

AIRDRY

Adsorption Dehumidifiers

ADS 150÷450



TECHNICAL DATA

MODEL	ADS	150	250	450
Performances				
Dehumidification Capacity *	Kg/h	0,47	0,78	1,62
Fans				
Process air flow	m ³ /h	150	250	450
Static pressure	Pa	50	35	110
Fan nominal power	W	85	71	157
Regeneration air flow	m ³ /h	50	60	120
Static pressure	Pa	40	30	90
Fan nominal power	W	-	-	-
Drive Motor				
Nominal power	VA	3,7	3,7	3,7
Regeneration				
Regeneration type		Electric	Electric	Electric
Installed power	KW	0,7	1,4	1,4
Temperature rise in the heating coil	°C	70	90	90
Electrical characteristics				
Power supply	Volt/Ph/Hz	230/1+N/50 ±5%	230/1+N/50 ±5%	230/1+N/50 ±5%
Maximum power absorbed standard units	KW	0,785	1,47	1,56
Maximum absorbed standard units	A	2,8	4,1	5,4
Noise level				
Sound pressure **	dB (A)	42	48	55
Sound power **	dB (A)	70	76	83

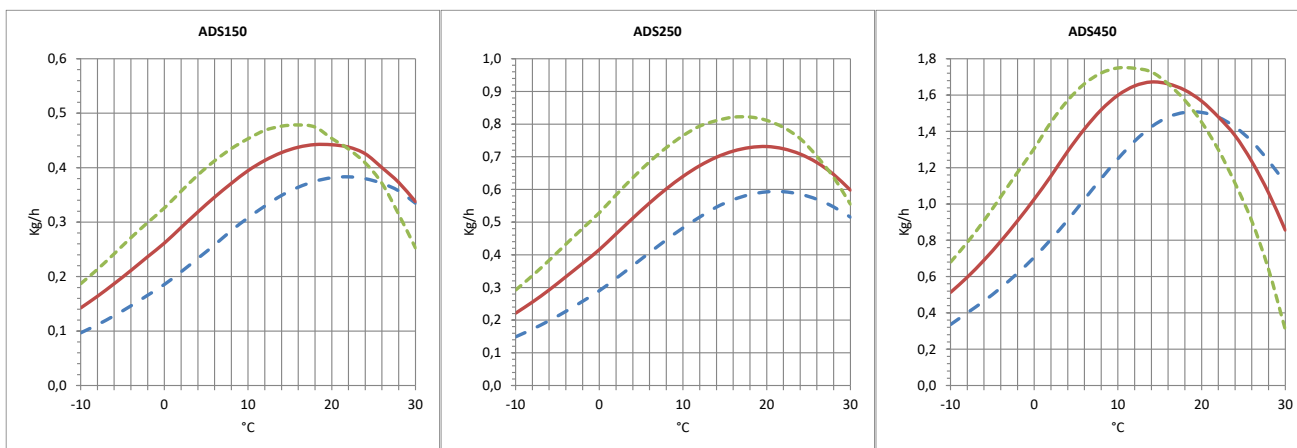
* At the conditions of 20°C 60% RH

** Sound pressure level calculated in free field, 1 meter from the unit, directionality factor Q=2, according to ISO 9614

DEHUMIDIFICATION CAPACITY

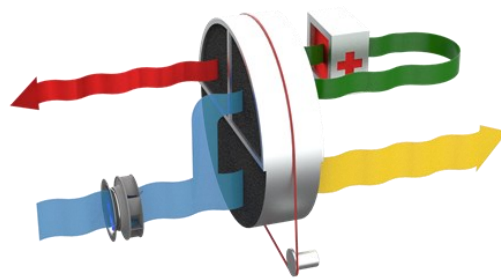
Approximate capacity in kg/h with different values of relative humidity of inlet process air (%RH).

— 40% RH — 60% RH — 80% RH



PRINCIPLE OF OPERATION

The dehumidifier operates using two streams of air; the main one is the air to be dehumidified, while a second stream - of a smaller flow rate - is used to regenerate the dehumidification rotor. A fan inside the dehumidifier creates these two streams of air that pass through the rotor in opposite directions. The air to be dehumidified-also called "process air"-runs through the desiccant rotor impregnated with silica gel. Silica gel is a highly hygroscopic material that absorbs water vapor from the air. As it passes through the rotor, the air gives up its moisture content to the rotor. The dehumidified air is then sent into the production room or process to be dehumidified. The dehumidification process can take place between temperatures of -30°C and +40°C. During the process, the rotor turns very slowly and is equipped with a transmission system with a reducer motion and belt. The so-called "regeneration air," is used by the system to remove the absorbed moisture and carry it outside: it is heated by means of a battery inside the dehumidifier, up to about +100°C and passes through the rotor in the opposite direction from the process air and subjects it to a reverse process, whereby the rotor gives up its moisture content and its initial absorptive capacity is restored. The regeneration air is expelled warm and moist and must be sent outside the treated environment.



STRUCTURE

The structure of the dehumidifier is made of galvanized steel and steel AISI_304. The top panel can be removed for maintenance on electrical components and all other internal mechanical parts. The dehumidifier connections can be made with standard spiral ducts.

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 the inspected top panel. The process and regenerator fans immediately start to dehumidify the system.

ROTOR

The dehumidifier has a rotor made of desiccant material. The rotor has a honeycomb structure made of corrugated, heat-resistant sheets containing the desiccant material silica gel, which creates a high number of axial fluid threads while creating a high absorption surface area in a small volume. The rotor is constructed to withstand saturated air without being damaged. In addition, the rotor is not damaged if the process or regeneration fan should stop due to failure during operation. The rotor is non-combustible and non-flammable.

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 AIR HEATING COIL

Electrical. The electric regeneration coil is of the self-regulating PTC type to keep the surface temperature constant.

FILTERS

The dehumidifier has two separate G2 filters: on the process air and regeneration air inlet.

ELECTRICAL PANEL

The electrical panel is made in adherence to European standards 73/23 and 89/336. The electrical panel can be accessed by removing the top panel of the unit. The following components are installed in all units as standard: main switch, ammeter, hour meter, connector for external humidistat connection. The panel is also equipped with a switch for manual or automatic control of dehumidification management.

INSTALLATION NOTES

The ADS series units do not have thermal insulation, so during selection and/or installation it is necessary to consider the various climatic conditions between process (indoor) air and outdoor air, to avoid condensation or ice formation on the panels, and possible damage to electrical components.

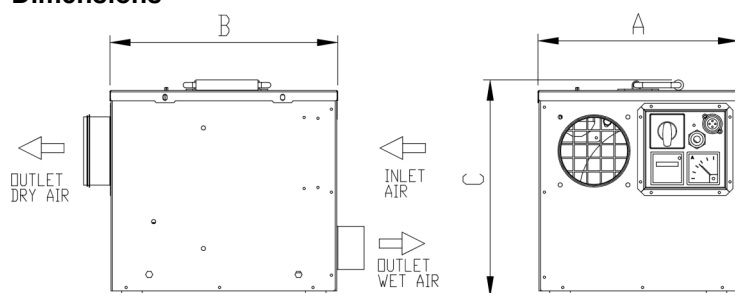
VERSION

ADS...	Standard
ADS.../TRLL	Version with pivoting wheels

Model ADS	Code	150	250	450
Painted steel frame		-	-	-
Satin stainless steel frame 304		●	●	●
Structure with pivoting wheels	TRLL	○	○	○
Main power switch		●	●	●
Operating hour meter		●	●	●
Ammeter		●	●	●
Frame Handed version	M	-	-	-
Cover for outdoor installation	ADKOPB	○	○	○
Filters G2 process and reactivation		●	●	●
Filters F5, F7, F9		-	-	-
Electronic PLC control and touch-screen terminal		-	-	-
Different power supply voltage		○	○	○
Process filter alarm	ALFP	-	-	-
Regeneration filter alarm	ALFR	-	-	-
Mechanical humidistat for duct or wall 10÷100% IP54 1 step	ADKMH1	○	○	○
Mechanical humidistat for wall 30÷90% IP54 1 step	ADKMH2	○	○	○
Electronic wall-mounted 1-step humidistat with channel (D) or wall (W) probe temperature/relative humidity range -30÷70°C / 0÷100%	ADKW230 + ADKH1D/W	○	○	○
Electronic wall-mounted 1-step humidistat with built-in temperature/relative humidity probe 10÷90%	ADKHTW1	○	○	○

● standard, ○ optional, – not available.

Dimensions



Model	ADS	150	250	450
A	mm	295	295	424
B	mm	335	352	455
C	mm	318	338	432
Empty weight	Kg	11,0	11,3	21,6
Connections				
Process and regeneration air inlet	mm	267 x 138	267 x 138	397 x 233
Dry air outlet	mm	Ø 100	Ø 100	Ø 160
Wet air outlet	mm	Ø 63	Ø 63	Ø 63