

# FinTech<sup>SM</sup> ACC

## Conco Systems

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## Conco FinTech ACC™ AIR-COOLED CONDENSER CLEANING

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Conco FinTech ACC™ can restore heat transfer efficiency to like-new condition in fin-fan heat exchangers and air-cooled condensers. The System achieves higher heat transfer efficiency levels by thoroughly and completely cleaning all fin rows on air-cooled heat exchanger tubes. Using a bank of water jet nozzles, FinTech ACC™ delivers 60 GPM of water at 1000 to 1200 PSI in a controlled, systematic fashion. The System cleans all rows of tubes completely and without bending or otherwise damaging tube fins.

No scaffolding is needed during the cleaning operation and in some cases, cleaning can be conducted while the plant is operating.

Cleaning with Conco FinTech ACC™ can result in significant heat transfer efficiency gains. For example, after cleaning the fins on a power plant air-cooled condenser, megawatt output of the plant increases by 20%! In another example, the pressure drop across the condenser decreased by 50% after a Conco FinTech ACC™ cleaning. The obvious benefits of a Conco FinTech ACC™ cleaning are dramatic increases in production output and significantly reduced operating cost.



Conco FinTech™ Cleaning System cleans  
at 325 square feet per hour

The Conco FinTech ACC™ System uses a low-pressure water jetting design. The key to the effectiveness of Conco FinTech ACC™ is the track mounted nozzle assembly that delivers a water spray at optimum angles for the tube geometry, ensuring all tube rows are cleaned.

The System cleans carefully and completely because:

- The angle of the water jet spray relative to the fins is optimized and constant
- The stand-off distance between the water jet nozzles and the fins is constant
- The speed that the nozzle head travels across the condenser is constant

The System cleans with water only – no additives or detergents are used. Control of the system is done by a single operator located a safe distance from the cleaning operations. Since there are no personnel above the condenser during cleaning, the system can be used in hot, humid conditions that challenge manual methods.

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Since its introduction in the mid 1990's, Conco FinTech ACC™ has been successfully used on fins fouled with dust, dirt, debris, pollen, leaves, insects, and even bird and bat carcasses. The System has been used in over 50 power plants, petrochemical plants and process industry plants in the US, the UK, Germany, the Netherlands, Mexico and the Middle East. Recently, Conco FinTech ACC™ was used at BASF, Shell and Bayer as well as numerous other plants.

The System is designed to accommodate any fin-fan condenser exchanger. The frame and tracks are readily adjusted for virtually all sizes and configurations of fin fan exchangers including flat coolers, vertical coolers, "A" frame and "V" frame configurations. The System can be used on all materials, including steel, aluminum, brass and copper.

The nozzle assembly moves over the fins at a constant speed and at a fixed height above the fins. The nozzle assembly is driven by a mother and belt arrangement. The motor drives the nozzles at optimum speed, cleaning 325 square feet per hour. System controls are simple and straightforward – start, stop and emergency stop switches clearly marked and easily accessed by the operator.

### Conco FinTech ACC™ Cleaning System Bottom-line Benefits

- More effective than hand water lance, foam wash or fire hose – thoroughly and completely cleans all rows
- More efficient than manual methods – faster production rates, no wait time for heat exchanger cooling
- Cleaning can occur more frequently – keeping heat transfer efficiencies high, and fan pressure low
- Safer than manual methods – no personnel exposed to hot, humid conditions and no personnel on scaffolds during operations.



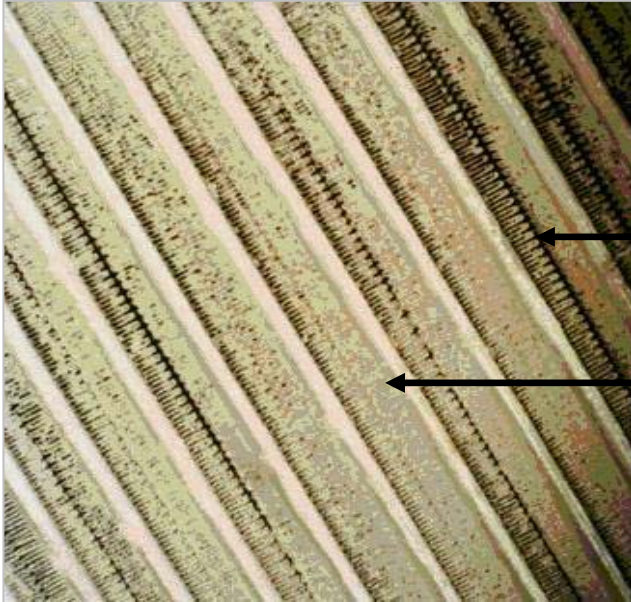
System nozzle head cleaning fins in a controlled, automated fashion



Water is jetting out of the bottom side of a finned ACC during cleaning because nozzles have an optimum angle to ensure spray all the way through the tube rows

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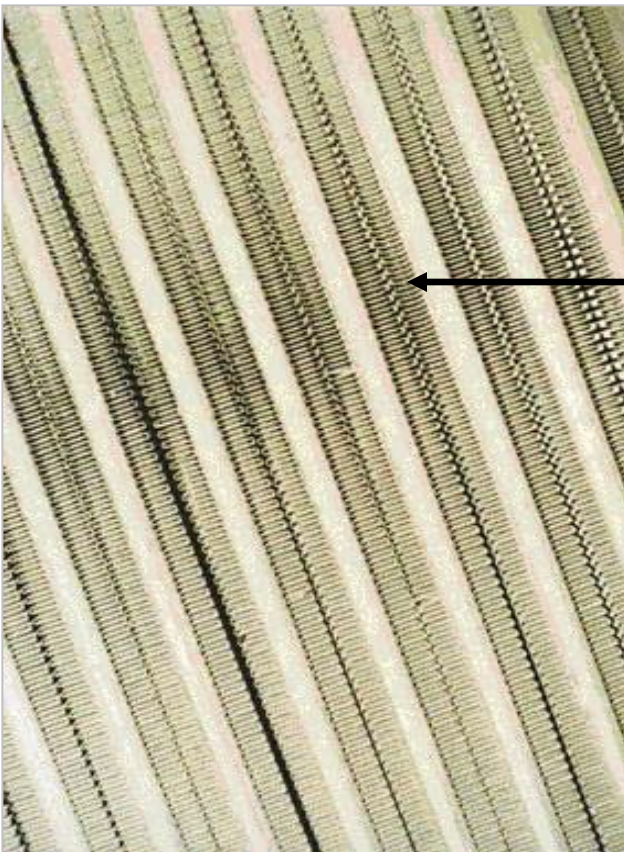


### Before Cleaning

Tube fins are severely fouled with dust, pollen and fine particles

Some fins are partially fouled with dust and pollen

However, the vast majority of tube fins are 100% fouled



### After Cleaning

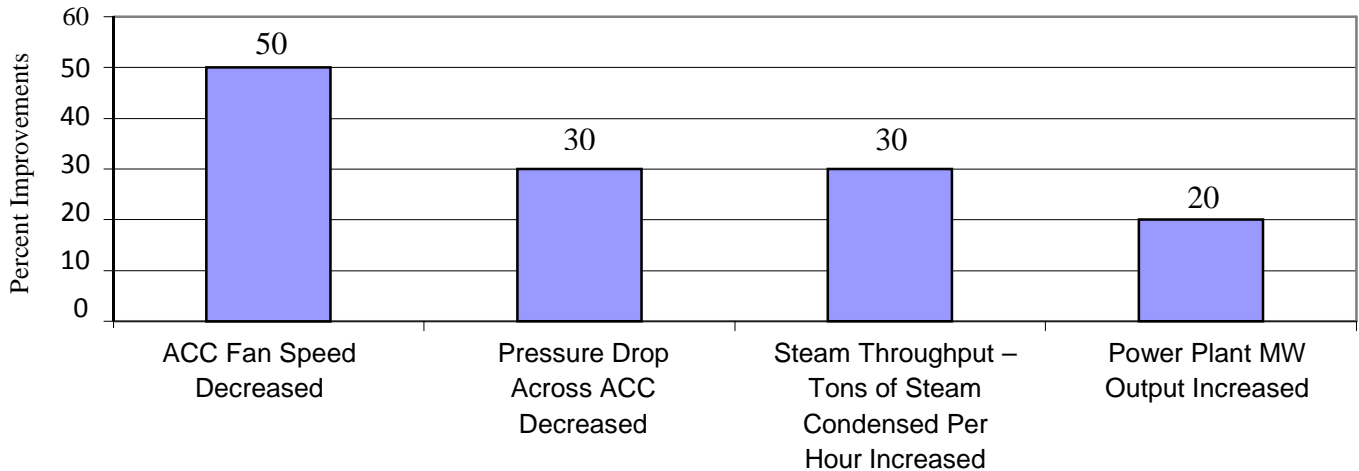
Dust and debris are thoroughly removed, leaving tubes completely clean and undamaged.

Fins are completely restored to like-new condition

## Conco FinTech ACC™ AIR-COOLED CONDENSER CLEANING

Data compiled from Conco FinTech ACC™ cleaning jobs has shown significant improvement in heat exchanger performance:

- Fan speed decreased 50%
- Fan speed decreased 50%
- Plant steam throughput increased 30%
- Power plant output 20%, from 15 to 18 Megawatts



These improvements have led to increased output and lower production cost at plants that routinely use the Conco FinTech ACC™ Cleaning System.



These Air-Cooled Condensers at this 700MW power plant are routinely cleaned with the Conco FinTech™ Cleaning System.

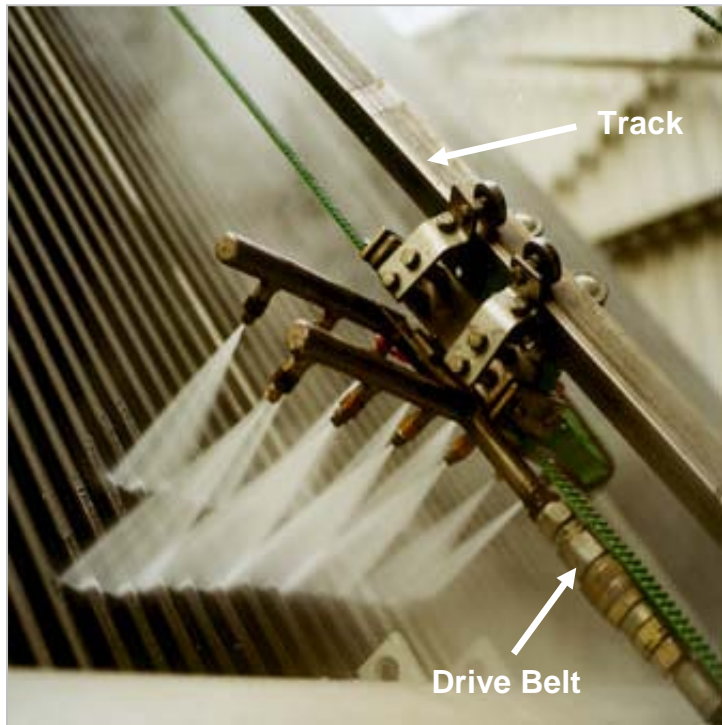
# Conco FinTech ACC™ AIR-COOLED CONDENSER CLEANING

## Design Description

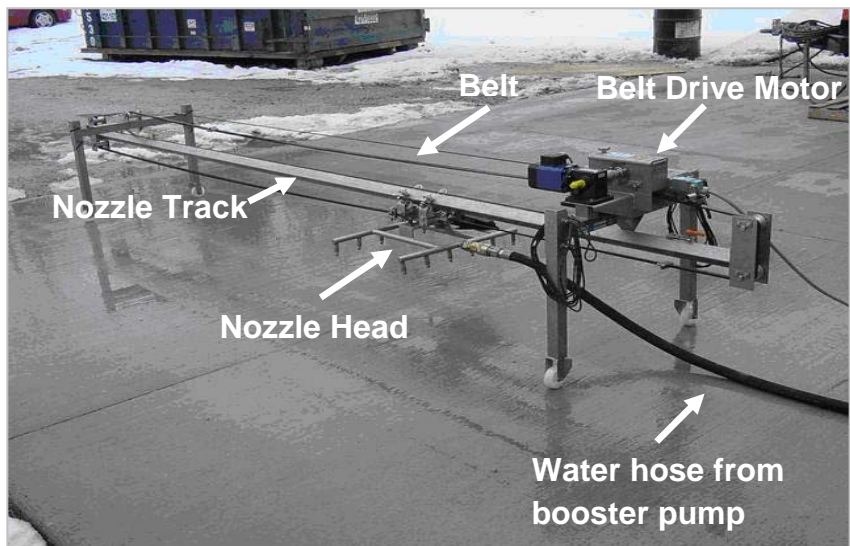
The heart of the Conco FinTech ACC™ System is the nozzle head. The nozzle head has 12 water jet nozzles that deliver a total of 60 gallons per minute of water at 1,000 to 1,200 PSI. The nozzles have a fixed angle of 0, 3 or 17.5 degrees depending on heat exchanger manufacturer. The nozzle angle is chosen to ensure optimum cleaning performance for the heat exchanger make.

The nozzle head is attached to a track and driven by a belt drive system. A belt is attached to the nozzle head and driven by a pneumatic motor. The nozzle head

traverses the heat exchanger along the track. The entire system is supported by a frame that rests on heat exchanger structural members. During operation, the System cleans 325 square feet per minute. The system components are supported by a lightweight, stainless steel tubular frame that straddles the heat exchanger. Utilities needed to operate the system are water supply at 60 GPM, 120 and 440 VAC.



Conco FinTech ACC™ Air-Cooled Condenser Cleaning System is composed of relatively few components that are easily set-up.



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## Operating Procedure

Prior to operation, an equipment checkout is performed that consists of pump pressure settings, hose and fitting connection verification, control connection verification and a dry run functional operation verification.

Conco FinTech ACC™ is controlled at a control stand that is located a safe distance from the cleaning operations. The stand supports a control box where a technician operates the system. System controls are simple and straightforward.

Operations begin by pressing the pump “on” button on the control panel “up” or “down” button is pressed (depending on initial position of nozzle). The nozzle head automatically travels one round trip and automatically stops at the initial position. The operator then moves the track assembly over to the adjacent, unclean area of the exchanger. The button is pressed again and the nozzle head makes another round trip.



## Maintenance Requirements

The Conco FinTech ACC™ Air-Cooled Condenser Cleaning System assembly requires very little routine maintenance. Pre-job routine maintenance is simply inspection followed by minor adjustments and nozzle replacement. Any worn or damaged parts are replaced as necessary to ensure optimal reliability on-site.

