

SUPERVISAIRE® User-Friendly Controls



The Supervisaire® Microprocessor Controls provide extremely user-friendly, programmable monitoring and control for all Moisture Recovery Systems. Using the Allen Bradley Micro Logix programmable controller individual units can be connected together on a built-in local area network together with a supervisory panel complete with a back lit graphics display. All sequences are factory programmed. The system includes a built-in 7-day time clock, expandable input/output and a built-in numerical display. System self-monitoring alarms include turbine wash pressure, water levels and UV light performance. Turbine wash sequence can be set for automatic timed or manually activated modes and includes an emergency abort.

Customer Service and Warranty

TTW Ltd Customer Service is second to none in the industry. TTW Ltd maintains computerized service files on every unit sold and a team of highly skilled and experienced technicians are standing by to serve our customers. TTW Ltd offers complimentary telephone assistance to owners and service contractors alike for units in and out of warranty. On-site assistance is also available - contact the Customer Service department for more information.

Every Moisture Recovery Unit is built with quality components under rigorous quality standards. In the unlikely event of problems every Moisture Recovery Unit comes standard with a 30-day parts and labor warranty (from initial start-up) and a one-year (from start-up) or 15-month (from date of shipment) parts warranty (whichever is earlier).

The information contained within this document and specifications is copywriter information.

[Moisture Recovery Unit]

Pure, De-Ionized Water for On-Line
Cleaning of Gas Turbine Blades



Breakthrough for On-Line Cleaning of Gas Turbine Blades

TTW International Ltd is pleased to introduce a new 'State-of-the-Art' product for onshore and offshore gas turbine blade on-line cleaning applications. TTW Ltd has developed a single platform concept, Moisture Recovery Units (MRU) where pure water is produced from humidity in the air to provide water of turbine blade cleaning quality that surpasses all other water filtration systems available on the market today. The water that is produced at the location eliminates the need for water transport. This on-line turbine blade-cleaning feature will provide for the highest level of operating efficiency available worldwide.



Moisture Recovery Unit for Cleaning Gas Turbine Blades and Drinking Water

TTW Ltd systems will provide increased turbine power output, reduce heat buildup and eliminate periodic shutdown & maintenance until annual or major equipment overhaul. Use of the MRU will increase pumping hours and increase revenue.

Unit is constructed for outdoor installation. Wall and roof panels are constructed of 16 ga. stainless steel. The entire unit is constructed for a corrosive environment. All sections are double wall construction, insulated 2" neoprene coated acoustic insulation and reinforced to provide structural integrity. The unit rests on a 5" structural channel base. All access doors include stainless steel hinges complete with a positive pressure 316L stainless steel latching mechanism. Door jambs contain a closed cell neoprene gasket along its entire perimeter. All particulate filters are ASHRAE rated by standard 52-76 test method, UL Class 2. Filters are shipped in their respective sections.

Air Purification: Prior to moisture extraction the humid air stream is purified using 5 stages of particulate and custom-engineered chemical gas-phase media to remove unwanted contaminants. Particulate filter efficiencies are up to 90% and the gas-phase media can be application or site specific.



OPTIMIZE

You Need On-Line Gas Turbine Cleaning

At initial start-up, turbines operate at 99% efficiency. The exhaust temperatures increase as a function of run-time and efficiencies drop to 96% or lower prior to putting the turbine off-line for cleaning. As operating efficiencies drop, pump compression drops causing lower overall plant performance.

Maintaining the turbine performance at peak efficiencies will provide the user added pumping ability as the capacity curve of the gas turbine is maintained at optimal conditions.

Efficiency Fact #1:

Eliminate Turbine Shut Down for Blade Cleaning

Automatic wash down cycles are done on a daily basis to provide on-line turbine blade cleaning to maintain absolute minimum impurity film growth on the turbine blades. This feature allows for lower discharge temperatures and at the same time keeps the turbine efficiency at the highest possible levels. The constant cleaning will maintain blade profiles such that off-line cleaning is handled only on an annual basis, if not longer.

Efficiency Fact #2:

Turbine Operating Efficiency Maintained Between 98.5% to 99%

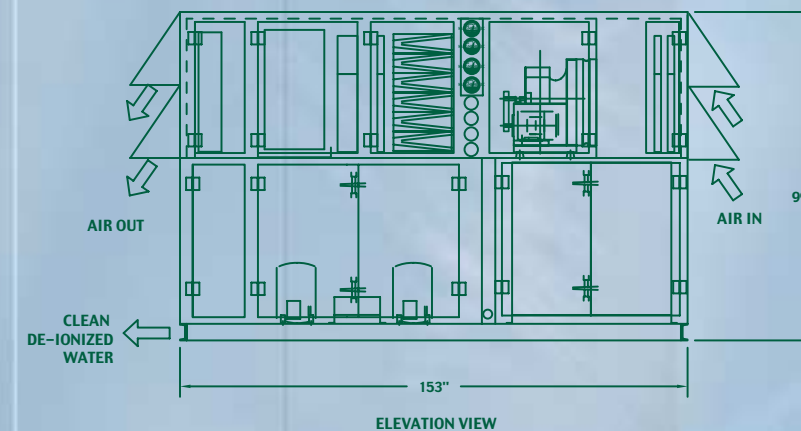
Fouling accounts for over 68% of lost efficiency in gas turbine engines. As run time increases, the turbines reduce in efficiency from 99% to 96%. Our online cleaning system will maintain turbine operating efficiencies at 99% as well as never require off-line cleaning until major equipment overhaul. This can only be accomplished because the "conductivity" level of the water produced by the MRU is 0.1 and lower. In addition, there is NO CHANCE of water contamination prior to its use in the blade cleaning procedure.

Efficiency Fact #3:

Product Generates Potable Water for Human Consumption

The Moisture Recovery Unit also has the ability to produce pure clean water for human consumption, such as drinking, cooking, ice machines, and coffee makers. Multi-stage air and water purification results in healthy water eliminating the need for bottled water. Also, safety concerns in transporting heavy bottles in the field are no longer an issue.

PERFORMANCE



Water Filtration: Water is filtered through particulate and activated carbon filters. Then water goes through two (2) UV sterilizing lamps in series. If one lamp fails, operation is re-directed to the second lamp and an alarm is triggered to replace the defective bulb. Preliminary water filtration is supplied with redundant circuits so as not to stop operations while cartridge filters are being replaced.

Water Tank: The water tank is a cylindrical vertical single wall construction in stainless steel. A removable top cover is provided for periodic cleaning. Tank total capacity is 226 US gallons of water. Water from the tank is constantly re-circulated through all filters to ensure optimum quality at all times.