

The compressed air produced by an air compressor contains a significant amount of water, oil, and other impurities. If water vapor enters the compressed air lines, the condensed vapor causes oxidation, corrosion, and damage to production line equipment.

The maximum water vapor condensation point in any gas depends on its temperature and pressure. When the water density reaches a specific working temperature and pressure, that temperature represents a dew point. That is, if the air temperature drops below the dew point, the water vapor in the air manifests itself as water droplets, causing problems in the production line. The dew point of desiccant dryers is -20°C to -70°C .

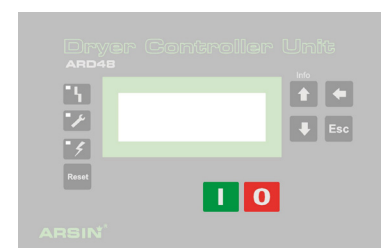


Advantages of Adsorption Dryer

1. Access to the desired dew point due to the use of dry air with minimal pressure.
2. Equipped with a filter or strainer made of stainless steel with automatic cleaning capability.
3. Changing the dimensions and size of air inlet and outlet pipes according to customer needs.
4. Ability to install temperature and humidity sensors in the PLC intelligent control system.
5. Continuous operation of drain valves against humidity, temperature, and pressure.
6. Using molecular sieve desiccant materials as ordered.
7. Moisture absorption capacity up to 99.99%.
8. Inlet and outlet valves with minimal pressure drop.
9. Design and construction according to international standards.
10. Resistant to temperature differences in various weather conditions.
11. Equipped with an intelligent control system (microprocessor) PLC.
12. Ability to operate in temperate and humid weather conditions.
13. High absorption rate of desiccant materials and water impermeability.

Capabilities of the PLC Intelligent Control System

1. Display of device on/off status.
2. Display of device operation.
3. Display of drying stage.
4. Display of regeneration stage, etc.



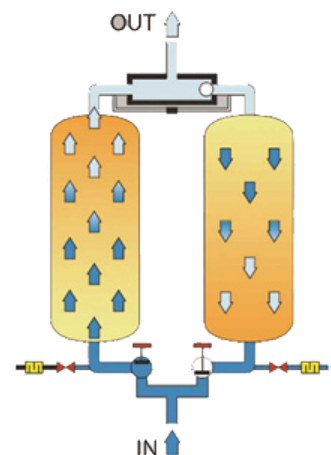
How Adsorption Dryers Work

The air first enters a tower and is dried. For a certain period, water is transferred to the desiccant materials until the water pressure in the air equals the pressure on the surface of the materials. At this point, the control system directs the air to the second tower to continue the dehumidification operation, and the desiccant materials in the first tower could regenerate. In this process, the PLC intelligent system manages the solenoid valves and timers.

CLASS1 MSD Molecular Sieve Dew point: -70°C Residual humidity: 0.0027 g/m ²	
CLASS2 ALD Active Alumina Dew point: -40°C Residual humidity: 0.11 g/m ²	

Features of Adsorption Dryers

- Minimal power consumption for controllers and solenoid valves, not exceeding a few watts.
- No need to replace parts at specific intervals and reduced service and maintenance costs.
- Possibility of installing the device only by connecting cables and air inlet and outlet pipes.
- Epoxy paint inside the towers and industrial paint outside.
- Automatic operation and no need for a special foundation.



Technical specifications

Model	Capacity at 7 bar	Connection	Volume per Tower	Weight per Tower
	(m³/min)	inch	lit	kg
SDD 0108	1.8	3/4	21	16
SDD 0216	3.6	1	43	33
SDD 0360	6	1 ½	70	54
SDD 0522	8.7	1 ½	103	79
SDD 0792	13.2	2	155	119
SDD 1002	16.7	2 ½	195	150
SDD 1188	19.8	2 ½	232	178
SDD 1584	26.4	3	310	238
SDD 2376	39.6	3	465	357
SDD 3564	59.4	4	696	535

Medium Compressed air/nitrogen	Ambient Temperature min: 4 °C, Max: 50 °C
Pressure Dewpoint HED: -20 °C, ALD: -40 °C, MSD: -70 °C	Compressed Air Losses HED: 14%, ALD: 15%, MSD: 20% of the rated volume flow of the corresponding dryer size
Operating Pressure min: 4 bar(g), max: 16 bar(g)n	Power Supply 230V/50 Hz, other voltages upon request
Medium Temperature min: 5 °C, max: 50 °C	Noise Level Ultracomp HED/ALD/MSD 80 dB(A)

Operation Pressure barg	4	5	6	7	8	9	10	11	12	13	14	15	16
Conversion Factor Overpressure f_p	0.63	0.75	0.88	1	1.12	1.25	1.38	1.5	1.63	1.75	1.88	2	2.13

Inlet Temperature °C	20	25	30	35	40	45	50
Correction Factor Temperature f_r	1.1	1.1	1.1	1	0.8	0.7	0.5

According to ISO 8573-1 standard, the dryer capacity calculation is performed at a working pressure of 7 bar and an air inlet temperature to the dryer of +35°C. If any changes occur in the above conditions, the correction factor is applied according to the reference table.

Example of Correct Dryer Selection

If a compressor has an intake air volume of 850 Nm³/hr. at 9 barg and an inlet temperature of 45 °C, what should the selected dryer be? { 850/(1.25×0.7) =971 Nm³/hr} The correct dryer for this application is SDD1002.

$$V_{Qrr} = \frac{V_{nom}}{f_p * f_r}$$

Spare Parts



Regeneration regulating valves



pressure gauge



Sight glass



Safety valve



Regeneration drain valves



Inlet valves