

# Diamond Power® Progressive Helix Mechanism



The Diamond Power® progressive helix mechanism (PHM) from Babcock & Wilcox (B&W) is a precision, geared indexing mechanism that shifts the sootblowing nozzle starting position by a known amount each cycle. With this device, hundreds of operating cycles are required before the nozzle repeats the same cleaning path. This allows for more complete cleaning coverage and significantly reduces tube damage due to erosion.

B&W recommends installing the PHM device wherever high-performance sootblower nozzles are used, or in any application to improve blower coverage and minimize the potential erosive effects of sootblower cleaning.

*The Diamond Power® progressive helix mechanism will provide a defined shift in the cleaning pattern every operational cycle without the use of clutches or similar devices.*

## Benefits

- Improves cleaning
- Reduces tube erosion; in many cases eliminating the need for tube shields
- Prolongs lance tube life
  - Combats lance tube sagging
  - Reduces localized corrosion on the inside diameter of the lance
  - Reduces build-up on the outside diameter surface of the lance
  - Distributes lance roller-wear over the full surface of the lance

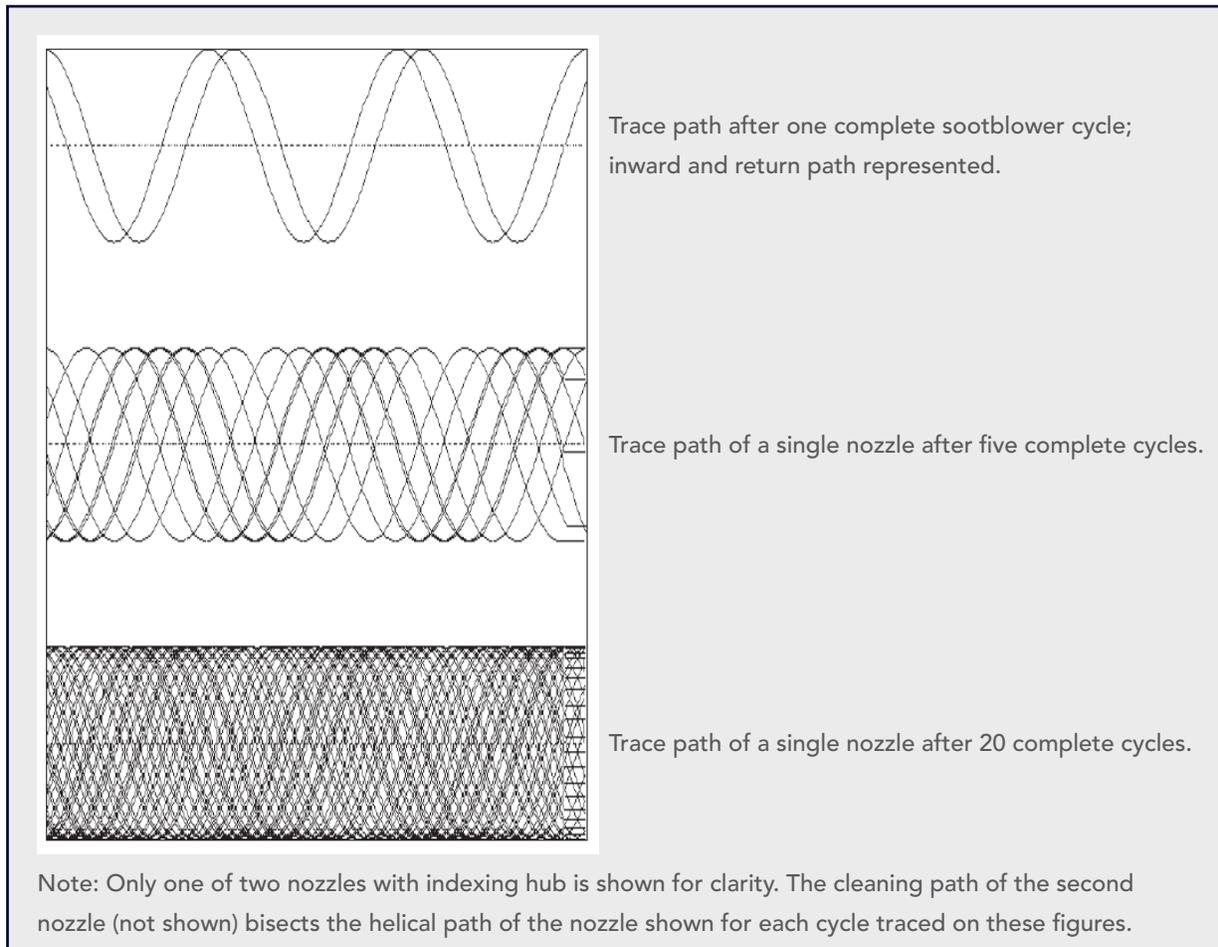
## Features

- Multi-indexing
- Field upgrade/retrofit
- Precise indexing
- Applicable with oscillator cleaning
- Designed for both two-roller and four-roller carriages
- Bolt-in assembly

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## Effectiveness of the progressive helix mechanism

The sketches below illustrate the effectiveness of the PHM in providing a precisely indexed nozzle-cleaning path across the face of a boiler tube bank. Although each lance tube is fitted with two or more nozzles, for clarity, the illustration shows the path followed by only a single nozzle after one, five and 20 cycles. The cleaning paths are spread evenly across the cleaning surface with the precise indexing provided by this geared mechanism. The lance translates forward without rotation, exactly one gear tooth, each time the sootblower starts a cycle. This even distribution of the indexed-cleaning paths occurs from the start of and throughout hundreds of cycles before the nozzle paths repeat the pattern.



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