

► DRYING UNIT FOR PROCESS GAS



Polar Refrigeration has developed the custom-built drying adsorption unit for the oil-processing and petrochemical plant.

The drying unit is used in the complex of production of aromatic hydrocarbons. The purpose of the installation is to adsorb and remove the moisture from the saturated process gas to a residual content less than 1 ppm.

The unit is suitable for installation in hazardous area, ATEX Zone 2.

Project includes design, engineering and delivery of equipment and adsorbent.

To ensure the continuous operation of the drying unit it is equipped with two adsorbers.

While one of the adsorbers is in operation, another one is either in the regeneration or stand-by stage.

The regeneration of the adsorbent is done by means of the same process gas. During regeneration stage the part of the process gas flow is heated up by means of electrical gas heater and then heats the adsorbent bed.

Due to a high temperature the moisture is being desorbed and removed away from the adsorber.



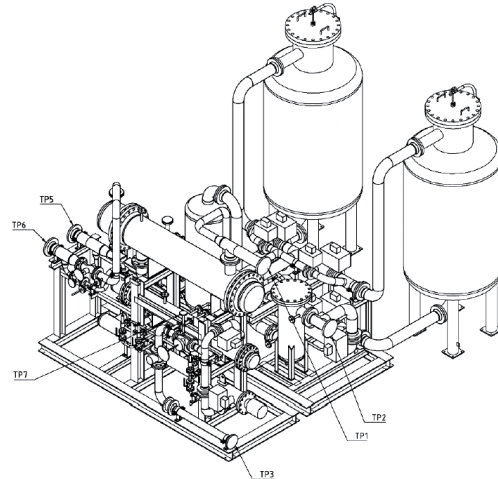
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Principle of operation

Drying unit includes two adsorbers, gas coolers, liquid separator, gas heater, all necessary instruments, and fittings. Fully automated operation is ensured by the control system.

During operation the saturated feed gas firstly passes the gas cooler. Due to cooling down a part of moisture containing in the gas is condensed. The generated condensate is then separated in the liquid separator and removed from the unit.

The partially dry gas after the liquid separator enters one of the adsorbers where the remaining moisture is adsorbed by a highly effective adsorbent. Downstream the adsorber the dry gas passes the fine filter where the small dust particles are removed. After filter the dry clean gas is supplied further to the technological process.



Technical data

Process gas	Mixture of N ₂ , O ₂ , CO ₂ and H ₂ O
Design flow	5000 Nm ³ /h
Design pressure	-1/13 bar(g)
Design temperature	-15/+280 °C
Residual humidity content at the outlet	less than 1 ppm

ATEX Specification

Zone	Zone 2
Group	IIB
Temperature class	T1