

Modular compressed air dryers



DA Series
Flow rate: 1-36m³/min

About SR

"Trust, Growing, Win-Win" is our philosophy. Our goal is to provide the most comprehensive range of filters that allow customers to filter gases and liquids simply and reliably, even in the most demanding conditions.

We are a leading supplier of high efficiency filters for a variety of industries and applications in China. Through a wide choice of standard designs in an assortment of materials, our comprehensive range of filter housings enables greater flexibility for customers. The development of new products is client driven, which ensures continual improvement of our capabilities. We will continue to cooperate with our world class suppliers to provide the unique solutions.

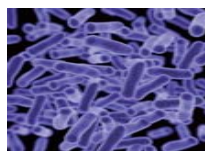


Clean and dry compressed air is very important to modern industry

In modern industry, the compressed air system uses air as the source. However, air contains a large amount of water vapor, dust, bacteria, and various hydrocarbons. Coupled with the wear particles and oil and other pollutants generated by the lubrication system of the air compressor itself, all these will accelerate equipment wear, block valves, corrode pipelines, and contaminate compressed air. It may even cause air leakage, damage to equipment, substandard products, production shutdowns, increased maintenance costs, increased safety hazards, and health risks.

The compressed air system mainly contains the following pollutants

- | | | | |
|------------------------|--------------------|----------------------|------------------|
| · Water vapor | · Atmospheric dust | · Liquid oil | · Microorganisms |
| · Condensate | · Rust | · Oil mist (aerosol) | |
| · Water mist (aerosol) | · Pipe peeling | · Oil vapor | |



These water, oil, particles and dust mix together to form a corrosive mixture, which will accelerate equipment wear, block valves, corrode pipelines, lead to gas leakage, equipment damage, shutdowns, finished product scrapping, increased maintenance costs, increased safety hazards and increased health hazards.

Modern industry has set high standards for the quality of compressed air. The compressed air system needs to be dry to ensure the stable operation of equipment and the excellent quality of products. After comprehensively considering factors such as air quality, product reliability, return on investment, and after-sales service, it is particularly important to choose a reliable adsorption dryer.

DA series modular compressed air dryer

We have developed the DA series compressed air dryers with high performance and energy conservation, providing clean and dry compressed air and gases at an affordable price and with unparalleled reliability.

When you have a DA dryer, it can reliably provide you with:

- Great value for money - all the facilities you need are installed inside.
- Clean and dry compressed air is used during the production process.
- Lower life cycle costs, low energy costs and simplified maintenance.
- Space-saving - Models with a capacity of 5Nm³/min or less can be easily installed on the wall
- Safe and quiet operation.
- A single machine is available from 1 to 31.5 Nm³/min at a working pressure of 7 barg, and multi-machine units can be infinitely large.
- Peace of mind - the most reliable product in its class.

The dryer is designed specifically for use in compressor rooms, on-site application points, or integrated into original equipment, providing an effective solution for compressed air drying



Benefits you will get

Guaranteed Performance

- 100% performance and function tested in accordance with ISO 8573.1:2010, Class 2 dirt (1 micron) and Class 2 water (-40°F pressure dew point). Class 1 water (-94°F) as an option

PLC control and LCD display screen

- The clear LCD display in both Chinese and English provides a complete view of PLC operation and monitoring data.

Reliable operation

- The solenoid valve controlled by PLC has a high dehumidification efficiency and reliable operation.
- The overall volume flow limiter prevents compressed air from overflowing and ensures consistent dew point performance.

High quality construction

- 100% tested for leaks, proper operation and dew point performance

Save installation space

- Easy to install and ready for use at any time, the DA1 series can be wall-mounted

Quiet decompression

- The unique exhaust muffler can significantly reduce the noise level.

- Compact design, with less installation space than traditional dryers.

Energy-saving design

- The energy-saving dew point monitoring option can save up to 60% of energy consumption when the inlet humidity load is reduced.

Simplicity of service

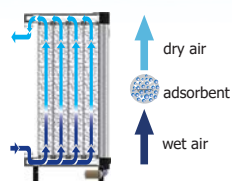
- The combination filter and adsorbent box (DA1) can be repaired within 15 minutes.
- Convenient maintenance kits, quick and easy maintenance.

■ Working principle

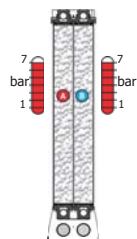
The working principle of the DA series modular compressed air dryer is that moisture always migrates to the driest medium. Therefore, the water vapor in the compressed air is removed through an adsorbent.

The DA series modular compressed air dryers utilise the pressure swing adsorption(PSA) principle in the modular design to dry compressed air. They are heatless regenerative adsorption dryers, with a pressure dew point that can reach -70°C .

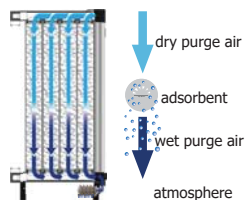
The DA series modular compressed air dryers are simple, reliable, and cost-effective, suitable for small and medium-sized flow systems, and have become common equipment for compressed air drying solutions.



Compressed air enters DA dryer through the inlet and passes through the intake valve and intake manifold into the online drying chamber. The air is evenly distributed to the drying chamber and passes through the adsorbent, thereby reducing the water vapor content. Then the dried compressed air converges in the exhaust manifold and leaves the dryer through the outlet check valve.



Before switching between online chamber (drying) and offline chamber (regeneration), the exhaust valve of the dryer is closed, allowing purified air to repressurize the offline chamber. This ensures that the system pressure and dew point remain consistent when there are changes in the drying chamber.



At the start of the regeneration cycle, the exhaust valve of the dryer is closed and the offline chamber is at full load pressure. The air in the offline chamber has the same dew point as the air leaving the dryer. Then, the exhaust valve is opened, and the dry air in the drying chamber rapidly expands when it leaves the dryer through the exhaust silencer, forcing water out of the adsorbent.



■ Performance

PLC controlled

- operated by a reliable PLC control system ,Chinese and English LCD display, which can show including "chamber operation status", "power on", "running hours", "maintenance" and "red screen flashing fault alarm"
- Compressor synchronization is a standard energy-saving feature that uses signals from the compressor or point-of-use devices to start and stop the dryer, thus saving energy.

ESC dew point energy-saving control

- The dew point is displayed on the LCD screen, and the dew point sensor is integrated in the dryer
- Continuously monitor the outlet dew point and adjust the cycle time according to the actual moisture load to save valuable purified air.
- Reduce valve actuation and extend service life

Best Dew Point Performance

- Provide standard settings for a dew point of -40°C . Optional dew points: -20°C , -70°C

Constant flow and pressure

- Balanced pressure can reduce the consumption of adsorbents

High strength anti-corrosion

- The high-strength aluminum chamber is first anodized and then coated with external powder to provide maximum protection for the equipment.

Innate flexibility

- To facilitate user operation, an adsorption cylinder with prefilled adsorbent and built-in post-filter can be selected to save the time for replacing adsorbent.



Reliable high-performance valves

- The inlet, exhaust, and outlet air are controlled by internal coaxial flow valves. These valves combine the advantages of durability, easy maintenance, and long service life.



■ The effect of the ESC dew point control energy-saving mode

The DA series adsorption dryer utilizes ESC dew point control to achieve the purpose of energy saving and efficiency improvement. The equipment determines the optimal timing for the working state conversion of the two groups of drying cylinders according to the outlet dew point, saving regeneration compressed air and electric energy, reducing unnecessary waste, and obtaining more economic benefits.

ESC Dew Point Control Operation - Energy-saving Cycle

Drying/regeneration cycle							
Time[minute]	1.5	0.5	Conversion time determined by the outlet dew point		1.5	0.5	Conversion time determined by the outlet dew point
Column A	regeneration	repressuring	Energy saving	convert	regeneration	repressuring	Drying
Column B		Drying				regeneration	repressuring
							Energy saving

ESC energy-saving effect

Air demand %	Energy-saving percentage%	Energy-saving(Kw)	Environmental protection (kilograms of CO2)
100	33	95040	50371
90	40	115200	61056
80	47	135360	71741
70	53	152640	80899
60	60	172800	91584
50	66	190080	100742

System pressure: 6 bar g. Maximum temperature: 35°C. System flow rate: 1700 m³/hr (1000 cfm).
Average pressure: 6.5 bar g, average temperature: 30°C. (Flow Chart of Air Compression System)

■ Model selection

Temperature correction factors (CFT)^⑤

Maximum inlet temperature	°C	25	30	35	40	45	50
CFT		1	1	1	0.97	0.88	0.73

Pressure correction factors (CFP)^⑤

Minimum inlet pressure[bar]	4	5	6	7	8	9	10	11	12	13	14	16
CFP	0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.5	1.63	1.75	1.88	32.1

Dew point correction factors (CFD)^⑤

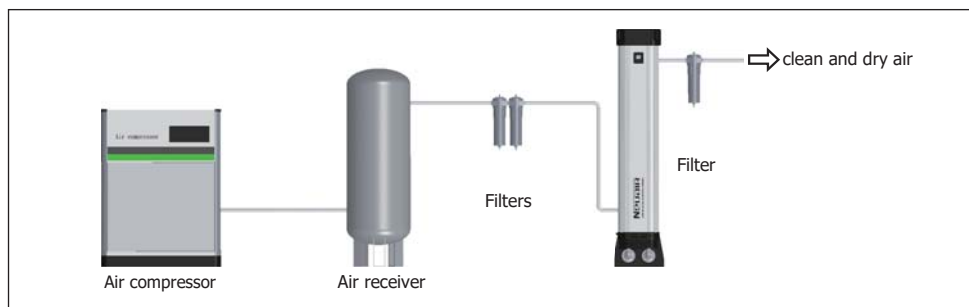
Required dew point	PDP	-20	-40	-70
CFD		1.1	1	0.7

- Select the correction factor for the minimum inlet pressure of the dryer (when determining the minimum working pressure of the dryer, the pressure loss of the equipment in the front section of the system must be considered)

- Select the correction factor for the maximum inlet air temperature of the dryer.

$$\frac{\text{inlet air flow}}{\text{CFT} \times \text{CFP} \times \text{CFD}} = \text{The minimum flow rate that the dryer should meet}$$

Select the dryer model from the table based on the minimum capacity requirements that the dryer should meet to ensure that the selected dryer model is equal to or greater than your drying capacity requirements.



■ Technical Specification

Model	Pipe size	Flow rate m³/min			Height(A) mm	Width(B) mm	Depth(C) mm	Weight Kg
		-20°C	-40°C	-70°C				
DA104□	1	1.3	1.2	0.8	745	425	285	39
DA106□	1	2.2	2	1.4	945	425	285	51
DA108□	1	2.9	2.6	1.8	1145	425	285	64
DA110□	1	3.7	3.4	2.4	1345	425	285	77
DA112□	1	4.4	4	2.8	1545	425	285	89
DA115□	1	5.6	5.1	3.6	1845	425	285	108
DA116□	1	5.9	5.4	3.8	1945	425	285	115
DA210□	2	7.4	6.7	4.7	1390	400	630	165
DA212□	2	8.9	8.1	5.7	1590	400	630	190
DA215□	2	12.5	11.4	8	1890	400	630	228
DA315□	2	17.5	15.9	11.2	1890	400	795	323
DA415□	2 1/2	23.4	21.3	14.9	1890	400	960	418
DA515□	2 1/2	28.8	26.2	18.4	1890	400	1125	513
DA615□	2 1/2	34.6	31.5	22.1	1890	400	1293	608
DA715□	2 1/2		35.8	25.6	1890	400	1460	703
DA815□	2 1/2			29.7	1890	400	1625	798

The code in □ after the model number represents the controller type.

The controller types are divided into S, A and E (PLC control, Chinese and English LCD display);

The S-type is equipped with a 485 interface by default, excluding dry contact output, expansion modules and dew point energy-saving control;

The A-type is equipped with a 485 interface by default, including dry contact output, expansion modules and excluding dew point energy-saving control;

The E-type is equipped with a 485 interface by default, including dry contact output, expansion modules and dew point energy-saving control;

Controller function

	Function							
	Power indication	Fault indication	Dew-point display	ESC energy-saving	Maintenance indication	Relay alarm	Dew-point sensor fault alarm	Modbus TCP protocol
S	●	●			●			●
A	●	●			●	●		●
E	●	●	●	●	●	●	●	●

Specifications

Specification	standard	optional
maximum particle size (ISO8573) ①	Class 2 (1 micron)	Class 1 (0.01 micron)
maximum water content (ISO8573) ②	Class 2 (-40°C pdp)	Class 1 (-70°C pdp) & Class 3 (-20°C pdp)
minimum operating pressure	4 barg	
maximum operating pressure	10 or 16 barg ^③	contact us
recommended operating temperature range	2 to 35 ^④	
design operating temperature range	2 to 50 ^⑤	
power supply requirements	100 to 240 VAC/ 50 or 60 Hz	24DC
rated power	35W	

① at inlet conditions of 7 barg and 35°C, -40°C outlet pressure dew point, for other conditions refer to the correction factors above

② per ISO 8573.1:2010(E)

③ DA 104 to 115 are 16 barg(MAWP) as standard, DA 209 to 715 are 10 barg(MAWP) as standard, higher pressure we can also provide.

④ The minimum recommended operating and design temperature for all dryers is 2°C.

⑤ to be used as a rough guide only.
All applications should be confirmed by us.
Contact sales@gas-psi.com



DA2 series

DA3 series

Why choose SR ?

Industry Leader

SR is a leader in compressed air post-treatment systems, with many years of industry experience in this field.

Professional solutions

Our team is highly experienced and can provide you with one-stop solutions to meet your needs.

Technical Support

With years of industry experience and professional after-sales service support, we provide reliable products and reassuring services to customers throughout the whole process.

Global partner

Our business and partners are spread all over the world, and we can provide you with the best and most diverse one-stop gas filtration and drying technology solutions.

SR Filtration Technology(Dalian) Co.,Ltd.
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