

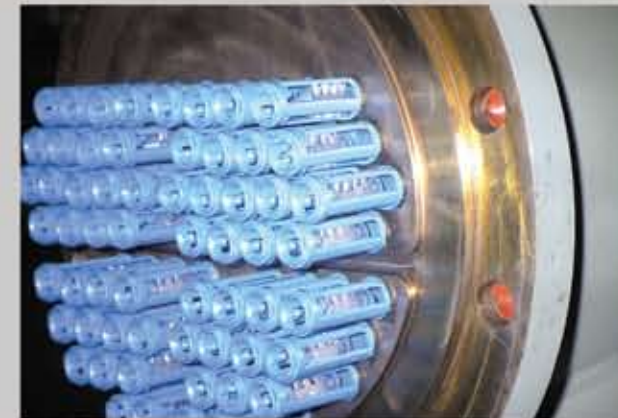
# A Permanent Solution to Tube Fouling

# Energy Savings Made Simple

## On-line Cleaning

The Automatic Tube Brushing (ATB) System by Water Technology cleans chiller condensers and other shell and tube heat exchangers automatically without shutting down the equipment. This permanently installed system virtually eliminates tube fouling by removing debris from tube surfaces many times each day.

The ATB System Turbo-brushes spin through internally enhanced tubes, cleaning the tube walls many times each day.



ATB System brushes and baskets, the key to a strong system payback, installed in a condenser tube sheet.

## The ATB System Benefits Include:

**Energy Savings** - Lower fouling factors provide more efficient heat transfer. Electrical energy consumption is reduced by 10 to 30 percent when average fouling is eliminated. The ATB System is guaranteed to provide a 0.0001 fouling factor or better.

**Maintenance Savings** - Because the ATB System cleans condenser tubes each day, the need to manually clean tubes is eliminated. Labor and material costs for maintenance are greatly reduced.

**Reduction of Downtime** - The ATB System eliminates the need to shut down heat transfer equipment throughout the year. In process industries unscheduled downtime to manually clean tubes costs even more than the energy loss created by tube fouling.

**Reduction of Chemicals** - Because the ATB System keeps precipitates from forming on tube walls, periodic acid cleaning is eliminated and normal chemical treatment can often be reduced.



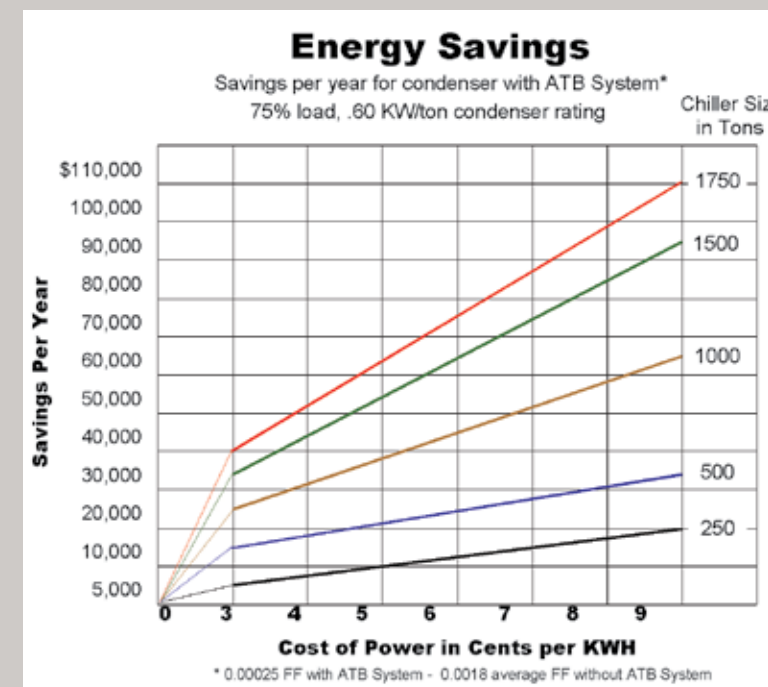
The ATB System 4-way valve reverses the condenser water flow for about 30 seconds every 6 hours.

## How it Works

The four-way valve automatically reverses water flow in the condenser for about thirty seconds, once every six hours. The valve fits into the condenser supply and return piping and is custom manufactured to suit any piping configuration.

Nylon-bristled brushes are propelled through the tubes with the reversed water flow. Working in conjunction with good chemical treatment, the brushes clean the tube walls to eliminate scale formation and fouling. Each brush is designed to have a 0.025-inch interference fit in the tube wall.

Open-ended low-pressure drop catch baskets are installed in the tube ends at the tube sheet to capture the brushes in the condenser heads. Removable end-clips allow for eddy-current testing and brush replacement, which is normally recommended every four to five years.



# Keeping it Simple

## Eliminate Manual Cleaning

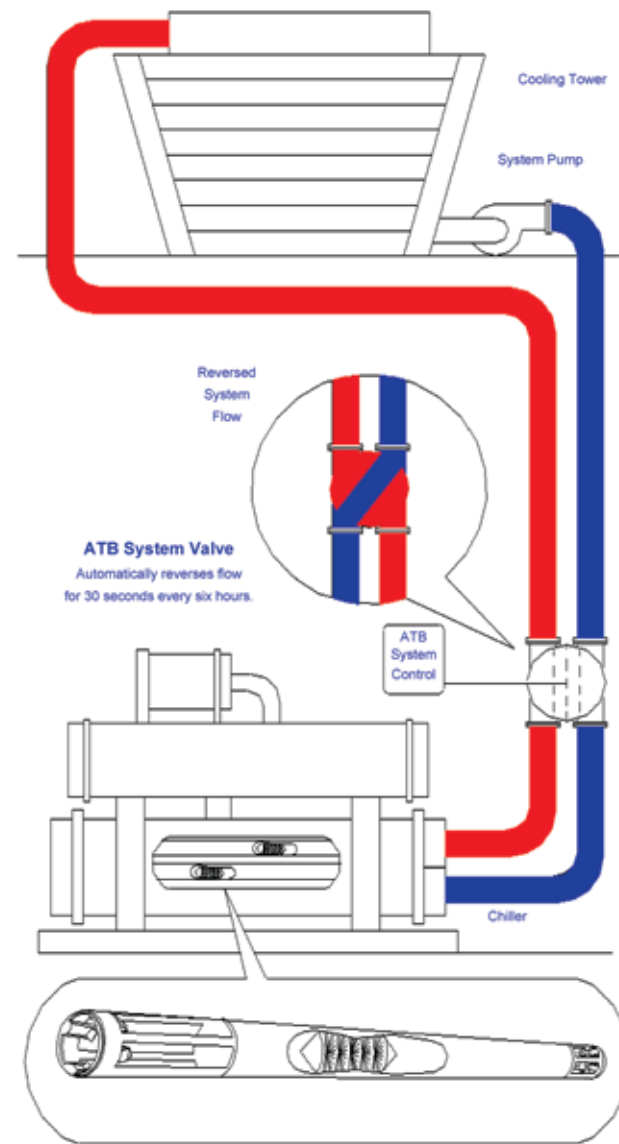
Although it was the best solution in the past, manually cleaning tubes once or twice a year cannot fight the slime or scale that starts forming immediately after a condenser or other heat exchanger has been brought on-line. New technology, along with rising energy, labor and equipment down-time costs, makes automated cleaning the best solution.

## Proven Method

The Water Technology ATB System uses the proven method of cleaning with brushes and automates the process to make it continuous!

## Proven Technology

The ATB System consists of one valve and actuator to reverse the water flow, captive brushes to clean each tube and a control panel to ensure cleaning is accomplished several times every day.



ATB System Brushes with 0.025" interference fit shuttle through the condenser tubes during the valve reversal.

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# AUTOMATIC TUBE BRUSHING SYSTEM

FOR CHILLER CONDENSERS AND OTHER HEAT EXCHANGERS

