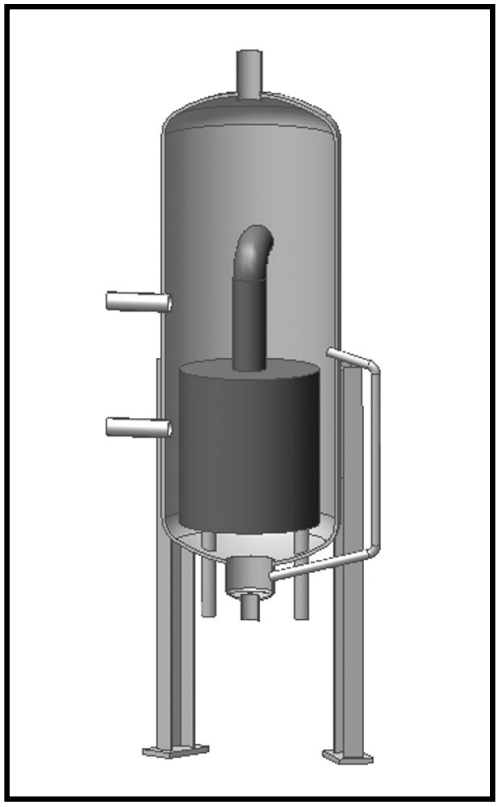
Phillips® REFRIGERATION
VALVES • VESSELS • SYSTEMS • CONTROLS

ANHYDRATOR SYSTEM CLEANER
BULLETIN ANH-22P-01
Product Information

For Ammonia (R717)

The Phillips Anhydrator is the only system cleaner that boasts:

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



For each percent of water in the ammonia, you lose approximately 1% in compressor capacity

LOST COMPRESSOR CAPACITY:

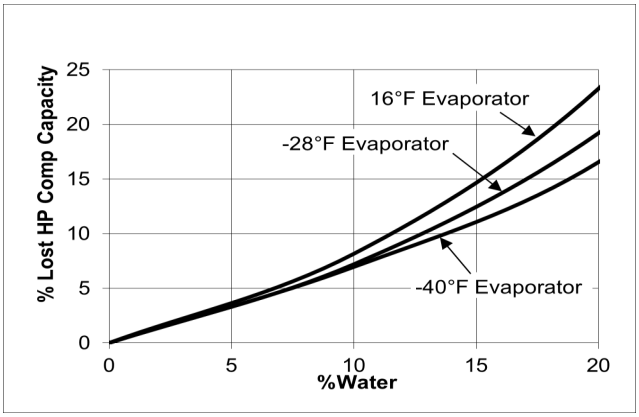


Chart assumes increased suction temperature due to water and 2.4% lost compressor capacity per ºF.

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

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

YOU CAN EASILY MEASURE THE CONCENTRATION OF WATER IN YOUR SYSTEM WITH A SAMPLING KIT AVAILABLE FROM PHILLIPS, PART NUMBER ANH-MS.

THE HIGH COST OF WATER

With water in the system, the evaporator pressure must be lowered to maintain the desired temperature. For example, a 0ºF coil with 5% water in the ammonia must operate at 14.3psig instead of 15.7psig. So the compressor must work harder, using more energy. The graph to the right shows the extra energy cost to an ideal system operating with a 0ºF evaporator and 95ºF condenser. For a 100TR system operating 24/7 with 5% water in the ammonia, the extra electric power costs are $2,000 per year depending on local utility rates.

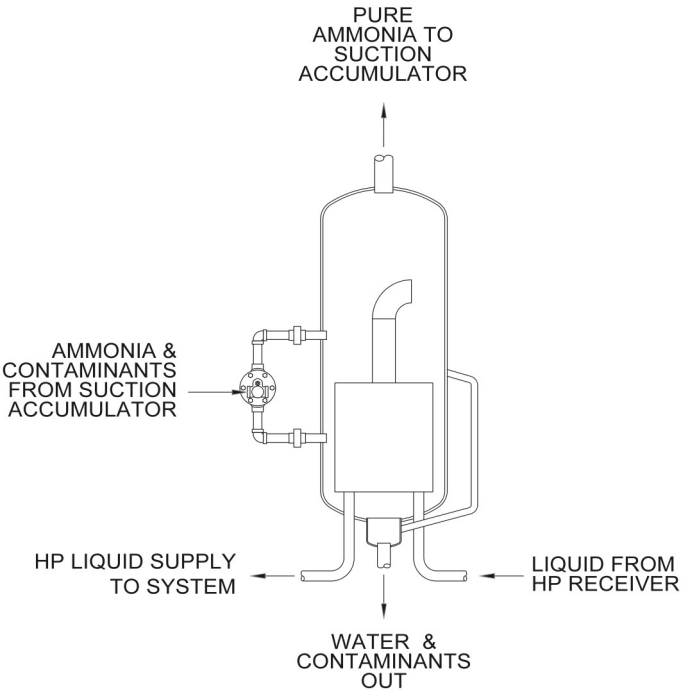
For the same system, the compressor exit temperature will increase as shown in the chart below.

COMPRESSOR EXIT TEMPERATURE INCREASE

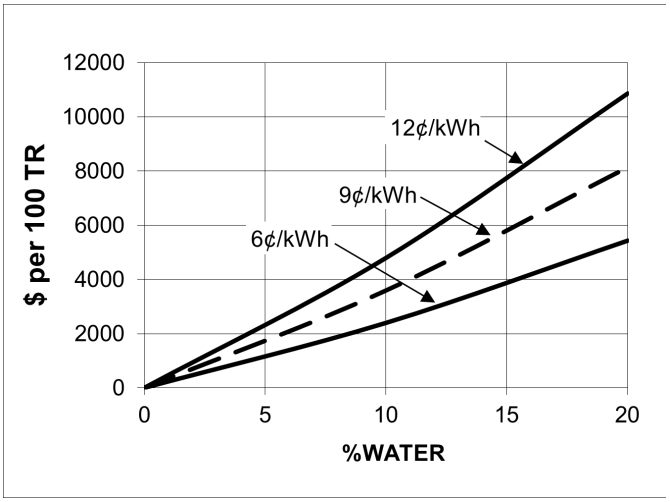
Water Present	0%	10%	20%
Comp Exit Temp	0ºF	10ºF	23ºF

ANYHDRATOR INSTALLATION

While the Anhydrator most typically accepts cold liquid ammonia from the low temp pump separator, it can also draw the ammonia from intermediate coolers where water may accumulate.



ENERGY COST DUE TO WATER



ANHYDRATOR ADVANTAGES

LOWER INSTALLATION COST

Because it requires only a simple float valve and a few isolation valves (no special electronic devices or controls), the Phillips Anhydrator keeps the cost of installation to a minimum.

SELF-REGULATING OPERATION

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

SHORTEST PAYBACK TIME

Thanks to its low initial cost, the Phillips Anhydrator pays for itself in the 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 wet suction makes the Phillips Anhydrator virtually maintenance free. Start it up and let it run. Drain at your convenience. The unit will hold the water and contaminants indefinitely.

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