CNC HONE TOOLING and ABRASIVES
Using Proven Stroke Hone Technology

The Legacy of Bates Technologies

Bates Technologies LLC, a division of Lapmaster International, is built upon an 80+ year legacy of innovative honing and bore sizing technology and technical expertise. Included in this legacy are the world class manufacturing expertise of the Micromatic and Barnes companies which continue to produce state of the art honing machines, precision stroke and single-pass bore sizing tools, abrasives and air gage systems. Bates products are the preferred choice for forward-thinking companies — from specialized machine shops to the largest manufacturers in the precision metalworking industry, including automotive, aircraft, energy, compressor, and petroleum industries.

Products

Our honing products represent a complete line of bore finishing solutions for all industries.

- Precision hone tooling engineered to fit and function on all styles of hone machines
- Advanced hone machinery from the Barnes Bore Honing and Finishing Systems group
- Agile and Flexible Honing and Air Gage Systems for use on CNC Machining Centers
- Single Pass Bore Size tooling using electro-plated or sintered diamond abrasives
- PAG's Precision Air Gaging and Size Control Systems
- Honing stones: CBN and diamond (metal-bond) – SiC/AIO x (vitrified and resin bond)
- Microsize® and Micro-Mold® metal-bonded and jacketed abrasives

Products are created for all honing machines:

- Micromatic
- Gehring
- Sunnen
- Barnes
- Engis
- Toyo
- Delepena
- Nagle
- Kadia
- Accu-Cut
- Fuji
- And Others

Services

- Hone-Tech Center
- Machine and Tooling Upgrades
- Hone Process Analysis
- Service Department

Facilities

- Fishers, IN
- Mount Prospect, IL

Conventional Honing in a Flexible and Agile Manufacturing Environment

Bates Technologies ushers in new operational effectiveness in honing with the introduction of the Stroke Hone CNC Tooling and Abrasive System. With the Stroke Hone CNC Tooling and Abrasive System, it is no longer necessary to complete honing operations using dedicated, stationery, and otherwise costly honing machines. This System brings conventional honing, for the first time, into an agile and flexible manufacturing environment The new system provides a timely answer for metalworking businesses facing greater quality and cost-efficiency demands than ever before.

The Stroke Hone CNC Tooling and Abrasive System can be adapted to most machining centers. The new system allows the manufactured part to remain in place throughout the manufacturing process, fixtured throughout the various tool changes necessary. The system uses the existing coolant system through the spindle to activate the honing abrasives.

Bates' Stroke Hone CNC Tooling and Abrasive System provides an answer for metalworking businesses facing greater quality and cost-efficiency demands. The new CNC system provides for maximum process capability to six sigma levels, allowing for finer and more defined surface finishes, size and shape tolerances in microns, cpk improvements and six sigma quality.

Aside from quality and cost-efficiency, the Stroke Hone CNC Tooling and Abrasive System utilizes environmentally friendly coolants, and allows users the ability to address the eight types of waste elimination (LEAN) to gain a stronger overall competitive position in the market.

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Visit our Website: www.batestech.com

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Testing Quality
The Bates Stroke Hone CNC Tooling and Abrasive System in an agile environment provides a greater opportunity for testing to measure quality and meet customer expectations for the finished component. Bates provides manufacturers with testing, documentation, and statistical data needed to support new process technology.

The end product of testing is a series of formal reports utilizing "Six Sigma" methodologies that document the kind of measured results customers can achieve and a blueprint of how to get there. Typical capabilities studies are completed for coolant trials, cylinder bores, main bearings, housings, and connecting rods, among other parts.

Reporting Includes:

■ A PAT Incometer shows the roundness and straightness (cylindricity) of a bore down to 2.5 microns or 100 millionths of an inch (For comparison purposes, a hair measures 30 times more than 3000 of an inch).

■ A scanning electron microscope (SEM) is used to give an accurate topographical picture of the finish, revealing scratches in the bore. The statistical readings that accompany these pictures determine whether the current process is meeting or exceeding the customer's requirements.

■ Surface profile equipment measures usually at the micron level and provides documentation of the surface of a component that detects irregularities in the surface of the part. Inspections can detect form or waviness patterns that can be analyzed to assess the manufacturing process.

Key Advantages of the Bates Stroke Hone CNC Tooling and Abrasive System . . .

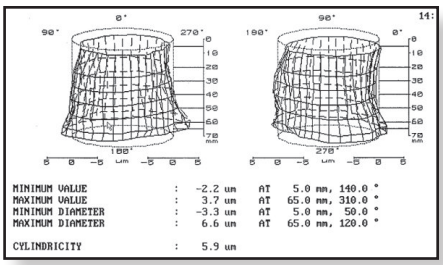
- **Quality production potential at six sigma levels**
- **Ability to handle critical size control and surface finish requirements**
- **May be adapted for most CNC machining centers**
- **Part remains fixed, eliminating part alignment issues related to multiple setups**
- **Allows for use of environmentally-friendly coolants**
- **Flexibility to quickly change tool for limited quantities and minimal process interruption**

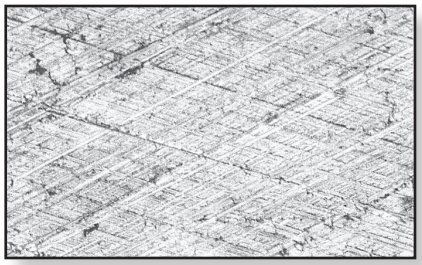
Tests provided by Bates Technologies using "Six Sigma" methodologies include:

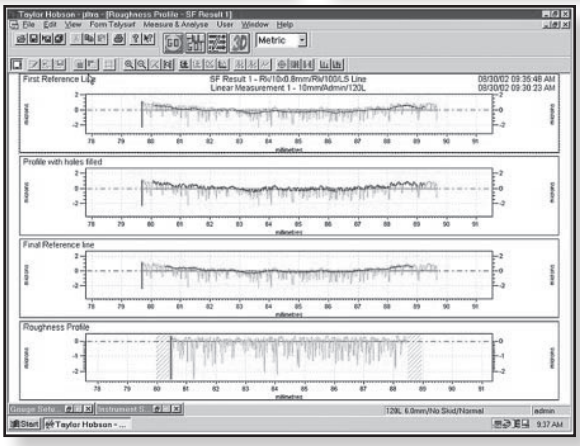
1) an Incometer (top left)

2) the Scanning Electron Microscope (top right)

3) a Surface Profile (bottom)







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