DS product range

Modular units for dehumidification and air treatment

Modular and adaptable

Double skin insulation 2 inches

PLC automated control

Indoor and outdoor versions

Integrated Heat Recovery

Description

DESSICA DS systems are **modular** dehumidification and air treatment units (hygrometry, temperature and dust) specially designed to meet the requirements of users for building or industries.

These systems include the latest innovations for adsorption desiccant rotors and use the **new energy saving system** (Ovir patent).

DESSICA DS systems offers a **complete solution including** filtration, heat exchangers and adapted regulation system.

The third generation PPS and PPX silica gel desiccant rotors mounted on our air dryers contains a high active silica gel component. It provides a **high dehumidification performance** and **reduce energy consumption** compared to other silica gel desiccant rotors of the same dimensions.

They are made of self-supporting panels (pre-lacque-red sheet, galvanized steel or stainless steel 304L or 316L) double skinned (without aluminium sides) insulated by 2-inches high-density mineral wool. Two models are available: outdoor or indoor installation. Envelope (Classified according to EN1886) Mechanical resistance: class 2A

Thermal performance:

- Thermal transmission: class T2
- Thermal bridging: class TB2
- Filter drift leak: class F9
- Airtightness casing: class B

Applications

DESSICA DS systems supplies dry air to drying processes, production processes or again packaging and storage environments. They are designed to treat air or be installed in air conditions between 5 F and 105 F (-15 °C and 40 °C).

Mastering hygrometry makes it possible to control specifics products or systems:

- the production capacity of drying systems (avens, towers, fluidized beds, etc ....)
- clogging and bulking of pulverized products
- corrosion
- condensation
- the quality of hygroscopic materials
- the development of bacteria and the spread of micro-organisms
- icing
- the humidity level of buildings
- mold

Some industries such as **pharmaceutical**, **food processing**, **energy**, **metallurgy** and **electronics** requires a precise and high dry air quality, this is what DESSICA DS systems provide.

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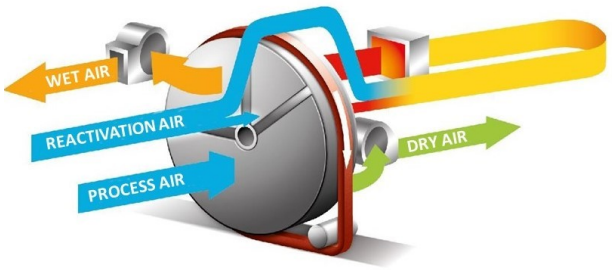
dry air technics

Operating principle of the desiccant rotor with an integrated heat recovery



The DS system uses two independent air flows. The main air flow will be dried, the secondary air flow of lesser volume will be used to evacuate the moisture retained by the desiccant rotor.

Two fans move two distinct air steams through the desiccant rotor. The main air stream or air to be treated passes through the slowly rotating silica gel rotor. Silica gel is a high-performance hygroscopic material able to retain the moisture content from ambient air. By floating through the rotor, the humid air loses its moisture captured by the silica gel material. The dry air is then totally usable.

The secondary air flow, called reactivation air, serves to evacuate the moisture retained by the rotor silica gel component. A part of the air volume passes through the rotor by the heat recovery sector, cooling down the dehydrating material by simultaneously raising the air temperature. The remaining flow by-passing the rotor is mixed with the purge flow.

The preheated air is then bought to a final temperature of approximately 210F to 270 F (100°C to 130°C) by additional heating provided by electric, steam or direct gas coil. It will then pass through the rotor by counter current from process air flow to dry off the silica gel from moisture. The moisten air (wet air) leaves the dryer to be evacuated outside the premises or building.

DS units installed indoor (examples)

DS units installed outdoor (examples)

Configuration

In addition to adsorption air-drying systems, DESSICA DS units can integrate the following equipment and functions :

- Reactivation heater :
  - · steam heat exchanger,
  - · water heat exchanger,
  - · direct gas burner,
  - · electrical heater
- Filtration :
  - · Pre-filtration G4 to F8 (one or two rows),
  - · Finale filtration F8 to H14
- Air flows insulation (manual or motorised dampers)
- Post-heating or post-cooling:
  - · chilled water heat exchanger,
  - · hot water or steam heat exchanger,
  - · electrical coil,
  - · direct evaporative cooler.
- Humidification :
  - · steam humidifier,
  - · trickle humidifier.

Each system can be supplied with an electrical cabinet grouping power and control elements including :

- LED (voltage presence / start / defaults alarm)
- emergency stop function,
- PLC with a monitor,
- buttons (clearance / ON / OFF).

The standard information or orders are follows :

- remote operation order,
- default warning,
- return to operation,
- emergency stop remote.

The following items are available on screen :

- operating mode,
- default,
- setpoint settings and control parameters (if present)

The automated control panel supports the following functions :

- start and stop sequence,
- machine safety,
- default & warning.

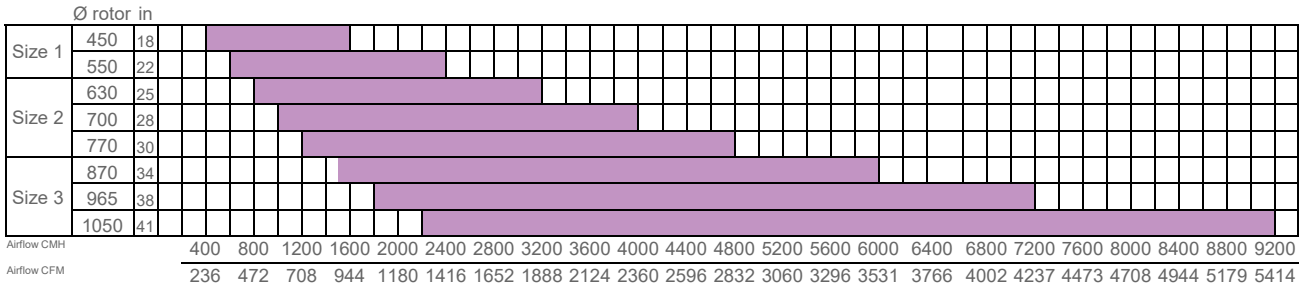
Available options :

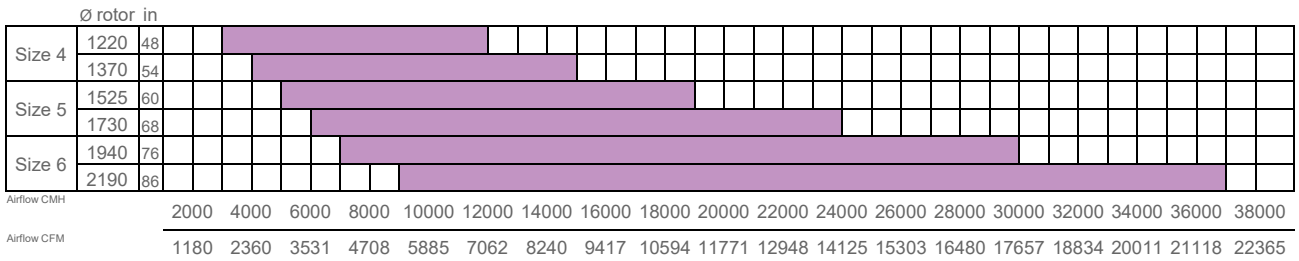
- MODBUS communication,
- humidity control,
- temperature control,
- air flow control,
- graphic screen control,
- historical data,
- wheel rotation control,
- filing filters control,
- GSM communication module (incompatible with MODBUS.)

DESSICA DS system selection

DS system size depends mainly of the front air velocity towards the various internal components, therefor the process air flow. Each component must be selected according to its own criteria. Usually, the desiccant rotor, the filtration systems, the chilled and hot water heat exchangers selection is crucial to define the casing sections from a DS unit. Other parameters may limit the airflow, such as the level of humidity or filtration to be achieved on outlet air or as well the fan's dimensions.

The quick selection tables bellow are based on the sole criteria from desiccant rotor.

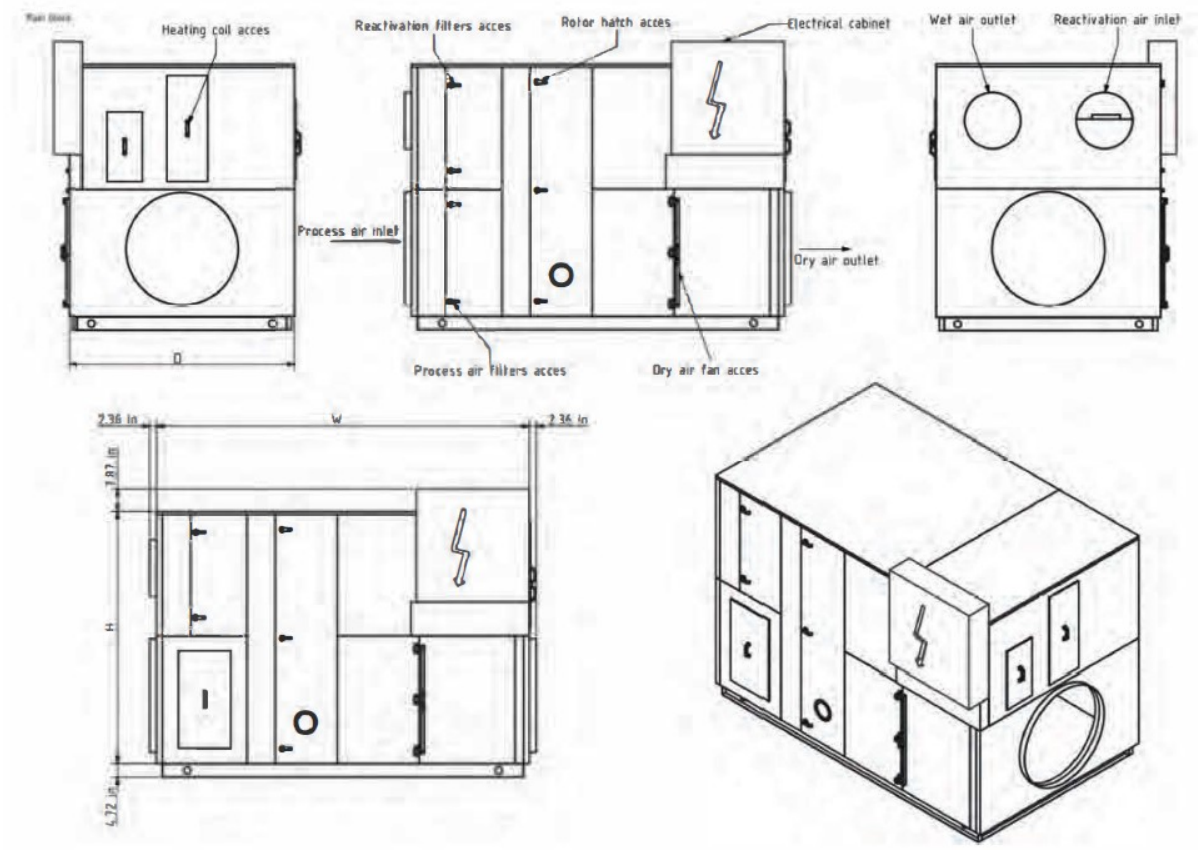




Measurements & sizes / Dimensions

The DESSICA DS units are composed of a central block and upstream or downstream complementary modules (air to be treated and/or dry air).

Main block



On DS1 and DS2, wet air outlet on back side

Sizes	Length		Height		Depth		Main block		Additional modules (without chassis)	
	mm	in	mm	in	mm	in	kgs	lbs	H mm	H in
DS 1	1704	67	1295	51	831	37	500	1102	673	31
DS 2	1804	71	1395	54	1250	53	700	1543	673	31
DS 3	2304	91	1495	59	1450	61	900	1984	900	35
DS 4	2904	114	2030	80	1750	73	1750	3858	1750	47
DS 5	3304	130	2230	88	2000	83	3400	7496	1383	52
DS 6	3904	153	2894	114	2603	102	4650	10252	1383	52

Execution dimensions, especially length from complementary modules, are defined on project phase. DS5 and DS6 central section is delivered in two parts. Add-on modules are also delivered separately to be mounted on site.

DESSICA
dry air technics
Parc d'activités de Fétan - 605 allée des Filiéristes - 01600 TREVOUX - France
Tél. : +33 (0)4 74 08 44 44 - contact@dessica.fr
www.dessica.fr