FX 1-16

ATLAS COPCO QUALITY AIR SOLUTIONS

General Description

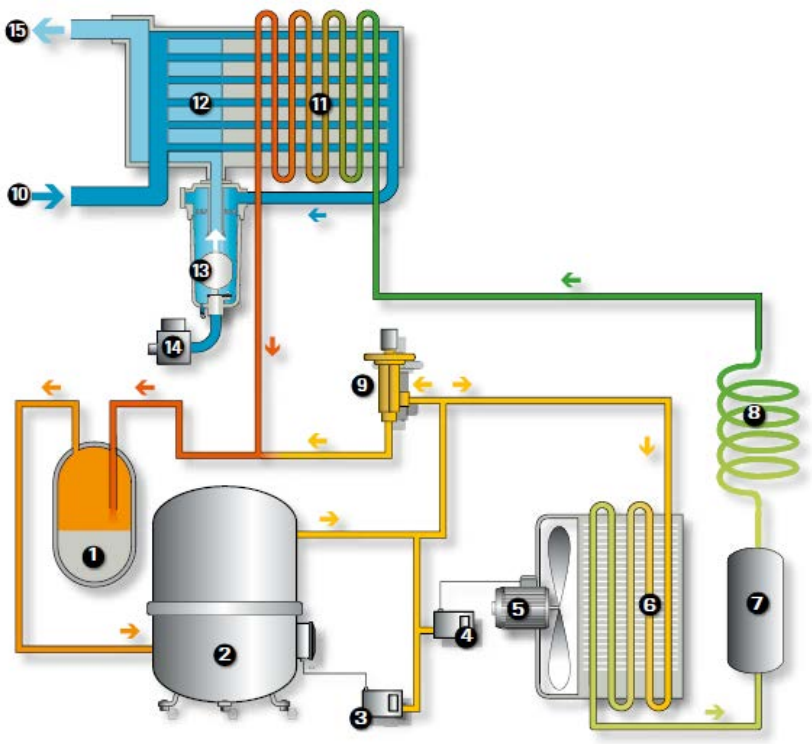
The FX range of refrigerant dryers offers a reliable, cost effective and simple solution to those who need quality compressed air for their manufacturing processes. To avoid condensation, and therefore all chance of equipment and end product corrosion and damage, compressed air needs to be dry – exactly what FX dryers are designed to do.

The FX dryer range is simple, yet robust and reliable. It is a no-frills range that relies on proven technology, solid components and uncomplicated design; these features combined deliver a constant dew point and reliable performance at any flow – in almost every manufacturing application.

Working Principle

Refrigerant drying means that the compressed air is cooled, which creates a large amount of water that must be separated from the air. After cooling and condensing, the compressed air is reheated to around room temperature so that condensation does not form on the outside of the pipe system. This heat exchange between ingoing and outgoing compressed air, and as such reduces the required cooling capacity of the refrigerant circuit.

Cooling takes place via closed refrigerant system. FX refrigerant dryer, a free standing machine that is used for dew points between +3°C ±2°C and has a lower limit, which is the freezing point of condensed water.



1. Refrigerant separator
2. Refrigerant compressor
3. Maximum pressure switch
4. Fan control pressure switch
5. Condensed fan
6. Condenser
7. Capillary filter
8. Capillary tube
9. Hot gas by pass
10 Air inlet
11. Air-refrigerant heat exchanger
12. Air-air heat exchanger
13. Water separator
14. Automatic drain
15. Air outlet

Scope of supply

Reliable Refrigerant Circuit

This is a closed circuit where the refrigerant is located. Refrigerant compressor brings gaseous refrigerant to high pressure and high temperature. To ensure that only gaseous refrigerant enters the compressor, a refrigerant separator is installed before it. It also includes the condenser that cools slightly the refrigerant, thus changes the refrigerant from gas to liquid state. The refrigerant's pressure should be reduce, thus lowering its temperature and increasing its cooling capacity. The capillary tube does this. To protect from harmful particles, a Capillary filter is designed for the FX. The capillary filter is also used to ensure a stable pressure dew point and eliminate the chance of the condensate freezing.

Energy efficient Air Circuit

Hot saturated air enters the dryer and is cooled down by the outgoing air via air-air heat exchanger. Reducing the temperature of the inlet air reduces the load on the refrigerant circuit. The air-refrigerant heat exchanger transfers the heat from compressed air to the cold refrigerant, forcing water vapour in the compressed air to condense. These condensates are separated in the Water Separator, equipped with electronic drain. On the Air outlet, the cooled compressed air is reheated to prevent condensation in to the pipe works, and now equipped with a pressure dew point sensor.

Features & Benefits

Energy Savings

- Low energy consumption
    - Air-air heat exchanger lowers the load in the refrigerant circuit
    - High efficiency refrigerant compressor

Reliable operation

- No condensation in the factory pipe work
    - Air-air heat exchanger, pre heats the cold compressed air
    - Hot gas bypass, to prevent freezing at partial load
    - Efficient water separator
    - Pressure dew point sensor for an accurate pressure dew point measurement

Easy connectivity

- Potential free contact, to allow remote monitoring on customer's data control system (only for FX 8-12)