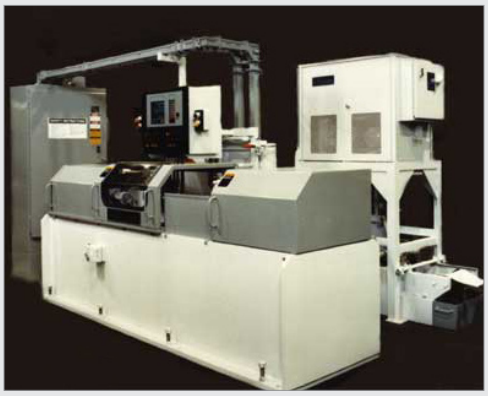
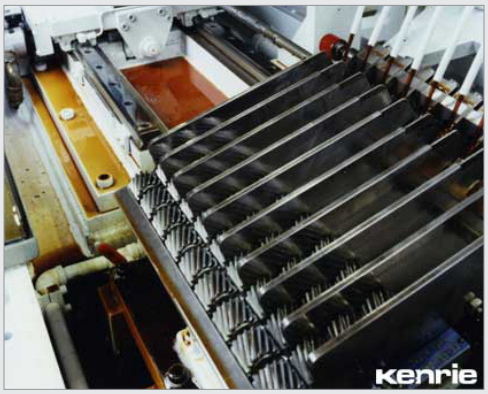
Made In The USA kenrie machines

3MMH Series

Single or Multi-Spindle
Pinion Gear Microhone® Systems





Standard Features

- Modular design with industry proven components
- Horizontal spindle arrangement
- Electronic stroke control
- PLC controlled machine functions
- User-friendly operator interface
- Adjustable stroke and feed parameters
- Fault diagnostic software

Description

The KENRIE Model 3MHH-1 hone machines are specifically designed for low volume finishing operations on pinion gears and similar parts. These machines are designed with (1) independent, hydraulic actuated spindle, mounted on a low profile fabricated base assembly. These machines are part of an advanced line of modular hone systems designed to deliver outstanding performance and exceptional economy through the use of standardized subsystems.

This approach minimizes the amount of custom engineering required for each machine, while ensuring the end user of optimum productivity and reduced maintenance cost. The horizontal spindle configuration of these machines lends itself well to automated part handling, which further increases their inherent productivity. This type of machine is equipped with a “cascade” type fixture which uses gravity to feed parts into the work station.

MHH Series hone machines are state-of-the-art machine tools, using the latest in electronic control technologies, hydraulic design, and mechanical components to achieve high levels of precision, productivity, and reliability in a wide range of applications.

All machines are equipped with an advanced control system based on a programmable controller which monitors and controls all machine motions and critical process parameters during the operating cycle. This feature greatly facilitates set-up by permitting the operator to perform all parameter settings and adjustments at the CRT equipped control panel, and keep the process in control by monitoring the data displayed. PC based controls also make these machines easy to integrate into machining cells and computer integrated manufacturing systems. Standard control capabilities include real time stroke position compensation for changes in load and temperature during a honing cycle, automatic abrasive feed with wear compensation, stroke speed control, and the ability to accommodate in-process gauging systems for bore size control.

Optional equipment includes coolant filtration and refrigeration equipment, pre-gauge unit with reject mechanism, post process gauge system with reject mechanism, automatic load/unload automation, and SPC data collection software.

All 3MHH-1 Series hone machines can be adapted to process different pinion gears configurations by changing the part contact details, hone tool and gauge probe.

Guide Specifications

Efficiency Standards for a
Typical 3MHH-D Pinion Gear Hone Process

Characteristic	CPK	Rbar	St Dev	Tolerance
Size Ø	3.98	1.6µm	0.06µm	± 6.5µm
Roundness O	5.50	1.6µm	0.04µm	6.5µm max
Taper //	8.38	0.9µm	0.02µm	6.5µm max
Surface finish √	4.18	NA	0.79µm	10 – 22µ inch

Machine type	Production rate (dependent on part length)	Total cycle time	# of spindles	Stock removal
3MHH-1	6 part stack = 392 PPH	55 seconds	(1) total	0.100mm max
	7 part stack = 458 PPH			
	8 part stack = 523 PPH			
	9 part stack = 589 PPH			
	10 part stack = 654 PPH			