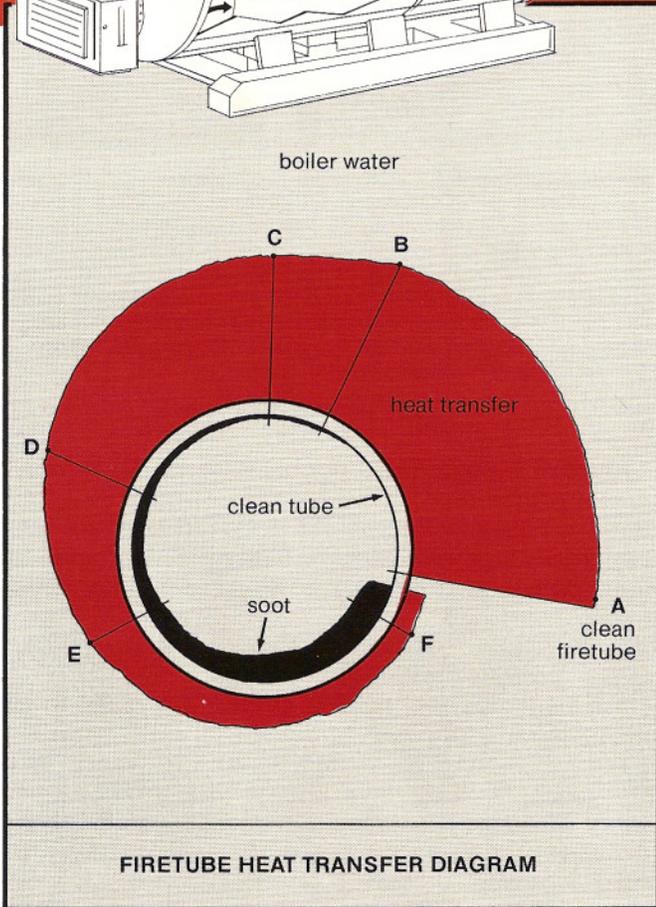
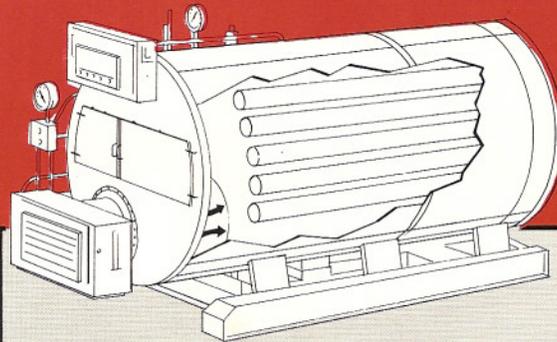


CLEAN BOILERS



SAVE FUEL!



Cut fuel consumption 6 to 20% with the Fuel Efficiency/B.E.T. Automatic Tube Cleaner for firetube boilers

SOOT WASTES FUEL!

Soot has *five times* the insulating value of asbestos. Allowing it to accumulate in boiler firetubes wastes fuel—a 3/16" accumulation in the firetubes will waste more than 20% of the boilers' fuel. A tube surface with a 1/8" deposit of soot will transfer only a little over half the heat of a clean surface. So, if you want your boilers to deliver more heat per dollar of fuel, don't let soot accumulate.

FUEL LOSS DUE TO SOOT

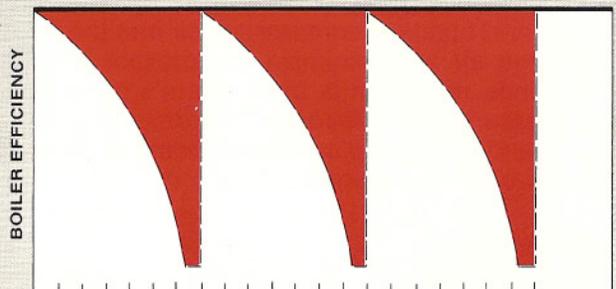
Thickness of soot in firetubes	Loss of efficiency in firetubes	Average fuel loss
A 0"	0.0%	0.0%
B 1/32	9.5	2.9
C 1/16	26.2	7.8
D 3/32	35.7	10.7
E 1/8	45.3	13.6
F 3/16	69.0	20.7

SAVES FUEL. Maintains peak boiler efficiency 24 hours per day, 365 days per year.

Cleaning tubes by hand is a dirty, inefficient job. Once-a-week cleaning is grossly inadequate. Manual cleaning 3 to 4 times a day is costly in terms of labor and still doesn't provide maximum fuel economy. Because of high fuel costs, high labor costs, and the fact that baked-on soot will eventually cause boiler tube failures, the Fuel Efficiency/B.E.T. Automatic Tube Cleaner is an absolute necessity. Its savings pay for the installation in a short time.

With the Fuel Efficiency/B.E.T. Automatic Tube Cleaner, boiler efficiency stays at peak level saving high-cost fuel. Users report fuel savings of 6 to 20% because firetubes are always clean.

BOILER EFFICIENCY—MANUAL VS AUTOMATIC CLEANING



——— Boiler efficiency with Fuel Efficiency/B.E.T. Automatic Tube Cleaner
 - - - - - Boiler efficiency with periodic manual cleaning of firetubes
 ■■■ Area representing improved boiler efficiency and fuel savings with Fuel Efficiency/B.E.T. Automatic Tube Cleaner

SAVES LABOR... cleans better than manual methods.

Cleaning a boiler manually is a dirty, time consuming job—one that's often put off or done haphazardly. And manual cleaning is costly because its often scheduled "after hours" or on week-ends at overtime rates. The Fuel Efficiency/B.E.T. Tube Cleaner eliminates all these problems. It has fully automatic controls to provide regular, timed cleaning. With it the job is never put off, forgotten, or done haphazardly. It is foolproof and positive. It requires no attendant or supervision. It removes both soot and ash accumulations and cleans every boiler tube at least once during each hour of burner operation. With Fuel Efficiency/B.E.T. Tube Cleaners boilers run near peak efficiency at all times—actual improvement in boiler efficiency, compared to manual cleaning, typically runs 8 to 12%, and stack gas temperatures, the measure of wasted heat, typically fall 75° to 125°F. after installing these tube cleaners.

Engineered and built for your boiler type and model

The Fuel Efficiency/B.E.T. Tube Cleaner cuts fuel and labor costs in *all* types of firetube boilers: 2-, 3-, and 4-pass; heavy oil, coal or wood-fired; boilers with forced, induced or natural draft. The tube cleaner utilizes an automatic electric timer that's tied into the burner solenoid so that blowing never takes place when the burner is off. Tubes are blown against the draft with the burner firing. This causes the soot to be burned in suspension. Only one fourth or less of the tubes are blown at a time, but every tube is blown at least once per hour of burner operation.

Pays for itself in fuel and labor savings

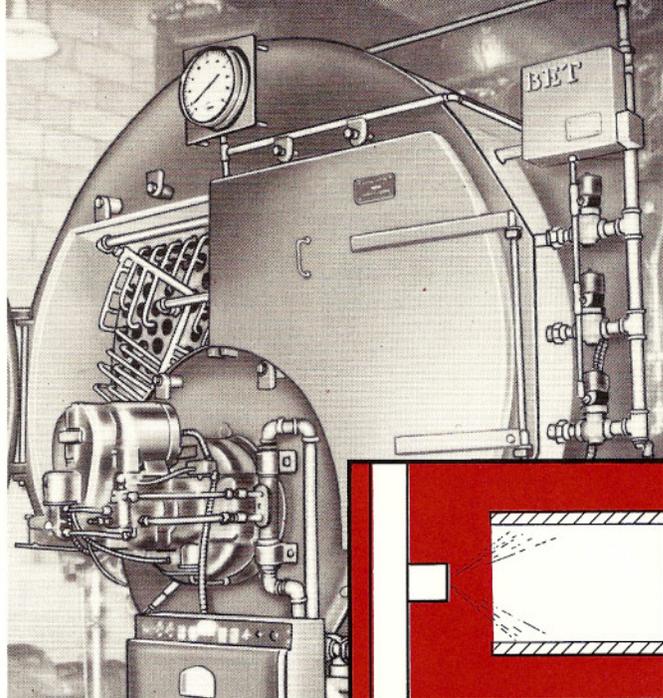
To manually clean a boiler as thoroughly and as frequently as the Fuel Efficiency/B.E.T. Automatic Tube Cleaner would cost \$18,000.00 to \$30,000.00 per year in labor. But even if you're cleaning less frequently and spending \$5000.00 or less per year to keep your boilers clean you can add these savings to the 6 to 20% you'll save in fuel resulting from increased boiler efficiency. And there's no down-time or lost production for cleaning.

Low-cost operation

Because the tube cleaner is tied into the burner controls, it cleans according to demand—cleaning most when the need is greatest. Scientifically calculated jets puff short bursts of compressed air into the tubes to conserve air and minimize compressor requirements. Since no steam is used, there's no drop in steam pressure while cleaning. The absence of moving parts and all-welded construction make the tube cleaner virtually maintenance-free.

Cuts air pollution

The Fuel Efficiency/B.E.T. Tube Cleaner helps control stack emissions. Instead of discharging the soot up the stack, the soot is blown back into the firebox where it's reburned.



The Fuel Efficiency/B.E.T. Automatic Tube Cleaner uses timed puffs of compressed air to clean boiler firetubes. (See inset drawing) Tubes are blown against the draft, when the burner is in operation, so that the soot is burned in suspension and not discharged up the stack. Only one fourth or less of the tubes are cleaned at a time, but every tube is cleaned at least once per hour of burner operation. This also minimizes the compressed air requirement. Because the automatic controls are tied into the burner controls, the cleaning closely parallels boiler demand.

Simplified installation... no lost time, no discomfort, no lost production

Because Fuel Efficiency/B.E.T. Tube Cleaners are built specifically for the boilers in which they'll be installed. Boiler downtime during installation is usually no more than 1/2 to 1 day.

Safe... prolongs boiler life

These tube cleaners have proven themselves to be safe to use and efficient in cutting fuel and labor costs in tens of thousands of installations for more than fifty years. Studies have shown that firetubes last longer when they're kept clean because it's the sulfur and vanadium in soot that's a chief cause of pitting and corrosion.

More output from boilers

For those who must get more heat from their present boilers (either for process heat or to simply heat more square feet of building) the Fuel Efficiency/B.E.T. Tube Cleaner offers a practical solution. By keeping firetubes clean automatically, users report they are able to increase boiler output by 6 to 20% with no additional increase in fuel consumption. Thus, they avoid additional capital expense for more boiler horsepower.

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