

CNC FEATURE - VALUE COMPARISON

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	Tormach PCNC 1100 Series 3	Mikini 1610L V3.0 2012	Haas Mini Mill 2012
Pricing comparison			
List price	\$ 8,480	\$ 14,000	\$ 32,995
Add Base	\$ 1,645	\$ 0 - not required - floor standing casting	\$ 0 - not required - floor standing casting
Add Coolant	Included with base. Also available as option (unknown charge)	\$ 0 - included	\$ 495
Add Machine light	Not offered	\$ 0 - included	\$ 395
Add tooling (varies)	\$ 795	\$ 795	\$ 2,395
12 month extended warranty	\$ 450	\$ 650	\$ 5,595
Add AC lubrication pump	\$ 294	\$ 0 - included	\$ 0 - included
Add spare parts	\$ 1,974	\$ 0 - not required	\$ 0 - not required
Add load meter	\$ 197	\$ 0 - included	\$ 0 - included
Add shelf / arm	\$ 295	\$ 0 - included	\$ 195
Add tool tray	\$ 58	\$ 0 - included	\$ 95
Typical price (Basic equipment & Warranty)	\$ 14,188	\$ 15,445	\$ 42,165
Add 4th axis wiring kit	Included with kit. Also available as option (unknown charge)	\$ 0 - included with every machine	\$ 2,295
Add 4th axis kit / rotary hardware	\$ 1,447	\$ 1,999	\$ 7,495
Add tailstock	\$ 108	\$ 0 - included with kit	\$ 995
4th axis drive (Standard)	stepper	stepper	servo
4th axis drive (Optional)	Not offered	servo	Not required
Typical cost to add 4th axis	\$ 1,555	\$ 1,999	\$ 10,785
Integrated industrial CAD/CAM/MC controller	Not offered (PC controller optional)	\$1500 - Integrated and tested (optional)	Not required for MC. Not offered for CAD/CAM
Servo axis drive system	Not offered	Optional (\$3000 / 3 axis)	Standard
Turn key manufacturing solution	Unknown	Yes, we can program, fixture, tool, and deliver ready to load stock. Just plug in, load stock, press cycle start.	Varies by local dealer support programs
5th axis support	Unknown	Yes, optional	Not offered
Fully loaded price (4th axis, most options)	\$ 16,277	\$ 18,944	\$ 58,330
Domestic freight, setup, sundries, fluids (estimate, may widely vary)	\$1000 - \$2000 (Est. varies with setup/assembly labor charges)	\$1200 (Freight average \$900)	\$2000 - \$3500 (varies with rigging charges & location of delivery)
Feature Comparison with basic equipment			
Ships as	Multiple boxes, assembly required	Single crate. No assembly required.	Dealer rigging required (\$55)
Coolant and chip containment	Open machine (tray)	Fully enclosed	Fully enclosed
Axis motion	Hand scraped ways with Gib adjustment (turcite)	Linear bearings	Linear bearings
Axis feedrate	110 IPM Max	200 IPM recommended (400 IPM max)	600 IPM
Axis max thrust	Not specified	1000 lbs	2000 lbs
Axis drive	Microstepping drive	Hybrid Microstepping drive (Servo optional)	Servo drive
Optional axial drive	Not offered	DC Servo	Not offered
Machine control system topography	Breakout Control board to external motion controller	Microprocessor control system with industrial motion controller integration (optional) & manual control	control system with motion control
Manual control & DRO independent of motion control	No	Yes	No
Manual feedrate calculation	No	Yes	No
X axis travel	18"	16.75"	16"
Y axis travel	9.5"	9.35"	12"
Z axis travel	16.25"	16.5"	10" (4" riser \$3395)
Macro code support	Yes	Yes	\$2,295
Emergency stop & machine protection system	unknown topography, integrated to motion control	Dedicated separate microprocessor system (total authority including under/over voltage, travel limit, spindle load feedback)	unknown topography, integrated to motion control
Emergency stop location	Located behind machining workspace. External kit \$95	External and separated from machining workspace	External and separated from machining workspace
Industrial jog pendant	Not offered - PC wheel only	\$ 0 - included with every machine	\$1,095
Control system location	Depicted in workspace, not protected from coolant / chips	External and separated from machining workspace	External and separated from machining workspace
Spindle position orientation	Not offered	\$ 0 - included with every machine	\$795
Spare relay controls	Not offered	\$ 0 - included with every machine	\$1,195
Safety labeling & lockout for industrial / educational use	Up to user to verify	Standard	Standard
Safety warning light	Not offered	Standard	Standard
Spindle RPM (Standard)	5000 rpm	5000 rpm	6000 rpm
Spindle temp at max RPM, unloaded	190 degrees F	115 degrees F	Unknown
Spindle power	1.5 HP	3 HP	7.5 HP
RPM at peak power point	Not published. Assumed to be ~3450 RPM	5000 RPM	Not published. Assumed to be ~4000 RPM
Spindle drive	AC open loop - Non linear	Brushless DC closed loop - Linear Servo	AC non linear - encoded option
Spindle drive optional	800 Watt aux offset	2.2 KW 24,000 RPM AC open loop - replacement (\$1500)	10,000 RPM "Super" replacement (\$10,000)
Spindle drive custom	Not offered	Available (call)	Not offered
Torque	Varies with speed, belt changes required	Constant torque. Single ratio	Varies with speed. Single ratio
Tool change	Manual (auto available)	Manual (Auto on 1610LP)	Automatic (10 pocket)
Spindle taper	R8	R8	40
Ballscrew grade	Standard pitch C5 grade on P4 bearings	Fine pitch C3 grade on P4 Bearings	Fine pitch - resolution indicates C1 grade
Casting grade	Unspecified	Meehanite type low silicon grey cast iron - SAE G3000	Unspecified
Casting design	Up to user to verify	Mikini exclusive, CAD/CAM/FEA optimized	Haas exclusive
Footprint	80" x 45"	60" x 35.5"	78" x 78"
Fits in 7' door (Standard garage)	Yes	Yes	No - 8.5' tall
Operates in 8' ceiling (standard ceiling)	Yes	Yes	No - 8.5' tall
Fits through 36" door	With disassembly	Yes	No, not possible
Portable in typical freight elevator or truck lift gate	Yes	Yes	Not typically
Repeatability	Requires Gib adjustment. 0.001" specified. Reported greater than 0.001"	0.0003"	0.0001"
Long stock capacity	Open machine (unlimited)	Doors on enclosure (unlimited)	Limited to enclosure
Out of warranty parts costs	\$5	\$5	\$55555
Final Assembly	China	USA	USA
Air compressor Required	No	No	Yes - 4 SCFM at 100 PSI (Large compressor)
Power required	200 - 250 VAC, single connection, 1 phase, 20A	200 - 250 VAC, single connection, 1 phase, 20A	208 VAC 3 phase 30A / 240 VAC 1 phase 50A*
Machine weight	1130 lbs	2000 lbs	3400 lbs



Image may show additional equipment not included
Base is fabricated steel, customer assembled



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All equipment shown included, and not all included equipment is shown here (pendant, trays, etc)
Delivered as pictured. Floor standing cast machine '11 shown



Image may show additional equipment not included
Rigged as pictured. Floor standing cast machine

All information subject to change without notice and presented for comparison only. Strictly subject to verification by end user. As presented by each manufacturer online. We welcome you to compare the Mikini 1610L Features, performance and value to any machine on the market worldwide. Mikini welcomes all additional or updated information. Mikini does not invest heavily in marketing, which is part of what allows us to bring you this level of performance at this value. Your interest and word of mouth is appreciated. Pricing comparison based on package for small business making parts with professional setup, and may vary greatly up/down depending on tooling, parts and accessories. Copyrights and trademarks property of respective owners. Prepared for Mikini Mechatronics, LLC - 2012 on www.miknimech.com 831.254.2012 Watsonville, California, USA

