



WDO - HIGH PRESSURE LIQUID

AMMONIA PURIFIER / DEHYDRATOR

TYPE WDO

System Cleaner removes the Water, Dirt and Oil from Ammonia System that air purger leaves behind

The MANIK WDO is the only system cleaner that boosts

- Lower Installation Cost
- Self Regulating Operating
- Shortest Payback Time
- Energy-Neutral Operation
- Very Low Maintenance

How you can tell if there's water in your system ?

Air-purgers only removes non-condensibles like air. If your air-purger has been venting air, it's been leaving behind the water vapour that's always in the air. If your recirculating evaporator is operating a few degrees warmer than the pressure indicates, this could be due to water in Ammonia. If water comes out of your oil pot before the oil, there is water in your system.

You can easily measure the concentration of Water in your system with the graduated Ammonia Sampling Container.

For each 10% of water in the ammonia, you are losing about 2% in compressor capacity

Water in ammonia refrigeration plants:-

Analysis has shown that the typical content of water in ammonia used in industrial refrigeration plants is about 1-6 %, in worst cases up to 10%.

Water in ammonia leads to increased power consumption, corrosion and results in decomposing oil, which contaminates the plant.

Water, dirt and oil residues are unavoidable in the kind of large industrial refrigeration plants where ammonia is often used. This causes many problems in the plant in general, and in the compressors in particular.

This means that the standard maintenance intervals prescribed by System integrator are no longer sufficient and the over-all operating costs reach an unnecessary high.

- **Water:** Water causes the oil to decompose.
- **Dirt:** Dirt is deposited in filters, valves, heat exchanger and pipe systems.
- **Oil residue:** Oil residue causes contamination, particularly in the case of evaporators and low-pressure vessels.

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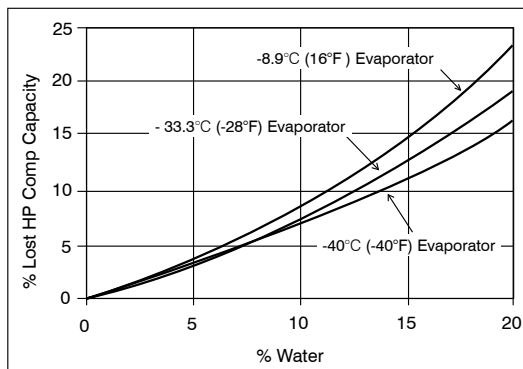
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The High Cost of Water

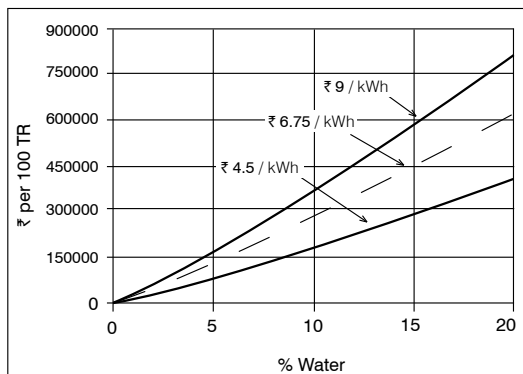
With the water in the system evaporator pressure must be lowered to maintain the desired temperature. For example -17.8°C (0°F) with 5% water in Ammonia must operate at 1 kg/cm² (14.3 psig) instead of 1.1 kg/cm² (15.7 psig). So your compressor must work harder, and use more energy.

The graph below shows the extra energy cost to an ideal system operating with a -17.8°C (0°F) evaporator and 35°C (95°F) condenser. For a 100TR system operating 24/7 with 5% water in Ammonia, the extra electric power cost is around Rs. 1,50,000/- per year depending on local rates.

LOST COMPRESSOR CAPACITY DUE TO WATER

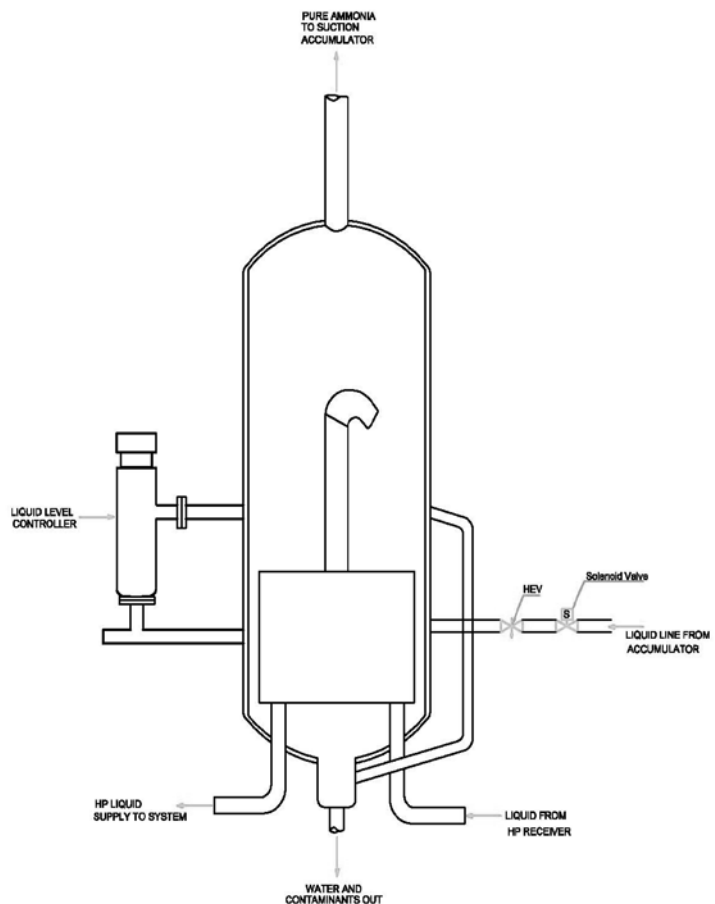


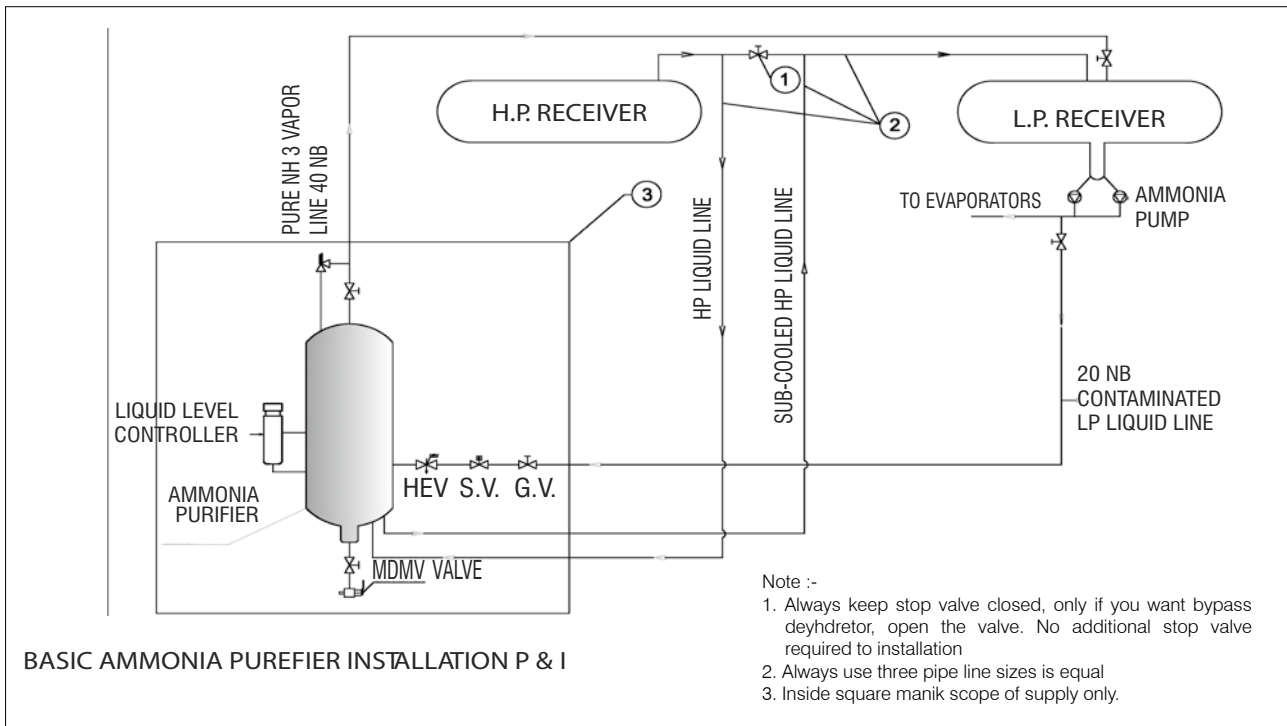
ENERGY COST DUE TO WATER



Compressor Exit Temperature Increase

Water Present	0%	10%	20%
Comp Exit Temp	0°C	5.5°C	12°C





WDO Installation

While the WDO most typically accepts cold liquid ammonia from pump separator, it also draws the ammonia from intermediate coolers where water accumulates.

WDO Advantages

Lower Installation Cost

Because it requires only a simple level controller, solenoid valves and a few isolation valves, the Manik WDO keeps the cost of installation to a minimum.

Self-Regulating Operation

The unique design of Manik Anhydrator allows it to operate continuously. It easily handles system upsets without re-introducing water and contaminants to the pump separator after they have been removed.

Shortest Payback Time

Thanks to its low initial cost, the Manik Anhydrator pays for itself in least amount of time.

Energy Neutral Operation

Unlike many other system cleaners, the Anhydrator uses sensible heat from the high pressure liquid to separate the ammonia from water and other contaminants. Instead of being wasted, the resulting flash gas is now doing useful work: cleaning your system.

Very Low Maintenance

Batch-type system cleaners must be monitored and drained at unpredictable intervals. Its self-regulating operation and ability to safely return ammonia to the pump separator make the Manik WDO virtually maintenance free. Start it up and let it run. Drain Water and contaminants at your convenience.

The unit will hold the water and contaminants indefinitely

Reduced power consumption by the plant compressors.

Reduced wear and tear on compressors and valves.

Elimination of cumbersome oil draining.

A very clean plant.

Optimal performance of the refrigeration plant.

Reduced maintenance costs.

Less down time.

Improved operating cost.

Function

Basically, a batch of liquid refrigerant is taken from the high or low pressure side of the refrigeration plant through the liquid line. The refrigerant is heated and evaporates, while a mix of water, oil and refrigerant is left in the bottom of the vessel. This operation is repeated a number of times and results in a high concentration of water and oil remaining in the WDO.

Dimensions

Height : 2 m x Width : 1.3 m x Length : 1.3 m

ORDERING INFORMATION

MODEL NO.	Weight (kg)
WDO 1	260
WDO-MHP	259