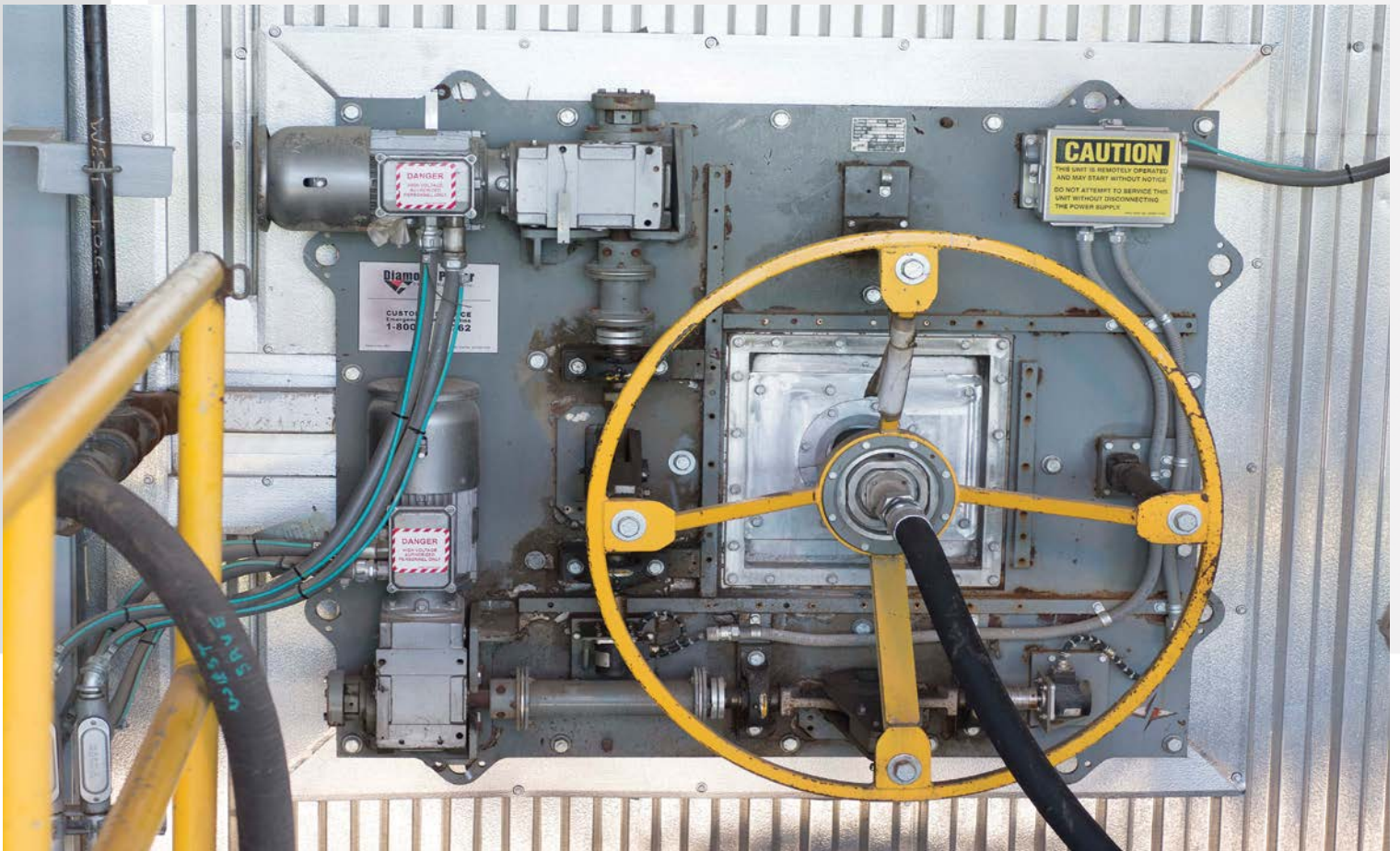


Diamond Power® HydroJet®

Furnace water cleaning system



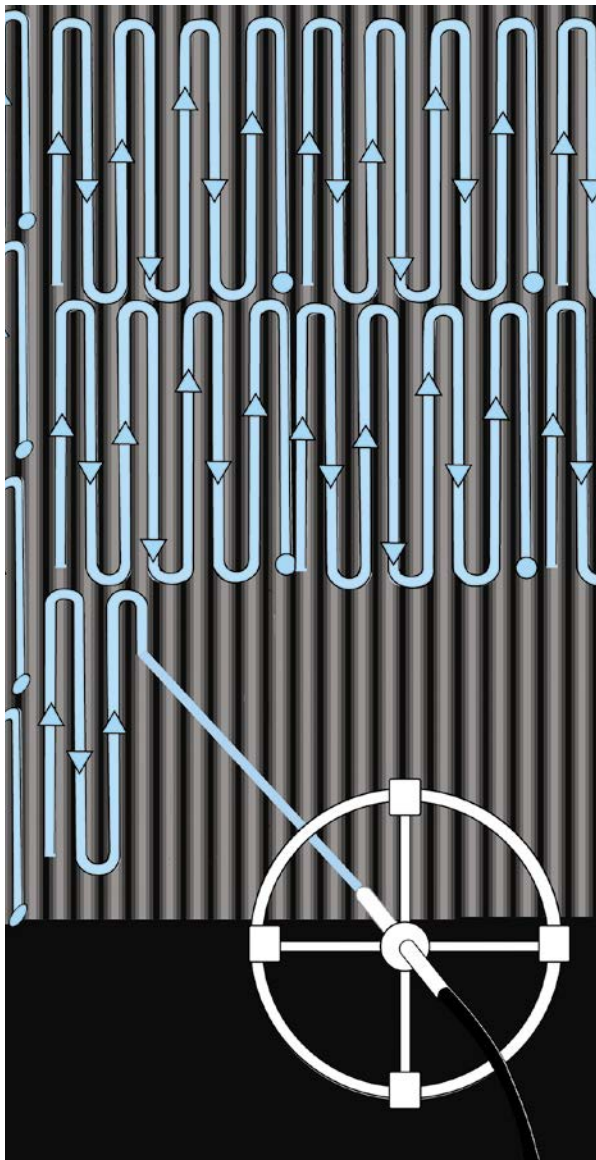
B&W

ENERGY | ENVIRONMENTAL

Diamond Power® HydroJet® Furnace Cleaning System

The Diamond Power® HydroJet® furnace water cleaning system, provided by Babcock & Wilcox (B&W), is a rugged and reliable tool to clean any furnace surface within its line of sight from a mounting location up to 100 ft (30.5 m) away.

Applications include division, furnace and wing walls. The HydroJet furnace cleaning system is capable of accurately cleaning the entire width of the furnace. It controls thermal impact while cleaning previously hard-to-reach services inside many utility boilers. Compared to previous water cleaning systems, the HydroJet furnace cleaning system is more accurate and uses significantly less water.



Cleaning pattern of the HydroJet system

Accurate

To minimize disruptions to boiler operation, boiler side walls and division walls are divided into targeted cleaning zones. The HydroJet furnace cleaning system's advanced control interface allows the operator to assess slag build-up and clean only selected zones, or all zones through an automatic sequence which maintains the desired overall furnace heat transfer while still properly protecting the furnace walls. Sequences are customized for each boiler to minimize water wall circulation upsets and furnace pressure excursions, while avoiding overlap of successive cleaning passes, splashing or draining onto unintended surfaces. The water nozzle control system incorporates open-loop vector drives for rapid response.

Rugged and reliable

Incredibly durable, the HydroJet furnace cleaning system is designed to withstand the most severe conditions. All components, lubricants and seals are selected for the extremes of a typical boiler environment and will withstand periodic wash downs. The universal joint, which is exposed to radiant heat from the furnace, is constructed of two advanced high temperature alloys that are highly resistant to thermal shock and corrosion and have high galling resistance. The system's hardware sits conveniently outside the boiler avoiding extreme temperatures, which increases reliability and reduces maintenance costs.



Flexible

In addition to its adaptable cleaning areas (up to 20 different programmable patterns per HydroJet device), it moves at a $\pm 45^\circ$ angle, in both the horizontal and vertical directions. At the same time, each discrete cleaning zone is automatically self-tuned for the optimum jet progression velocity and water flow rate that can control the thermal shock to achieve long furnace tube life. Nozzles are designed to reach targeted cleaning services with water jet coherence while minimizing impact on furnace pressure and heat rate. The HydroJet furnace cleaning system can reduce the heat rate impact of spraying water into the furnace.

Convenient

The controls (PLC and associated electrical hardware) may be located in a convenient, climate controlled area up to 1000 cable ft (305 m) from the HydroJet cleaning device(s). Our latest design uses local variable frequency drives at each HydroJet device to improve reliability and to reduce interconnecting wiring expenses. The system also includes a local touch-screen interface which can be plugged in at any HydroJet device for simple calibration and manual operation. The HydroJet furnace cleaning system is also designed for installation in tight spaces, requiring only 4 ft [1.2 m] of clear space outboard of the boiler wall, which allows room for the water supply hose.

Improved technology that works

The Diamond Power HydroJet furnace water cleaning system provides boiler operators with accurate pattern control, nozzles which deliver a coherent water jet to the wall over long distances, unmatched mechanical reliability, and cleaning flexibility. Our customers are supported by our team of performance engineers and their many years of ensuring successful furnace water cleaning projects. The long-standing Tube Life Database program is also provided at no additional cost to ensure that thermal impact on boiler tube life is monitored while achieving optimum cleaning results.

Features and Benefits

■ **The HydroJet system design is the most rugged of its type. The components exposed to the radiant heat of the furnace are made of advanced alloys more resistant to heat and thermal shock than normal stainless steels. The motors are heavy-duty ¾ hp.**

Benefits:

- Minimal spare parts usage
- Excellent long-term reliability
- No need for a spare HydroJet cleaning device on-site or for an exchange program

■ **A special nozzle design and high pressure water supply station provide a complete system with a consistent, high velocity water jet.**

Benefits:

- Effective delivery of the water to the tube wall even on large boilers
- Effective cleaning of tenacious deposits
- No damaging interlace patterns required
- Accurate and precise water jet is not misdirected to undesired locations where it may cause damage

■ **The HydroJet cleaning system's controls are fully integrated to B&W's intelligent sootblowing system.**

Benefits:

- Operators access one location for all furnace cleaning functions
- Cleans the furnace as part of an overall intelligent boiler cleaning/performance strategy
- Patented furnace intelligent sootblowing approach provides long tube life



The Diamond Power HydroJet water cleaning system with associated valves and plumbing assembly features a compact design for easy access.

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Babcock & Wilcox supplies Diamond Power boiler cleaning and Allen-Sherman-Hoff ash handling equipment and systems.



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