



Machine Model	HM35
Travel	51 x 35 x 25"
Spindle Horsepower <i>1 minute / 30 minutes</i>	24/15 HP <i>18/11 kw</i>
Optional Horsepower	2 Speed 24/15 or 35/25 HP
Tool Changer	30 Pocket Double Arm
Table Fixturing Options	Angle Plate – 90° Indexing Table - Fully Programmable Table
MACHINE FEATURES	CONTROL FEATURES
<ul style="list-style-type: none"> • Two Year Parts Warranty • Massive Heavily Ribbed Cast Iron Construction • Hardened and Ground Square Box Ways with Turcite • Precision Ground Table Surface • Heavy Duty #40 Taper, 5 Bearing, 70mm, 8000 RPM, 5.75" Air Purged Spindle Cartridge Assembly • Air Blast Hose and Wash Down Hose • Spindle Blow Out and Tool Release Push Button • Automatic Metered Lubrication with Low Lube Fault • Ground 40 mm Ball Screws, Double Nut, Double Anchored • Full Metal Enclosure with Work Lights • Dual Chip Auger System • Retractable High Speed Double Arm 30 Pocket ATC • Metal Way Covers on All Axes • Front Mounted Auxiliary Operators Station • Six Nozzle High Volume Flood Coolant System • Networking Option Includes 30 Days Phone Support • Rigid Tap 	<ul style="list-style-type: none"> • PC-based CNC Includes 2 MB Parts Storage Memory • LCD Active Matrix Color Display • Conversational Plus G & M Code Programming • 3-D Part and Wire Frame Tool Path Graphics on Series 7200 Plus Solid Modeling Graphics on Series 8200 • 6 MB Virtual Disk / RS-232 with DNC Buffer • High Speed Processor (7200 Series 1200 Block/Sec, 8200 Series 2000 Blocks/Sec) • Optional Four and Five Axis Simultaneous Interpolation Software and Interface • High Torque AC Digital Servo Drives • High Torque Closed Loop Vector Spindle Drive System • All Axes Laser Calibrated and Ballbar Inspected • Spindle Load Meter • Auxiliary Keyboard Port for PC Keyboard • 24/15 H.P Closed Loop High Torque Vector Spindle Drive System • End of Cycle Light
SOFTWARE PACKAGE A	PERFORMANCE PACKAGE C
<p>Additional 10 MB Parts Storage (Total of 12 MB)</p> <p>Coordinate Rotating, Scaling, Mirror Image, Thread Mill 3.5" Floppy Drive</p> <p>Engraving, Helical Interpolation, Auto Routines, and User Definable Macros with Trig Assist, & Irregular Pocket Clearing</p> <p>Front Panel Mounted Electronic Handwheel Plus Handwheel Controlled Program Execution</p> <p>24 MB Program Execution Memory with Large Program Management Software (Allows editing of 10 MB file)</p> <p>LCD Hour Meter</p> <p>Auto DXF File Import</p> <p><i>Items may be purchased separately</i></p>	<p>Upgrade to Two Speed 24/15 HP Wye/Delta Spindle Drive System</p> <p>Remote Handwheel Unit Mounted in Front of Machine</p> <p>Second Work Light</p> <p>Edit Key Lock-out Switch</p> <p>Offline FastCAM Software for Programming and Training</p> <p><i>Items may be purchased separately</i></p>
CONVENIENCE PACKAGE B	8200 Control Package D - Includes all the following:
<p><i>Not available on this model</i></p>	<p>Solid State Non-Volatile Memory Upgrade to 300 MB</p> <p>Enhanced CPU Increases Block Processing Speed from 1200 to 2000 bps</p> <p>Solid Model Graphics Functionality</p> <p>USB Connectivity in lieu of Floppy Disk Drive</p> <p>High Speed Performance with Enhanced Jerk Control and Look Ahead</p> <p>MT Connect Compliant</p>

SPINDLE CONFIGURATIONS	
Specify Tool Holder CT40	
Optional Tool Holder BT40 or DIN 69871	
Two Chip Buckets for Dual Auger System	
Coolant Through Spindle – 300 PSI Low Pressure System <i>Only Available With Full Enclosure Option – Requires the Use of ANSI Style Retention Knobs</i>	
Coolant Through Spindle – 700 PSI Complete System <i>Only Available With Full Enclosure Option – Requires the Use of ANSI Style Retention Knobs</i>	
Coolant Through Spindle Ready Kit (Includes Drawbar Assembly for ANSI Style Retention Knobs and Rotary Coupling. Does Not Include Pumps or External Coolant Tank.)	
Spindle Chiller Loop for Spindle Cooling (Allows For the Spindle Cooling Without Flood. If Combined With Flood, Converts the Flood to Two Nozzles. Recommended Where Coolant is Not Used or Head Growth is a Concern.)	
Upgrade to Two-Speed 35/25 HP (26/18 kw) Wye/Delta Spindle Drive System <i>Requires Purchase of Performance Package C</i>	
Upgrade to 15,000 RPM Ceramic Duplex Bearing Spindle <i>Recommend Two Speed</i>	
FIXTURING ACCESSORIES	
90° Angle Plate – 24.8" 630mm Sq.	
Horizontal Indexing Table – 23.6" 600 mm Square 90° Locking	
Horizontal Rotary Table – 20" 510 mm Square 4 th Axis Contouring	
4 th Axis Servo Amplifier & Motor (Electrics only) <i>Included with Rotary Table Accessory</i>	
OTHER ACCESSORIES	
Upgrade to Solid State Non-Volatile Memory 256 MB Flash Card – 7200 Controls only	
Programmable Spray Mist <i>On/Off</i>	
Spare "M" Functions – Block of 4 (Maximum 2 Blocks – Price is For Each Block)	
Work Offset Probing with Macros	
Contact Tool Offset Probing with Macros (<i>Contact Factory</i>)	
Combo Pack – Contact & Work Tool Offset Probing with Macros	
Laser Tool Setter (<i>Contact Factory</i>)	
Digiscan Digitizing 3-D Software, Probe, Manuals	
RS-232 Cable, 50' 15 Meters	
Additional Programming Manual	
Programming Manual in Electronic Format on CD	
Additional Machine Manual	
Power Requirements 208-240 VAC, 50 – 60 hz, 3Ø	
Voltage 208-240 Single Phase	
380-480 Transformer (Reduces Voltage to 208-240) <i>Factory Recommended Sizes. Consult Local Electrical Codes for Proper Transformer Sizing.</i>	With 24 HP 20 kVA
	With 35 HP 40 kVA
UL/CUL Compliance	
CE Code <i>Required for European Union Countries</i>	
International Packaging	
Two Year Parts Warranty ^{<i>See Note</i>}	
Factory Start-up and Training On Site, U.S. only (<i>Does not Include Airfare</i>)	
Training at Milltronics (<i>Includes Lunches, Training, Materials and Manual</i>)	
<p><i>Terms within USA: Cash or terms with approved credit; down payment due with order. Terms outside USA: Cash or approved Letter of Credit</i></p> <p><i>F.O.B Waconia, Minnesota USA; Prices do not include taxes, duties, transportation, rigging or start-up.</i></p> <p><i>Milltronics reserves the right to amend or change without notice without incurring obligation; not responsible for typographical errors.</i></p> <p><i>Consult Written Warranty Statement for Details of Two Year Parts Warranty</i></p> <p><i>All sales of equipment, parts, software and service are subject to Milltronics' Standard Terms and Conditions of Sale.</i></p>	

HM – Horizontal Machining Center Specifications

Effective September 1, 2010



Machine Model	HM35	
Control Type	Milltronics CNC	
Number of CNC Axes	Up to 5	
CAPACITY		
Table Size	59 x 26" <i>1500 x 660 mm</i>	
Table Travel X Axis	51" <i>1300 mm</i>	
Head Travel Y Axis	35" <i>890 mm</i>	
Saddle Travel Z Axis	25" <i>635 mm</i>	
Spindle Face to Table Center	8.5" – 33.5" <i>215 – 850 mm</i>	
Spindle Center to Table Top	5" – 40" <i>125 – 1015 mm</i>	
Maximum Table Load (Including Fixturing Weight)	3500 lb <i>1590 kg</i>	
Machine Weight	24,000 lb <i>11,000 kg</i>	
Machine Table T Slots (# / Width / Spacing)	5 / .71" <i>18 mm</i> / 4.33" <i>110mm</i>	
Base Width / Saddle Width	33 / 32" <i>835 / 810 mm</i>	
Ball Screw Size	40 mm Double Nut	
Ball Screw Grade	C3, 12 pitch	
SPINDLE		
Specify Tool Holder Type	CT40 or BT40	
Standard Horsepower; 1 minute / 30 minutes Reference Torque Chart:	24/15 HP <i>18/11 kw</i> 24/15/1/B/Y	
Optional Horsepower; 1 minute / 30 minutes – Purchase in Package C Reference Torque Chart:	Two Speed 24/15 HP <i>18/11 kw</i> 24/15/2/B/Y	
Optional Horsepower; 1 minute / 30 minutes – Purchase as an Accessory Reference Torque Chart:	35/25 <i>26/18 kw</i> Two Speed WYE/Delta 35/25/2/B/Y	
Standard Spindle - Heavy Duty 70 mm Triplex Steel Bearing Spindle	50 - 8000 RPM	
Optional Spindle - Ceramic Duplex Bearing Spindle <i>Recommend Two Speed Motor</i>	100 - 15,000 RPM	
Balanced Tooling Requirements	Tools Should Be Balanced to 2.5 G's at 15,000 RPM	
COOLANT THROUGH SPINDLE	Low Pressure System	High Pressure System
Coolant Through Spindle Option (CTS) <i>Requires the Use of ANSI Retention Knob</i>	300 psi <i>20 bar</i>	700 psi <i>48 bar</i>
CTS - Pump Filtration	11 Micron	11 Micron
CTS - Additional Coolant Capacity	80 gal <i>300 L</i>	118 gal <i>450 L</i>
CTS- Flow Rate	5 gal/min <i>19 L/min</i>	5 gal/min <i>19 L/min</i>
CTS – Pump HP	5 HP <i>3.7 kw</i>	5 HP <i>3.7 kw</i>
PERFORMANCE		
Servo Type	AC Digital	
Rapid Traverse XYZ	800 ipm <i>20 mpm</i>	
Maximum Feedrate <i>Part Dependent</i>	300 ipm <i>7620 mmpm</i>	
Position Accuracy <i>See note1</i>	±0.00039" <i>.01 mm</i>	
Repeatability <i>See note1</i>	.0002" <i>.005 mm</i>	
Feedback Resolution	.00004" <i>.001 mm</i>	
Thrust, Machine Duty Rating XY, Z	4000 lb <i>1800 kg</i> , 6000 lb <i>2720 kg</i>	
ATC – ARM TYPE		
Number of Pockets	30	
Tool Change Time	20 Seconds	
Maximum Tool Diameter <i>Greater Than 3.3" Diameter Tool Requires Adjacent Empty Pockets</i>	3.3" <i>85 mm</i> or 6.6" <i>170 mm</i>	
Max Tool Length / Weight	9" <i>230 mm</i> 17 lb <i>8 kg</i>	
OPTIONAL ANGLE PLATE		
Face Place Height	24.8" <i>630 mm</i>	
Face Plate Width	24.8" <i>630 mm</i>	

Machine Model	HM35
Face Plate Hole Matrix	132 Holes on 1.96" <i>50 mm</i> Spacing
Matrix Hole Size	M16
Weight	650 lbs <i>295 kg</i>
OPTIONAL INDEXING TABLE - 90° LOCK	
Table Work Area	23.6 x 23.6" <i>600 x 600 mm</i>
Table Height	11.2" <i>285 mm</i>
T Slots (Number) Width / Spacing	(5) .71" <i>18 mm / 3.93" 100 mm</i>
Table Load Capacity	2300 lb <i>1043 kg</i>
Table Clamping Force	17,000 lb <i>7916 kg</i>
Table Clamping Positions – Number / Degree	4 / 90°
Positioning Accuracy - 90° Clamping Positions	± 4 Degree Seconds
Repeatability - 90° Clamping Positions	± 1 Degree Seconds
Rotary Table Weight	1200 lb <i>550 kg</i>
OPTIONAL ROTARY TABLE – 4th AXIS CONTOURING	
Table Work Area	19.75 x 19.75" <i>500 x 500 mm</i>
Table Height	8" <i>202 mm</i>
T Slots (Number) Width / Spacing	(5) .56" <i>14 mm / 4" 101 mm</i>
Table Load Capacity	2500 lb <i>1135 kg</i>
Table Clamping Torque <i>See Note2</i>	800 lbf-ft <i>360 kgf-m</i>
Table Clamping Positions – Number / Degree	Infinite
Positioning Accuracy	± 20 Arc Seconds
Repeatability – Approach From Same Direction	±10 Arc Seconds
Rotary Table Weight	1,000 lb <i>550 kg</i>
MISCELLANEOUS	
Standard Flood Capacity	80 gal <i>300 L</i>
Drawbar Air Pressure Required	100 psi <i>6.8 bar</i>
Power 208-240 VAC 50-60hz, 3Ø	50 amps 19 KVA
Power 208-240 VAC 50-60hz, 3Ø – <i>With 35 HP Option</i>	100 amps 38 KVA
Power 208-240 VAC Single Phase	Not Available
400-440 VAC	Requires Transformer
Floor Space Requirement	196" x 160" <i>5000 x 4000 mm</i>
Warranty	Parts: Two years or 4200 hours, whichever occurs first, for normal failures. Service: One year or 2100 hours, whichever occurs first, from distributor.

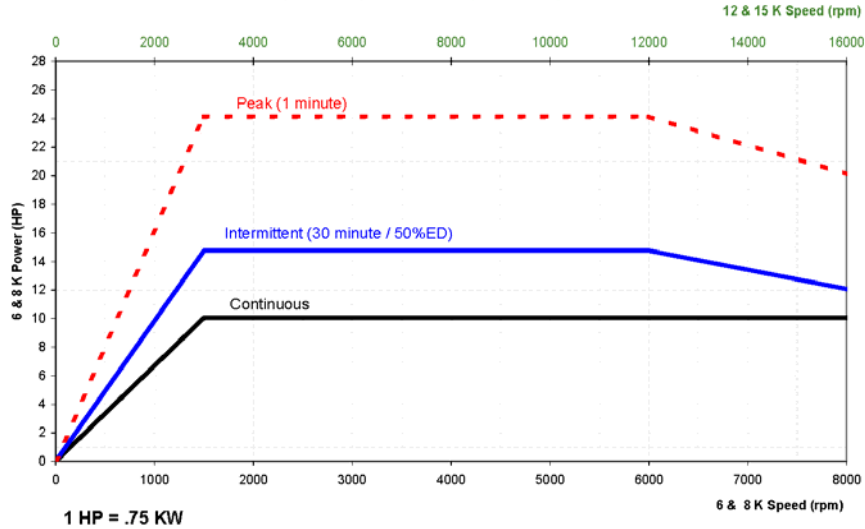
Note 1: Measurements performed with Renishaw laser and ballbar systems. Measurements are linear over entire travel. Temperature changes and table loading may affect tolerances. Tolerances are guaranteed over 20" sq. area.

Note 2: For maximum holding torque, load should be placed against the worm drive. Centurion features covered under separate literature. For machine duty rating, see "Truth in Specifications" on www.milltronics.net. Milltronics reserves the right to amend or change specifications at any time without notice without incurring obligation.

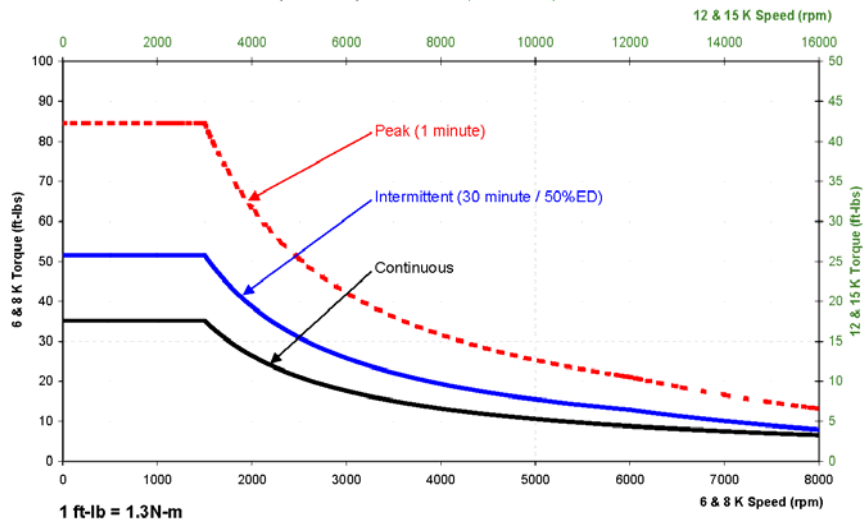
Yaskawa Torque Chart 24/15/1/B/Y – Belted Spindle

Used on: Standard HM35
Optional N/A

Power Characteristics of 24/15 HP Single Winding Motor
for 6,000 and 8,000 RPM or 12,000 and 15,000 RPM



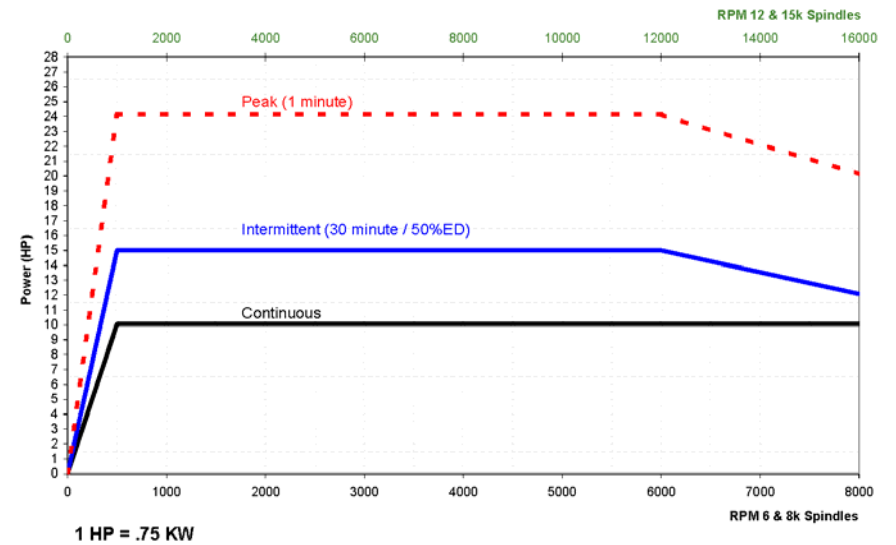
Torque Characteristics of 24/15 HP Single Winding Motor
for 6,000 and 8,000 RPM or 12,000 and 15,000 RPM



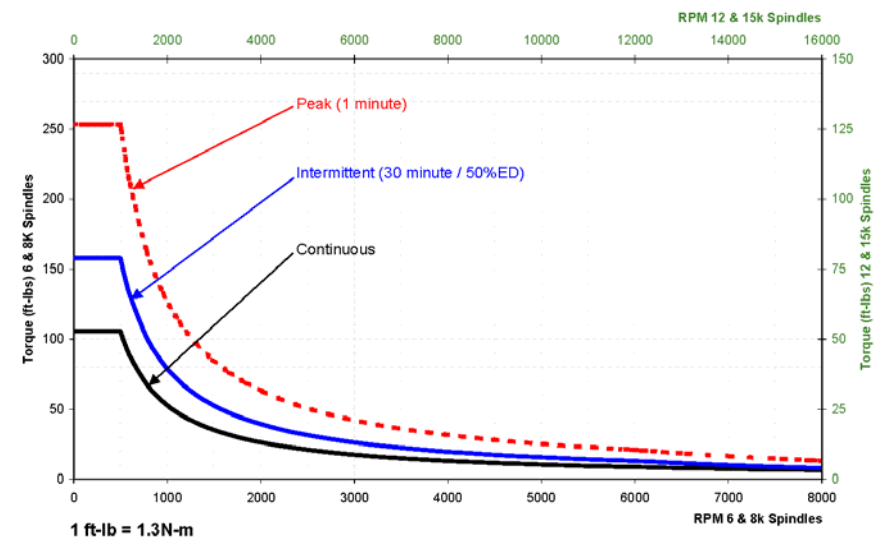
Yaskawa Torque Chart 24/15/2/B/Y – Belted Spindle

Used on: Standard N/A
Optional HM35

Power Characteristics of 24/15 HP WYE Delta Motor
for 6,000 and 8,000 RPM or 12,000 and 15,000 RPM



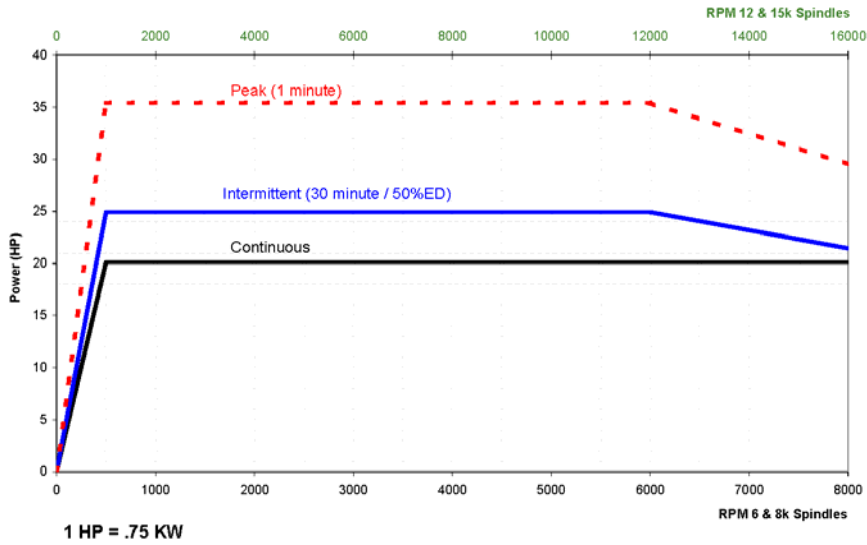
Torque Characteristics of 24/15 HP WYE Delta Motor
for 6,000 and 8,000 RPM or 12,000 and 15,000 RPM



Yaskawa Torque Chart 35/25/2/B/Y – Belted Spindle

Used on: Standard N/A
Optional HM35

Power Characteristics of 35/25 HP WYE Delta Motor
for 6,000 and 8,000 RPM or 12,000 and 15,000 RPM



Torque Characteristics of 35/25 HP WYE Delta Motor
for 6,000 and 8,000 RPM or 12,000 and 15,000 RPM

