



Leaders in Superabrasive Finishing Systems

PH-4000 and PH-5000 Honing Machines



- **Failsafe interlocks and guarding in automatic mode virtually eliminate potential for accidents**
- **Stroker is stopped before interlocked guarding can be opened**
- **Low spindle speeds in manual mode**
- **Full CE Certification**

Precision Controlled Production Honing with Wide Capability for Small to Medium Volumes

The Engis PH-4000 and PH-5000 honing machines offer reliable and cost-effective production honing providing programmable precision and easy-to-understand operational efficiency. A choice of fixtures and full adjustability makes these machines hugely flexible – an invaluable staple in engineering production environments.

Ideal for 50 – 100,000 part batches up to 180 pieces per hour, the PH-4000 hones diameters of .045” – .98” (1.14mm – 25mm) up to 12.6” (320mm) in length. The PH-5000 tackles up to 3.15” (80mm) in diameter.

Innovative design, flexible, efficient in operation:

- Operators at any skill level find the semi-automatic functionality of the PH machines extremely easy to run
- Single-stone, multi-stone or single-pass tooling compatible; quick change tooling (optional)
- Electronic control system with Siemens digital HMI
- Minimal program setup screens
- Stock removal 30µ per second depending on material
- Fully adjustable stroke length and speed
- Unique spindle system with integral stone expansion
- Wedge feed pressure monitoring for burr-free cutting and sensitivity for thin wall parts
- Multi-plane spindle nose
- Feed movement via precision ball screw
- Stable, accurate and repeatable stone adjustment
- Choice of fixtures for wide range of applications
- Alignment gauge option
- Remote diagnostic capability (via Internet)

ENGIS OFFERS COMPLETE SOLUTIONS:

- Engis is the only company with a complete range of bore honing machines and tooling: *Single-Pass, Multi-Stroke and Helical Laps.*
- Process development labs and decades of applications experience.
- Dedicated engineering teams for designing systems, tools and fixtures.
- A global presence – worldwide installation and post-sale support.

IDEAL FOR:

- *Through honing and blind end bores ± 1µ*
- *Tolerances and geometries to below 2µ*
- *Hydraulic components*
- *Water pumps*
- *Pump bodies*
- *Fuel injection nozzles*
- *Con rods*
- *Turbo housings*
- *Rocker arms*
- *Sleeves*
- *Gears*
- *Cylinder liners*
- *Bushings*

ENGIS CORPORATION

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PRECISION BORE HONING





Leaders in Superabrasive Finishing Systems

PH-4000 and PH-5000 Honing Machines

Innovative in Design, Flexible in Operation

- Diameter range 0.045" – .98" (1.14 – 80mm), stroke length up to 320mm
- Fully adjustable stroke length and speed
- Fully adjustable spindle speed
- Fully adjustable stone feed rate
- Unique spindle system with integral stone expansion
- Multi-plane chuck
- Feed movement via precision ballscrew
- Stable, accurate and repeatable stone adjustment
- Choice of fixtures for wide range of applications
- Quick set up mandrel alignment gauge
- No air line is needed which saves on plant energy costs

Accuracy of Components Average 2µ



Electronic Control System with Siemens Digital HMI

- Touchscreen, conversation programming
- Tolerance accuracy to 0.000039" (0.001mm) with sub-micron adjustment
- Download programs to memory storage via USB port
- Remote access for assistance, immediate diagnosis, rapid support

Operational Efficiency

- Programmable, precise electronic control
- Ergonomic workstation
- Easy to operate



Workforce Safety

- Failsafe interlocking guard system
- Closed door, pushbutton operation

SPECIFICATIONS:	Model PH-4000	Model PH-5000
Diameter range:	0.045" – .98" (1.14mm – 25mm)	0.045" – 3.15" (1.14mm – 80mm)
Maximum stroke length:	Fully adjustable .118" – 12.6" (3mm – 320mm)	
Stroking motor speed / power:	Fully adjustable 1 – 25m/min / 3.0Nm	Fully adjustable 1 – 25m/min / 4.0Nm
Spindle speed / power:	Fully adjustable 300 – 2500 rpm / 1.5kW	Fully adjustable 300 – 2500 rpm / 3kW
Motor protection category:	IP54	
Standard electrical supply:	480V 3 Phase 60 Hz	
Control voltage:	24V DC	
Conformity:	CE Approved conforms to machine directive 2006/42/EC	
Net weight:	1544 lbs (700kg)	2094 lbs (950kg)
Gross weight:	1764 lbs (800kg)	2315 lbs (1050kg)
Machine dimensions:	70.1" (W) x 39.4" (D) x 70.5" (H) 1780mm (W) x 1000mm (D) x 1790mm (H)	70.1" (W) x 44.5" (D) x 73.2" (H) 1780mm (W) x 1130mm (D) x 1860mm (H)

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