

Product Spotlight: Instrument Air Compressors and Dryer Package

Granzow is a leading supplier for the industry of screw compressors, compressed air treatment, energy friendly compressor controls. They also produce a complete range of automation products, such as bursting discs, bursting panels, fittings, thermostats, valves, pneumatic cylinders. An extensive program of efficient pumps as high pressure pumps, diaphragm pumps, hose pumps, mobile pumps. Complete line of vacuum pumps, measurement equipment, leak detection systems and sputter systems.

For the Offshore industry, the Instrument Air Compressor & Dryer Package is an essential technology in terms of the reliability for the continuous operation of machinery working on the platforms.

These packages have been built in the past to fulfill – f.ex. EEx e IIT1 or T3 – standards. Today the certification will be in accordance with both the ATEX regulations, Zone II or Zone I. Many packages have been evaluated to be delivered as a complete build in package, with an air fresh water cooled compressor and a heatless adsorption dryer, controlled by a dew point control and the necessary inlet and outlet filters. This results in a compressed air quality in accordance with ISO8573-1 :

Particles	CLASS 1	less than 0,1 micron
Water content	CLASS 2	dew point – 40 degr.C (0,12 g H2O/m3)
Rest content of oil	CLASS 1	0,01 mg/m3





Container with a heatless dryer

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The compressed air will then be able to be used as air suitable for breathing, if each person has a small filter unit before his actual use of the air before his reduction valve. The illustrated container plant, has a 132 kW, 10 bar air compressor mounted inside the container, followed by a heatless low temperature adsorption dryer, which guarantee the user the quality described previously. The electrical control panel is mounted in the container, this means that electrical offshore cables do not have to be used inside the compressor or dryer. The compressor power cable can be standard cables, as the nature of the offshore cables in terms of dimension and flexibility, do not match the mounting inside the units.

bar.g. The total capacity through the outlet compressed air pipe will then be 1075 m³/h – at 85 % load and 9.5 bar working pressure, calculated with a pressure drop over dryer and filters, to approximately 0.5 bar.

The heatless dryer uses compressed air for regeneration, the outlet compressor capacity has to be deducted the regeneration capacity – a difference between 1260 and 1075 m³/h. This design, for heatless dryers, gives the user a simple reliable low temperature dryer function. The alternative adsorption dryer, with heat regeneration work with temperatures up to 180 degr.C - from the heating elements in the dryer vessels, for this capacity – total 15 kW. For reasons regarding temperature the heatless dryer is the preferred choice in this situation.

The container version as shown, has features which complicate the stainless steel container. The container does have to be designed and calculated for offshore lifting. This can be a challenge for the factory which fabricates the container. Certification on all material used, WEP and WPS, NDT procedures, structural design calculations, structural detail drawings and lifting equipment calculations follow the correct weighing procedure. Single line electrical diagrams for control panels, air compressor and dryer and instrument data sheets can all to be accepted by, or under a FAT in our test bed. Additionally, the package had to be used in a hazardous area, thus making the door construction a challenge as well. The lubricated air compressor will work with a capacity (in accordance with ISO1217) of 1260 m³/h at designed outlet pressure of 10

The dryers will always be mounted with a dew point control, with the purpose of securing the user the right dew point. The signal 4/20 mA to SCADA – further this control will reduce the power, kW or compressed air, in proportion with the flow through the actual dryer. In total this container version only has one inlet electrical gland connection, one compressed air outlet and two cooling water connection. Therefore the package when accepted under the FAT, which will be ready to be started up when placed on the platform.

This article was written by: T.S.Mortensen, Mechanical Engineer B.Sc, Granzow, Denmark www.granzow.dk



Package leaving our factory after FAT