

IK-4M retractable sootblower.



Diamond Power

Diamond Power's total system approach helps keep your boilers on-line.

At Diamond Power, we firmly believe that the best way to keep your boilers operating is to look for a total system approach to boiler cleaning. 75 years of proven systems design experience, enables us to offer sootblowers, flexible controls, and a service organisation that provides you with reliable boiler cleaning equipment performance.

Rugged sootblowers to keep your boilers clean.

The first Diamond sootblower went into operation in 1903. Since then we've kept pace with the technical innovations in combustion, mechanical and electrical engineering. Today, we offer a variety of custom-designed boiler cleaning equipment to keep your boiler tube surfaces clean, even under the most demanding conditions.

Available in lance travels up to 18.3 metres. Diamond sootblowers are engineered to work long and hard with minimum maintenance or downtime.

All Diamond sootblowers are designed to deliver the blowing medium efficiently, to help keep your operating costs down.

It makes no difference what type or quality of fuel you're firing. Whether it's coal, oil or gas, our experienced engineers can design a complete sootblower system that meets your specific cleaning needs.

Fuel flexibility with Diamond controls.

As part of our design package, our engineers can tailor a control system to your cleaning requirements. Accurate and reliable, our VDU/PLC and other control systems let you quickly modify cleaning programmes to keep up with changes in your fuel supply.

Diamond control systems are built for easy use and components are readily accessible for quick, cost effective maintenance.

Diamond strategy.

Diamond Power supplies over half the world's requirements for on-load boiler cleaning equipment. Market leadership has been established over 75 years by continuous programmes of research, development and technical innovation.

Our principal products are:-

- Long travel sootblowers.
- Furnace wall blowers.
- On-load water lances.
- Non-retractable element blowers.
- VDU/PLC and other control systems.
- High pressure water level gauges.

Diamond has pioneered on-load cleaning technology, developed the world's largest retractable sootblowers with travels up to 18.3 metres, on-load water lancing, and VDU/PLC controls.

Diamond makes a major contribution to international programmes for Energy Conservation.

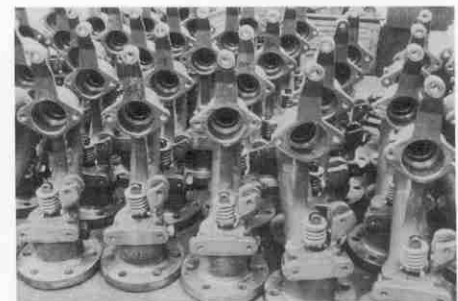
Technical consultancy is available for all cleaning requirements. This expertise has been developed from supplying the needs of electrical power, petrochemical, pulp and paper, marine and manufacturing industries.

Our consistent export performance of over 75% is attributable to attention to detail in design, manufacture, product quality and prompt delivery.

Diamond Power provides a total capability.



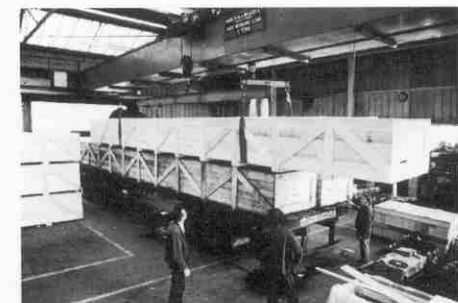
Diamond make wide use of N.C. machine tools in their manufacture.



Batch of G9B non-retractable sootblower valve bodies.

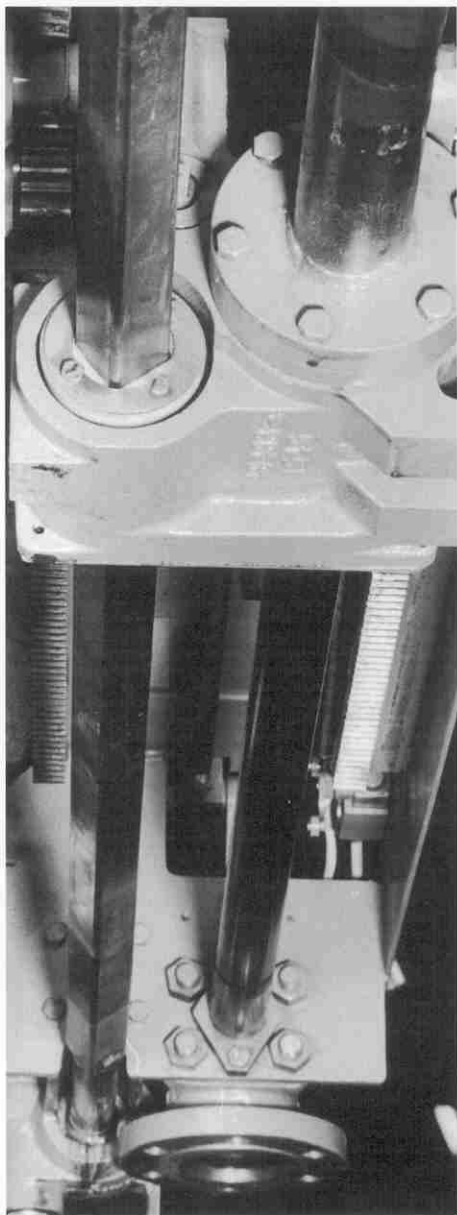


Sootblower assembly bay.



Dispatch bay – another valuable export order executed.

IK-4M, another Diamond retractable sootblower that cleans efficiently and economically.



The IK-4M carriage and drive with the protective enclosure removed.

Here is the retractable sootblower that offers dual economies while assuring maximum boiler cleaning efficiency.

The IK-4M is competitively priced for use in industrial applications, such as oil-fired heaters, waste heat and package boilers which demand a retractable rather than a fixed-position blower. It's also an ideal substitute for some rotary blowers, since it offers improved cleaning efficiency at an economical cost.

Because of operating innovations built in by Diamond's experienced design engineers, the IK-4M conserves on expensive blowing media and reduces cleaning cycle time.

From the standpoint of initial investment, on-going operating expenses, and improved cleaning efficiency, the IK-4M offers substantial cost savings.

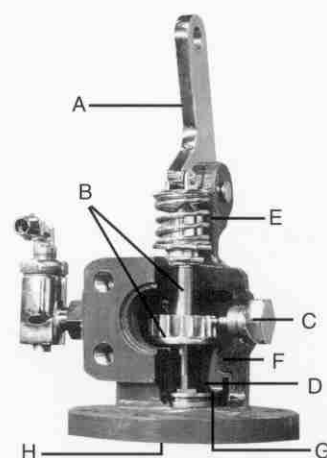
With a travel up to 6.5 metres the IK-4M also features many metric parts that are completely compatible with standard metric tools. The simplified design of this sootblower has limited the total number of parts needed, cutting replacement costs and maintenance downtime.

Parts, whether metric or conventional, are readily available through the international network of Diamond Service Centres.

The IK-4M's venturi nozzles, combined with a controlled double helix nozzle pattern, deliver maximum blowing medium impact. Also, the cleaning pattern is predetermined, with a consistent cleaning path in both directions. The drive reverses rotation and "indexes", so that the retraction path completes the cleaning of the surfaces not covered on insertion. Cleaning is accomplished on a different path and in a different direction with closely spaced helices.

This proven approach to low-cost cleaning provides for efficient use of the blowing medium while decreasing the chance of tube erosion.

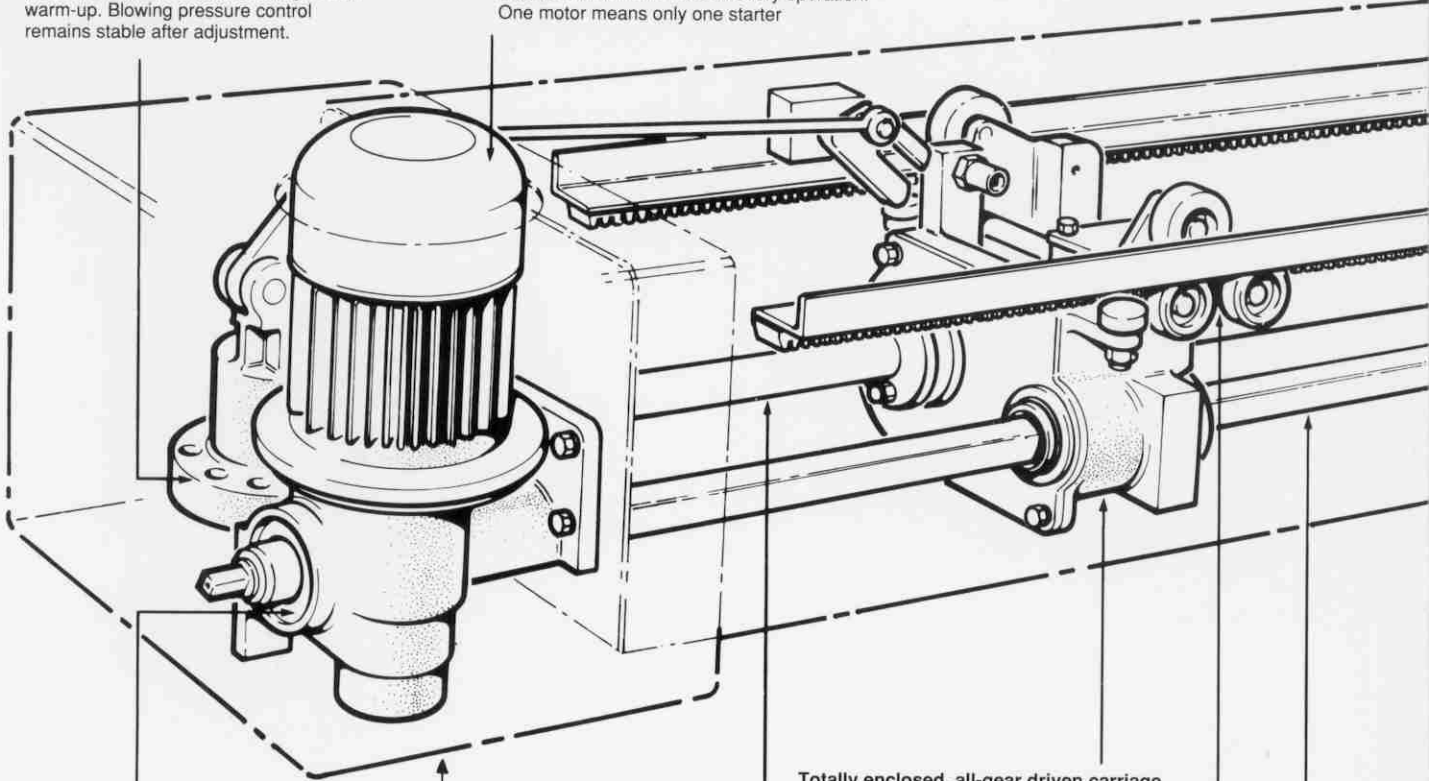
The IK-4M has also been designed so that two important optional features can be added. Protective covers for "full enclosure" requirements, and the electrical controls necessary to meet industry specifications for a hazardous environment are available.



- A. Direct mechanical valve action without pilot actuation.
- B. Micrometer-like adjustment for very close regulation at low flow rates.
- C. Quick and simple adjustment of pressure control.
- D. Flexible seat and disc to prevent leakage.
- E. Rugged stem, proper guiding and generous packing surface result in minimum maintenance.
- F. Welded in valve seat.
- G. Stellited valve seat.
- H. Poppet construction assures tight seating without critical adjustment.

Mechanically operated poppet valve.
Leak proof, flexible seat and disc design prevents thermal distortion during header warm-up. Blowing pressure control remains stable after adjustment.

Totally enclosed single drive motor.
Single motor drive assures reliable lance tube translation and rotation every operation. One motor means only one starter



Totally enclosed, all-gear driven carriage eliminates chains and is lubricated for life under normal service conditions.

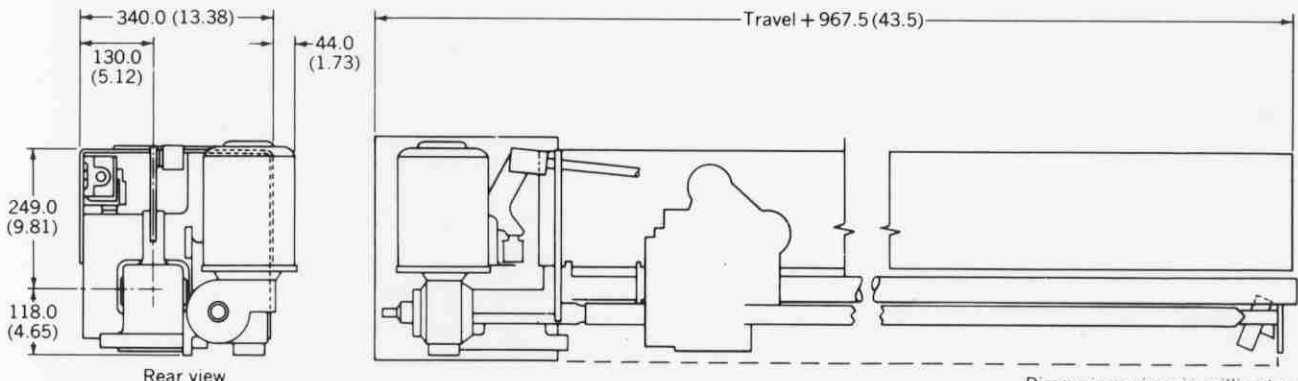
Stationary emergency retract mechanism. Square tang allows hand cranking from rear of blower.

Stainless steel feed tube. Resists corrosion, while polished surface extends packing life.

Dual rack and pinion drive. Two racks and two pinions equalize driving torques and provide optimum lance stability throughout forward and reverse travel of the blower.

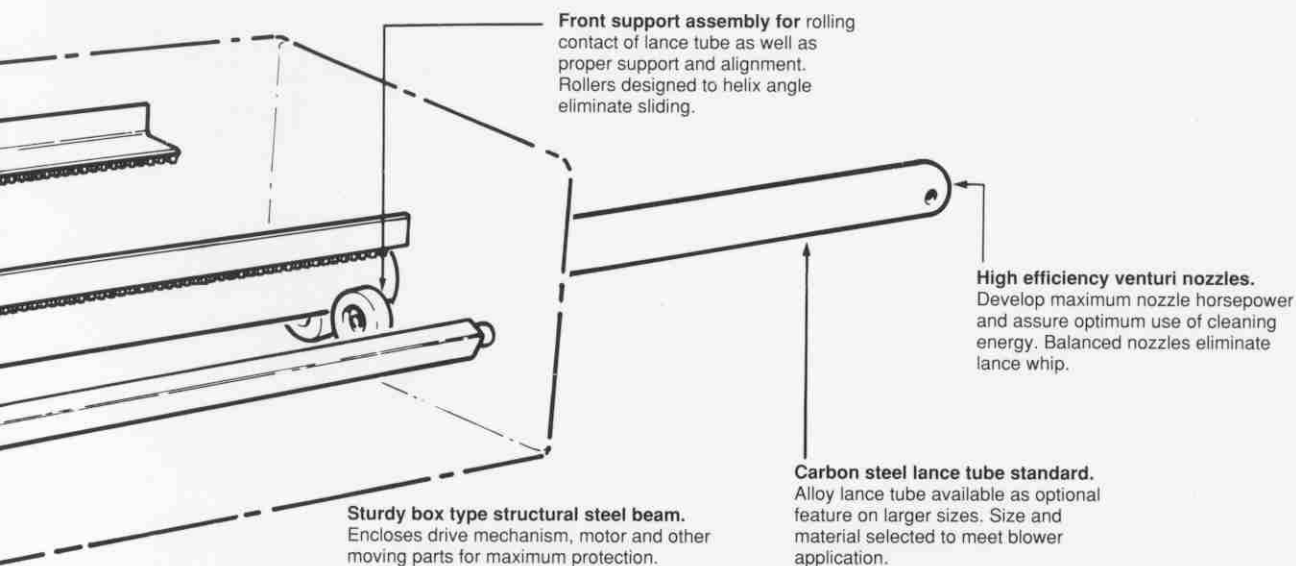
Total enclosure designed to meet international safety requirements.

Heavy-duty square shaft and drive nut. Square shaft designed for intended application to assure high reliability. Drive nut can be easily replaced, if required, without removing square shaft or carriage assembly.



Rear view

Dimensions given in millimeters (inches in parentheses)



General	Industrial blower with hazardous environment and full enclosure options.
Blower coverage	Up to and including 6.5 metres.
Motor data	Single 0.75 kW TEFC IP55 415 volt 3 ph 50 Hz 4 Pole motor with Class F Insulation (special electric motor or air motor optional)
Electrical equipment	Suitable for indoor or outdoor service (hazardous environment optional).
Blowing medium valve (steam or air)	Diamond Power poppet valve with removable, flexible seat and disc and integral adjustable pressure control. Valve internals have Stellite trim.
Feed tube material	304 stainless steel, ground and polished OD.
Lance tube material	Carbon steel standard (low alloy chromium molybdenum steel and high alloy stainless steel available).
Blowing medium valve actuator	Positive direct mechanical actuation providing full opening and closing.
Drive arrangement	Rack and pinion translation, using chrome plated square shaft.
Nozzles	Balanced venturi type.
Carriage and reducer	Totally enclosed, all-gear design, lubricated for life.
Travel speed and helix	2500 mm per minute travel speed with 100 mm helix.
Front support	Permanently lubricated ball bearing dual rollers, with true-rolling contact with lance tube.
Emergency retract mechanism	Stationary at rear of blower.
Handing of blower	Nearly symmetrical design with only 40 mm offset from centre eliminates need for right and left hand designs.
Mounting arrangement	Rigid mounting (swivel mounting optional), negative pressure wallbox (positive pressure optional).
Push buttons	Blower mounted push buttons. Optional except on hazardous environment blowers.

General specifications for the IK-4M

The following is a suggested statement for specifying this sootblower:

"The automatic retractable type sootblower(s) shall be Diamond Model IK-4M (or approved equal) designed for coverages up to and including 6.5 metres. The sootblower(s) shall be equipped with a single-motor driven, totally enclosed main drive carriage and dual rack and pinion drive. Main support shall be 4.5 mm

steel box-beam construction of sufficient depth to support lance tube in extended position. Pinion gears on the drive carriage assembly shall engage rack-gears on both sides of box beam. Blower travel shall be 2500 mm per minute, with 100 mm helix. Blowing medium flow shall be controlled by a positive mechanically actuated Diamond poppet valve which has a replaceable flexible seat and self-aligning disc and is

regulated by an internal micrometer type adjustment. Blowing medium flow shall not be controlled by restricting valve opening. Feed tube and lance tube shall be removable without disturbing piping to the sootblower valve. Front lance tube support rollers shall provide true-rolling contact. Lance tube material and number, size and angle of venturi nozzles shall be selected to meet the application."

