STAD product range

Desiccant air treatment systems

Modular and adaptable

2 Versions painted or stainless steel 304L or 316L

Hygienic version with food contact materials

Double skin insulation

Maintenance doors

Ovir® patented energy saving system

Description

The STAD systems are modular and adaptable These systems produce large volumes of dry air. They are specially designed to meet the requirements of users in industry and food processing:

• self-supporting panels (painted or stainless steel 304L or 316L) double skinned (without aluminium sides) insulated by 50mm high-density mineral wool.

• made with food contact material for hygienic version

• easy access with maintenance doors.

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

These systems also include :

• Energy recovery system : on wet air to preheat reactivation air

• External fan (recommended for hygienic food processing version) or internal fan

• Remote electrical cabinet.

The third generation and 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.

Operating principle

DESSICA systems uses two independent and counter current air flows through the desiccant rotor, with a slow and continuous pace :

• the main air flow (process air) is dried

• the secondary air flow (reactivation air), of lesser volume, is used to evacuate the humidity retained by the desiccant rotor

Two fans set in motion both air streams. Silica gel is a high- performance hygroscopic material able to retain the moisture content from ambient air. Through the rotor, the humid air loses its moisture captured by the silica gel material. The dry air is then totally usable.

Reactivation air purpose is to evacuate the moisture captured by the silica gel in the rotor. The air is brought to an approximate temperature of 210°F to 320°F (100°C to 160°C) and then crosses the rotor against the wet air flow to remove the moisture retained in the silica gel. The moist reactivation air leaves the dehumidifier to be evacuated outside the building or any other premises.

DESSICA
dry air technics

Benefits of the solution DESSICA

STAD systems produce dry air to feed drying processes or treat production environments.

1) Drying towers, ovens, fluid bed :

Most drying systems operate depending on outdoor climatic conditions : the production capacity is higher in cold weather when the air is dry and it is greatly reduced in hot weather when the absolute humidity of the air is at a high level.

The main benefits of the DESSICA solution are the following :

• the production capacity of the drying system is constant and maximized and the residual moisture in the product stabilized throughout the year by air conditions without significant variation in all seasons

• clogging and bulking of pulverized products is eliminated

• the energy consumption is optimized : dehumidification is an exothermic phenomenon, it increases the temperature from the dry air and therefore reduces the heating of the upstream air in the process.

The ROI, particularly on a spray drying tower, is quick for the following reasons :

• increase in production volume over the year

• predictable production volume regardless of climatic conditions.

2) Production environments :

In production, packaging or storage environments, dry air allows :
• prevention of physical (particle) or microbiological contamination
• retention of the original product characteristics
• hygiene, safety and working conditions improvements
• reduction of the post-wash drying process (increase in productivity and absence of post-contamination)

3) Clean and dry rooms :

• Maintain low relative humidity in clean production or packaging rooms

Configuration

In addition to the air-drying system, DIA units can integrate the following equipment and functions :

• **Reactivation heater**:

· Steam heat exchanger
· Water heat exchanger
· Electrical heater

• **Filtration** :

· Pre-filtration G4 to F9 (one or two rows)
· Final filtration F9 to H14

• **Air flows isolation** (manual or motorised dampers)

• **Temperature function** (post-heating or post-cooling):

· Chilled water heat exchanger
· Hot water or steam heat exchanger
· Electrical heater

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 monitor

• buttons (Clearance/On/Off)

The standard information or orders are as follows :
• remove operation order
• default warning
• return to operation
• emergency stop remove.
• filter contamination control
• GSM communication module (incompatible with Modbus)

The following items are available on screen :
• operating mode
• defaults
• setpoint setting and control parameters (if present)

Available functions :
· humidity control
· graphical control screen
· historical data

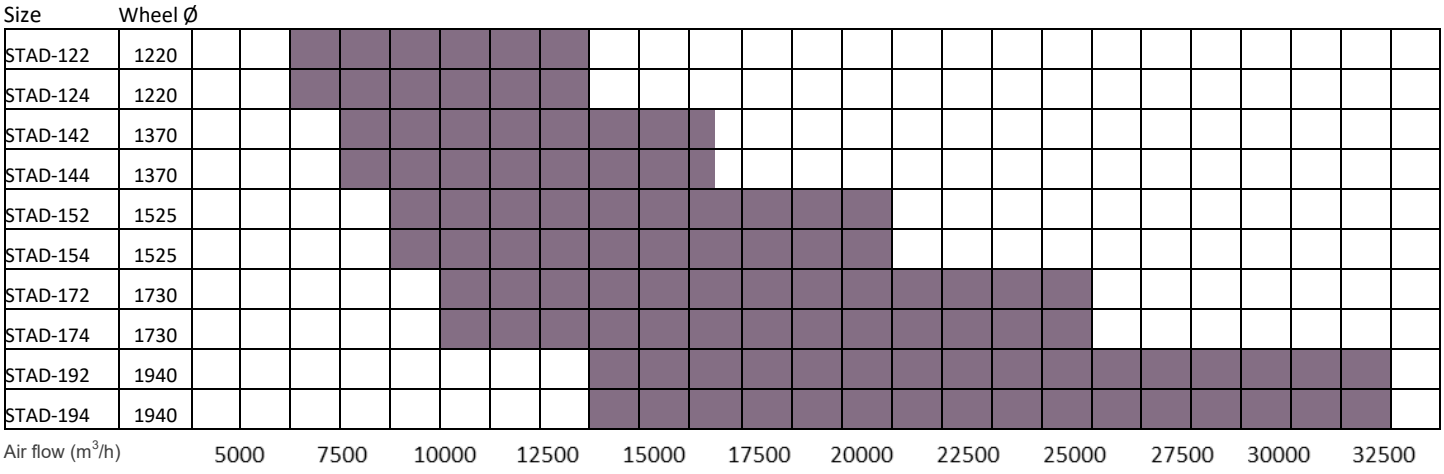
Available options :
• Modbus communication
• temperature control
• air flow control

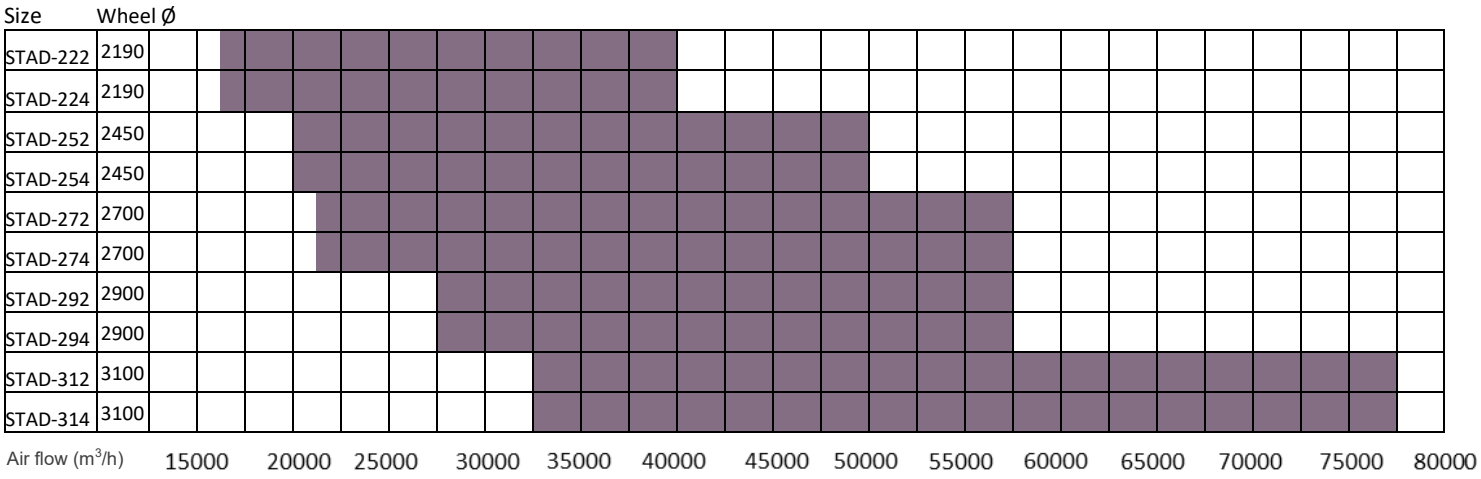
Selection

The size of a STAD system depends mainly on the front air velocity towards the various components, therefore the air flow to be treated.

Each component must be selected according to its own selection criteria. Usually, the desiccant rotor, the filtration systems, the cold and hot coils are crucial to define the size of the various casings. The humidity level in the **dry air** is also a determining factor for choosing the appropriate system size. Thus, the STAD are offered with two thickness dimensions for the desiccant rotors allowing more flexibility in the sizing.

The following quick selection tables are established on the sole criteria of the desiccant rotor.





Dimensions

DESSICA STAD systems are composed of the STAD drying unit itself (dimension below) and related modules such as : preparation air process section (filtration, cooling), final filtration section, reactivation air section (filtration, post-heating), fans, duct connections and electrical cabinet. Each of these related modules is defined and built for each project.

Non-contractual picture

Units size	Ø wheel	Height	Width	Length central block
STAD-122	1220	2264	1768	2904
STAD-124				3104
STAD-142	1370	2264	1768	2904
STAD-144				3104
STAD-152	1525	2264	2378	3304
STAD-154				3504
STAD-172	1730	2264	2378	3304
STAD-174				3504
STAD-192	1940	2874	2683	3904
STAD-194				4104
STAD-222	2190	2874	2683	3904
STAD-224				4104
STAD-252	2450	2874	2988	4504
STAD-254				4704
STAD-272	2700	3484	3293	4504
STAD-274				4704
STAD-292	2900	3484	3293	4504
STAD-294				4704
STAD-312	3100	3801	3604	4504
STAD-314				4704

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