WATERCOOLED AFTERCOOLERS

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Davidson, NC 28036

WATERCOOLED AFTERCOOLERS
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 each day. By using an efficient aftercooler and matching separator, over 11.3 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 easily recovered by the savings in equipment downtime and the ensuing maintenance cost. **An aftercooler is essential if a refrigeration or dessicant dryer is to be installed.**

GENERAL CONSTRUCTION

Watercooled aftercoolers are of the shell and tube design with compressed air passing through the tubes and water flowing in the opposite direction through the shell. The design of heat exchanger tubes has made it possible to manufacture extremely reliable aftercoolers with a high heat exchange capacity and low water consumption. Both fixed tube bundles, and removable bundles are available.

MATERIAL OF CONSTRUCTION

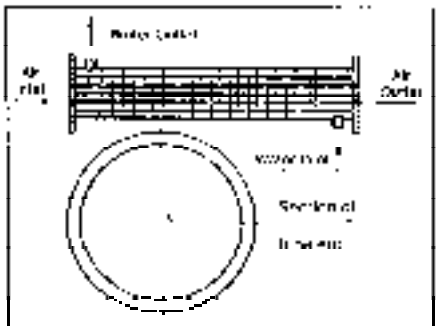
Standard materials of construction are copper tubes for ALL WCFB, WCFBCA, and RBWC coolers and admiralty tubes for all PLWC coolers.
Tubesheets:
Carbon steel for all models (see Ref: 11714.01 for material details).
Shell:
Carbon steel (see Ref: 11714.01 for material details).
Baffles: steel.

ENGINEERING & MANUFACTURING
Design

The following units are built to ASME and are U Stamped

WCFB6 - WCFB10 - ASME-UI
WCFB6CA - WCFB10CA - ASME-UI
RBWC1 - RBWC9 - ASME-U1
PLWC 1 - PLWC9 - ASME-U1

The following units are built per commercial standard requirements and are NOT code stamped.



WCFB1 - WCFB5 - Comm Standard
WCFB1CA - WCFB5CA - Comm Standard

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 an electrical automatic drain valve (See 11159