIN value defines when the dehumidifier is turned off in the Energy, Quiet and Custom programs (only for Configuration-C and Configuration-D). See page 39 for more information.

Controlling DEW POINT with the dehumidifier The MIN and MAX values can be changed in the same way, by pressing the blue numbers. Threshold values define the hysteresis for the RH On/Off, Energy, Quiet and Custom programs. When the actual dew point measured by the external sensor exceeds the MAX value (+1TDP), the dehumidifier starts. When the dew point measured by the external sensor is below the MIN value (-1TDP), the dehumidifier stops.

If the Capacity Control program is selected (Configuration-B only), only the TARGET and MIN values are shown. Here the target value is the desired target value that the dehumidifier must reach. The dehumidifier stops when the actual dew point is below the MIN value. If the dehumidifier must be kept operating at all times, the MIN value is set to (for example) -6 in dew point. If the dew point falls dramatically and the heater is not active for 1 minute, the regeneration air will shut down (when the temperature in the heating box falls below 60°C) and enable constant process air ventilation.

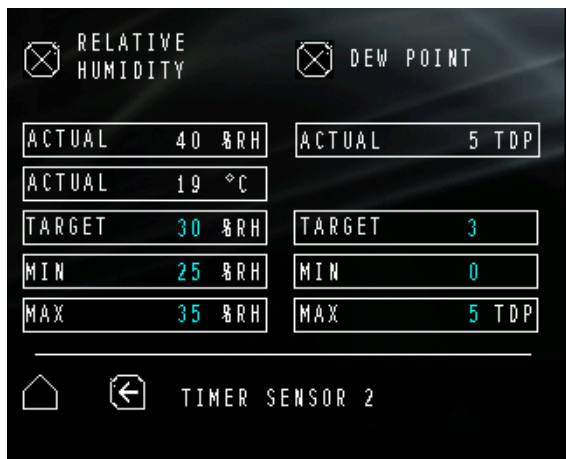
The MIN value defines when the dehumidifier is turned off in the Energy, Quiet and Custom programs (only for Configuration-C and Configuration-D). See page 39 for more information.

Controlling both RELATIVE HUMIDITY and DEW POINT with the dehumidifier If required, you can control the dehumidifier on the basis of both %RH and dew point measurements at the same time. In such cases, both checkboxes should be marked.

Return to main menu

Return to HUMIDITY menu

SET / TIMER / HUMIDITY / SENSOR2



What you see:

Actual values measured by sensor 2 (measures both %RH, °C and actual dew point temperature. Only available in Configuration-C and Configuration-D)

Controlling RELATIVE HUMIDITY with the dehumidifier. Pressing the RELATIVE HUMIDITY checkbox at the top makes the dehumidifier control relative humidity as measured by the sensor (default setting).

The TARGET value can be changed by pressing the blue number. A keyboard then pops up where you can enter a desired value. The MAX and MIN values change automatically in ± 5 increments in relation to the entered target value. You should adjust the target value first, followed by the MAX and MIN values afterwards.

Threshold values (MIN and MAX) The MIN and MAX values can be changed in the same way, by pressing the blue numbers. The threshold values define the hysteresis for RH On/Off, Energy, Quiet and Custom programs. When the actual %RH measured by the external sensor exceeds the MAX value (+1%RH), the dehumidifier starts. When the %RH measured by the external sensor is below the MIN value (-1%RH), the dehumidifier stops.

If the Capacity Control program is selected (Configuration-B only), only the TARGET and MIN values are shown. Here the target value is the desired target value that the dehumidifier must reach. The dehumidifier stops when the actual %RH is below the MIN value. If the dehumidifier must be kept operating at all times, the MIN value is set to (for example) 1%RH. If the relative humidity is falls dramatically and the heater is not active for 1 minute, the regeneration air will shut down (when the temperature in the heating box falls below 60°C) and enable constant process air ventilation.

The MIN value defines when the dehumidifier is turned off in the Energy, Quiet and Custom programs (only for Configuration-C and Configuration-D). See page 39 for more information.

Controlling DEW POINT with the dehumidifier The MIN and MAX values can be changed in the same way, by pressing the blue numbers. The threshold values define the hysteresis for the RH On/Off, Energy, Quiet and Custom programs. When the actual dew point measured by the external sensor exceeds the MAX value (+1TDP), the dehumidifier starts. When the dew point measured by the external sensor is below the MIN value (-1TDP), the dehumidifier stops.

If the Capacity Control program is selected (Configuration-B only), only the TARGET and MIN values are shown. Here the target value is the desired target value that the dehumidifier must reach. The dehumidifier stops when actual dew point is below the MIN value. If the dehumidifier must be kept operating at all times, the MIN value is set to (for example) -6 in dew point. If the dew point falls dramatically and the heater is not active for 1 minute, the regeneration air will shut down (when the temperature in the heating box falls below 60°C) and enable constant process air ventilation.

The MIN value defines when the dehumidifier is turned off in the Energy, Quiet and Custom programs (only for Configuration-C and Configuration-D). See page 39 for more information.

Controlling both RELATIVE HUMIDITY and DEW POINT with the dehumidifier If required, you can control the dehumidifier on the basis of both %RH and dew point measurements at the same time. In such cases, both checkboxes should be marked.

Return to main menu

Return to HUMIDITY menu

SET / TIMER / PROGRAM

What you see:

This only applies to the dehumidifier in timer mode.

ALWAYS ON The dehumidifier runs at full power all the time.

RH ON/OFF The dehumidifier is controlled by an external sensor. When the values measured by this sensor are below the MIN value you have set, the dehumidifier is turned off. When the values measured by this sensor are above the MAX value you have set, the dehumidifier is turned on, and running at full power. See page 35 and 37 for more details about targets and thresholds.

CONSTANT PROCESS AIR The main purpose is to enable air circulation even though dehumidification is not required. The CONSTANT PROCESS AIR selection is not a standalone program and is only operating in collaboration with another program selection. If RH ON/OFF program is chosen and the dehumidifier stops operating due to achieved humidity levels – the process fan continue to operate when the CONSTANT PROCESS AIR selection is enabled.

CAPACITY CONTROL (Configuration-B only). The focus here is on removing unwanted humidity, so the fans run all the time if the MIN value is set to (for example) 1%RH. When the values measured by this sensor are below the MIN value you have set, the dehumidifier is turned off. The temperature increases slowly in order to dehumidify in accordance with the capacity required. If the target value is lower than the actual %RH as measured by the external sensor, the dehumidifier's heating capacity will be fully activated within approximately 10–15 minutes (100% heating capacity). When the actual %RH is within the target value, the heating capacity is automatically adjusted to meet requirements. For detailed instructions about how to setup target values in the capacity control program, see page 35.

ENERGY (Configuration-C only). In addition to removing unwanted humidity, the focus here is on removing such humidity in a more energy-efficient manner. When turned on, the speed of the rotor and the level of heat are adjusted to meet requirements and to save energy.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

ENERGY+ (Configuration-D only). The focus here is on removing unwanted humidity and keeping overall energy consumption to a minimum. In the ENERGY program for Configuration-D, the flow of

air, the level of heat and the rotation of the humidity-absorbing rotor are all controlled by measurements made by high-precision internal sensors.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

QUIET (Configuration-C and Configuration-D only). The focus here is on making sure the dehumidifier runs as quietly as possible. The dehumidifier is only turned on when the values measured by external sensor are above the target you have set.

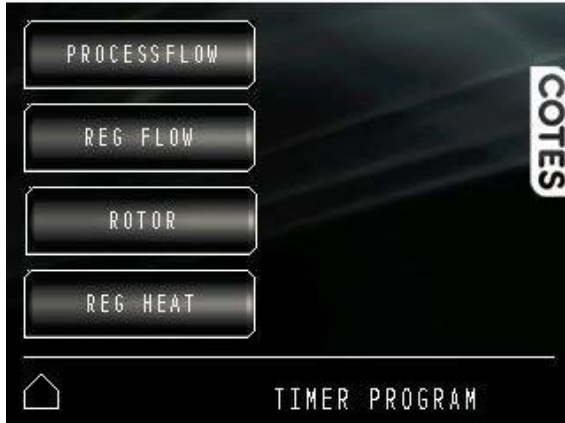
In this configuration, all the air flows are reduced as much as possible, in order to keep noise levels to a minimum.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

CUSTOM SETUP (Configuration-C and Configuration-D only). In this configuration, you can adjust all the values individually, within predefined limits. See page 43 for more details.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 35 and 37 for more details.

Return to main menu

SET / TIMER / TIMER PROGRAM

What you see:

Adjustment of process flow in timer mode (Configuration-C and Configuration-D only)

Adjustment of regeneration air flow in timer mode

Adjustment of rotor speed in timer mode (Configuration-C and Configuration-D only)

Adjustment of levels of heat in regeneration air flow in timer mode

Return to main menu

Return to TIMER menu

**NOTE**

You should only use the CUSTOM menu to make changes to the operating settings if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.

SET / TIMER / TIMER PROGRAM / CUSTOM / PROCESS FLOW

What you see:

% in relation to maximum fan speed (Configuration-C and Configuration-D only)

m³/hour (Configuration-C and Configuration-D only)

kg/hour (Configuration-C and Configuration-D only)

Return to main menu

To **TIMER CUSTOM** menu

The setting you have selected appears in blue.

The values in this setting remain constant while the dehumidifier is running, but the other values can change.

You change the values by pressing on the blue number, and you change the function by pressing anywhere else on the button.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 64 and 65 for more details.

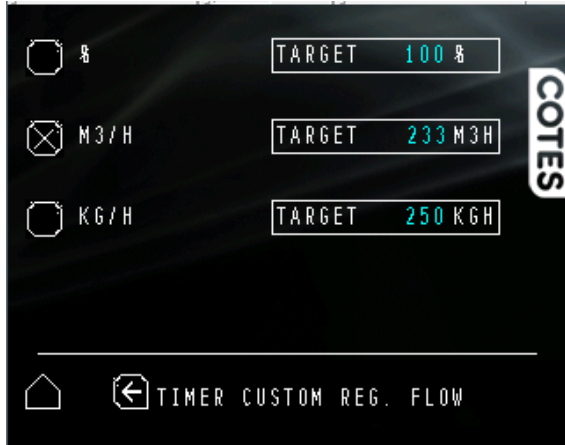
NOTE

You should only change the process air flow if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.



SET / TIMER / TIMER PROGRAM / CUSTOM / REGENERATION FLOW

What you see:

% in relation to maximum fan speed (Configuration-C and Configuration-D only)

m³/hour (Configuration-C and Configuration-D only) (based on normal m³ (20°C))

kg/hour (Configuration-C and Configuration-D only)

Return to main menu

To **TIMER CUSTOM** menu

The setting you have selected appears in blue.

The values in this setting remain constant while the dehumidifier is running, but the other values can change.

You change the values by pressing on the blue number, and you change the function by pressing anywhere else on the button.

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 64 and 65 for more details.

NOTE

You should only change the regeneration air flow if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.



SET / TIMER / TIMER PROGRAM / CUSTOM / ROTOR SPEED

What you see:

RPH – this is where you select rotor speed (Configuration-C and Configuration-D only), by pressing the blue number, and entering the new value

AUTO – automatically calculates the ideal rotor speed (rph)

Return to main menu

To **TIMER CUSTOM** menu

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 64 and 65 for more details.

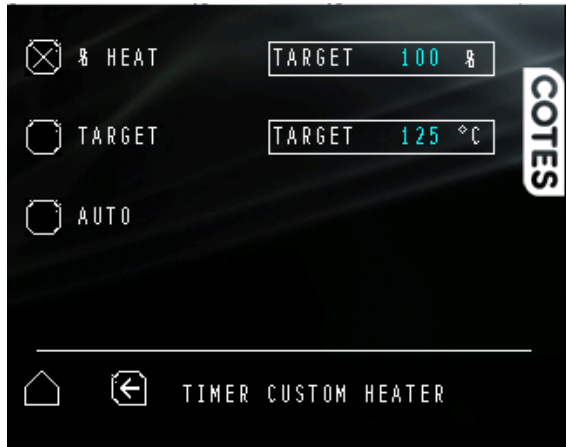
NOTE

You should only change rotor speed if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.



SET / TIMER / TIMER PROGRAM / CUSTOM / HEATER

What you see:

% HEAT Select heat setting as % of maximum possible heat effect.

TARGET Select desired temperature (fixed temperature). NB you may not be able to achieve the desired temperature, because this depends on air conditions outside. However, the dehumidifier will use this value as a target that it will attempt to achieve.

AUTO Automatically calculates the ideal level of heat in relation to the setting for regeneration air flow.

Return to main menu

To **TIMER CUSTOM** menu

The dehumidifier is turned off when the values measured by the sensor(s) are below the threshold MIN value you have set. See page 64 and 65 for more details.

NOTE

You should only change the heater temperature if you are familiar with the effect of the different parameters and know what you are doing.

If the settings are incorrect or ill-advised, this can have substantial effects on your installations or processes, and may even damage the dehumidifier.

Cotes cannot take responsibility for any changes you make in the standard programs, or for the results of any such changes.

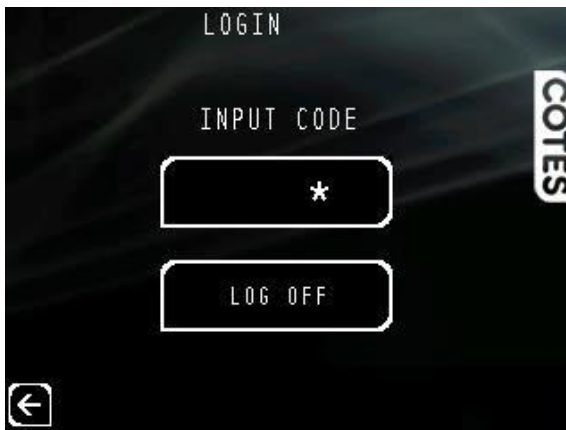


SET / LANGUAGE

What you see:

These are the languages you can choose the interface for this Cotes dehumidifier.

Choose the language you prefer to use to operate this system.

SET / LOGIN

What you see:

This is where you enter your operator code (1234), and press ENTER. You are now logged in for 10 minutes, so that you can set operating targets and other settings.

LOG OFF – this is where you log off.

SET / ADVANCED

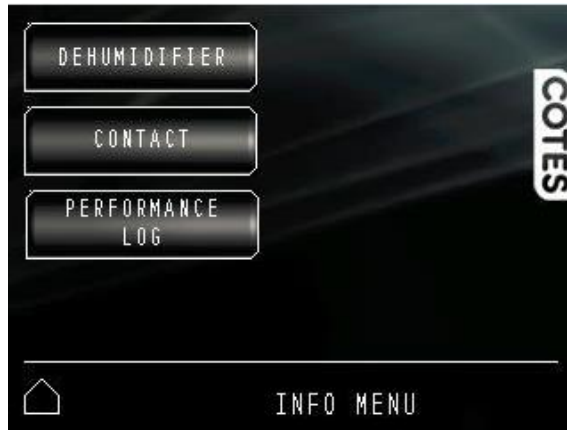


What you see:

HEIGHT ABOVE SEA LEVEL (Configuration-C and Configuration-D only). This is used to ensure correct calculation of air densities in different programs.

REGENERATION AIR FAN (Configuration-B only). This is where you set the regeneration air fan. **This feature is not working in this dehumidifier.**

These settings are only adjusted once – during the installation process.

INFO menu

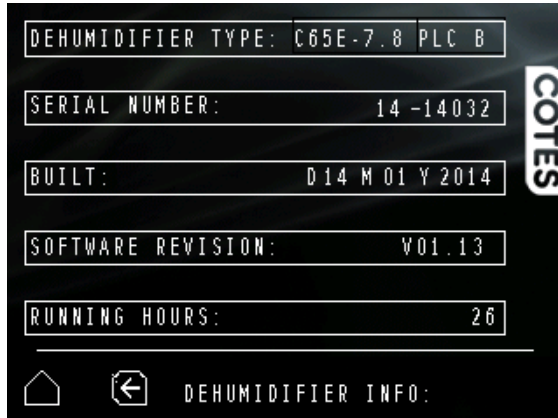
What you see:

DEHUMIDIFIER – information about your Cotes dehumidifier, including its service history

CONTACT – information about where/how to contact Cotes or a Cotes dealer

PERFORMANCE LOG – the performance log for your Cotes dehumidifier

Return to main menu

INFO / DEHUMIDIFIER

What you see:

DEHUMIDIFIER TYPE – defines the type and configuration of the dehumidifier

SERIAL NUMBER – dehumidifier serial number

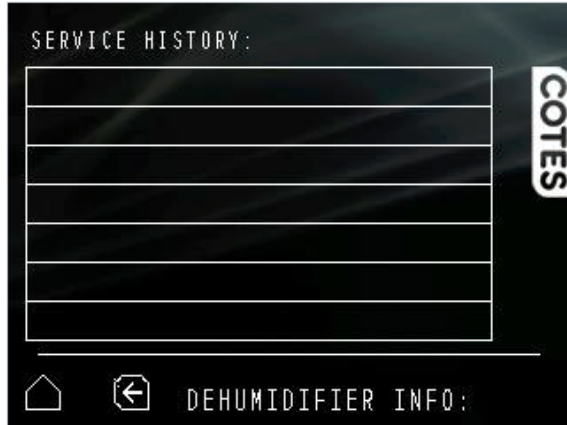
BUILD – date of build

SOFTWARE REVISION – which software revision is installed in the PLC controller

RUNNING HOURS – total running hours

Return to main menu

To **INFO** menu

INFO / SERVICE HISTORY

What you see:

SERVICE HISTORY – List of service performed on dehumidifier. It is up to you and your company whether you wish to enter relevant service information here.

Press the empty space to enter relevant information.

Return to main menu

To **INFO** menu

INFO / CONTACT

What you see:

INSTALLED – date of installation

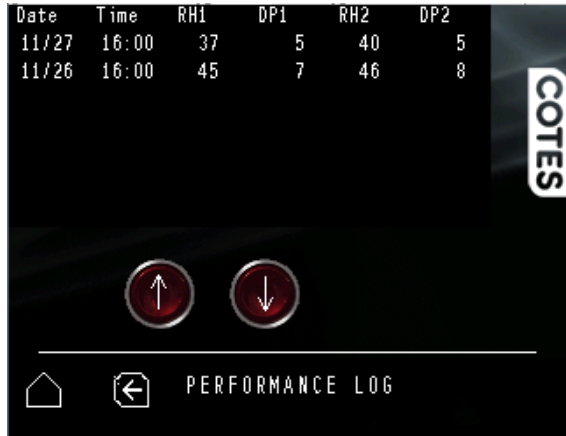
CUSTOMER – who benefits from using the dehumidifier

DEALER – who sold the dehumidifier to the customer. 0 = empty space where you can enter data manually. Press the blue 0 (zero) and enter 1 to 17. Each Cotes dealer has its own pre-defined data incorporated into the PLC controller.

CONTACT – how to get in contact with Cotes

Return to main menu

To **INFO** menu

INFO / PERFORMANCE LOG

Date	Time	RH1	DP1	RH2	DP2
11/27	16:00	37	5	40	5
11/26	16:00	45	7	46	8

What you see:

DATE – the date the data was logged

TIME – the time the data was logged

RH1 – the actual %RH measured by SENSOR 1

DP1 – the actual dew point measured by SENSOR 1

RH2 – the actual %RH measured by SENSOR 2

DP2 – the actual dew point measured by SENSOR 2

ARROW DOWN – browsing downwards in performance log

ARROW UP – browsing upwards in performance log

Return to main menu

To **INFO** menu

SECTION 6 / SERVICE AND REPAIR

HOW TO SERVICE AND REPAIR THIS DEHUMIDIFIER

Service and maintenance work on this dehumidifier

Cotes designs its dehumidifier units so that they are as robust as possible, and only need a minimum of service and maintenance.

None of the components require lubrication or adjustment.

The only maintenance work you need to do is listed below.

Once a month

- Check or replace the filters for process air and regeneration air
- Check or replace the filter for the fan for cooling air to the electrical cabinet.
- Check that the rotor is rotating while the dehumidifier is in operation (by looking through the inspection window in the cabinet cover).
- Check the 3 diodes, HL1, HL2, HL3. The green one (HL1) must be illuminated during operation, the red ones (HL2, HL3) must not be illuminated.
- Check the BT1 thermostat – the display should indicate a regeneration air temperature of approx. 120° C.
- Check that the fans are operating (by listening to determine whether they are turning).

Once a year

In addition to the inspection work carried out each month, we also recommend the following annual checks.

- Check the wear on the rotor gaskets, especially the gasket placed on the circumference of the rotor. The red side of the gasket is made of Teflon, and this must be intact over the whole surface.
- Check/repair any corrosion inside the cabinet
- Check the drive belt for the rotor
 - Tension of drive belts: deviation 8 mm at 7n.
- Check the internal flexible hoses
- Check that the insulation of cables is intact, with no mechanical or heat damage
- Check that the insulation on the electric heaters is intact
- Check the electrical cabinet to ensure that all cables are well fixed, all MCBs are switched on and all components are undamaged
- Test that all electric components work as intended – for example by following the commissioning section of this manual
- Check the fans according to the enclosed manual page

Service/repair work on this dehumidifier

Safety instructions

Before opening the dehumidifier, make sure that the electric current is switched off at the mains before you open top cover or front door. The main safety switch should also be switched off.

You should never just turn off the power to the dehumidifier while it is running. The correct procedure is to turn the on/off switch after which the machine runs a cooling cycle before the regeneration air fan stops. Turning off the dehumidifier properly prevents any over-heating.



WARNING

Make sure that electric current is switched off at the mains before you open the top cover or front door.

The QS10 safety switch should also be switched off and locked by using a lock.

Access for service

- All electrical components (contactors, fuses and circuit breakers, thermal relays) are placed in the electrical cabinet behind the cover in the front side, and are accessible for service/replacement when the cover is opened.
- Remaining electrical components (fan motors, gear motor, heating elements) are accessible when the cabinet covers for those parts are opened.

400V motors in general

If a motor has been electric disconnected, the direction of rotation should be checked after re-connection, and two of the cables should be exchanged if direction is wrong.

Replacing gear motor

The drive belt should be removed from the pulley, and after electric disconnection the gear motor can be removed and swapped out. Check the direction of the rotor: looking from the outside on the surface of the rotor, it must move upwards.

Replacing electrical heaters

All electric heaters are placed in the front of the heater section. Disconnect the wiring, and unscrew the metal plate containing the heating elements. The plate and all the heaters can then be drawn out of the heating section.

Replacing steam coil

The steam coil is placed inside the cabinet, in the internal regeneration air duct between the inlet and the rotor. The coil must be supported underneath to compensate for the weight during the separation from the duct.

Replacing rotor, rotor gaskets and shaft

- Open the cabinet cover for the rotor section, the process air section and the process air filter section.
- Remove the drive belt from the pulley
- Remove the two rotor gaskets (on the round surface)
- Loosen the two u-shackles for the shaft for the rotor
- Raise the rotor 5mm by supporting it underneath
- Pull the rotor shaft out of the rotor
- Now the rotor can be removed from the cabinet

When replacing the gaskets, you do not need to remove the rotor. The new gasket is placed on the rotor and lightly fixed with the 3-part expansion ring. The rotor is then turned and the gasket pressed against the departing plates until only half of the gasket is on the rotor. The expansion ring then fastens.

Troubleshooting

Problem	Cause	Action
The unit (or parts of it) will not start after a power surge/an electrical short circuit	One or more fuses/circuit breakers have been triggered	Turn all fuses/circuit breakers on.
The air is not as dry as expected	<p>The rotor is not turning</p> <p>The regeneration air temperature is lower than expected</p> <p>The regeneration air flow is too low</p>	<p>If the drive belt is intact, change the gear motor</p> <p>Check that the regeneration air flow is not too high</p> <p>Check that all heating elements are functioning</p> <p>Check that the regeneration air filter is not clogged</p> <p>Check if moisture load or inlet conditions has changed.</p>
The regeneration air temperature fluctuates considerably	The regeneration air flow is too low	Check that the regeneration air filter is not clogged
If the green diode (HL1) is not on	Electricity supply to the dehumidifier could be cut off	<p>Check the external fuses for the dehumidifier, and check the position of the selector switch and the safety switch.</p> <p>Check 30F1,42F1,42F3 MCBs for the control circuit.</p> <p>It could also indicate defective diode .</p>
If the dehumidifier is not operating even if the green diode is on	Problems with external hygrostat	<p>This is a normal situation when the desired humidity is obtained.</p> <p>To check: adjust the hygrostat for 20%RH, and the dehumidifier should start up (but only when the selector switch is in the "AUTO" position).</p> <p>Adjust again for desired humidity.</p>

If the red HL2 diode is on	One or more of the thermal relays has switched off: 100F1, 101F1, 102F1 wires to or from the fan or fuse breakers have become disconnected	Turn on relays. The motor protection relays can be reset on the component itself, after opening the electrical cabinet.
If the red HL3 diode is on	One or both ST1 and ST2 thermostats are broken	This indicates high temperature in the electric heater and has to be manually reset. The ST1 and ST2 thermostats are placed behind the cabinet cover for the electric heater – which has to be opened. The regeneration air flow and the regeneration air inlet filter must then be checked.

If you have any queries or questions, please contact your Cotes dealer.

SECTION 7 / FORMALITIES AND GENERAL/LEGAL INFO

WARRANTIES

Warranty conditions

The Cotes factory warranty is only valid if a documented programme of service and preventive maintenance has been carried out.

Maintenance must have been carried out at intervals of six months or less. Documentation for this must be in the form of a written log/journal, with attested entries.

All spare parts must have been purchased from Cotes or an authorised Cotes dealer.

LEGAL NOTICES

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EU DECLARATION OF CONFORMITY

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Declares at its own liability that the following models of Cotes adsorption dehumidifiers:

CRP4000E

covered by this declaration comply with the following directives:

Machinery Directive 2006/42/EC

Ecodesign 327/2011 directive 2009/125/EF as regards the eco-design fans driven by motors with input power and 125W to 500kW

EMC Directive 2014/30/EC

RoHS 2011/65/EC

Slagelse, Denmark November 5th 2018

A handwritten signature in blue ink, appearing to read 'Thomas Rønnow Olesen'. The signature is written in a cursive style with a large initial 'T'.

Thomas Rønnow Olesen

CEO

HOW TO UPDATE AND IMPROVE THIS COTES DEHUMIDIFIER

Energy recovery

An energy recovery system can be placed beside the dehumidifier to reduce the amount of energy needed for heating the regeneration air.

Extra insulation

The doors of the Cotes dehumidifier can be insulated to ensure that the sound pressure level of the unit is reduced and to ensure that all energy (both cooling and heating) is kept inside the unit.

Additional cooling/heating coil

A pre-cooling coil can increase the amount of moisture removed, especially when very dry air is needed.

Additional post cooling/heating

A post cooler/heater unit can be attached to the dehumidifier to control the temperature downstream from the dehumidifier.

Additional/better filters

If cleaner air is needed, it is possible to replace the fitted filter with a different filter featuring other specifications. If an additional filter is required, please contact Cotes expert and find out how the unit can be changed for this to be done.

Next step

Please contact Cotes or a Cotes dealer to find the best solution.

WHO TO CONTACT

Help when and where you need it

Contact Cotes in Denmark or your local dealer:

Cotes contact information:

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APPENDIX

In enclosed appendix there are specific data for this dehumidifier

Appendix 1:	Data of components and performance
Appendix 2:	Flow chart
Appendix 3:	Drawing
Appendix 4:	Spareparts
Appendix 5:	Electrical diagram
Appendix 6:	Datasheets