VERSIONS

ADE…	Standard
ADE…/TX	Version with external satin stainless steel frame 304
ADE…/TTX	Version with steel frame completely inox304 interior and exterior satin
ADE…/M	Handed version (Process and Regeneration airflows are reversed)

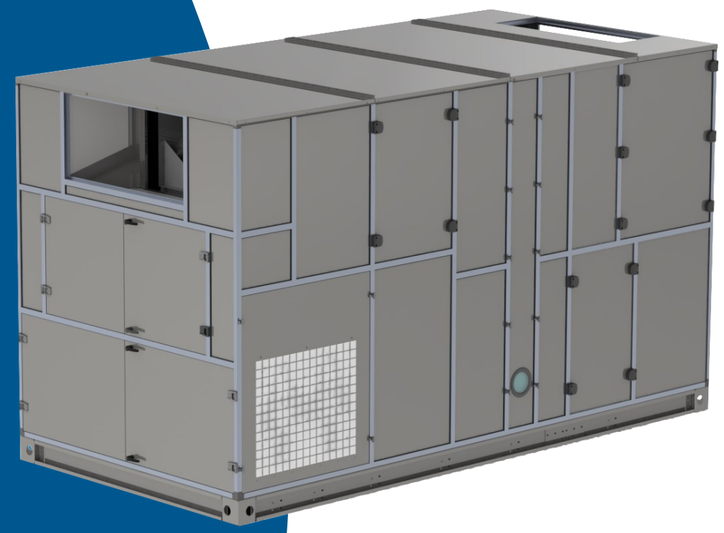
Model ADE	Code	2500	4000	6000	9000	11000	16000	19000
Painted steel frame		●	●	●	●	●	●	●
Satin stainless steel frame 304	TX	○	○	○	○	○	○	○
Frame totally stainless steel304 and satin finish outside	TTX	○	○	○	○	○	○	○
Frame Handed version	M	○	○	○	○	○	○	○
Filters G4 process and reactivation		●	●	●	●	●	●	●
Filtri F5, F7, F9		○	○	○	○	○	○	○
Recovery regeneration heat	RCFX	○	○	○	○	○	○	○
Additional electric regeneration coils	RE	○	○	○	○	○	○	○
Additional steam regeneration coils	RV	○	○	○	○	○	○	○
PLC electronic control and touch-screen display		●	●	●	●	●	●	●
Remote terminal	TR	○	○	○	○	○	○	○
Different power supply voltage		○	○	○	○	○	○	○
Proportional 2way-valve for steam regeneration	2VS	○	○	○	○	○	○	○
Process fan inverter (VFD)	VFP	●	●	●	●	●	●	●
Regeneration fan inverter (VFD)	VFR	●	●	●	●	●	●	●
Process filter alarm	ALFP	○	○	○	○	○	○	○
Regeneration filter alarm	ALFR	○	○	○	○	○	○	○
Temperature sensor / RH%, Absolute Humidity, DewPoint	ST / H	○	○	○	○	○	○	○
Serial RS485 ModBus Interface		●	●	●	●	●	●	●
TCP-IP ModBus Interface		●	●	●	●	●	●	●
Other protocols and other accessories on request		○	○	○	○	○	○	○

● *standard*, ○ *optional*, – *not available.*

AIRDRY

Dehumidifiers ECOAD

ADE 2500÷19000



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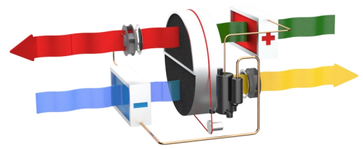
DRY AIR SOLUTIONS

TECHNICAL DATA								
MODEL	**ADE**	**2500**	**4000**	**6000**	**9000**	**11000**	**15000**	**19000**
Performances								
Dehumidification Capacity *	Kg/h	18,2	28,5	39,6	56,8	70,0	94,3	119,2
Fans								
Process air flow	m^3/h	2500	4000	6000	9000	11000	15000	19000
Static pressure	Pa	350	350	350	350	350	350	350
Fan nominal power	KW	1,1	2,2	3	5,5	5,5	7,5	11
Minimum regenerationair flow	m^3/h	2000	3000	4000	5500	7000	9000	11000
Maximum regenerationair flow	m^3/h	4500	7500	11000	15000	19000	22000	26000
Static pressure	Pa	350	350	350	350	350	350	350
Fan nominal power	KW	3	5,5	11	11	15	15	18,5
Drive Motor								
Nominal power	W	10	10	10	10	10		10
Compressor								
Compressor type		reciprocating	reciprocating	reciprocating	reciprocating	reciprocating	reciprocating	reciprocating
Nominal absorbed power	KW	5,5	8,0	12,1	17,3	19,5	27,5	33,0
Inrush current	A	63	75	118	144	159	215	326
Gas refrigerant type		R134a	R134a	R134a	R134a	R134a	R134a	R134a
Electrical characteristics								
Power supply	Volt/Ph/Hz				400/3/50 ±5%			
Maximumpower absorbed unit std	KW	9,65	15,7	26,1	33,8	40,0	50,0	62,6
Maximum current absorbed unit std	A	21,7	36,1	55,4	67,5	81,2	99,3	133,9
Noise level								
Sound pressure **	dB (A)	71	72	74	74	76	78	78
Sound power **	dB (A)	99	100	102	102	104	106	106

* *At 20°C 60% RH, maximum outdoor air temperature 35°C 50%*
** *Sound pressure level calculated in free field, 10 meters from unit, direction factor Q = 2, according to ISO 9614*

PRINCIPLE OF OPERATION

The dehumidifier works by using two air flows; the main one consists of the air to be dehumidified, a second flow is instead used to regenerate the dehumidification rotor. Two fans inside the dehumidifier create these two air flows that cross the rotor in opposite directions. The air to be dehumidified, also called "process air", passes through a cooling exchanger and the desiccant rotor impregnated with silica gel. Silica gel is a highly hygroscopic material that absorbs water vapor from the air. When passing through the exchanger and the rotor, the air gives off its moisture content. The dehumidified air is then sent to the production room or to the dehumidifying process. The dehumidification process can take place between temperatures between +15°C and +40°C. During the process the rotor rotates very slowly and is equipped with a transmission system with reduction gear and belt. The so-called "regeneration air", is used by the system to remove the absorbed moisture and take it outside: it is heated by means of a heat exchanger inside the dehumidifier, up to about +60°C and crosses the rotor in the opposite direction to the process air and subject it to an inverse process, for which the rotor transfers its moisture content and its initial absorbing capacity is restored. The regeneration air is expelled lukewarm and humid and must be sent to the treated environment.



STRUCTURE

The structure of the dehumidifier is made of aluminum profiles and sandwich panels in painted galvanized steel and / or AISI304 steel. The electrical panel is accessible from the outside with a lockable opening for maintenance of the electrical components, while to access all the mechanical internal parts, just remove the front panels. The connections to the dehumidifier can be made with channels.

FANS

Fans are directly coupled to single-phase or three-phase motors rated at IP55, ISO F, class B. They are accessible for maintenance by removing a second internal panel so that in operation risk of injury is mitigated. The fans can be controlled by an optional frequency converter to control rotation speed and match performance with specific requirements. As standard, the process fan is set at fixed speed, but it can be configured to run at variable speeds from an external signal, or pressure sensor.

ROTOR

The dehumidifier has a rotor made with desiccant material. The rotor has a honeycomb structure made of corrugated and heat-resistant sheets that contain the silica gel desiccant material, which creates a large number of axial fluid threads and at the same time a high absorption surface in a small volume. The rotor is constructed to withstand saturated air without being damaged, so it can be paired with a pre-cooling coil. Furthermore, the rotor will not be damaged if the process or regeneration fan were to stop due to malfunction during operation. The rotor is non-combustible and non-flammable.

COMPRESSOR

The compressors used are of the semi-hermetic reciprocating type, with crankcase heater, thermal overload protection in the motor winding. They are also equipped with protections for high and low pressure refrigerant circuit. Complete with continuous capacity partitioning system, for a better system efficiency.

TRANSMISSION SYSTEM

A belt drive system is used to turn the rotor. This movement is typically between 6 and 12 rph, and uses a powerful direct drive motor and reduction gearbox, operating on a belt with frictional contact with the outer rim of the rotor drum. A belt tensioning system is used to maintain correct belt tension and avoid slip. The rotation of the rotor is visible by removal of the front access panel so correct operation can be determined. The rotor is suspended on ball bearings around a central steel shaft.

REGENERATION COILS (Optional)

Electrical. The supplemental electric regeneration battery, has steel elements, connected to the star and divided into 2, 3 or more groups for step regulation with sequential insertion to have a modulation of the power. On request, continuous modulation (PWM) with proportional power control can be used to increase the efficiency of the dehumidifier field and save energy.
Steam. The supplemental steam regeneration battery is made of 304 stainless steel pipes and aluminum fins (optional versions with other materials can be requested), and includes a 2-way valve (supplied as an option) with a modulating servomotor, to guarantee greater efficiency of the dehumidifier output, acting on the steam flow rate.

HEATING AND COOLING COILS

The heating coil (condenser) and the cooling coil (evaporator) are made of copper pipes and aluminum fins, as an option they can be made with other materials, such as stainless steel304, inox316, etc.

FILTERS

The dehumidifier has two separate G4 filters: one on the process air inlet and the other on the high temperature regeneration air inlet. On request, higher grade filters can be supplied.

PLC CONTROL WITH TOUCH-CREEN TERMINAL

All standard units are provided with PLC control. The PLC controls the following functions: regeneration temperature regulation, thermal protection, regeneration cool down timing, component start sequence, alarm resets, RH or dewpoint control (dependant on control required) and control of pre and post-cooling or heating. The user interface display can be positioned remotely. The PLC is set for heater control from an external humidistat. On request, it can be adapted for connection to remote BMS systems. Operation with various MODBUS protocols can be discussed with the technical department if this is what is required by the process.

ELECTRICAL PANEL

The electric panel is made in compliance with European regulations 73/23 and 89/336. Access to the electrical panel is from the top after the panel is removed. All units include the following components as standard: mains switch, magneto thermal switches (for fan and electric resistance protection), fan relays, gearmotor relays and electric resistance relays (if any). The panel is also equipped with a terminal block with clean contacts for remote ON-OFF control and clean contact for general alarm.

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