

THE WORLD'S OBAIR

In the vast global innovation landscape, "Obair" shines like a brilliant star, leading the wave of technological innovation.

We are not just a company, but also advocates and practitioners of the global upgrade in quality of life.

In the world of Obair, technological innovation is not only a driving force but also the soul.

We firmly believe that "Obair" will resonate in every corner of the world, representing excellence, quality, and dreams.

We cross mountains and seas, connecting the five continents, adding a bright color to the global stage of life, becoming a synonym for beauty in the hearts of people around the world, and together writing a glorious chapter in human civilization.



The product photos of Obair have passed the following certification
and the specific product certification is detailed in the relevant product certification certificate

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Note: There may be discrepancies between all product descriptions, data, and actual products in this catalog.
Please refer to the actual product. Changes will not be notified separately.

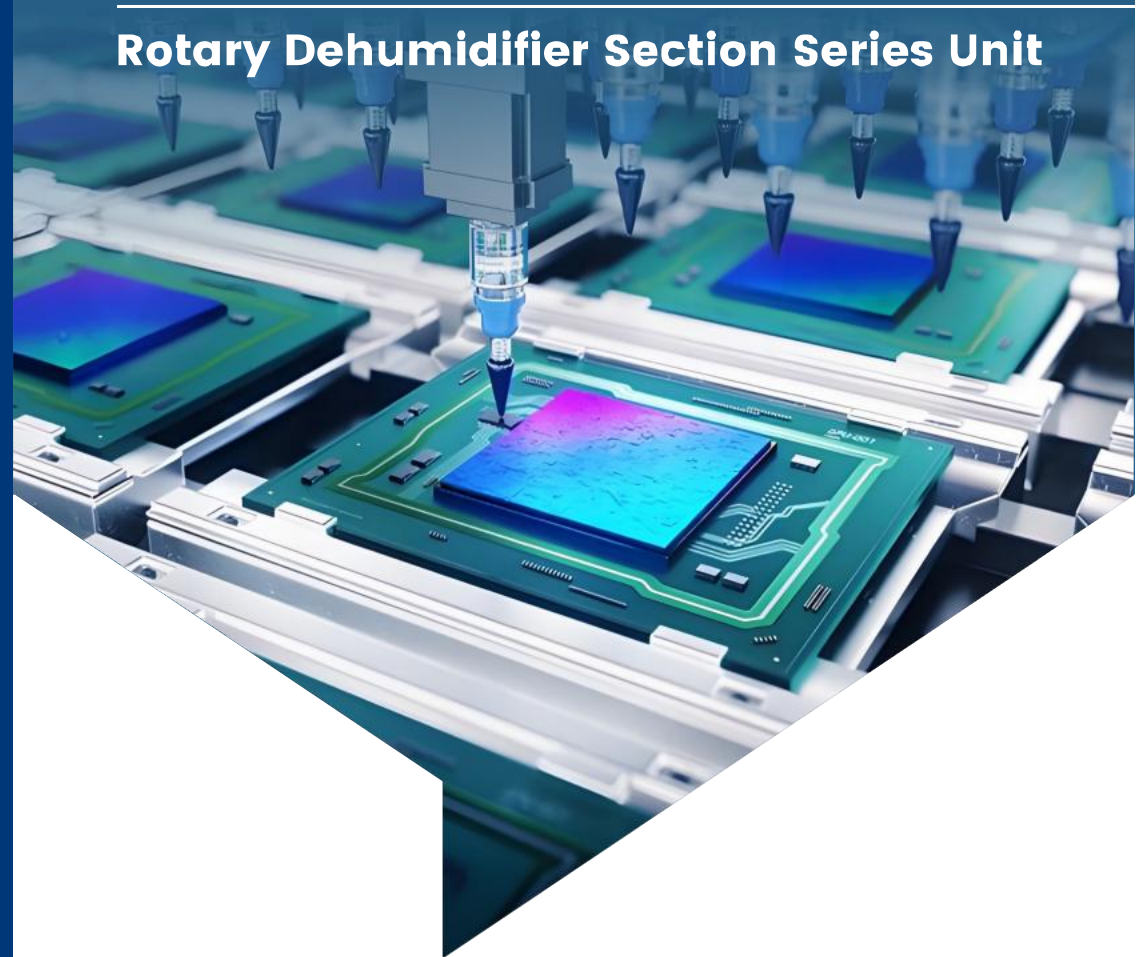


Official WeChat
Public Account

OBAIR

ZLD |

Rotary Dehumidifier Section Series Unit



OBAIR
Control air conditions

Version NO.: OB-202502A
Haojin Oubo Technology CO., LTD

COMPANY PROFILE

Haojin Oubo Technology Co., Ltd. is a large-scale purification central air conditioning national high-tech enterprise integrating research and development, production, sales, and service.

Obair has always adhered to technological innovation, participated in the formulation of national and industry standards as a member unit of China's "Cold Standard Committee", and has obtained multiple invention patents and utility model patents. It has established industry-university-research bases with Nanchang University and Jiangxi University of Science and Technology. It is a key demonstration enterprise for deep integration of informatization and industrialization in Jiangxi Province, a demonstration enterprise for service-oriented manufacturing in Jiangxi Province, and the company has successively won honors such as Jiangxi Province Technology Center, Ganzhou City Industrial Design Center, Jiangxi Famous Brand Product, national green factory, and national specialized and innovative "little giant" enterprise.

Obair currently has two phases in Ganzhou, Jiangxi, using digital park management, with over 120 digital production equipment, achieving an annual production capacity of 100,000 units.

Obair currently has more than 1000 models of high-quality air conditioning products independently developed, and the products have obtained energy-saving certification, CRAA, EU CE certification, American AHRI certification and other authoritative institutions' testing and certification, widely used in hospitals, dust-free workshops, pharmaceutical factories, electronics, tobacco, painting, photovoltaic, new energy, semiconductor, laboratory and other industries, and has the industry reputation of "King of Cleanliness" and "King of Constant Temperature and Humidity Non-standard".

Obair strictly implements the ISO9001/ISO14001/ISO45001 management system, always practices the purpose of "willing to explain the price for a while, but not to apologize for the quality for a lifetime", proposes the "6-hour" on-site service concept for all customers and for all customers, and provides the most professional and high-quality technical support and after-sales service.

From the mission, born for purification!
Obair, your regret-free choice!

170,000
cumulative models
of complete machine production since 1992

70+
National Service Contact Points

1000+
employees

100,000
Pilot Project Air Conditioning Solutions



HONORARY QUALIFICATIONS



Advanced equipment, professional technology and strict management have created the high quality of "OBAIR" brand products.

It has successively won dozens of honors such as national high-tech enterprise, China's well-known brand, specialized and specialized new enterprise, cold standard committee enterprise, provincial service-oriented manufacturing demonstration enterprise, provincial enterprise technology center, Jiangxi famous brand product, etc.

"OBAIR" products are your reliable choice.



It has obtained more than 10 certifications and more than 100 patents.



**Thermal Bridge Prevention Structural Technology**

A unique line and surface sealing method is used to ensure the equipment's airtightness and mechanical strength.

**Integrated Control Design**

Multiple alarm display functions ensure stable and reliable operation of the entire machine.

**Efficient Sealing System**

The dehumidification rotor uses a patented sealing device to effectively prevent leakage between rotor sections, ensuring reliable and energy - efficient operation.

**Green and Energy-saving**

There are multiple energy - saving options, such as low - dew - point air intake systems and medium - temperature regeneration systems, to meet the project's green and energy - saving needs.

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» Product Overview

The OBAIR Dehumidification Rotor Section, a standard module with a proprietary dehumidification rotor, is a core component of the combined dehumidification unit. It is independently developed by OB and comes in various models with a broad air - handling range of 1000 - 50000 CMH. When paired with OB's air - handling units or direct - expansion units, it can reduce air relative humidity below 30% RH while meeting indoor cleanliness, temperature - humidity, and airflow requirements.

The section comprises a dehumidification rotor, regeneration heater, air filter, regeneration fan, and sealing system.

It is widely used in lithium - battery production, biopharmaceutical clean workshops, electronics, and food processing where strict humidity control and low - humidity conditions are needed.



» Model Explanation

ZLD	030	W	L	D	0
					Installation Location: 0-Indoor installation type, 1-Outdoor installation type
					Regeneration Heating Types: D - Electric heating, Z - Steam heating
					Maintenance access direction: L - Left, R - Right
					Unit type: D - Ceiling-mounted, W - Horizontal
					Nominal air volume: three - digit number, digit × 100m³/h
					OBAIR Rotor Dehumidification Section

Example: ZLD030WLD0

This is a single - stage rotor dehumidification section for indoor use, model W, left - type, with electric heating and an air - handling capacity of 3000m³/h, manufactured by OBAIR.

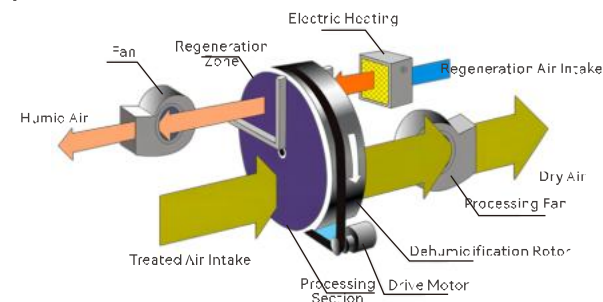
» Working Principle

The core component of a rotor adsorption dehumidifier is the dehumidification rotor, which uses a desiccant to adsorb moisture from the air.

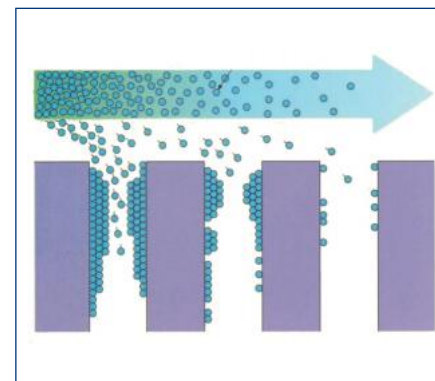
The rotor is divided into a processing section and a regeneration section. When humid air passes through the processing section, the desiccant on the rotor material adsorbs the water vapor, turning the air dry. The dry air is then conveyed to the desired area by the processing fan.

Meanwhile, another stream of air is heated by the regeneration heater, becoming hot air. This hot air passes through the regeneration section of the rotor, causing the desiccant to release the adsorbed moisture. The moisture-laden air is then expelled outdoors by the regeneration fan, allowing the desiccant to be regenerated and regain its moisture-adsorbing capacity.

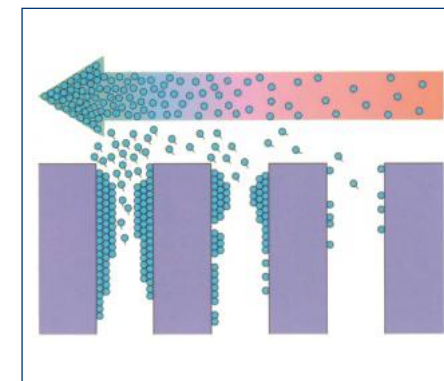
The rotor rotates slowly, ensuring continuous dehumidification and regeneration processes, providing the user with a constant supply of dry air.



» The Adsorption and Desorption Process of Water Molecules



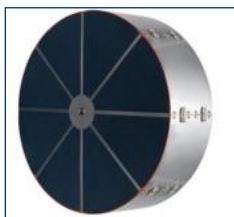
Water molecules in the air are absorbed by hydroxyl groups in the micropores of silica gel. Also, capillary condensation in the micropores absorbs much water from the air.



Heated regeneration air is fed into the regeneration zone from the back. The water molecules adsorbed in the silica gel micropores are activated by the temperature rise, weakening the adsorption force. Consequently, the water molecules flow out of the silica gel micropores.

» Silica Gel Dehumidification Rotor

Active silica gel is proven by global customers as one of the best desiccant rotors. It uses ceramic fiber paper as the base and special silica gel as the surface adsorbent, developed with advanced technology. The ceramic paper, made with inorganic binders, is shaped into a honeycomb structure through fluting and winding. The green rotor is calcined at high temperatures to remove all organic substances. The honeycomb rotor, made with custom silica gel (metal silicate) via chemical synthesis, offers exceptional thermal resistance, even usable in 100% relative humidity. The silica gel rotor is strong, with no desiccant stripping, is non-toxic, non-corrosive, and provides stable performance for long-term use.

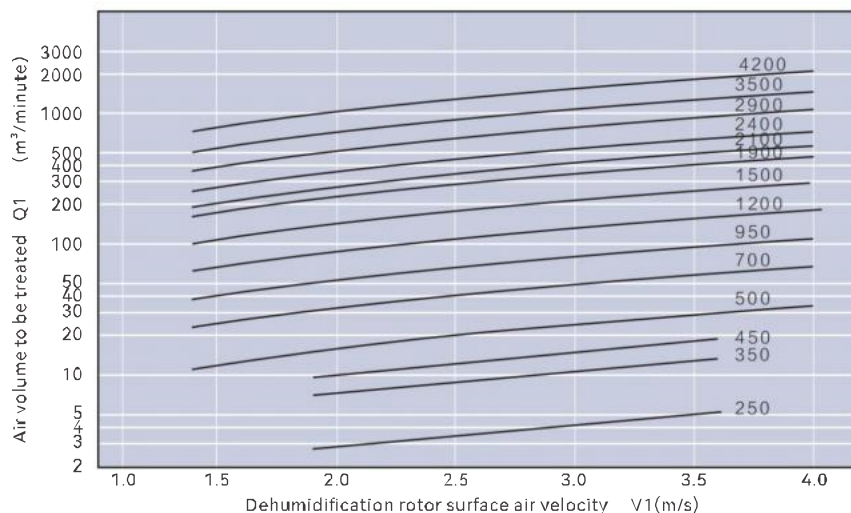


» Molecular Sieve Dehumidification Rotor

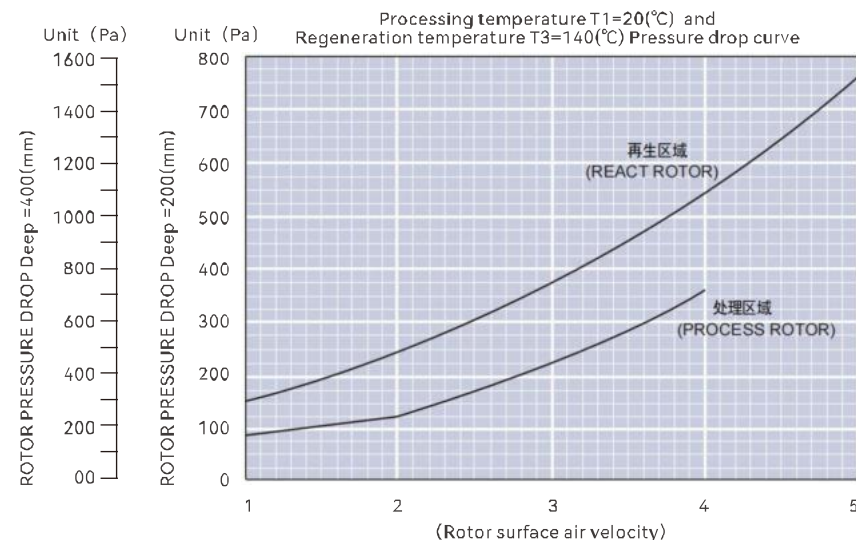
The molecular sieve dehumidification rotor uses specially synthesized zeolite as the adsorbent, which has very small micropores and strong heat resistance. This type of desiccant rotor is suitable for low-dew-point applications and for dehumidifying process air containing volatile organic compounds (such as ethylene glycol, acetaldehyde, etc.). Similar to the silica gel rotor, it uses ceramic fiber paper as the substrate, which is firmly bonded with the special synthetic zeolite and impregnated using a special chemical process with an inorganic binder. This is why the rotor has very high physical strength and, like our other desiccant rotors, does not experience adsorbent stripping. Depending on the air flow system conditions, the dew point of a single rotor can theoretically even reach -90°C.



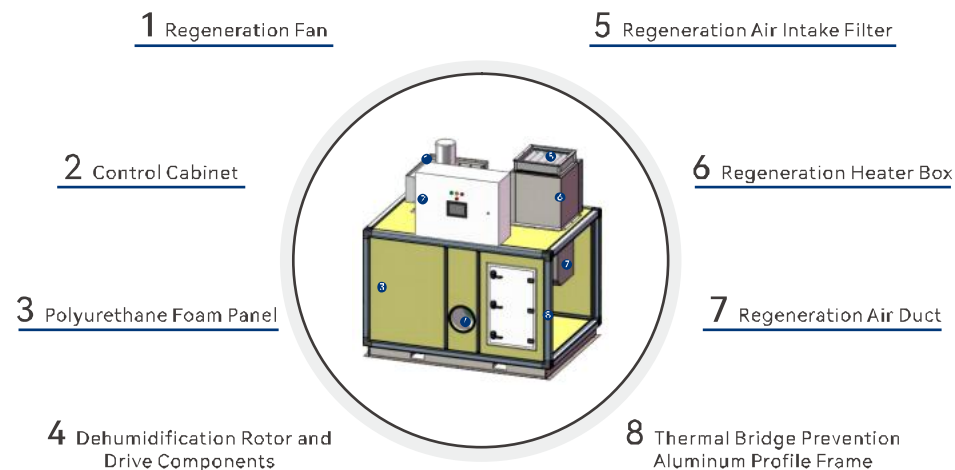
» Dehumidification air volume selection table



» Rotor Pressure Drop Performance Curve



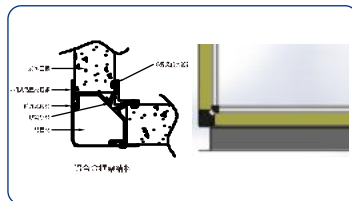
» Product Structure



Product Features

Low air leakage, no thermal bridges, aesthetic and tidy

The air-conditioning box uses an aluminum alloy frame structure with gapless joint technology. The aluminum extrusion and panel are face-to-face sealed, ensuring a tidy appearance and low air leakage. Bolt-free design simplifies disassembly and assembly. Double-layer pressure- and wear-resistant airtight strips and PVC thermal bridge prevention strips are used at all internal and external joints, completely isolating heat-conducting components and eliminating thermal bridges.



Thermal insulated regeneration air duct

The equipment uses an innovative double-layer composite regeneration air duct and heater box structure. Both inner and outer layers are made of metal plates precision welded and filled with A1 fire-resistant rock wool (density $\geq 120\text{kg/m}^3$, thermal conductivity $\leq 0.044\text{W/m}\cdot\text{K}$), certified to GB8624-2012, for better thermal insulation. This design ensures safe and reliable equipment operation.



The core design of the dehumidification rotor's partitioning

The rotor is partitioned in a golden ratio to optimize regeneration and processing efficiency, reducing energy consumption. Laser-welded barriers and top-notch sealing strips ensure zero leakage between sections, even under pressure, to prevent air mixing.



Special regeneration fan

Equipped with high-temperature bearings, the skeleton and volute are sealed for oil retention. It can run stably and efficiently in high-temperature and humid conditions.



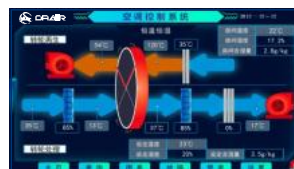
Regeneration heating

W-shaped stainless steel electric heating tube, optimally designed based on air velocity and power, for safety, stability, and high-efficiency operation.

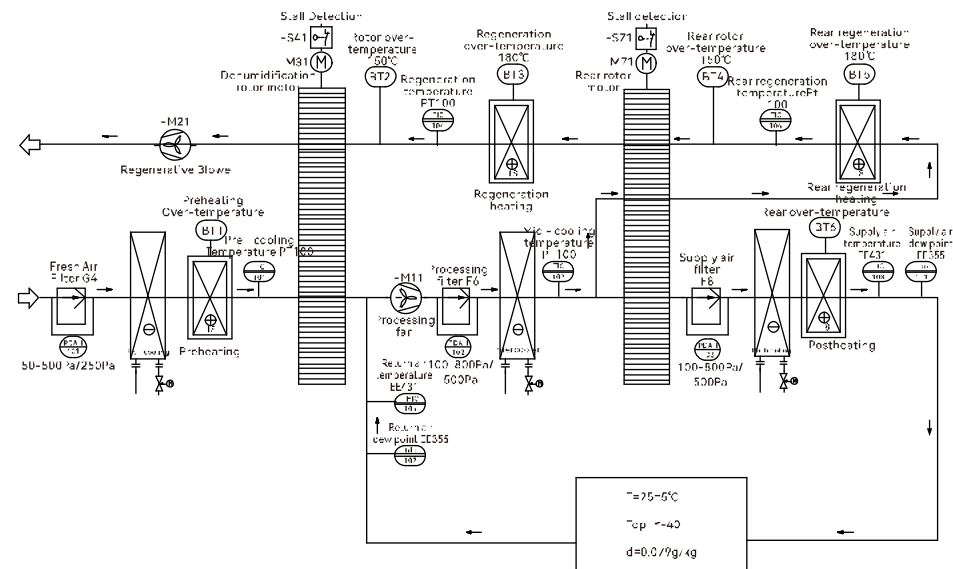


Control system

This control system is a new-type system for high-precision control. It consists of a touch-screen module and a PLC module, forming an integrated control system with an HMI for easy operator interaction with the PLC. It comes with an RS485 communication interface for communication with a host computer. The heating control uses proportional control for high-precision operation. The system also features comprehensive fault detection, capable of real-time fault monitoring. When a fault occurs, it automatically handles the issue based on its type and displays the cause and resolution method.



Low Dew Point Rotor Dehumidification Control PID Diagram



Unit's Actual Operation Data on Site

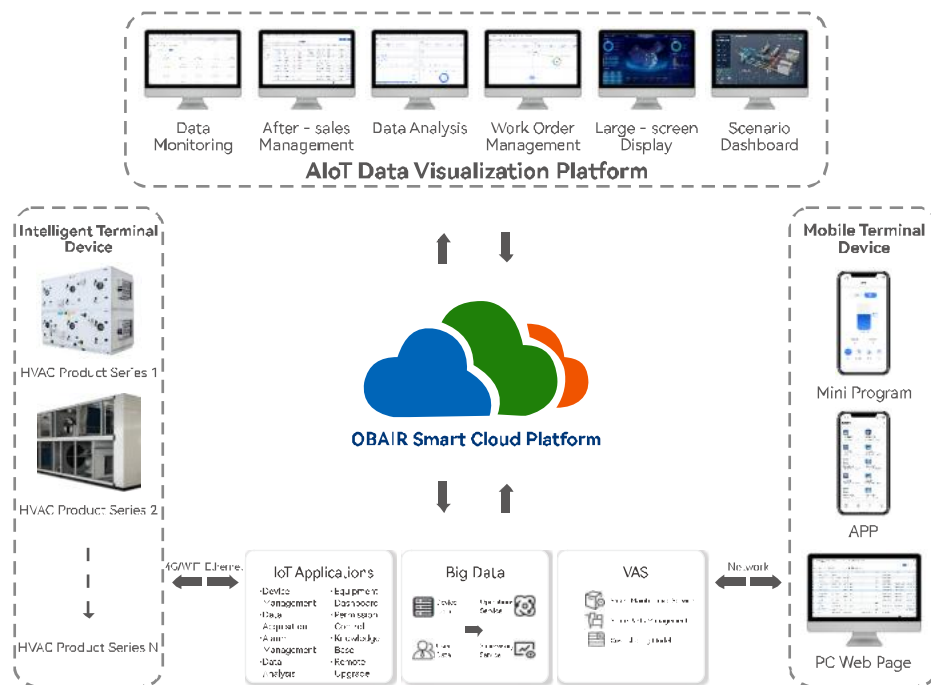


REMOTE OPERATION 5G AND MAINTENANCE SYSTEM

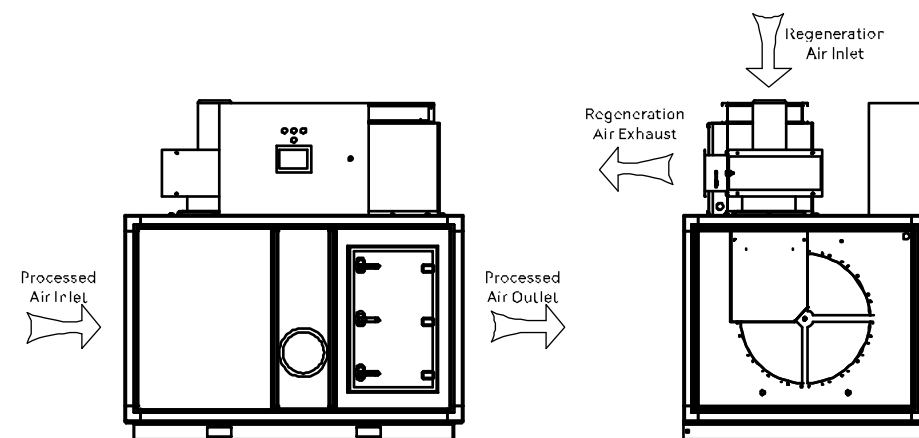
Full - life - cycle operation and management platform for HVAC industry equipment

OBAIR leads the industry with its "Cloud Platform" monitoring system service, making unit maintenance hassle - free. It has launched a desiccant wheel dehumidification unit with 5G network communication capabilities. When used with the "Cloud Platform" monitoring system service, it provides customers with more timely and efficient equipment maintenance services, making unit maintenance more worry - free.

5G



» Appearance Diagram and Specifications



Project	Unit	Main Parameters				
		ZLD010D/Z	ZLD020D/Z	ZLD030D/Z	ZLD040D/Z	ZLD050D/Z
Air Volume to be Handled	m³/h	1000	2000	3000	4000	5000
Regeneration Air Volume	m³/h	334	667	1000	1334	1670
Rotor Pressure Drop	Pa	300	300	300	300	300
Rated Dehumidification Capacity	kg/h	7.6	14.5	22.2	30	37
Regeneration Energy Consumption	Electric Heating Power	9.5	19	28	38	48
	Steam Consumption	18	35	52	71	89
Regeneration Fan Power	kW	0.37	0.55	0.75	0.75	1.1
Exhaust Fan External Static Pressure	Pa	300	300	300	300	300
Drive Motor Power	kW	0.1	0.1	0.1	0.1	0.1
L	mm	1200	1200	1400	1600	1600
W	mm	850	950	1050	1250	1250
H	mm	950	1050	1150	1350	1350

Note:

- The above parameters are determined based on the following inlet air conditions: inlet air temperature 13°C, relative humidity 95%, air density 1.2kg/m³, regeneration temperature 120°C, saturated steam pressure 0.4MPa, steam consumption reference 2018.4kJ/kg, rotor thickness 200mm;
- The above desiccant wheel dehumidifier does not include the treatment fan and needs to be used with an air - conditioning system;
- The above data is for reference only. Non - standard requirements and appearance dimensions can be customized;
- Specifications and parameters may be changed due to product improvement, and we will not notify you separately.

Appearance Diagram and Specifications

Project	Unit	Main Parameters				
		ZLD060D/Z	ZLD090D/Z	ZLD120D/Z	ZLD150D/Z	ZLD180D/Z
Air Volume to be Handled	m³/h	6000	9000	12000	15000	18000
Regeneration Air Volume	m³/h	2000	3000	4000	5000	6000
Rotor Pressure Drop	Pa	300	300	300	300	300
Rated Dehumidification Capacity	kg/h	4.4	66.8	88	110	134
Regeneration Energy Consumption	Electric Heating Power	kW	57	87	117	144
	Steam Consumption	kg/h	106	159	212	265
Regeneration Fan Power	kW	1.1	2.2	2.2	3	4
Exhaust Fan External Static Pressure	Pa	300	300	300	300	300
Drive Motor Power	kW	0.1	0.1	0.1	0.1	0.1
L	mm	1800	1800	2000	2000	2400
W	mm	1350	1550	1750	1850	2100
H	mm	1450	1650	1850	1950	2200

Project	Unit	Main Parameters				
		ZLD200D/Z	ZLD250D/Z	ZLD300D/Z	ZLD350D/Z	ZLD400D/Z
Air Volume to be Handled	m³/h	20000	25000	30000	35000	40000
Regeneration Air Volume	m³/h	6666	8333	10000	11666	13333
Rotor Pressure Drop	Pa	300	300	300	300	300
Rated Dehumidification Capacity	kg/h	147	187	225	261	300
Regeneration Energy Consumption	Electric Heating Power	kW	192	240	288	336
	Steam Consumption	kg/h	354	442	530	619
Regeneration Fan Power	kW	4	5.5	7.5	7.5	7.5
Exhaust Fan External Static Pressure	Pa	300	300	300	300	300
Drive Motor Power	kW	0.2	0.2	0.2	0.4	0.4
L	mm	2400	2400	2600	2600	2600
W	mm	2200	2400	2700	2800	3000
H	mm	2300	2500	2800	2900	3100

Note:

- The above parameters are determined based on the following inlet air conditions: inlet air temperature 13°C, relative humidity 95%, air density 1.2kg/m³, regeneration temperature 120°C, saturated steam pressure 0.4MPa, steam consumption reference 2018.4kJ/kg, rotor thickness 200mm;
- The above desiccant wheel dehumidifier does not include the treatment fan and needs to be used with an air conditioning system;
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Product Series

Desiccant wheel dehumidification section: Air Volume 1000~50000m³/h

Modular desiccant wheel dehumidifier: Air Volume 1000~100000m³/h

Low-dew-point desiccant wheel dehumidifier: Air Volume 1500~50000m³/h



The modular desiccant wheel dehumidifier unit integrates a pre-cooling pre-treatment section, a desiccant wheel dehumidification section, and a post-cooling treatment section. It can use chilled water or direct expansion cooling and can be customized with various functional sections to meet client demands for temperature, humidity, cleanliness, and air flow speed. It is a non-standard customized product.

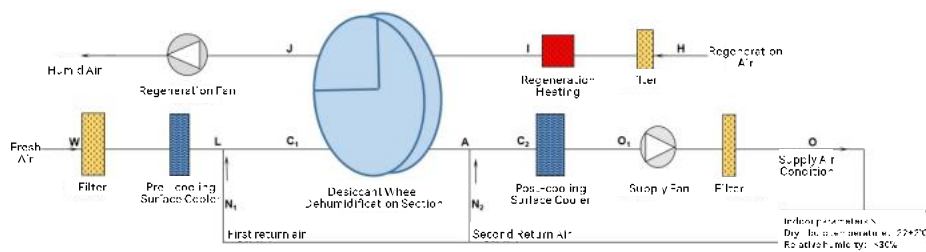


The low-dew-point dehumidification series adopts a "dual-stage dehumidification wheel + three-stage surface cooling dehumidification" system design. With high-quality sealing materials, a well-thought-out structure, and a proprietary smart control system, it can lower the dew point of the supply air at the unit outlet to -70°C. This meets the temperature and humidity control requirements of all production process stages in different areas of lithium-battery workshops.



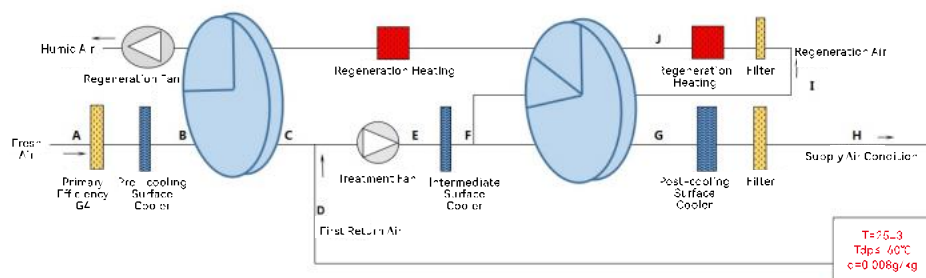
Desiccant Wheel Dehumidification Recommended Solution Flow Chart

Two-return-air Desiccant Wheel Dehumidification Flow Chart



The desiccant wheel dehumidification section can handle an air volume of 1000~50000 CMH. When paired with OBAIR modular air - handling units or direct - expansion air - handling units, it can reduce the relative humidity of the air to below 30%RH, while ensuring indoor cleanliness, temperature and humidity, and air flow rate control requirements.

Low Dew Point Dual Desiccant Wheel Dehumidification Flow Chart



The low - dew - point dehumidification series adopts a "dual - stage dehumidification wheel + three - stage surface cooling dehumidification" system design. With high - quality sealing materials, a well - thought - out structure, and a proprietary smart control system, it can lower the dew point of the supply air at the unit outlet to -70°C. This meets the temperature and humidity control requirements of all production process stages in different areas of lithium - battery workshops.

Desiccant Wheel Dehumidification Application Scenarios

Pharmaceutical Workshop

Solid Dosage Form Workshop					
Production Category	Weighing	Tablet Making	Coating	Packaging	Storage
Temperature requirement	22~22°C	20°C	12~90°C	20°C	20~25°C
Humidity requirement	30~40%	20~30%	10~70%	10~30%	≤40%

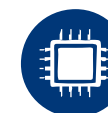


Industrial Dehumidification Occasions

In addition to the lithium - battery and pharmaceutical industries, desiccant wheel dehumidifiers are widely used in food processing, tobacco, warehousing, data centers, aerospace, and aviation.



Lithium - battery



Electronics



Food



Laboratory

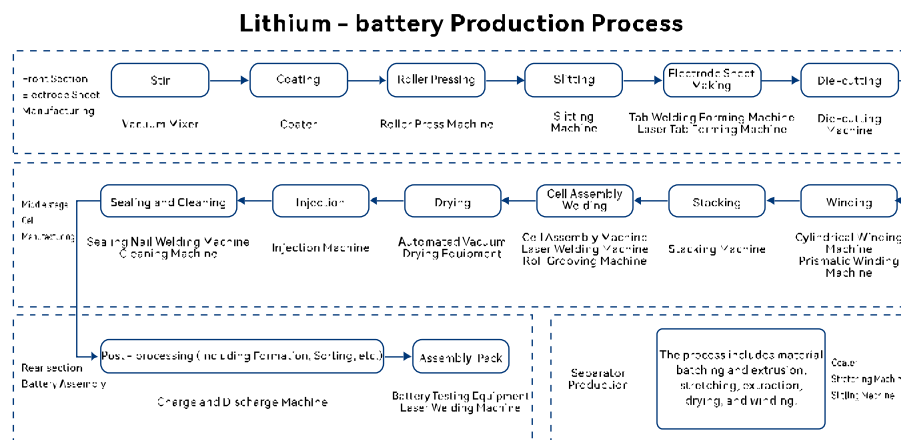


Automotive
Glass



Pharmaceutical

» Lithium - battery Production Process



» The Impact of Water Content on Lithium - battery Performance

Many factors affect lithium - battery performance, including material type, electrode density, moisture, coating mass density, and electrolyte volume. Among these, moisture is critical. It's a key factor to control during production. Moisture greatly impacts the initial discharge capacity, internal resistance, cycle life, and thickness of lithium - ion batteries. High moisture levels lower discharge capacity, increase internal resistance, worsen cycle decay, and cause thickness expansion. Thus, strict moisture control is essential in all battery production stages.

» The Impact of Moisture on Lithium - battery Performance

1. The front-section process requires a relative humidity of 2 - 30%.
2. The middle-section process requires a dew-point temperature of -20°C to -45°C.
3. The rear-section process requires a relative humidity of 20 - 30%.



Coating Workshop



Injection Workshop

» Equipment Installation Requirements

The ductwork requirements for desiccant wheel dehumidification systems are stricter than those for traditional air - conditioning systems. All air ducts of the desiccant wheel dehumidifier must be airtight, which is crucial for controlling humidity in drying rooms. Even if the dehumidifier removes moisture effectively, any leakage in the ducts can allow moisture - laden air to enter the dried airflow, affecting indoor conditions.

1. All ducts must be correctly sized to minimize pressure drop and prevent excessive static pressure.
2. Regeneration air exhaust must not mix with process air or regeneration air intake. If the equipment is installed indoors, the regeneration air exhaust must be ducted outdoors.
3. Allow enough space around the unit for maintenance and repairs. Leave a clearance equal to the equipment width on the service side and at least 500 mm on other sides.
4. An uneven foundation can cause installation difficulties, excessive gaps in insulation joints, condensate drainage problems, and fan misalignment.

» Equipment Maintenance

The dehumidifier has high - temperature zones (regeneration heating section). Wait for the unit and connected ducts to cool before performing maintenance!

The dehumidifier has high voltage. Ensure the power is off before troubleshooting!

Only qualified technicians should adjust, maintain, or repair the unit. They must be aware of the internal high temperature and voltage!!

1. Regularly clean or replace the filter at the regeneration air inlet.
2. After two months of operation, tighten the dehumidification wheel.
3. Use a vacuum cleaner to remove surface impurities and a high - pressure air gun to blow out internal impurities.
4. When the wheel is not in use, run it for 1 - 2 hours periodically. Activate the regeneration heater for high - temperature desorption and sterilization. This removes odors. (Refer to the product maintenance manual for details.)

>> Partial Customer Cases



Enji New Material Co., Ltd.



Trina Solar



Risen Energy



Guangyu Group



Biel Crystal



Envision Energy



Ganfeng Lithium Group Co., Ltd.



Joysun New Energy Co., Ltd.



JinkoSolar



Hunan Chinaily New Material Co., Ltd.



For specific operations regarding the installation, use, and maintenance of the unit, please refer to the **Installation and Operation Manual** and **Electrical Operation Instructions** provided with the unit.

Note: Since OBAIR products are subject to continuous improvement and innovation, any changes to the product models, specifications, and parameters shown in this material will not be notified separately. Your understanding is appreciated.