AIRCOOLED AFTERCOOLERS

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GENERAL INFORMATION

THE NEED FOR AFTERCOOLING

Hot compressed air leaving a compressor contains large quantities of water in the form of vapor. A typical example would be 1000 SCFM compressor working at 100 PSIG, which would transmit to the downstream pipeline more than 18 gallons of water during a normal working day. By using an efficient aftercooler and matching separator, over 12 gallons per day can be extracted before it passes into the system, greatly reducing condensation and maintenance problems. The capital cost of an aftercooler is very easily recovered by the savings in equipment downtime and the ensuing maintenance cost. An aftercooler is essential if a refrigeration or dessicant dryer is installed.

Aircooled aftercoolers may be used on aircooled or watercooled compressors. Although slightly higher in cost than watercooled aftercoolers, major savings are as follows:

1. No water or sewage changes.
2. No water treatment or descaling.
3. Waste heat recovery available during heating season.

CONSTRUCTION

Aircooled aftercoolers are constructed from aluminum cores and galvanized steel enclosures, over which atmospheric ambient air is blown by an axial fan. The compressed air flows in a multiple pass through the tubes to provide maximum cooling, combined with minimum fan motor horsepower.

Fan motors are UL listed and fan guards conform to OSHA standards. Aircooled aftercoolers are divided into two construction ranges. AC1-AC8 is the horizontal cooling flow; the AC9-AC12 is the vertical flow.

Low noise fans are driven by external mounted NEMA motors.

SEPARATOR

We recommend each aircooled aftercooler be installed with a moisture separator.

The condensed water droplets from the aftercooler are carried into the separator by the velocity of compressed air. The mixture of air and condensed water droplets is forced to pass through directional impellers which spins the mixture around the separator body. The droplets of water are forced to the wall of the separator by centrifugal force.

Maximum velocity is reached near the bottom of the separator where a Vortex is formed. The water droplets coagulate and drain into the bottom of the separator while the air passes up the Vortex and exits the separator.

DRAIN TRAP

The condensate falls into the bottom of the separator where it accumulates in the sump. It is then removed from the separator by a mechanical or electrical automatic condensate trap (See 11159.01).