

1.Main technical indicators and parameters

EQM-010 Desiccant air dryer							
1.Standard working conditions							
Medium			Compressed air				
Flow rate*			1.0 m³/min				
Working pressure			0.7MPa				
Inlet oil content			≤0.1ppm				
Inlet temp.			≤38℃				
Ambient temp.			≤38℃				
*Related to 1bar abs and 20 °C according to ISO 7183.							
In order to correctly select the type of desiccant air dryer, it is necessary to obtain the max inlet flow rate, the mini inlet pressure, max inlet temperature and max inlet pressure dew point, to select the correction factor from the table corresponding to the type and to calculate the minimum processing flow rate required by the desiccant air dryer.							
Min. process flow = max. inlet flow / (CFP x CFT x CFD)							
Inlet pressure correction factor (CFP)							
MPa	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CFP	0.63	0.75	0.88	1.00	1.13	1.25	1.38
Inlet temperature correction factor (CFT)							
℃	25	30	35	38	40	45	50
CFT	1	1	1	1	0.90	0.68	0.53
Inlet pressure dew point correction factor(CFD)							
℃		10			38		
CFD		1.0			0.67		
2. Working condition range							
Working pressure			0.4-1.0MPa				
Max. inlet temperature			50℃				
Max. ambient temperature			45℃				
3. Performance indicators							
Outlet pressure dew point			-20~-40℃				
Pressure drop			≤0.021MPa				
4. Machine characteristics							
Length×Width×Height			350×324×1100mm (Error ± 10%,EST.)				
Weight			50kg (Error ± 10%,EST.)				
Air inlet/outlet connection			Rp1 Screw connection				
Access interface standard			GB/T 7306.1-2000				
Regeneration mode			Heatless regeneration				
Installation condition			Indoor, allow no foundation, ensure the ground level				
5. Electrical characteristics							
Power supply			1 phase /220V/50Hz				
Overall power			0.03				

Control method	Automatic circulation
Cycle time	10min
6. Machine main parts characteristics	
Shuttle valve	Self developed shuttle valve, patented product, compact structure, achieving stable regeneration.
Adsorption tower	1. This device does not belong to the category of pressure vessels, so it does not need to undergo relevant monitoring procedures for pressure vessels. 2. Internally equipped with an efficient diffusion device, it can effectively promote sufficient contact between compressed air and adsorbent, ensuring the optimal adsorption effect.
Aluminum alloy cavity	1. The aluminum alloy chamber is made of high-quality aviation grade aluminum material, which has excellent strength and corrosion resistance. It can effectively resist various harsh environments and ensure long-term use without rusting. 2. Its durability is extremely high, with an expected lifespan of up to 30 years, providing long-lasting and stable support for your application.
Absorbent	1. A self-developed and customized high-efficiency adsorbent specifically designed for the post-treatment industry. Having excellent adsorption performance, it can quickly and effectively remove target substances, ensuring excellent treatment efficiency 2. Long service life, able to operate stably for a long time, reducing replacement frequency and cost.
Controller	A self-developed high-performance integrated controller that integrates various commonly used functions, such as RS485 communication, operation output, alarm output, remote start stop, and dew point display. It is easy to operate, stable to operate, and can meet the diverse needs of users.

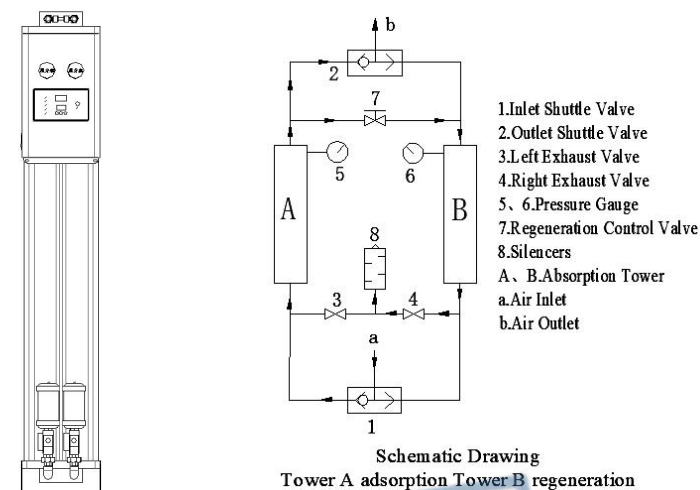
2. Control system

Function name	Function description	Standard/option
Remote interlocking start-	Dry contact	Standard
Operating signal	Dry contact	Standard
Trouble signal	Dry contact	Standard
Telecommunication	RS485	Standard
Positive/reverse valve	Program control	Standard
Dew point temperature	Passageway	Standard
High dew point	Warning indication	Standard
The controller cannot be configured with other functions.		

3. Introduction

3.1 Product briefing

When the compressed air system has lower requirements for pressure dew point, The modular desiccant air dryer, also known as the modular desiccant dryer, is undoubtedly the preferred solution in the market. The modular desiccant air dryer, with its unique design, combines multiple tower A modules and tower B modules to form an efficient adsorption tower. The desiccant air dryer is a type of module drying machine that uses shuttle valves for the inlet and outlet, and only has two electric control valves for the discharge port. Non heat refers to a type of module drying machine that does not require external heating during regeneration. (The picture below does not represent this model)



3.2 Working Principle

Desiccant air dryer use the adsorbent to dehydrate the water vapor in compressed air with selective adsorption characteristics to achieve the purpose of lowering the dew point of air. On the other hand, the adsorbent's adsorption capacity will be greatly weakened at low pressure. Utilizing this characteristic, the adsorbent is regenerated at reduced pressure, and the twin-tower cycle achieves the ability of continuous air supply.

3.3 Work Flow

●Tower A adsorption

Inlet a → Inlet shuttle valve 1 → Tower A → Outlet shuttle valve 2 → Outlet b

●Tower B regeneration

Tower A → Regeneration regulating Valve 7 → Tower B → Right exhaust valve 4 → Muffler 8.

●Tower B stamping to homogeneous pressure

Tower A → Regeneration regulator valve 7 → Tower B

●The twin tower processes are switched and the cycle alternates.

3.4 Product main features

●Simple and compact structure

External shuttle valves for upper and lower cover, which significantly reduces piping connections, compacts the structure, simplifies it, and avoids all kinds of air leakage risks.

●Pressure vessel inspection not required

The inner diameter of adsorption cylinder is less than 150mm, non-pressure vessel, no need to carry out pressure vessel supervision and inspection, This design not only simplifies the process, but also saves users additional costs and valuable time, making usage more convenient and efficient.

- More uniform air distribution and elimination of adsorption tunneling effect

Storm filler technology with multi-stage diffusion design makes airflow distribution more even and avoids tunneling effect.

- All-in-one controller, feature-rich

This high-performance all-in-one controller is highly favored for its outstanding performance and rich functionality. It cleverly reduces electrical accessories and wiring, making the entire system more concise and efficient. Whether it's the convenience of communication, the stability of operation, or the timeliness of alarms, this controller has demonstrated excellent performance. Its design not only improves work efficiency, but also reduces maintenance costs, bringing users a more relaxed and convenient user experience.

- Aluminum alloy material to ensure air quality

The chamber and adsorption cylinder are made of selected aviation grade aluminum materials, which not only prevent corrosion and rust, ensuring pure and pollution-free air, but also have lightweight, sturdy and durable materials, effectively improving the product's service life. The selection of this material not only ensures air quality, but also gives the product excellent durability and reliability.

Due to the continuous updating of technology, we reserve the right to make changes and upgrades to our products without prior notice, so please refer to the final product when ordering.

Document version number: Version C4

Preparation date: Jun 9, 2024

