



INSURE YOUR SYSTEM AGAINST EXPENSIVE REPAIRS AND LOST REVENUE

Turbine Inlet Heating Coils

Icing is a condition that can negatively affect the performance and damage a gas turbine. In cooler climates humid air may cause ice formations. If carried into the gas turbine intake, ice crystals could damage the turbines blades, leading to extensive downtime and costly repairs.

DRS Marlo Coil has supplied heating coils for gas turbine inlet applications for many years. They have worked closely with many of the system suppliers as well as the OEM's to create coils that meet the demands of these difficult environments, while providing the heat necessary to eliminate the risk of ice formation. DRS Marlo coils provide value through cost savings, system protection and optimum performance while minimizing air pressure drop penalties on the system.

Similarly to the cooling heat exchangers, the heating coils are manufactured to the strictest quality standards. Years of experience at DRS Marlo Coil have provided a coil design that is simplistic in its implementation without sacrificing key performance characteristics.



Whether you are choosing DRS Marlo Coil for your turbine inlet cooling or heating application DRS Marlo Coil has a world-wide reputation for performance, durability and innovative solutions.

Customers have enjoyed the benefits of DRS Marlo coils in their systems and have expressed praise and appreciation for the support that they have provided during all phases of the heating or cooling systems development.

DRS Marlo Coil would be pleased to assist you in the creation of a turbine inlet air management system. Contact DRS Marlo Coil to discuss your needs and begin the process of optimizing your system to improve power output of the turbine or eliminate icing conditions.

DRS MARLO COIL CAPABILITIES

- Material certifications
- Close tolerance fabrication
- Thermal lab
- CFD Analysis
- Thermal Analysis
- Finite Element Structural Analysis
- 3-D CAD Modeling
- Coil cleaning
- Advanced weld cleaning
- Non -destructive testing of weld joints
- Welding to ASME Section IX
- Brazing to ASME Section IX
- Certificate of conformance & certificate of test
- Nitrogen holding charge for shipment
- Certifications available: ASME Section VIII U stamp-PED , AHRI, CRN, ASME, ETL and CE

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IMPROVE TURBINE PERFORMANCE WITH QUALITY MARLO HEAT EXCHANGERS, THE MOST IMPORTANT PART OF YOUR INLET SYSTEM.



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Photo Courtesy of Donaldson Co., Inc

TURBINE INLET COOLING IS THE PROCESS OF CONDITIONING AMBIENT AIR PRIOR TO ENTERING THE TURBINE.

SINCE TURBINE OUTPUT DEGRADES WITH HIGHER INLET TEMPERATURES, USE OF A TURBINE INLET COOLING SYSTEM HELPS REDUCE OR ELIMINATE LOSS OF PERFORMANCE.

THE MARLO ADVANTAGE:
TURBINE INLET COOLING

- Design and test to given pressure requirements
- Various materials options
- Corrosion preventative coating
- Flexible duct mounting arrangement
- Integrated lifting provisions

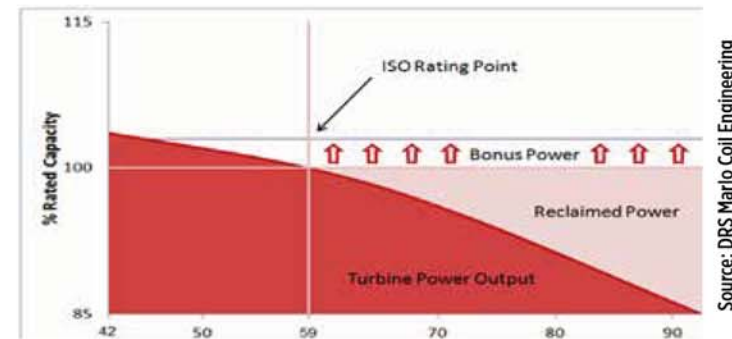
CONSISTENT POWER OUTPUT REGARDLESS OF THE AMBIENT TEMPERATURE

Since 1925, DRS Marlo Coil has manufactured high quality heat transfer, refrigeration, and air handling equipment for industrial, commercial, utility, and marine markets. Their custom engineered heat transfer solutions are used in a variety of configurations to cool, dehumidify and heat air for process and HVAC Systems.

ADVANTAGES OF MECHANICAL TURBINE INLET COOLING

Gas turbine mechanical cooling systems are used worldwide to improve power output. The power output of a gas turbine is inversely related to the inlet air temperature; as the inlet temperature increases the power output decreases. This characteristic creates less power thereby reducing output which in turn negatively affects the required performance. Turbine inlet cooling systems condition the incoming air to a lower temperature increasing air density and mass flow rate. The mechanical cooling process restores the performance of the turbine to its peak capacity regardless of the ambient temperature, humidity and availability of water.

Effects of Inlet Air Temperature on Gas Turbine Power Output



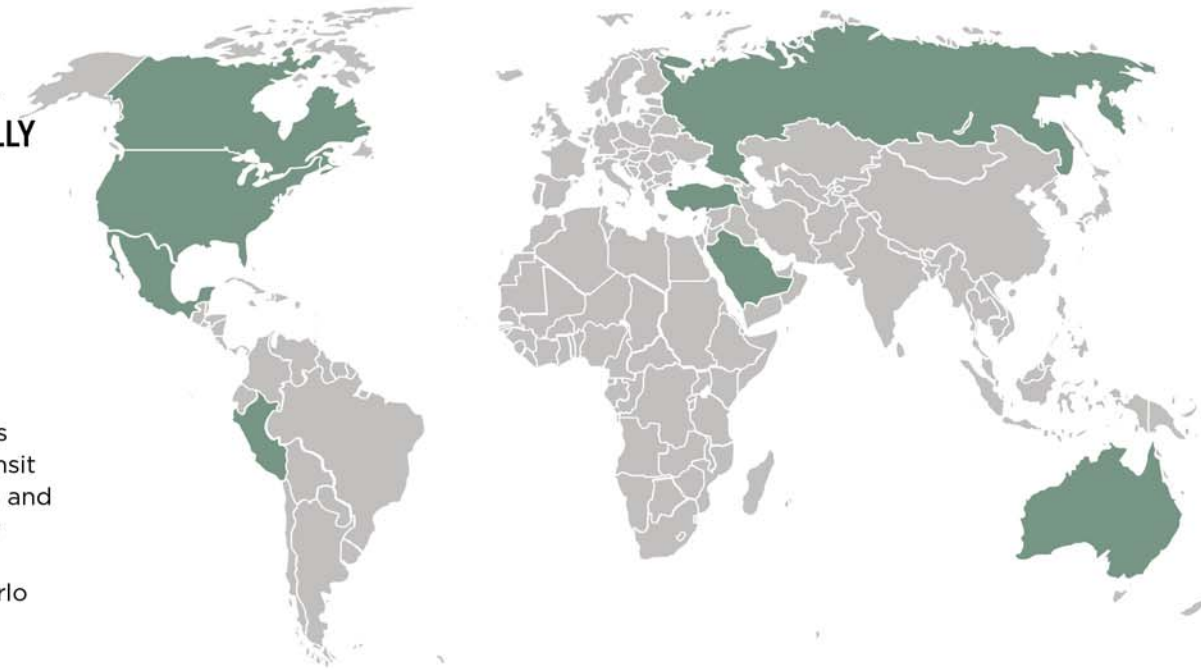
Source: DRS Marlo Coil Engineering

ECONOMIC BENEFITS

The extent of the benefits realized vary with location of the turbine due to differences in ambient air temperature from one climate to another. The implementation of mechanical turbine inlet cooling provides the following benefits to the plant owner for maximizing revenue opportunities: Recovery of power output lost due to high temperatures regardless of relative humidity Improvement in power generation achieved when inlet air conditions are below 59°F (ISO air rating) Recovered power negates the need for additional power generation support.

DRS MARLO COIL HAS SUCCESSFULLY COMPLETED PROJECTS WITH INSTALLATIONS AROUND THE WORLD.

Marlo's packaging is National Safety Transit Association (NSTA) and International Safety Transit Association (ISTA) certified, Marlo maintains a Quality Control program in accordance with ISO:9008



Marlo's turbine inlet coil experience

DRS Marlo Coil has been cooling the turbine inlet air for turbines ranging from 60MW to 500+MW. They have performed under very extreme conditions demonstrating a focus on durability and reliability.

While the majority of their experience with turbine inlet cooling projects pertains to the cooling coils themselves, they can supply either the turbine inlet coils or consult on a complete turbine inlet cooling system. In either case, DRS Marlo Coil works to provide a total value solution for their customers. Through their extensive resources they are able to assist in sizing equipment, ensuring that cooling needs are met and the air pressure drop across the coils is minimized.

Marlo is synonymous with quality

DRS Marlo coils are manufactured from the highest quality materials and demanding manufacturing specifications.

DRS Marlo coils are engineered using the latest analytical technologies for the application thereby ensuring accurate and predictable performance.

DRS Marlo coils are built in accordance with AHRI 410 which assures a consistency of performance.

DRS Marlo Coil has an experienced field service department which is available for installation, start-up and on-going support to ensure long term customer satisfaction.

The Marlo program management team is another valuable asset, providing project oversight assuring objectives are met and the coils are delivered on time.



FOR MAXIMUM PERFORMANCE AND DURABILITY, CRITICAL APPLICATIONS DEMAND MARLO COOLING PRODUCTS.