STAD product range LDP version

Very low dew point dessicant air treatment systems

Specially designed to treat very low dew point

Very high water vapor tightness

Modular and adaptable

Double skin insulation 50mm

PLC automated control

Description

STAD Low Dew Point (LDP) systems are modular dehumidification and air treatment units specially designed to treat ait at very low dew point (from –40°C to –65°C). In particula, watertight and water-vapor sealing is achieved by rubber joints for a high waterproofing of the walls of the casssons an bet weeb circuits. These systems offer a complete solution with filtration, heat exchangers, adapted control system…

The contain a 50mm high density mineral wool insulation double skin bodyshell. The insulation of the regenration circuit is reinforced by an internal complementary wall with 30mm of mineal wool sperated for the main wall by an air blade.

The third-generation PPS and PPX silica gel desiccant rotors that equip our air dryers have very high levels of active silica gel, ensuring very high dehumidification performance and reducing energy consumption compared to devices equipped with other silica gel desiccant rotors of the same dimensions.

They are made of self-supporting panels for greater rigidity : pre-lacque-sheet outsite and galvanized steel inside.

The STAD are modular and adaptable, and especially designed to offer a tailor-made solution for dehumidification.

Heat recovery solutions can be installed to improve the energy efficiency of systems.

Applications

STAD systems produce dry air to supply anhydrous room air treatment processes.

DESSICA supplies electric car battery manufacturers. The anhydrous environment is essential for the assembly of the components and to prevent their oxidation in contact with the water vapor contained in the air. In lithium battery laboratories, the required humidity must be extremely low.

DESSICA
dry air technics

Operating principle

The STAD 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 streams 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 brought to a final temperature of approximately 210 F 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 its moisture. The moisten air (wet air) leaves the dryer to be evacuated outside the premises or building. The component dimensions are designed to perform a rapid rise in speed.

STAD units installed

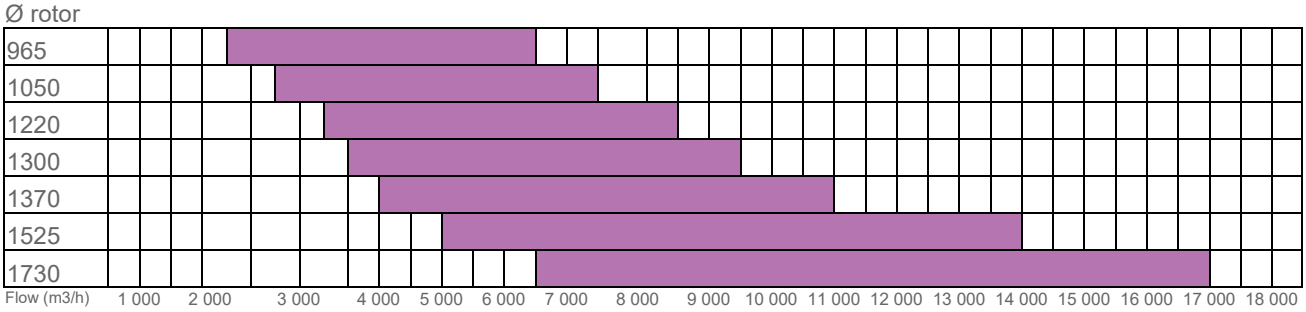
Configuration

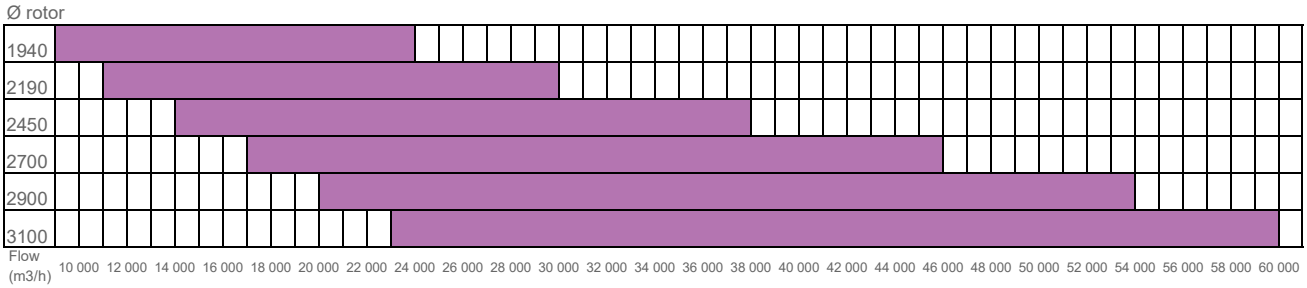
It is possible to configure the STAD type dehydrator with various equipment (mounted in boxes that can be connected to each other). Depending on the conditions to be kept in the dry room, the number of people, overpressures or even the needs of the process, it is possible to configure the STAD in 1 or 2 stages: the number of stages corresponding to the number of wheels integrated in the dryer.

	STAD 1 stage	**STAD 2 stages**
New air	Motorized registers **Pre**-filtration **Non-freeze** air water or electric exchange Air fan **Pre-dehumidification** air/ water exchange Mixture of air (pre-treated + room cover **Intermediate** Filtering Air fan **Pre-cooling** water/air exchanger **LDP** dehumidification wheel Air fan Post-treatment electric battery Post-treatment water/air exchanger Cold/Hot Final Filtration type **EPA, HEPA or ULPA**	Pre-treatment: Motorized registers **Pre-**filtration **Non-freeze** air / water or electric exchange Air fan **Pre-dehumidification** air / water exchange **Pre-treatment** dehydrating wheel Final Process Mixed of air (pre-treated + room cover) **Intermediate** Filtering Air fan **Pre-cooling** water/air exchanger LDP dehydrating wheel Air fan **Post-treatment** electric battery **Post-treatment** water/ air exchanger Cold/Hot Final Filtration type **EPA, HEPA or ULPA**
Regeneration air	Possible recovery of process circuit air Various **regeneration utilities** possible Electric battery Air/water exchange Air/steam exchanger Air fan	Possible recovery of process circuit air Various **regeneration utilities** possible: Electric battery Air/water exchange Air/steam exchanger Air Fan (LDP Floor) Mixture of air Various **regeneration utilities** possible: Electric battery Air/water exchange Air/steam exchanger Air Fan (Pre-treatment Floor)
Control electrical cabinet	**Protected and controlled** power circuit Control circuit Controller Regulation, return on/off, **Monitor** (Human Machine Interface) **MODBUS /ETHERNET** Communication...	**Protected and controlled** power circuit Control circuit Controller Regulation, return on/off, **Monitor** (Human Machine Interface) **MODBUS /ETHERNET** Communication...

DESSICA STAD system selection

The size of a STAD unit depends mainly on the frontal velocity oh the air on its internal components, thus on the airflow to be treated. Each component must be sized according to its own selection criteria.





Dimensions

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

DESSICA
dry air technics
Parc d'activités de Fétan - 30, allée des Artisans - 01600 TREVOUX - France
Tél. : +33 (0)4 74 08 44 44 - contact@dessica.fr

www.dessica.fr