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Commercial Information
The Art of Powerful Cleaning...

Version / Date: 01 / 0903

Title: Airblast 6000 Dehumidifier

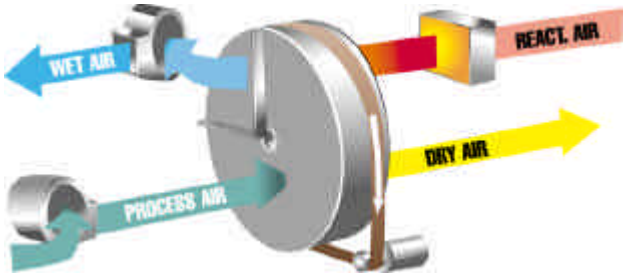
The Airblast 6000 Dehumidifier is a desiccant wheel type unit. The dehumidifier can be used for drying air of up to 100% relative humidity (RH) with temperatures from -30 ºC to +40 ºC.

Applications

The applications are numerous and wide spread. Below are some examples:

- Surface treatment during internal blasting and painting of tanks
- Shipping industry, both for permanent and temporary applications
- Controlling humidity levels in production processes.
- Protection of equipment sensitive to corrosion.
- Climatic improvements in damp areas.

Method of operation



The dehumidifier operates with two air streams.

A larger air stream to be dehumidified and a smaller air stream to exhaust the moisture out of the desiccant rotor.

Two fans inside the dehumidifier create air streams which travel through the desiccant rotor in opposite directions.

The larger air volume, the process air, passes through the slowly rotating silica gel rotor. Silica gel is a hygroscopic material adsorbing water vapour direct from the air. When passing through the rotor the humidity of the air is reduced, whilst the moisture content of the rotor material increases. On exiting the rotor the dried air is introduced into the area, or the process to be dehumidified. The adsorption process works in temperatures from -30 ºC to +40 ºC. The smaller air volume, the reactivation air, absorbs the moisture from the silica gel rotor. Part of this reactivation air enters a purge sector of the rotor, thus cooling down the rotor material and simultaneously increasing the reactivation air temperature. The remainder of the reactivation air by-passes the rotor and is then mixed with the air from the purge sector. This pre-heated air is further increased in temperature by a heater to a temperature of approximately +120 ºC. As the reactivation air passes through the rotor, in an opposite direction to the dry air, it will decrease the moisture content of the rotor material. The reactivation air will leave the dehumidifier as warm, wet air, which is then exhausted out from the building.

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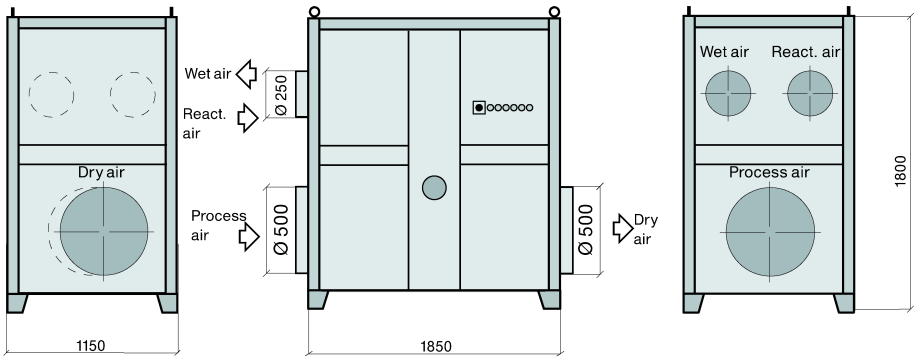
Dimensions

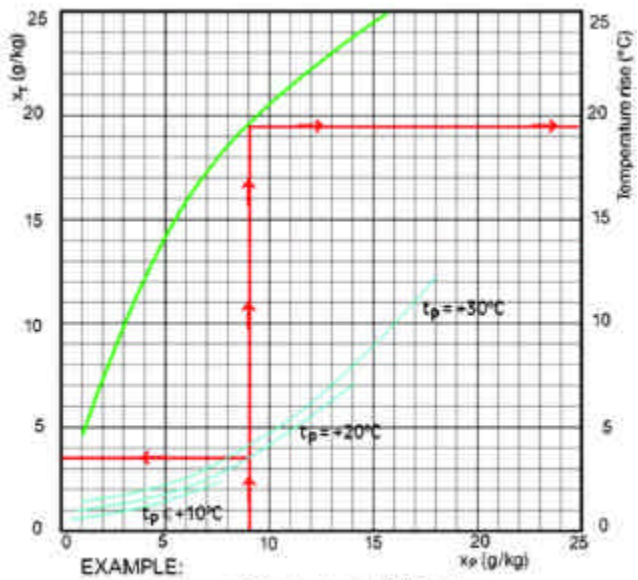


The image above is a right-hand unit.

Technical data:

Dehumidification capacity: (at +20 ºC and 60 %RH. See performance chart for other data)	**39 kg/h**
Dry air flow:	
(at 200 Pa available pressure)	**6000 m3/h**
(at 700 Pa available pressure)	**3000 m3/h**
Wet air flow: (at 100 Pa available pressure)	**1700 m3/h**
Power supply: (3 x 400 V,50 Hz)	**62 kW**
Weight:	**650 kg.**

Performance chart with full nominal dry air flow.



EXAMPLE:
Process air: x_P = 9,0 g/kg, t_P = +20°C giving
Dry air: x_T = 3,5 g/kg, t_T = 20+19,5 = +39,5°C

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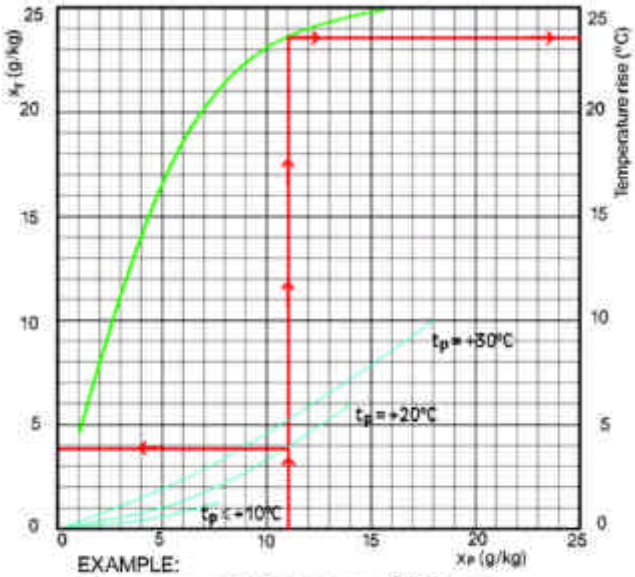
Performance chart with 2/3 of nominal dry air flow.



EXAMPLE:
Process air: x_P = 11,0 g/kg, t_P = +20°C giving
Dry air: x_T = 3,9 g/kg, t_T = 20+23,5 = +43,5°C

Performance

This capacity chart gives information about the dehumidifiers' ability to reduce water content from the moist air which enters the dehumidifier.
How to use the chart:

?? Find out the absolute water content in g/kg of the air you like to dehumidify
?? Enter this figure at the horizontal part at the bottom of the chart
?? Go straight up, until you hit the graph corresponding to the temperature of the air you wish to dehumidify
?? From that point go straight left and read the figure for absolute water content of the dry air supplied from the dehumidifier
?? To find out the temperature increase of the air due to the dehumidification process, go straight up to the top graph, and then go directly to the right. Read the temperature increase of the air.

Product description

The dehumidifier consists of the following main components:

Casing

The dehumidifier as standard is made from surface treated mild steel.The bottom frame is rigid enough to allow the dehumidifier to be handled with a fork lift on site. The panels are made of aluzinc and are painted on their outside face.

Those used for service are equipped with hinges for easy access.

Rotor

The dehumidifier has a drying rotor fabricated from a desiccant material. The rotor has a matrix of corrugated and flat heat resistant sheets which houses the Silica Gel desiccant agent. This matrix create a large number of axial flutes through the rotor, which together builds up an immense surface area for moisture adsorption in a small volume. The rotor is manufactured and processed to be able to withstand moisture saturated air without being damaged. This means the rotor can be used in conjunction with a pre-cooling coil. Further more the rotor will not be damaged even if the fan or the heater for reactivation should fail during operation. The rotor is incomebustible and non flammable.

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Rotor drive system

The slow rotation of the rotor is achieved by an electrical gear motor and a belt drive. The belt sits on the outer rim of the rotor and is driven by a pulley on the drive motor. A belt tension device keeps the belt in place and maintains tension to prevent belt slip. Correct operation of the drive system, and direction of rotation can be checked by opening the front panel.

Rotor bearings

The centre hub of the rotor is equipped with ball bearings.
The rotor shaft is made from stainless steel.

Rotor seals

The peripheral seals are of felt type and designed as self adjusting sliding seals, mounted on the rotor rim. The radial seals are self adjusting teflon seals.

Filters

The dehumidifier has two separate filter banks.
One in the process air inlet,and one in the reactivation air inlet. Filters are of the bag type.

Fans for process-and reactivation air

The fans are direct driven radial fans with three phase standard motor class IP 54, ISO F. The fans are accessible for service after removing panels.

Heater for reactivation air

The electric reactivation heater is divided into 3 heater banks.As an option the dehumidifier can be delivered with heater for steam, hot water or LPG.

Electrical panel

The electrical panel is located in a separate compartment at the front of the dehumidifier. Switches and indications for operation are mounted at the front of the electrical panel, behind a protective glass coverage.

Portable/Stationairy Abrasive Blast Equipment - Nozzles - Nozzle Holders - Hoses - Couplings - Lighting
Wetblast Equipment - High Pressure Waterjetting - Personal Protection - Blast Cabinets - Blastrooms
Vacuum Blast/Recovery Equipment - Portable/Stationairy Wheelblast Equipment - Dehumidifiers
Pipe Cleaning/Coating - Air Treatment - Mobile Dust Collectors - Media - Paintspray Equipment
Plural Component - Measuring Instruments

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