

FARIGUN



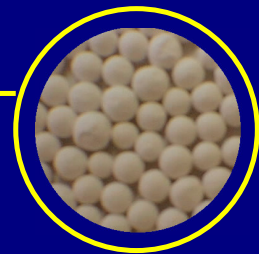
Adsorption Compressed Air dryer

Heatless regeneration

High pressure (42 bar)

FDA - HP series

Principle of adsorption **Drying with high efficiency and reliability**



Some applications require a compressed air with very low moisture content (dew point negative between -5 to -70 °C approximately), not being met by drying systems for cooling (dew point +3 °C). In this case we use a dryer which operates by the principle of adsorption.

Adsorption is a physical process that leads to the fixing of certain gas molecules (in our case water vapor) on the surface of solids materials called adsorption, adsorbents or sorbents. This process is highly efficient, since the materials are easily regenerated adsorption after reaching its saturation (hot or cold).

With regard to compressed air, the adsorption system radically eliminates water vapor in the mixture. With this system you can currently obtain dew points near -100 °C.

The adsorbents are porous products extreme mind, and commonly have specific surfaces 500-1000 square meters per gram. And it is this vast area which creates the fundamental condition for the adsorption phenomenon (which is comparable to the known phenomenon of condensation) which comes into being, ultimately, a surface phenomenon.

Regeneration (also called reactivation) of materials for adsorption is the removal or evaporation of water adsorbed from the same compressed air. This regeneration can be achieved by "washing" of the adsorption material saturated with dry air and warm (drying line FDH), or with pressurized cold and dry air (line FDA).

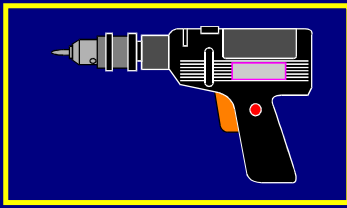


Technical features

FDA HP series

- Heatless regeneration
- Dew point standard between -20 to -40 °C or less on request
- Fully automatic operation
- Easy maintenance and low cost (does not require special tools or technical expertise)
- High durability, robust construction, ideal for applications in adverse operating conditions
- Low consumption of compressed air for regeneration column
- Maximum design pressure: 45 bar
- Paint: synthetic enamel paint or epoxy high durability
- Designed to operate in climatic conditions
- Panel control by electronic module (AIR TIMER) programmable according to operating conditions.
- Optional energy saver system DRY ENERGY controlled by CLP and dew point meter
- Several configurations of filters to provide a complete compressed air dryer treatment (removal of water / oil and solid particles)
- Optional: removal of odors, bacteria and viruses
- Built to ASME sec. VIII-div.1 / NR 13 and tested individually in our factory.
- Optional items: weld radiography, ultrasound, heat treatment, etc.
- Welder and welding process qualified
- Guarantee of permanent technical assistance
- Fargon dryers are provided with adsorption of last generation, as activated alumina or molecular sieve

ISO 8573 applications class 1.1.1, 1.2.1, 1.3.1 and others on request



Typical applications

FDA HP compressed air dryer

- * STARTING ENGINE (TURBINE OR OCEAN)
- * PET BLOWING
- * COUNTERS HIGH PRESSURE TEST
- * START OF GENERATORS
- * AIR BREATHING FOR DIVING
- * APPLICATIONS THAT REQUIRE HIGH PRESSURE COMPRESSED AIR

Operating Principle

How operates the adsorption dryer

Drying cycle

The compressed air passes through three distinct stages during the process of drying and filtration:

- First goes through a coalescing filter for removal of oil and condensate from the compressor. This filter also removes particulate matter (rust / corrosion) dragged the pipe by compressed air with an efficiency up to 99, 9999%. Optionally, the dryer is provided with a condensate separator at the entrance (if the compressor is oil-free).
- Then the compressed air passes through an adsorption column, where water vapor is removed by adsorption (while the other column is reactivated) by the values of the project.
- In the last stage the dry compressed air passes through an output filter that removes any solid particles from the adsorption material.

Reactivation cycle

For the recovery of the adsorption column that is saturated, we use a small percentage of dry air.

- For this revival, also known as recovery or regeneration of the adsorption, we use about 3-8% of dry and filtered air (depending on model, dew point and the conditions of pressure and temperature of compressed air) that in the outlet of the dryer, is diverted to a secondary line and then crosses the adsorption column that is saturated in counter flow, thereby removing the moisture, which is then eliminated into the atmosphere.
- This reactivation materials confers an adsorption carried life of 2 to 6 years of operation approximately.



Pre and post filtration

The essential complement to the dryer

Fargon adsorption dryers are supplied complete with inlet and outlet filters, thus providing a total treatment for compressed air (removal of oil, water, water vapor and solid particles) and if necessary smells of oil and hydrocarbons.

Pre-filter: the inlet filter (coalescing type) ensures the removal of condensed water and oil flow of compressed air, thus ensuring optimal performance of an adsorption column. In cases of heavy contamination of oil, we recommend the installation of two input filters to ensure an oil-free air.

Post-filter: the outlet filter (paper, sintered or similar) ensures that any particles of the adsorption material are not charged for installation, thus preventing its abrasiveness can affect the operation of pneumatic components of the system.

Accessories: Differential pressure gauge (maximum pressure 34 bar)

Drain: manual or automatic (electronic type timer)

Optional: charcoal filter to remove odors of oil and hydrocarbons

Depending the configuration of filters used is possible to remove oil / condensate water until 0.008 ppm and particulates until 0.01 micron, and the removal of odors of oil.

FDA - HP

Adsorption – heatless regeneration

- Easy maintenance access to all components
- Warranty: 12 operation months
- On request: painting according to customer specifications, special instrumentation
- Automation controlled by electronic card AIR TIMER, programmable according to operating conditions of the customer
- Optional:
 - dew point meter electronic or dry ice
 - Energy saving system DRY ENERGY controlled by PLC and dew point meter: controls and automatically adjusts the duty cycle based on the quality of air required
 - Remotely supervision via RS 232 serial output type and specific software



TABLE OF SELECTION

Model	Capacity at pressure 42 bar compressed air temperature 35°C		Inlet / outlet connections R- Threaded	Consumption electric W
	PO = -20/-40°C			
	scfm	Nm³/h		
FDA 0150 HP	59	100	½" R	50
FDA 0250 HP	80	136	½" R	50
FDA 0400 HP	135	230	½" R	50
FDA 0600 HP	235	400	¾" R	50
FDA 1200 HP	411	700	1" R	50
FDA 1600 HP	588	1000	1" R	50
FDA 2000 HP	758	1290	1.1/2" R	50
FDA 2800 HP	947	1610	1.1/2" R	50
FDA 3800 HP	1205	2050	2" R	50
FDA 4800 HP	1517	2580	2" R	50
FDA 6500 HP	2000	3400	2.1/2" R	50

Note: The above flow rate in Nm³/h-scfm was calculated for an operating pressure of 42 bar, compressed air temperature of 35°C and dew point -20/-40°C. For the selection of the dryer at other pressures, temperatures and dew points, use the correction table below:

Example: flow to be treated 230 Nm³/h, pressure 35 bar, temperature 40°C, dew point -40°C
 Flow tabulated = 230 Nm³/h X 1.32 X 1.2 = 364.32 Nm³/h
 Dryer selected FDA HP 0600

To select the ideal model for your needs, use the form below
FORMULA: Flow tabulated = Q X F1 factor X F2 factor

Q	Flow of compressed air to be treated (Nm³ / h or scfm)						
F1	Working pressure of the dryer (bar)	20	25	30	35	42	
	Correction factor working pressure	2,1	1,72	1,39	1,2	1	
F2	Inlet compressed air at the dryer (°C)	30	35	38	40	45	50
	Temperature correction factor of compressed air	0,75	1	1,18	1,32	1,72	2,22
Flow tabulated = Q x F1 x F2							
Dryer model selected							

obs: to dew points below -40°C on request



AIR TREATMENT SINCE 1963

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