

CASE STUDY

PRODUCT: COLMAC COIL RBR INDUSTRIAL EVAPORATOR COIL
APPLICATION: GAS TURBINE INLET AIR COOLING W/DIRECT AMMONIA REFRIGERATION
(QTY) X MODEL: (24) X RBR-65.25x258-8R-5F-WR

DESCRIPTION:

Combustion turbines are widely used as prime movers in the power generation industry because of their relatively clean combustion characteristics, acceptable thermal cycle efficiencies, and cost effectiveness. The power output of a combustion turbine can be significantly increased on a high ambient temperature day by cooling the air to increase its density. One method used to cool the inlet combustion air is with direct refrigeration and cooling coils. Bringing the air temperature down to 45-50F using refrigerated cooling coils on a hot summer day can increase the output of the turbine by as much as 15-20%.

Colmac Coil was contacted by a large industrial refrigeration contractor to provide turbine inlet air cooling coils for (2) x General Electric 7FA combustion turbines. Each GE 7FA turbine produces approx. 160 MW of electrical power. The cooling system uses re-circulated ammonia supplied to a large bank of Colmac Coil RBR evaporator coils integrated into each turbine filter house. Because of the liabilities associated with even a small ammonia leak, the customer specified evaporator coils constructed with stainless steel tubes designed to ASME Pressure Vessel Code requirements bearing the ASME 'U' stamp. Colmac Coil engineers developed the design using stainless steel tubes and ASME construction to minimize any risk of leaks, and aluminum fins for light weight and high heat transfer performance.

Each turbine required (12) cooling coils with a combined cooling capacity of approx. 4,000 Tons at design conditions. Colmac Coil sales and engineering staff worked closely with the contractor, turbine OEM, and owner, to fabricate the coils to specifications and meet tight delivery requirements.

"The Heat Transfer Experts"

