

# BORE FINISHING



Precision Honing

PRECISION BORE HONING

## HYBRID Precision Bore Honing Machine

**High Precision, Tight Tolerance, Low Cost Per Part** - This single-step system, designed for high-volume production of hydraulic cartridge valves and servo valve bushings, can finish hundreds of thousands of bores annually - transforming rough bores into finished products more efficiently and with greater throughput.

**This innovative machine tool combines the benefits of conventional multi-stroke honing and Engis' single-pass technology.**

This Hybrid solution streamlines the workflow by integrating single-pass bore finishing with a multi-stroke honing process in a single machine, thereby reducing the number of steps required to achieve tight tolerances and high precision when finishing bored components. It also produces sharper, burr-free corners on cross holes and metering edges within the part.



This new model's custom multi-stroke head uses a set of expanding honing stones to semi-finish bores. The programmable expansion amount is verified by a subsequent gauge station, allowing the machine controls to automatically compensate for tool wear. Additionally, this unique system incorporates a separate column with three single-pass spindles for the final finishing process.

The components are loaded into part holding fixtures arranged around a rotary index table, maximizing productivity. This setup allows all operations to occur simultaneously, producing a complete finished part with each cycle. Operators can load and unload the parts manually or use a custom robotic automation package.

### Engis Hybrid Bore Honing Benefits:

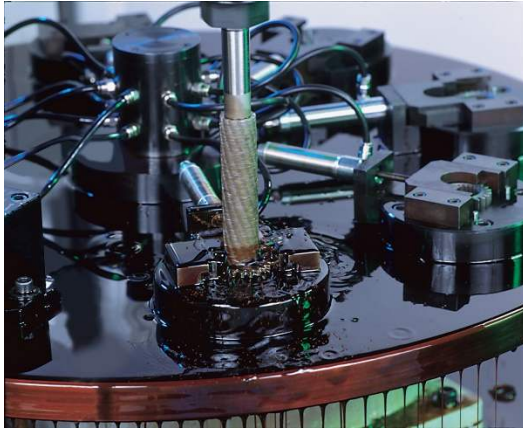
- Full CNC controls
- Higher precision (bore size control within 1 micron)
- Sharper corners on cross-holes and metering edges
- Increased efficiency and production rates
- Less manual intervention
- Automatic gauging and size compensation of the roughing process
- Reduced floor space requirement
- Lower overall cost per piece



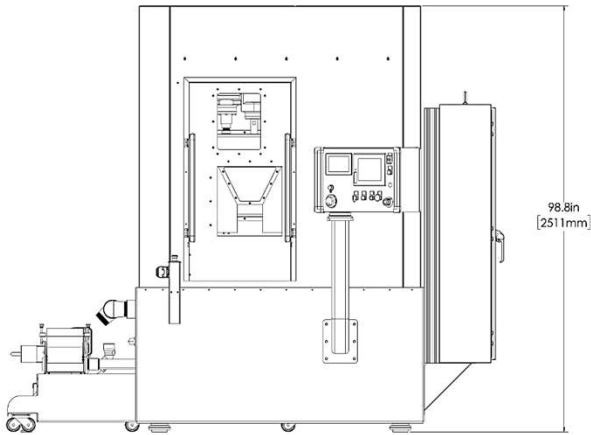
World Leader in Superabrasive Finishing Systems

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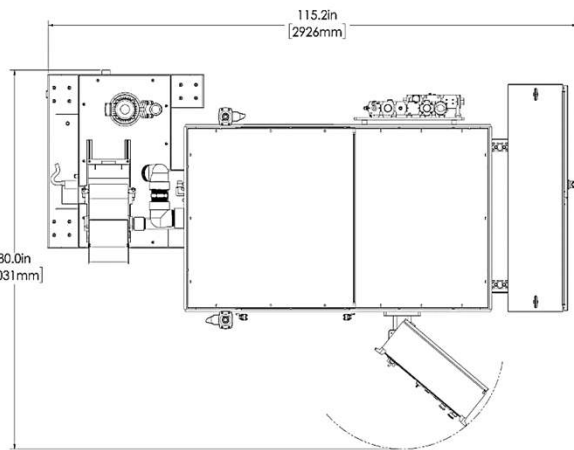
**Engis** Precision Honing



Custom fixtures are available



## Superabrasive Powders



### HYBRID SPECIFICATIONS:

MACHINE WEIGHT	2,222 kg (4,900 lb)
REQUIRED AIR PRESSURE:	70 PSI (4.8 bar)
OPERATING VOLTAGE:	200-240 VAC 20/60 Hz
Z-AXIS TRAVEL (STROKE HONING):	560 mm
Z-AXIS TRAVEL (SINGLE PASS CLUSTER):	560 mm
RAPID TRAVERSE RATE MAX (STROKE HONING):	15,000 mm/min
RAPID TRAVERSE RATE MAX (SINGLE PASS):	15,000 mm/min
SPINDLE RPM RANGE (STROKE HONING):	25 – 1,500 RPM
SPINDLE RPM RANGE (SINGLE PASS CLUSTER):	25 – 1,500 RPM
SPINDLE SIZE (STROKE HONING):	INTEGRAL ER32 COLLET
SPINDLE SIZE (SINGLE PASS CLUSTER):	1-1/16" ID ASA
CONTROLLER:	MITSUBISHI C80 SERIES CONTROLLER

### Standard Equipment

- Remote Diagnostic Capability
- Industry 4.0 configured
- 12-month warranty
- Light curtain with walkaway functionality

### Optional Equipment

- Air Management System
- 400-480 VAC, 50/60Hz supply
- Integrated stack light and machine illumination system

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**Engis**

### ENGIS CORPORATION

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