

The IK-545 sootblower is available with the following options which significantly reduce maintenance and provide enhanced sootblower cleaning performance:

EAPC Poppet Valve

The Externally Adjustable Pressure Control (EAPC) Poppet Valve allows the blowing pressure to be adjusted while the sootblower is on line.

LLG

Live-Loaded Gland (LLG) for feed tube packing maintains compression without frequent manual adjustments. This greatly reduces maintenance on a traditionally high maintenance component.

PHM

Diamond's exclusive Progressive Helix Mechanism (PHM) improves cleaning coverage of the nozzle by incrementally changing the nozzle path. This device is a precision, geared indexing mechanism that shifts the nozzle starting position every cycle to establish a more complete cleaning path while reducing tube erosion.

Gemini™ Sootblower Nozzle

This unique sootblower nozzle design maximizes energy delivered by both nozzle jets. The Gemini™ sootblower nozzle can dramatically improve cleaning performance while significantly improving operating and maintenance costs.

Diamonized™ Feed Tube

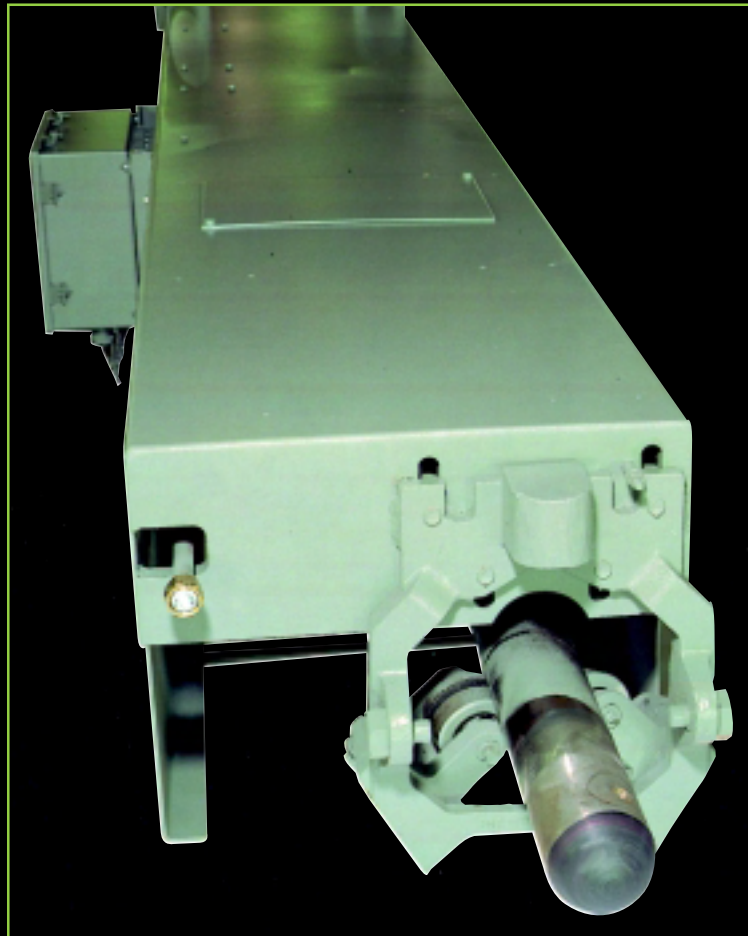
The Diamonized™ feed tube is 20 percent harder than chrome. Since this is not a coating, there is virtually no potential for surface cracking or delaminating. This means longer feed tube life, fewer feed tube replacements and substantial maintenance savings.

One Way® Cleaning

The forward stroke of the lance tube is a purge cycle using minimum flow and pressure to pre-heat the sootblower lance and feed tube and remove condensate from the sootblower and steam header. During lance tube retraction, full steam pressure and flow are activated for the cleaning. This can save up to 50 percent steam use (depending on installed location), reduce sootblower maintenance and reduce boiler tube erosion.

Precision Clean™ Technology

This technology extends the effective cleaning reach of the IK-545 sootblower by controlling jet progression (controlling the rate of rotation to maintain constant dwell time of the nozzle as it cleans the full length of the boiler tubing). Precision Clean™ technology will reduce the frequency of sootblower operation, improving boiler operation and reducing maintenance.



Front view of IK-545. High performance nozzles develop maximum cleaning energy and optimizes use of the cleaning medium. The modular design of the front support and roller alignment extends the life of the lance tube and improves maintenance access. Sizes and styles are matched to application specific cleaning needs. Pictured is a fabricated/welded ground flush nozzle.



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IK-545

long retractable sootblower

IK-545 long retractable sootblower

Diamond Power's IK-545 retractable sootblower is designed specifically for low maintenance, reliability, versatility and maximum cleaning performance. Incredibly rugged, this sootblower stands up to the most severe environment and can be used in the pendant superheater of the boiler, in the convection section platens and economizer.

Effective cleaning is the most important aspect of a sootblower. The IK-545 uses a cast nozzle assembly with advanced design venturi nozzles to convert high-pressure air or steam into a high velocity jet. This delivers the maximum impact energy to remove tenacious slag deposits. Utilizing Diamond's own double helix cleaning pattern, the lance enters the boiler. The blowing medium cuts a path through the deposits until the lance tube reaches full travel. It then reverses rotation so that, on the retraction path, it cleans surfaces not covered by the forward action. This

technique maintains maximum coverage and cleaning.

Standard features of the IK-545 are engineered with an emphasis on long-wearing durability and minimum maintenance. These features include our engineered lance tube design for optimum strength and stiffness; a forged, tapered lance flange which minimizes stresses and permits a full penetration butt-weld connection and high quality automated welds to prevent premature lance tube failure. Lance tubes are available in a variety of materials to match strength, temperature and corrosion requirements to each unique region of the boiler.

Diamond's mechanically operated poppet valve is the most reliable and stable in the industry. Its unique flexible seat and disc prevent distortion from thermal stress and helps to maintain a leakproof operation. It is easily adjusted by removing the lock pin plug and rotating the control disc. The IK-545 actuating mechanism is a mechanical linkage that opens

and positively closes this shut-off valve. Furthermore, a helical spring mounted on the valve stem provides positive closure. This feature makes the poppet valve more reliable in preventing condensate leakage which extends lance and feed tube life. This also lengthens the life of the valve by preventing disc warping and seat damage from steam leakage.

The Series One Carriage, a severe duty gearbox with a common lubrication reservoir for the drive gear and lance hub, provides a full circulating bath during operation, contributing superior lubrication and cooling of the gears, bearings and oil seals to maximize life of all components.

The drive system for the lance tube insertion and retraction are dual rack and pinion gear drives. A pinion gear on each side of the carriage rotates to engage a precision machined gear rack mounted to each side of the canopy style beam shell. This drives the carriage along the length of the sootblower beam.

The pinion gear is held at precisely the right position in the gear rack by a solid square bar roller support. This allows the full involute gear drive set to achieve smooth rolling contact between the rack and gear faces even after years of service. Because of the extreme nature of the IK-545's environment, both the gear rack and lower square bar roller support are bolted to the sootblower beam shell so segments are easily replaceable. All fasteners are lubricated with state-of-the-art dry film lubricants or anti-seize compounds for easy maintenance.

The IK-545 is available in both right- and left-hand configurations for maximum installation flexibility to minimize space requirements and avoid existing structural interferences. Replacement parts for right- and left-handed sootblowers are interchangeable.

These features, as well as available options and excellent service, make the IK-545 the perfect solution for a variety of tough boiler cleaning situations.

Sturdy box-type structural steel beam:
Enclosed drive mechanism, motor and other moving parts for maximum beam strength and personnel safety.

Expandable cable power supply:
Simple construction yet reliable performance.

Lubrication free bearing:
To minimize maintenance.

Mechanically operated poppet valve:
Leakproof, flexible seat and disc design prevents distortion from thermal shock. Adjustable stable pressure control. Positive valve closure provided by trip arm design.

Full-circulating lubrication bath, totally enclosed, all gear-driven carriage:
Full oil or semifluid synthetic grease bath gives superior lubrication of internal gears and technologically advanced seals virtually eliminate leaks.

Optional live-loaded gland for feed tube packing:
Graphite foil packing continuously loaded by a high-energy packing gland virtually eliminates steam and condensate leakage and extends the life of the feed tube and sootblower itself.

Totally enclosed single drive motor:
Flange-mounted motor assures reliable translation and rotation every operation—no chance of one without the other. One motor means only one starter.

Lance tube:
Designed with one-piece forged flange and tapered shoulder for greater lance tube integrity.

Control box:
NEMA 4 enclosure for terminations. Box position is located, as needed, to avoid structural interferences.

Adjustable front roller bracket and support assembly:
True-rolling contact between lance tube and front roller provides proper positioning and support. Minimum wear at contact points. Extends life of lance tube.

Auxiliary lance and feed tube support:
Supports the feed tube while the lance tube is in the boiler. This extends the feed tube life and prevents dead weight loading that would otherwise prematurely wear the feed tube packing.

Dry film lubricant:
Used on retaining bolts to eliminate seizure and ease maintenance.

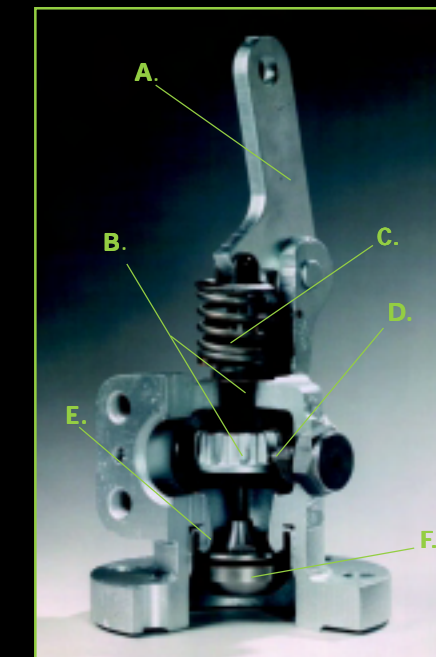
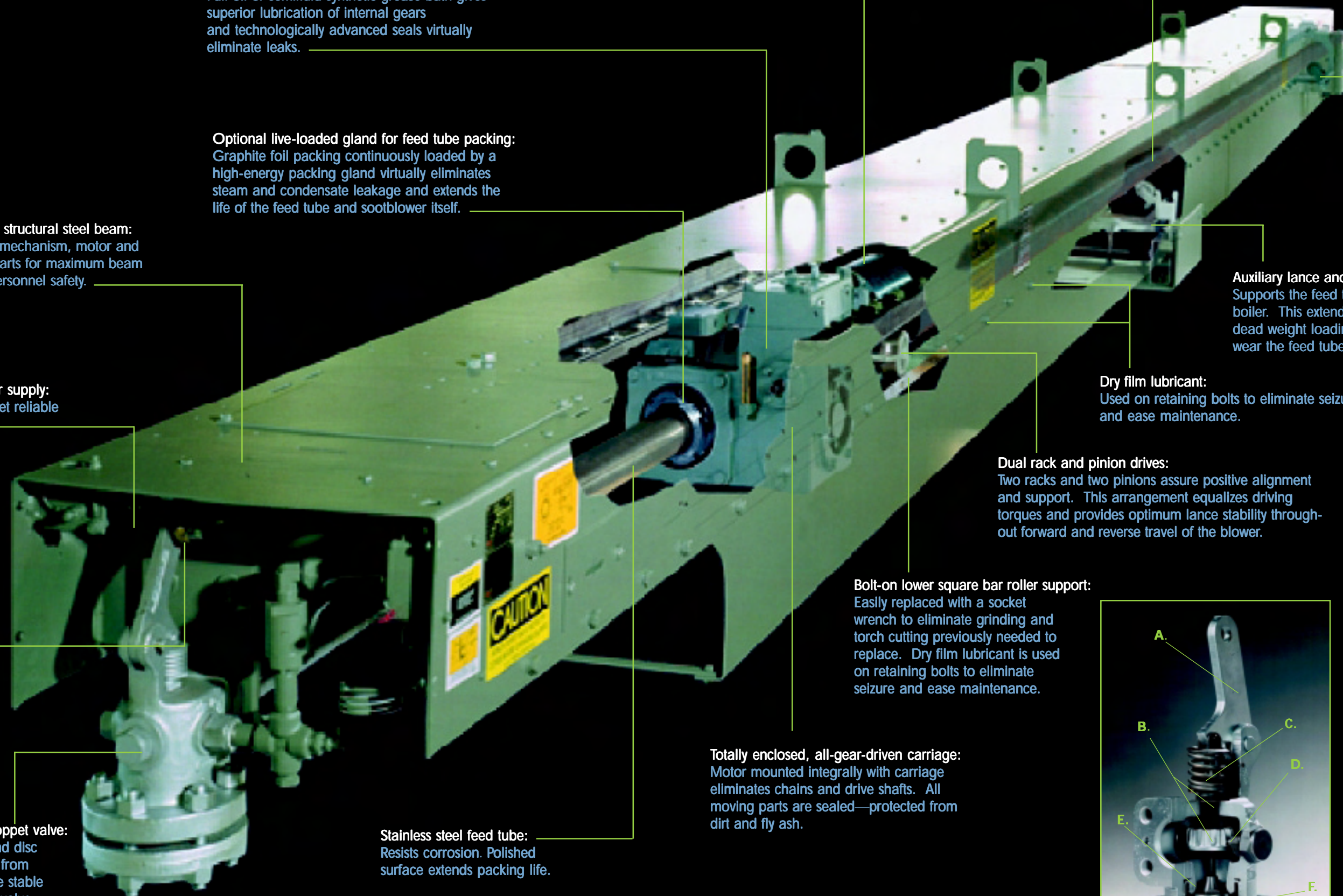
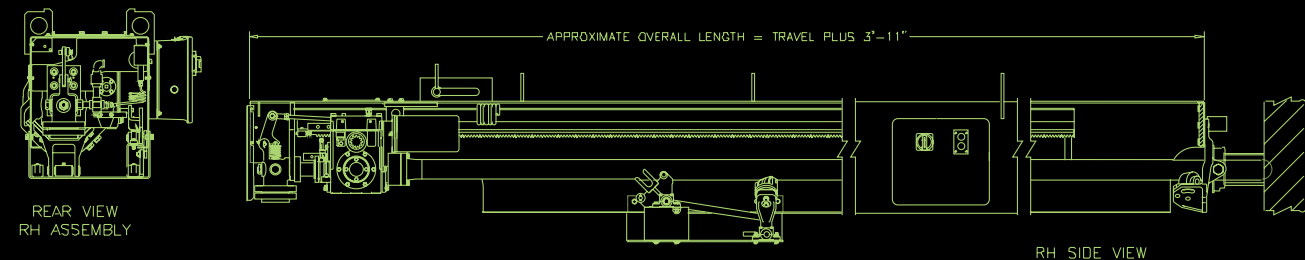
Dual rack and pinion drives:
Two racks and two pinions assure positive alignment and support. This arrangement equalizes driving torques and provides optimum lance stability throughout forward and reverse travel of the blower.

Bolt-on lower square bar roller support:
Easily replaced with a socket wrench to eliminate grinding and torch cutting previously needed to replace. Dry film lubricant is used on retaining bolts to eliminate seizure and ease maintenance.

Totally enclosed, all-gear-driven carriage:
Motor mounted integrally with carriage eliminates chains and drive shafts. All moving parts are sealed—protected from dirt and fly ash.

Stainless steel feed tube:
Resists corrosion. Polished surface extends packing life.

Blower coverage	25 feet 1 in. up to and including 45 feet 6 in.
Travel speeds	35, 70, 100 or 140 in./min. with 4 in. helix.
Motor data	2 hp, TENV, NEMA frame 145TCZ, 1725 rpm, Class H insulation, 230/460 volts, 3-phase, 60 Hertz. Other voltages and frequencies available.
Feed tube material	304 stainless steel (Diamondized™ feed tubes are optional).
Lance tube material	1¼ chrome-molybdenum alloy (high alloy stainless steel can be supplied to meet application needs).
Power cable	Type SO neoprene insulation multi-conductor coiled cable with floating loop control.
Blowing medium valve (steam or air)	Diamond Power poppet valve with removable flexible seat and disc and integral adjustable pressure control. Valve seats are hard faced.
Limit switches	Dual proximity, NEMA 4 (mechanical limit switches are optional).
Mounting arrangements	Pivot mounting standard. Wallboxes available for either pressurized or balanced draft firing.



Poppet Valve

- A. Direct mechanical valve action without pilot actuation
- B. Micrometer-like adjustment for very close regulation at low flow rates
- C. Rugged stem, proper guiding and generous packing surface result in minimum maintenance
- D. Lock pin holds the valve's pressure setting
- E. Stellite valve seat is welded in on steel heads
- F. Pivoting valve seat establishes tight seating without critical adjustment, preventing leakage