# Diamond Power® Boiler Cleaning Systems







Seven out of ten utility power plants feature Diamond Power® sootblowers.



Owners and operators worldwide rely on the Diamond Power® line of boiler cleaning technologies. In fact, seven out of ten utility power plants feature Diamond Power® sootblowers.

We lead the industry in providing advanced sootblower and intelligent control designs. Our extensive experience gives us a unique perspective on the optimal, most efficient and cost-effective way to clean boilers that burn a variety of fuels, in any operating condition.

Using steam, compressed air or water, Diamond Power® boiler cleaning systems are trusted to remove deposits, prevent boiler pluggage, and maintain boiler efficiency. For more than 120 years, our specialized designs and configurations have met customer needs for precision, reliability and efficiency.

Additionally, we fully support your aftermarket requirements and provide services such as equipment upgrades and rebuilds, quality replacement parts and field engineering services. Our wide range of monitoring tools and intelligent control systems can help you operate your equipment more effectively and efficiently.

# Diamond Power® Boiler Cleaning Systems

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#### **Boiler Cleaning Devices**

Product	Applications	Cleaning Coverage	Features/Benefits	Product	Applications	Cleaning Coverage	Features/Benefits
IK-700® Retractable Sootblower	Pendant superheater, reheater, and convection sections	Up to 45 ft 6 in. (13.9 m)  Full Travel or Part Travel  / Extended Lance	Low maintenance, reliability, versatility and maximum cleaning performance.	IR-3Z™ Furnace Wall Sootblower	Furnace walls  Well suited for high temperature locations	360 degree or partial arc	Lightweight compact design for ease of operation and maintenance. Positive confirmation the blower is a rest. Flexible, simple timing adjustments.
IK-555 Retractable Sootblower	Pendant superheater, reheater, and convection sections	45 ft 7 in. up to 56 ft (14 m up to 17 m)	Low maintenance, reliability, versatility and maximum cleaning performance.	HydroJet® Retractable Furnace Water Cleaning Device	r Furnace, division and wing walls	180 degrees of rotation Horiz./Vert.  Water path lengths of up to 70 ft (21.3 m) are common	Retractable nozzle allows is to reach where other device cannot while reducing water flow rate. Isolation from the furnace allows online maintenance and eliminates the infor cooling air.
K-700-SL for SCR Catalyst and Tubular Air Heater Cleaning	SCR catalyst and tubular air heaters. This application of the IK-700 uses a non-rotating carriage and a "rake" with nozzles specially designed for uniform coverage.	Provides full, effective cleaning on SCRs and tubular air heaters.  Travel of 6 to 12 ft (1.8 to 3.7 m) is common.	Superior cleaning as compared to sonic horns especially on PRB-fired units.	HydroJet Furnace Water Cleaning D	and wing walls	90 degrees of rotation Horiz./Vert. Water path lengths of up to 80 ft (24.4 m) are common	Exceptional long-term reliability with minimal maintenance. Excellent cleaning of difficult depos
IK-700-AH Air Heater Sootblower	Short-travel version of the IK-700 sootblower  Modified for cleaning regenerative air heaters	3 to 5 ft (0.9 to 1.5 m) travel is common.  Applications for all sizes of regenerative air heaters.	Slow travel rate provides complete coverage which is timed with the rotation of the air heater. Optional Step-and-Dwell feature for more aggressive cleaning requirements.	G9B™ Sootblower	Smaller boilers, waste heat boilers and direct-fired oil-heaters where gas temperatures inside the boiler permit a fixed cleaning element.	common  335 degree or partial arc rotation	Built-in adjustable pressure control for flexibility. Three primary materials are used for temperatures up to 20 (1093C); additional materials are available for highly corrosive environments.

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## Replacement Parts and Performance Upgrades

An experienced product support staff with access to detailed component lists is dedicated to providing the correct OEM parts for your specific application, vintage and model of boiler cleaning equipment. We can also provide high quality replacement parts to most other sootblower brands.

Our engineered upgrades are evaluated for potential savings in cleaning media usage.





Diamonized® Feed Tubes

# EAPC™ Poppet Valve

#### Diamonized® Feed Tubes

The Diamonized feed tube provides a highly scratch- and wear-resistant surface for maximum availability. This is a true, surface hardening of the base 304 SST material which greatly increases packing and feed tube life.

#### **Powertrain® Carriage**

The PowerTrain carriage offers high-temperature service without periodic maintenance. This unique, maintenance-free carriage is designed to operate reliably and without leakage up to a period of three years or 30,000 cycles.

#### **EAPC<sup>™</sup> Externally Adjustable Poppet Valve**

This advanced poppet valve design for long retractable sootblowers allows the pressure setting to be easily adjusted while the sootblower is operating.

#### **Progressive Helix Mechanism**

The progressive helix mechanism substantially reduces sootblower-induced boiler tube erosion by indexing a precise 47 degrees with each blower cycle so the nozzle cleaning path is different with each successive cycle.

#### **Gemini® Nozzles**

The Gemini nozzle provides a significant cleaning energy improvement compared to other available nozzles by providing high impact pressures on the deposits. In many cases, cleaning can be improved while actually reducing steam flow.

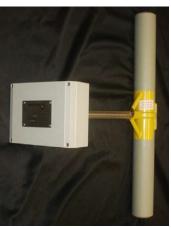
#### **Sootblower Tubular Products**

Replacement lance and feed tubes are available which meet or exceed original equipment manufacturer's design standards.

#### **Heat Transfer Sensors**

Diamond Power®'s heat transfer sensors are designed and manufactured for long life and reliability and are available for special applications such as small diameter furnace tubing or rifled tube applications. Heat transfer sensors are an integral part of both intelligent sootblowing and furnace water cleaning systems.





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Heat Transfer Sensor



#### **Aftermarket Services**

Diamond Power's component rebuild and upgrade services can help extend the life of your existing Diamond Power or other suppliers' equipment. Our service centers are fully equipped for a wide range of services, from simple poppet valve rebuilds to complete sootblower refurbishment.

#### **Equipment Rebuilds and Upgrades/Exchanges**

IK-555 carriage

IK-545 carriage

IK-525 carriage (both pre-series one and series one)

IK-4M carriage

IK-600 carriage

IK-700 carriage

IK-AH carriage

Powertrain carriage conversions and equipment exchanges

Full grease carriage conversions and equipment exchanges

Full oil bath carriage conversions

A2E rotary puff sootblower

G9B rotary sootblower

IR rotary wall sootblower

Poppet valve (both standard and EAPC)

Poppet valve EAPC exchange

IR-3Z sootblower upgrade or exchange

Complete sootblower refurbishment

Auxiliary support refurbishment

AH diaphragm-operated poppet valve conversion to an air cylinder operator

Water level gauge rebuild















### Titanium<sup>®</sup> Sootblowing Controls and Intelligent Sootblowing

**TITANIUM** 

The Titanium® sootblowing control systems upgrade the proven performance and reliability of the Diamond Power® SentrySeries® sootblowing control systems into a modern platform.

The Titanium intelligent sootblowing (ISB) system combines the legacy Powerclean® and goal-based ISB systems into a powerful performance-driven system which is flexible and easy to use.

No matter which option you choose, all our Titanium controls and ISB systems can easily upgrade or replace your existing sootblowing system and can be installed on Diamond Power® and non-Diamond Power boilers, regardless of the original sootblower manufacturer.







Titanium Product	Applications	Features/Benefits		
Titanium Sootblower Controls	Controls up to 300 sootblowers, including water cleaning devices	Includes historian for baseline data and trending Customizable configurations and operator displays Programmable for up to 70 sequences		
Titanium Intelligent Sootblowing	For optimum control and boiler performance  Monitoring of heat transfer sensors for estimation of thermal transient-induced furnace wall tube crack growth	Cleaning based on real-time, unit-specific boiler performance model and/or operational parameters  Dynamic queueing of individual blowers based on calculated effectiveness  Custom calculations available for control or data gathering  Potential for heat rate and unit efficiency improvements  Reduced tube erosion  Improved temperature and spray control  Integrates with Diamond Power®s combustion optimizer		
Sootblower Controls for Recovery Boilers	Specialized option for pulp and paper recovery boilers	Same as sootblower controls (above) Includes variable header control for manual or intelligent modification of sootblowing flow and/or pressure		

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#### Diamond Electronics Cameras, Sensors, Temperature Monitoring and Gauges

Diamond Power supplies state-of-the-art technology that allows plant operators to accurately view and monitor internal furnaces and processes in a variety of applications. Our Diamond Electronics line of boiler monitoring systems includes optical pyrometers for gas temperature measurement, camera systems, drum level gauges for low and high pressure boilers, and more.

#### **Cameras, Sensors, and Monitoring Systems**

SmeltCam® infrared camera for recovery boilers

UtiliCam® infrared camera for utility boilers

TemPro<sup>™</sup> IV infrared temperature measurement system

Wall-Eye® high-definition viewing system

GASTEMP® XT extended range optical pyrometer for utility boilers

GASTEMP™ RB optical pyrometer for recovery boilers

Camera housings

Camera rodders









#### **Gauges and Level Indicators**

#### Series II

Single detection circuit (SDC) alarm module

1 to 4 probe electronic level indicator

Ported level gauge (bi-color)

Multi-probe electronic level indicator

Vertical probe column gauge

Aftermarket parts





### **Specialized Products for Pulp & Paper Applications**

Products and upgrades have been developed by Diamond Power for the unique recovery boiler applications in the pulp & paper industry.

#### SprayRod<sup>™</sup>-R Dual Rail Retractable Auto Liquor Gun Cleaner

Fully retractable and automatic, designed to optimize black liquor delivery to recovery boilers.

#### FlexRod® Port Rodder

This port rodder is safe, easy to use, low-maintenance and suitable for all manufacturer's recovery boilers. Cleans the entire port in a single stroke.

#### **Dual Rail Liquor Gun Station**

Engineered to provide optimum liquor gun positioning, providing safe adjustments of gun depth and inclination while the unit is operating.



**Diamond Power** 

SprayRod <sup>™</sup> -R Dual Rail Retractable Auto Liquor Gun Cleaner





Dual Rail Liquor Gun Station



For more than 120 years, Diamond Power® boiler cleaning products and services have met customer needs for precision, reliability and efficiency.









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