

VM 40 Taper Vertical Linear Way Machining Center

Effective June 1, 2011



Machine Model	VM15	VM16	VM20	VM22	VM25	VM30	
Standard Travel (XYZ")	25 x 16 x 20	30 x 16 x 20	30 x 20 x 26	40 x 22 x 26	50 x 25 x 24	50 x 30 x 24	
Extended Travel Option (XYZ")	30 x 16 x 20	30 x 16 x 26	40 x 20 x 26	N/A	60 x 25 x 24	60 x 30 x 24	
ATC Type	Standard	16 Carousel	16 Carousel	24 Carousel	24 Carousel	24 Carousel	24 Carousel
	Option 1	24 Carousel	24 Carousel	24 Arm	24 Arm	24 Arm	24 Arm
	Option 2	24 Arm	24 Arm	N/A	40 Arm	40 Arm	40 Arm
Flood Coolant with Tank and 6 Nozzles	Optional	Standard	Standard	Standard	Standard	Standard	
Lubrication	Grease	Autolube	Autolube	Autolube	Autolube	Autolube	
Linear Ball Ways – Standard	X, Y, Z: 35 mm			X, Y: 35 mm Z: 45 mm	X: 35 mm, Y, Z: 45 mm		
Linear Roller Ways – Premier Package	N/A	X, Y, Z: 35 mm		X, Y: 35 mm Z: 45 mm	X: 35 mm, Y, Z: 45 mm		
Horsepower Standard <i>1 minute / 30 minutes</i>	Single Speed 12/10 hp 9/7.5 kw	Single Speed 18/12 hp 13/9 kw	Single Speed 24/15 hp 18/11 kw	Single Speed 24/15 hp 18/11 kw	Two Speed 24/15 hp 18/11 kw	Two Speed 24/15 hp 18/11 kw	
Horsepower Option <i>1 minute / 30 minutes</i>	Single Speed 18/12 hp 13/9 kw	Single Speed 24/15 hp 18/11 kw	Two Speed 24/15 hp 18/11 kw	Two Speed 24/15 hp 18/11 kw	Two Speed 35/25 hp 26/18 kw	Two Speed 35/25 hp 26/18 kw	
Standard Spindle Size	60 mm	60 mm	60 mm	60 mm	60 mm	60 mm	
Spindle Size – Premier Package	N/A	70 mm	70 mm	70 mm	70 mm	70 mm	
MACHINE FEATURES			CONTROL FEATURES				
<ul style="list-style-type: none"> • Two Year Warranty • Massive Heavily Ribbed Machine Tool Grade Cast Iron Construction • Precision Ground Table, Rail and Rail Block Mounting Surfaces • Chip Removal System with Optional Auger and Conveyor • Inverted Rail Table Designs Keeps Bearing Blocks Centered Under Spindle • Soft Start High Speed Way Covers Allows for up to 1600 ipm Rapid Traverse Rates • Heavy Duty Enclosure with Work Light and Overhead Loading Capability • Wide Side Doors for Cleaning or Large Parts That Can Extend Through • Precision Ground Double Anchored Ball Screws With Dampening Couplings • Five Bearing Air Purged 8,000 RPM Spindle Cartridge Assembly, Optional 15,000 RPM • Spindle Taper Blow-out and Tool Release Push Button • Electronic Spindle Orient and Rigid Tap • LCD Hour Meter • Front Panel Mounted Electronic Handwheel & Handwheel Controlled Program Execution • Programming & Machine Manuals in Electronic Format • Single Spare "M" Function with CNC "Wait" Channel 			<ul style="list-style-type: none"> • PC-based 7200 CNC includes 12 MB Parts Storage Memory • 12" LCD Active Matrix Color Display • Conversational plus G & M Code Programming including Coordinate Rotating, Scaling, Mirror Image, Thread Mill Engraving, Helical Interpolation, Auto Routines, & User definable Macros with Trig Assist, & Irregular Pocket Clearing • Auto DXF File Import • 3-D Part and Wire Frame Tool Path Graphics on Series 7200 Plus • Solid Modeling Graphics on Series 8200 • 3.5" Floppy Drive / RS-232 with DNC Buffer (7200 CNC Only) • Large Program Management Software (Allows Editing of 10 MB Files) • High Speed Processor (7200 Series 1200 block/sec, 8200 Series 2000 blocks/sec) • Optional Four & Five Axis Simultaneous Interpolation Software & Interface • High Torque AC Digital Servo Drives • High Torque Closed Loop Vector Spindle Drive System • Spindle Load Meter 				

CONVENIENCE PACKAGE						
	VM15	VM16	VM20	VM22	VM25	VM30
Air Blast Hose & Chip Wash Down Hose (<i>Requires Flood Coolant</i>)	Optional	Optional	Optional	Optional	Optional	Optional
Networking Option Includes 30 days Phone Support	Optional	Optional	Optional	Optional	Optional	Optional
Automatic Lubrication with Low Lube Fault	Optional	Standard	Standard	Standard	Standard	Standard
Chip Bucket for Chip Auger or Conveyor	Accessory	Optional	Optional	Optional	Optional	Optional
Offline Fast Cam Software for Programming	Optional	Optional	Optional	Optional	Optional	Optional
Flood Coolant System Including Through Head Cooling, Six Nozzles and Flood Pan	Optional	Standard	Standard	Standard	Standard	Standard
Chip Auger System – <i>Requires Flood Coolant</i>	Optional	Optional	Optional	Optional	Optional	Optional
Remote Handheld Electronic Handwheel	Accessory	Optional	Optional	Optional	Optional	Optional
<i>Items may be purchased separately</i>						
PERFORMANCE PACKAGE						
	VM15	VM16	VM20	VM22	VM25	VM30
Edit Key Lock-Out Switch	Optional	Optional	Optional	Optional	Optional	Optional
Upgrade Spindle Motor to 18/12 HP <i>13/9 kw</i>	Optional	N/A	N/A	N/A	N/A	N/A
Upgrade Spindle Motor to 24/15 HP <i>18/11 kw</i>	N/A	Optional	N/A	N/A	N/A	N/A
Upgrade Spindle Motor to Two Speed 24/15 HP <i>18/11 kw</i>	N/A	N/A	Optional	Optional	N/A	N/A
Upgrade Spindle Motor to Two Speed 35/25 HP <i>26/18 kw</i>	N/A	N/A	N/A	N/A	Optional	Optional
Chip Wash Down System	Optional	Optional	Optional	Optional	Optional	Optional
PC Keyboard Tray	Optional	Optional	Optional	Optional	Optional	Optional
End of Cycle Light	Optional	Optional	Optional	Optional	Optional	Optional
Programmable Air Blast	Optional	Optional	Optional	Optional	Optional	Optional
<i>Items may be purchased separately</i>						
8200 CONTROL PACKAGE – Purchase as a Complete Package Only and Includes all the following:						
<ul style="list-style-type: none"> • Solid State Non-Volatile Memory Upgrade to 1 GB • Enhanced CPU Increases Block Processing Speed from 1200 to 2000 bps • Solid Model Graphics Functionality • USB Connectivity in lieu of 3.5" Floppy Disk Drive • High Speed Performance with Enhanced Jerk Control and Look Ahead • MT Connect Compliant 						
<i>3.5" Floppy Drive is replaced by USB. Do not combine with 256 MB Program Storage and Multi Format Flash Card Reader from other accessories. FastCAM Software replaced with 8200 Software. RS-232 Data transfer not available on 8200 control.</i>						

PREMIER PACKAGE							VM15	VM16	VM20	VM22	VM25	VM30
Convert Linear Ball Ways on X, Y and Z Axes to Linear Roller Ways							N/A	Optional	Optional	Optional	Optional	Optional
Convert 60mm Spindle Cartridge to 70 mm Spindle Cartridge							N/A	Optional	Optional	Optional	Optional	Optional
Convert 10 mm Pitch Ball Screw to 16 mm Pitch – <i>Higher Rapids</i>							N/A	Optional	Optional	Optional	Optional	Optional
Thermal Ball Screw Compensation on X and Y Axis							N/A	Optional	Optional	Optional	Optional	Optional
Thermal Ball Screw Compensation on Z Axis							N/A	Optional	Optional	Optional	Optional	Optional
<i>Items may be purchased separately</i>												
MACHINE ACCESSORIES												
SPINDLE CONFIGURATIONS #40 Taper – Standard spindle on all models is CT type							VM15	VM16	VM20	VM22	VM25	VM30
#40 BT Type							Optional	Optional	Optional	Optional	Optional	Optional
Upgrade to 15,000 RPM Ceramic Bearing 60 mm Spindle – <i>Recommend HP Upgrade</i>							Optional	Optional	Optional	Optional	Optional	Optional
Upgrade to 15,000 RPM Ceramic Bearing 70 mm Spindle – <i>Recommend HP Upgrade</i> (Requires 70mm spindle upgrade in Premier Package)							N/A	Optional	Optional	Optional	Optional	Optional
Coolant Through Spindle – 700 PSI High Pressure System – <i>Requires Purchase of 70 mm Spindle Upgrade and Arm ATC Recommended. Includes drawbar assembly for ANSI retention knobs and rotary coupling.</i>							N/A	Optional	Optional	Optional	Optional	Optional
Coolant Through Spindle – 300 PSI Low Pressure System – <i>Requires Purchase of 70 mm Spindle Upgrade and Arm ATC Recommended. Includes drawbar assembly for ANSI retention knobs and rotary coupling.</i>							N/A	Optional	Optional	Optional	Optional	Optional
Coolant Through Spindle Ready Kit - <i>Includes drawbar assembly for ANSI retention knobs and rotary coupling. Does not include pumps or external coolant tank. Requires Purchase of 70 mm Spindle Upgrade and Arm ATC Recommended</i>							N/A	Optional	Optional	Optional	Optional	Optional
AUTOMATIC TOOL CHANGER							VM15	VM16	VM20	VM22	VM25	VM30
Upgrade from 16 Pocket Carousel ATC to 24 Carousel ATC – VM15 and VM16 only							Optional	Optional	N/A	N/A	N/A	N/A
Upgrade from 16 Pocket Carousel ATC to 24 Arm ATC – VM15 and VM16 only							Optional	Optional	N/A	N/A	N/A	N/A
Upgrade from 24 Pocket Carousel ATC to 24 Arm ATC – V M20, VM22, VM25 and VM30 only							N/A	N/A	Optional	Optional	Optional	Optional
Upgrade from 24 Pocket Carousel ATC to 40 Arm ATC – VM22, VM25 and VM30 only							N/A	N/A	N/A	Optional	Optional	Optional
ROTARY TABLE ACCESSORIES							VM15	VM16	VM20	VM22	VM25	VM30
Rotary Tables <i>Includes 4th axis amp & motor</i> <i>Application may require riser</i>		6.5" (165 mm) <i>Tail Stock</i>					Optional	Optional	Optional	Optional	Optional	Optional
		9.0" (228 mm) <i>Tail Stock</i>					Optional	Optional	Optional	Optional	Optional	Optional
		10.0" (254 mm) <i>Tail Stock</i>					N/A	Optional	Optional	Optional	Optional	Optional
		5C Collet Table					Optional	Optional	Optional	Optional	Optional	Optional
4 th Axis Servo Amplifier & Motor (Electrics only 0.9 kw motor, larger tables may require a larger motor) – Contact factory for 5 axes <i>Included with Rotary Table Accessory</i>							Optional	Optional	Optional	Optional	Optional	Optional
Milltronics will charge an engineering fee to interface a customer provided rotary table with the electrics only package. Charge will depend on table and engineering requirements												

MACHINE ACCESSORIES		VM15	VM16	VM20	VM22	VM25	VM30
Upgrade to Solid State Non-Volatile Memory 256 MB Flash Card – 7200 Controls only		Optional	Optional	Optional	Optional	Optional	Optional
Multi Format Flash Card Reader – 7200 Controls only		Optional	Optional	Optional	Optional	Optional	Optional
Programmable Spray Mist <i>On/Off</i>		Optional	Optional	Optional	Optional	Optional	Optional
Remote Handheld Electronic Handwheel (Not CE)		Optional	Conv Pkg	Conv Pkg	Conv Pkg	Conv Pkg	Conv Pkg
Spindle Chiller Loop		Optional	Optional	Optional	Optional	Optional	Optional
Chip Conveyor in Lieu of Chip Auger <i>Requires purchase of chip auger in Convenience Pkg</i>		Optional	Optional	Optional	Optional	Optional	Optional
Pressurized Air/Oil Purge System for Ball Screws and Bearing Blocks		Optional	Optional	Optional	Optional	Optional	
Chip Bucket for Chip Auger or Chip Conveyor		Optional	Conv Pkg	Conv Pkg	Conv Pkg	Conv Pkg	Conv Pkg
Riser Block – Consider Extended Z Travel on VM16	Column 4" <i>100 mm</i> <i>Not Removable</i>	N/A	Optional	Optional	Optional	Optional	Optional
	Column 6" <i>150 mm</i> <i>Not Removable</i>	N/A	Optional	Optional	Optional	Optional	Optional
Spare “M” Functions – Block of 4 <i>Maximum 2 blocks; price is for each block</i>		Optional	Optional	Optional	Optional	Optional	Optional
Contact Tool Offset Probing with Macros		Optional	Optional	Optional	Optional	Optional	Optional
Work Offset Probing with Macros		Optional	Optional	Optional	Optional	Optional	Optional
Combo Pack – Contact & Work Tool Offset Probing with Macros		Optional	Optional	Optional	Optional	Optional	Optional
Laser Tool Setter		Optional	Optional	Optional	Optional	Optional	Optional
<i>Digiscan</i> Digitizing 3-D Software, Probe, Manuals - <i>Not available with 8200 Control Package</i>		Optional	Optional	Optional	Optional	Optional	Optional
RS-232 Cable, 50' <i>15 Meters</i>		Optional	Optional	Optional	Optional	Optional	Optional
Printed Programming Manual (Electronic Format Standard)		Optional	Optional	Optional	Optional	Optional	Optional
Printed Machine Manual (Electronic Format Standard)		Optional	Optional	Optional	Optional	Optional	Optional
Power Requirements 208-240 VAC, 50 – 60 hz, 3Ø		Standard	Standard	Standard	Standard	Standard	Standard
380-480 Transformer (Reduces Voltage to 208-240) <i>Factory recommended sizes. Consult local electrical codes for proper transformer sizing</i>	20 kVA	Optional	Optional	Optional	Optional	Optional	Optional
	40 kVA for 35 HP Spindle	N/A	N/A	N/A	Optional	Optional	Optional
UL/CUL Compliance		Optional	Optional	Optional	Optional	Optional	Optional
CE Code <i>Required for European Union Countries</i>		Optional	Optional	Optional	Optional	Optional	Optional
Export Handling Fee		Consult Factory					
Crating Charge		Consult Factory					
Two Year Parts Warranty <i>See Note</i>		Standard	Standard	Standard	Standard	Standard	Standard
Factory Start-up and Training On Site, U.S. only		Optional	Optional	Optional	Optional	Optional	Optional
Training at Milltronics <i>Includes lunches, training, materials and manual</i>		Optional	Optional	Optional	Optional	Optional	Optional
<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>FCA Waconia, Minnesota USA; Prices do not include taxes, duties, transportation, insurance, 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>							

VM 40 Taper Vertical Linear Way Machining Center Specifications

Effective June 1, 2011



Machine Model	VM15	VM16	VM20	VM22	VM25	VM30
Standard Control Type	Milltronics 7200 CNC	Milltronics 7200 CNC	Milltronics 7200 CNC	Milltronics 7200 CNC	Milltronics 7200 CNC	Milltronics 7200 CNC
Optional Control Type	Milltronics 8200 CNC	Milltronics 8200 CNC	Milltronics 8200 CNC	Milltronics 8200 CNC	Milltronics 8200 CNC	Milltronics 8200 CNC
Number of Axes	3 (Opt 4 or 5)	3 (Opt 4 or 5)	3 (Opt 4 or 5)	3 (Opt 4 or 5)	3 (Opt 4 or 5)	3 (Opt 4 or 5)
CAPACITY						
Table Size	40" x 16" <i>1015 x 405 mm</i>	45" x 16" <i>1150 x 405 mm</i>	34" x 20" <i>864 x 510 mm</i>	45" x 24" <i>1150 x 610 mm</i>	56" x 24" <i>1420 x 610 mm</i>	56" x 24" <i>1420 x 610 mm</i>
Option Table Size – Extended Travel	45" x 16" <i>1150 x 405 mm</i>	N/A	45" x 20" <i>1150 x 510 mm</i>	N/A	66" x 26" <i>1680 x 660 mm</i>	66" x 26" <i>1680 x 660 mm</i>
Standard Table Travel X	25" <i>635 mm</i>	30" <i>760 mm</i>	30" <i>760 mm</i>	40" <i>1015 mm</i>	50" <i>1270 mm</i>	50" <i>1270 mm</i>
Optional Extended Table Travel – X	30" <i>760 mm</i>	N/A	40" <i>1015 mm</i>	N/A	60" <i>1524 mm</i>	60" <i>1524 mm</i>
Saddle Travel Y	16" <i>405 mm</i>	16" <i>405 mm</i>	20" <i>508 mm</i>	22" <i>560 mm</i>	25" <i>635 mm</i>	30" <i>760 mm</i>
Head Travel Z	20" <i>508 mm</i>	20" <i>508 mm</i>	26" <i>660 mm</i>	26" <i>660 mm</i>	24" <i>610 mm</i>	24" <i>610 mm</i>
Optional Extended Head Travel – Z	N/A	26" <i>660 mm</i>	N/A	N/A	N/A	N/A
Throat Distance – Spindle to Column	15" <i>397 mm</i>	15" <i>394 mm</i>	21" <i>535 mm</i>	23" <i>580 mm</i>	25" <i>635 mm</i>	30" <i>760 mm</i>
Spindle To Table Top - <i>Optional Column Risers increase dimensions by 4" 100 mm or 6" 150 mm</i>	4" - 24" <i>100 - 610 mm</i>	4" - 24" <i>100 - 610 mm</i>	4" - 30" <i>100 - 760 mm</i>	4.25" - 30.25" <i>110 - 770 mm</i>	4" - 28" <i>100 - 710 mm</i>	4" - 28" <i>100 - 710 mm</i>
Spindle To Table Top With Optional Head Travel - <i>Optional Column Risers increase dimensions by 4" 100 mm or 6" 150 mm</i>	N/A	4" - 30" <i>100 - 760 mm</i>	N/A	N/A	N/A	N/A
Maximum Table Load with Linear Ball Ways	1200 lb <i>590 kg</i>	1500 lb <i>680 kg</i>	2000 lb <i>910 kg</i>	3000 lb <i>1360 kg</i>	3500 lb <i>1580 kg</i>	3500 lb <i>1580 kg</i>
Maximum Table Load with Linear Roller Ways	N/A	2000 lb <i>910 kg</i>	2500 lb <i>1135 kg</i>	3500 lb <i>1580 kg</i>	4000 lb <i>1810 kg</i>	4000 lb <i>1810 kg</i>
Machine Weight	8,600 lb <i>3900 kg</i>	9,000 lb <i>4000 kg</i>	10,000 lb <i>4545 kg</i>	16,000 lb <i>7300 kg</i>	19,000 lb <i>8600 kg</i>	20,000 lb <i>9000 kg</i>
T Slots	(5) .63 <i>16 mm</i>	(5) .63 <i>16 mm</i>	(5) .63 <i>16 mm</i>	(5) .63 <i>16 mm</i>	(5) .63 <i>16 mm</i>	(5) .63 <i>16 mm</i>
Ball Screw Grade	C5	C5	C5	C5	C5	C5
Ball Screw Diameter: X, Y, Z	1.25"	1.25"	1.25"	1.25"	1.5"	1.5"
Ball Screw Pitch: X, Y, Z Lead	10 mm	10 mm	10 mm	10 mm	10 mm	10 mm
Ball Screw Pitch Optional (See Price Sheet)	N/A	16 mm	16 mm	16 mm	16 mm	16 mm
Linear Way Type and Size	35 mm Ball	35 mm Ball	35 mm Ball	XY 35 mm Ball Z 45 mm Ball	X 35 mm Ball YZ 45 mm Ball	X 35 mm Ball YZ 45 mm Ball
Premier Series Linear Way Type and Size	35 mm Roller	35 mm Roller	35 mm Roller	X 35 mm Roller YZ 45mm Roller	X 35 mm Roller YZ 45mm Roller	X 35 mm Roller YZ 45mm Roller
SPINDLE						
Standard Horsepower <i>1 minute / 30 minutes</i>	12/10 HP <i>9/7.5 kw</i>	18/12 HP <i>13/9 kw</i>	24/15 HP <i>18/11 kw</i>	24/15 HP <i>18/11 kw</i>	24/15 HP <i>18/11 kw</i> Two Speed	24/15 HP <i>18/11 kw</i> Two Speed

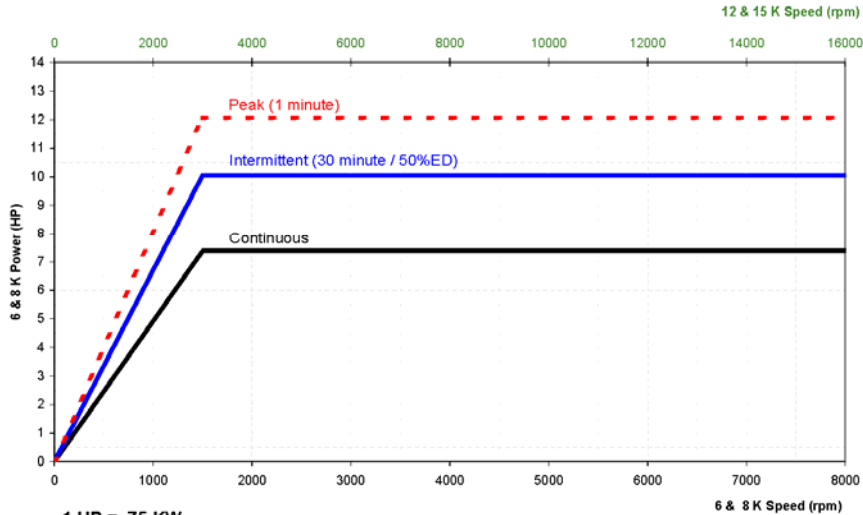
Machine Model	VM15	VM16	VM20	VM22	VM25	VM30
Reference Torque Chart:	12/10/1/B/Y	18/12/1/B/Y	24/15/1/B/Y	24/15/1/B/Y	24/15/2/B/Y	24/15/2/B/Y
Optional Horsepower <i>1 minute / 30 minutes</i>	18/12 HP <i>13/9 kw</i>	24/15 HP <i>18/11 kw</i>	24/15 HP <i>18/11 kw</i> Two Speed	24/15 HP <i>18/11 kw</i> Two Speed	35/25 HP <i>26/18 kw</i> Two Speed	35/25 HP <i>26/18 kw</i> Two Speed
Reference Torque Chart:	18/12/1/B/Y	24/15/1/B/Y	24/15/2/B/Y	24/15/2/B/Y	35/25/2/B/Y	35/25/2/B/Y
Standard Spindle Size	60 mm	60 mm	60 mm	60 mm	60 mm	60 mm
Premier Series Spindle Size	N/A	70 mm	70 mm	70 mm	70 mm	70 mm
Standard Spindle RPM – Triplex Bearing Design	50 - 8000	50 - 8000	50 - 8000	50 - 8000	50 - 8000	50 - 8000
Optional Spindle RPM – Duplex Ceramic Bearing - <i>Req. Balanced Tooling</i> <i>Recommend Two Speed Spindle Drive</i>	100 - 15,000	100 - 15,000	100 - 15,000	100 - 15,000	100 - 15,000	100 - 15,000
Balanced Tooling Requirements	*****For 15,000 RPM Spindles Tools Should Be Balanced to 2.5 G's at 15,000 RPM*****					
Tool Holder Type	CT40 or BT40	CT40 or BT40	CT40 or BT40	CT40 or BT40	CT40 or BT40	CT40 or BT40
COOLANT THROUGH SPINDLE						
Coolant Through Spindle Option (CTS) <i>Requires ANSI Retention Knob and 70 mm Spindle</i>	N/A	300 psi <i>20 bar</i> or 700 psi <i>48 bar</i>	300 psi <i>20 bar</i> or 700 psi <i>48 bar</i>	300 psi <i>20 bar</i> or 700 psi <i>48 bar</i>	300 psi <i>20 bar</i> or 700 psi <i>48 bar</i>	300 psi <i>20 bar</i> or 700 psi <i>48 bar</i>
CTS – Pump Filtration	N/A	N/A	11 Micron	11 Micron	11 Micron	11 Micron
CTS – Additional Coolant Capacity	N/A	N/A	118 Gal <i>450 L</i>	118 Gal <i>450 L</i>	118 Gal <i>450 L</i>	118 Gal <i>450 L</i>
CTS – Flow Rate	N/A	N/A	5 gal/min <i>19 L/min</i>	5 gal/min <i>19 L/min</i>	5 gal/min <i>19 L/min</i>	5 gal/min <i>19 L/min</i>
CTS – Pump HP	N/A	N/A	5 HP <i>3.7 kw</i>	5 HP <i>3.7 kw</i>	5 HP <i>3.7 kw</i>	5 HP <i>3.7 kw</i>
AUTOMATIC TOOL CHANGER						
Standard Carousel ATC – Number of Pockets	16	16	24	24	24	24
Tool Changer Time – Tool to Tool	8 Seconds	8 Seconds	8 Seconds	8 Seconds	8 Seconds	8 Seconds
Maximum Tool Diameter / Length / Width– <i>Over 3.5" diameter tool requires adjacent empty pockets</i>	3.5" / 11" / 15 lb <i>80mm /280mm/ 7 kg</i>	3.5" / 11" / 15 lb <i>80mm /280mm/ 7 kg</i>	3.5" / 11" / 15 lb <i>80mm /280mm/ 7 kg</i>	3.5" / 11" / 15 lb <i>80mm /280mm/ 7 kg</i>	3.5" / 11" / 15 lb <i>80mm /280mm/ 7 kg</i>	3.5" / 11" / 15 lb <i>80mm /280mm/ 7 kg</i>
Double Arm ATC – Number of Pockets	24	24	24	24 or 40	24 or 40	24 or 40
Tool Change Time	3.5 Seconds	3.5 Seconds	3.5 Seconds	3.5 Seconds	3.5 Seconds	3.5 Seconds
Maximum Tool Diameter – <i>Over 4"</i> <i>diameter tool requires adjacent empty pockets</i>	4" <i>100 mm</i>	4" <i>100 mm</i>	4" <i>100 mm</i>	4" <i>100 mm</i>	4" <i>100 mm</i>	4" <i>100 mm</i>
Maximum Tool Length / Weight	9" / 15 lb <i>230 mm / 7 kg</i>	9" / 15 lb <i>230 mm / 7 kg</i>	9" / 15 lb <i>230 mm / 7 kg</i>	9" / 15 lb <i>230 mm / 7 kg</i>	9" / 15 lb <i>230 mm / 7 kg</i>	9" / 15 lb <i>230 mm / 7 kg</i>
PERFORMANCE						
Servo Type	Digital, AC Brushless	Digital, AC Brushless	Digital, AC Brushless	Digital, AC Brushless	Digital, AC Brushless	Digital, AC Brushless
Rapid Traverse X, Y / Z – Standard Lead Ball Screws	1000 / 800 ipm <i>25 / 20 mpm</i>	1000 / 800 ipm <i>25 / 20 mpm</i>	1000 / 1000 ipm <i>25 / 25 mpm</i>	1000 / 1000 ipm <i>25 / 25 mpm</i>	1000 / 1000 ipm <i>25 / 25 mpm</i>	1000 / 1000 ipm <i>25 / 25 mpm</i>
Optional Rapid Traverse X, Y / Z <i>See Premier Package</i>	N/A	1600 / 1200 ipm <i>40 / 30 mpm</i>	1600 / 1200 ipm <i>40 / 30 mpm</i>	1500 / 1200 ipm <i>38 / 30 mpm</i>	1500 / 1200 ipm <i>38 / 30 mpm</i>	1500 / 1200 ipm <i>38 / 30 mpm</i>

Machine Model	VM15	VM16	VM20	VM22	VM25	VM30
Maximum Feedrate – Part Dependent	500 ipm <i>12,700 mm/m</i>	500 ipm <i>12,700 mm/m</i>	500 ipm <i>12,700 mm/m</i>	500 ipm <i>12,700 mm/m</i>	500 ipm <i>12,700 mm/m</i>	500 ipm <i>12,700 mm/m</i>
Positioning Accuracy ^{see note}	±0.0002" <i>.005 mm</i>	±0.0002" <i>.005 mm</i>	±0.0002" <i>.005 mm</i>	±0.0002" <i>.005 mm</i>	±0.0002" <i>.005 mm</i>	±0.0002" <i>.005 mm</i>
Positioning Repeatability ^{see note}	.00015" <i>.0038 mm</i>	.00015" <i>.0038 mm</i>	.00015" <i>.0038 mm</i>	.00015" <i>.0038 mm</i>	.00015" <i>.0038 mm</i>	.00015" <i>.0038 mm</i>
Feedback Resolution	.00004" <i>.001 mm</i>	.00004" <i>.001 mm</i>	.00004" <i>.001 mm</i>	.00004" <i>.001 mm</i>	.00004" <i>.001 mm</i>	.00004" <i>.001 mm</i>
Thrust, Machine Duty Rating – Standard 10 mm Lead Ball Screws	X,Y: 800 lb <i>360 kg</i> Z: 3000 lbs <i>1360 kg</i>	X,Y: 800 lb <i>360 kg</i> Z:3000 lbs <i>1360 kg</i>	X, Y: 1500 lb <i>680 kg</i> Z: 3000 lb <i>1360 kg</i>	X, Y: 1500 lbs <i>680 kg</i> Z: 5000 lb <i>2270 kg</i>	X, Y: 2300 lb <i>1000 kg</i> Z: 5000 lb <i>2270 kg</i>	X, Y: 2300 lb <i>1000 kg</i> Z: 5000 lb <i>2270 kg</i>
Thrust, Machine Duty Rating – 16 mm Lead Ball Screws	N/A	X,Y: 900 lb <i>400 kg</i> Z:2000 lb <i>900 kg</i>	X, Y: 1500 lb <i>680 kg</i> Z: 3300 lb <i>1500 kg</i>	X, Y: 1500 lbs <i>680 kg</i> Z: 3300 lb <i>1500 kg</i>	X, Y: 2000 lb <i>900 kg</i> Z: 3300 lb <i>1500 kg</i>	X, Y: 2000 lb <i>900 kg</i> Z: 3300 lb <i>1500 kg</i>
MISCELLANEOUS						
Flood Capacity	50 gal. <i>190 L</i>	50 gal. <i>190 L</i>	50 gal. <i>190 L</i>	70 gal. <i>266 L</i>	70 gal. <i>266 L</i>	70 gal. <i>266 L</i>
Drawbar Air Pressure Required	100 psi <i>6.8 bar</i>	100 psi <i>6.8 bar</i>	100 psi <i>6.8 bar</i>	100 psi <i>6.8 bar</i>	100 psi <i>6.8 bar</i>	100 psi <i>6.8 bar</i>
Power 208-240 VAC 50-60hz, 3Ø	50 amps 19 kVA	50 amps 19 kVA	50 amps 19 kVA	50 amps 19 kVA	50 amps 19 kVA	50 amps 19 kVA
Power 208-240 VAC 50-60hz, 3Ø w/ 35 HP	N/A	N/A	N/A	N/A	100 amps 38 kVA	100 amps 38 kVA
Power 400-440 VAC	11 KVA	11 KVA	20KVA	20KVA	24 HP – 20KVA 35 HP – 34KVA	24 HP – 20KVA 35 HP – 34KVA
Power 400-440 VAC	Req Transformer	Req Transformer	Req Transformer	Req Transformer	Req Transformer	Req Transformer
Floor Space Requirement – Standard <i>Minimum required with no options</i>	84" x 85" <i>2135 x 2160 mm</i>	86" x 82" <i>2185 x 2085 mm</i>	92" x 92" <i>2340 x 2340 mm</i>	124" x 109" <i>3150 x 2770 mm</i>	144" x 113" <i>3660 x 2870 mm</i>	144" x 116" <i>3660 x 2950 mm</i>
Floor Space Requirement – Extended Travel <i>Minimum required with no options</i>	84" x 85" <i>2135 x 2160 mm</i>	N/A	112" x 92" <i>2845 x 2340 mm</i>	N/A	187" x 113" <i>4750 x 2870 mm</i>	187" x 116" <i>4750 x 2950 mm</i>
Warranty	Parts: Two years or 4200 hours, whichever occurs first on all normal failures. Service: One year or 2100 hours, whichever occurs first, from distributor.					
<p><i>Note: Measurements performed with Renishaw laser and ballbar systems. Measurements are linear over entire travel.</i></p> <p><i>Temperature changes and table loads may affect tolerances. Tolerances are guaranteed over 10" sq. area.</i></p> <p><i>Centurion features covered under separate literature. For machine duty rating, see "Truth in Specifications" on www.milltronics.net.</i></p> <p><i>Milltronics reserves the right to change specifications at any time without incurring obligation.</i></p>						

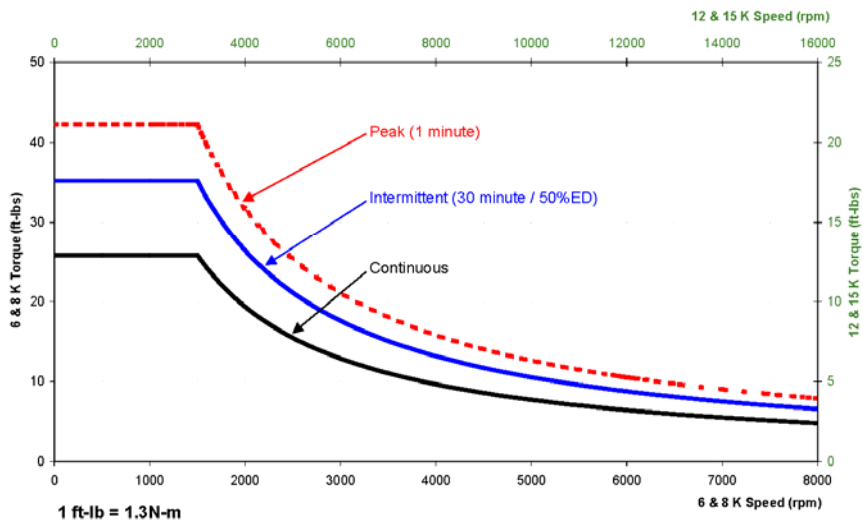
Yaskawa Torque Chart 12/10/1/B/Y – Belted Spindle

Used on: Standard VM15
Optional N/A

Power Characteristics of 12/10 HP Single Winding Motor
for 6,000 and 8,000 RPM or 12,000 and 15,000 RPM



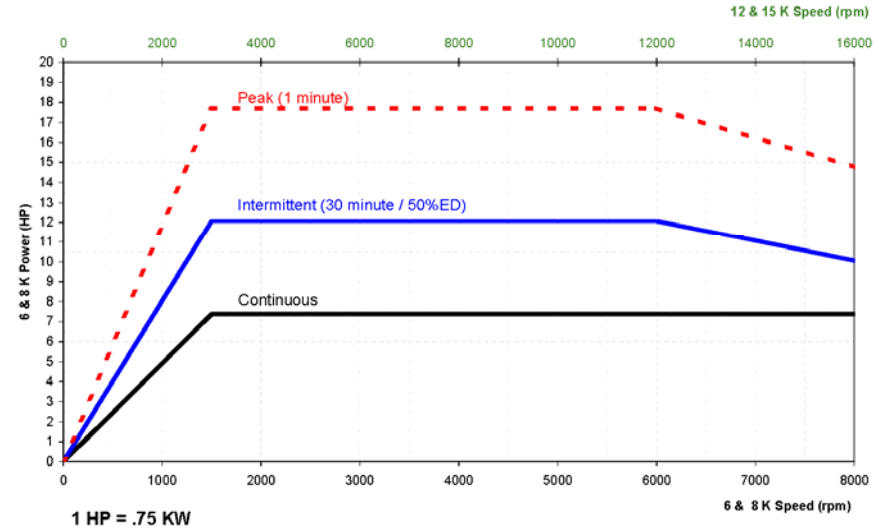
Torque Characteristics of 12/10 HP Single Winding Motor
for 6,000 and 8,000 RPM or 12,000 and 15,000 RPM



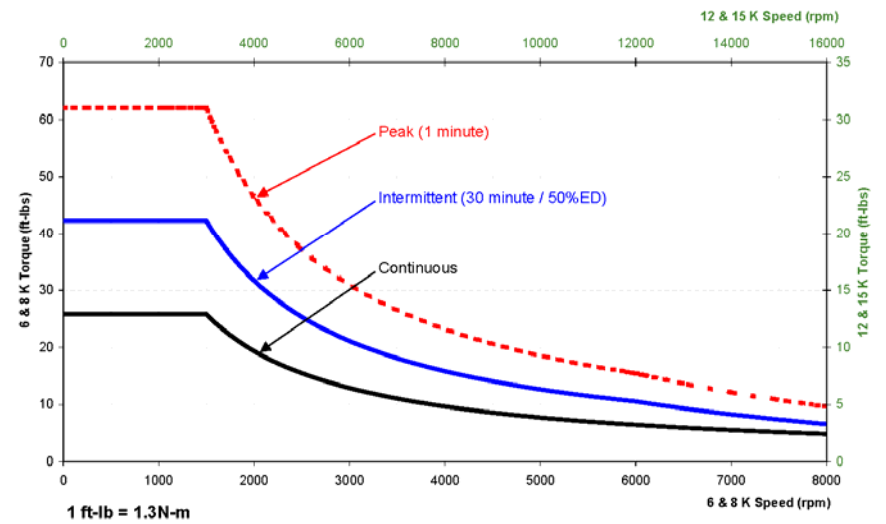
Yaskawa Torque Chart 18/12/1/B/Y – Belted Spindle

Used on: Standard VM16
Optional VM15

Power Characteristics of 18/12 HP Single Winding Motor
for 6,000 and 8,000 RPM or 12,000 and 15,000 RPM

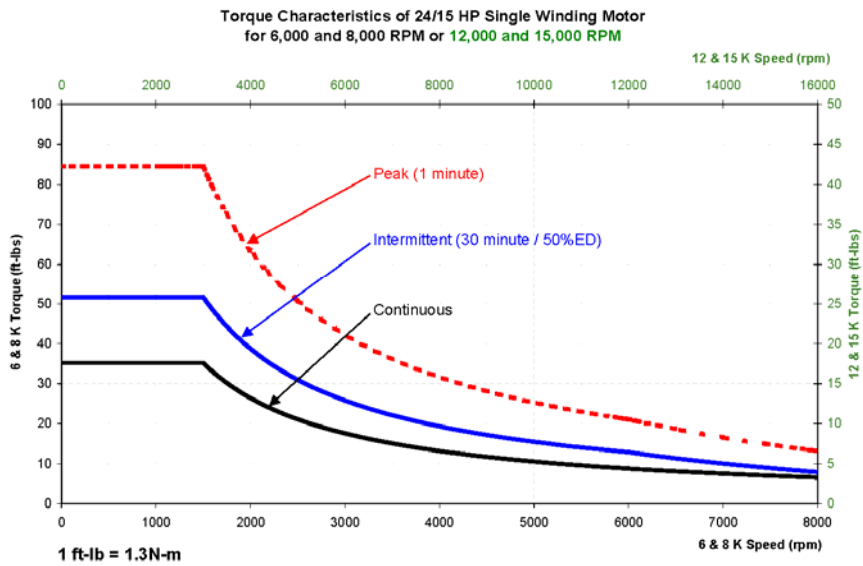
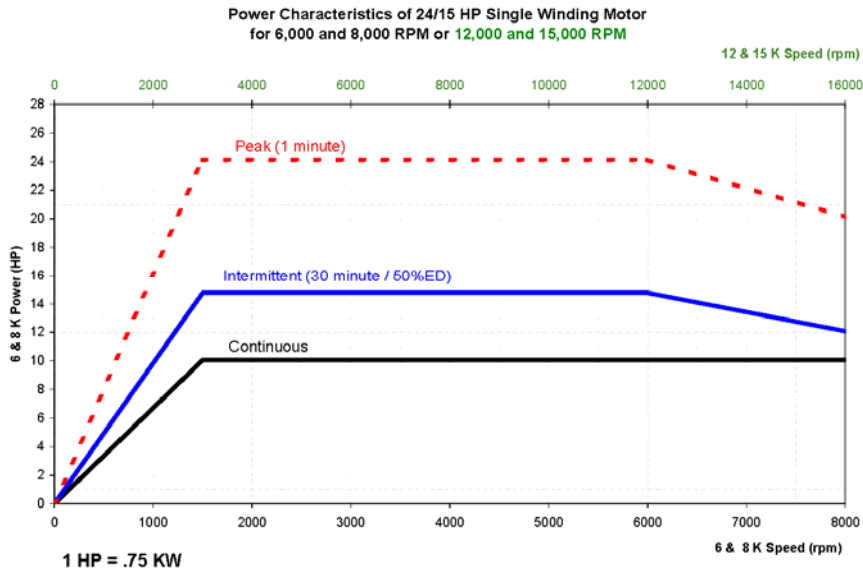


Torque Characteristics of 18/12 HP Single Winding Motor
for 6,000 and 8,000 RPM or 12,000 and 15,000 RPM



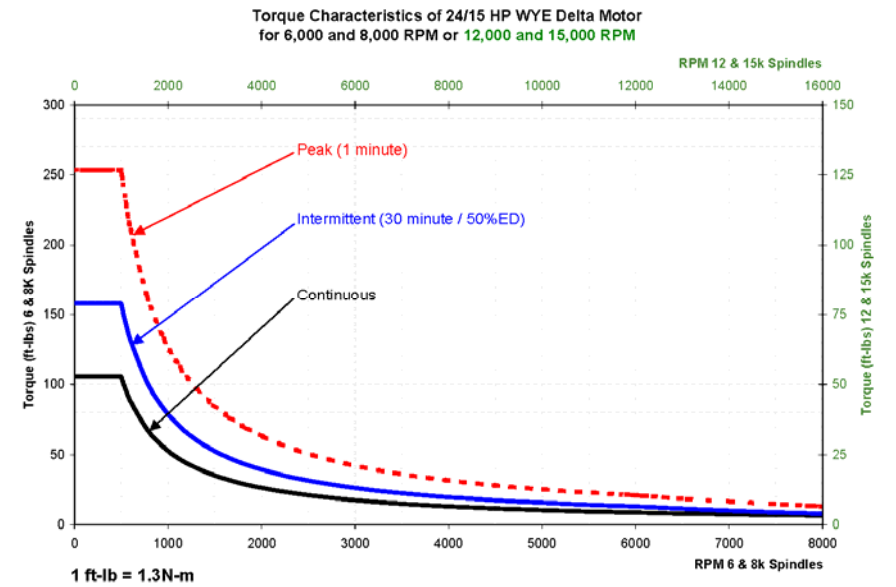
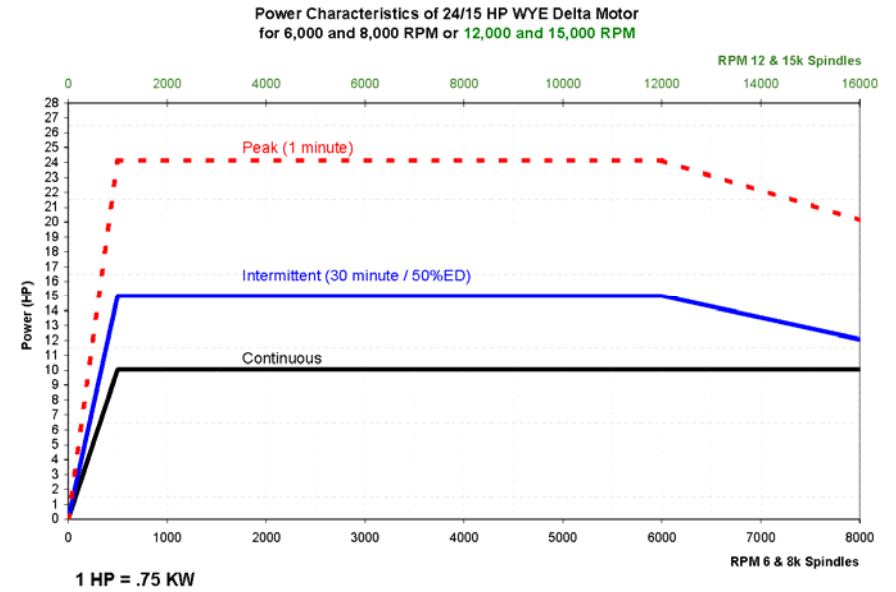
Yaskawa Torque Chart 24/15/1/B/Y – Belted Spindle

Used on: Standard VM20, VM22
Optional VM16



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

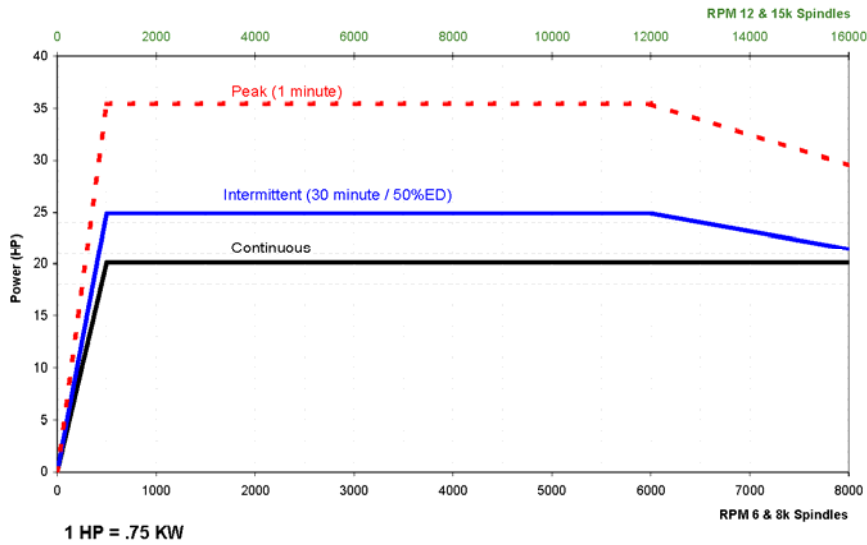
Used on: Standard VM25, VM30
Optional VM20, VM22



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

Used on: Standard N/A
Optional VM25, VM30

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

