

# VM IL Vertical Inline Spindle #40 Taper Linear Way Machining Center

Effective June 1, 2011



Machine Model		VM16 IL	VM20 IL	VM22 IL	VM25 IL	VM30 IL
Standard Travel (XYZ")		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 26"	40 x 20 x 26"	N/A	60 x 25 x 24"	60 x 30 x 24"
Spindle Taper		#40	#40	#40	#40	#40
ATC Type	Standard	16 Carousel	24 Carousel	24 Carousel	24 Carousel	24 Carousel
	Option 1	24 Carousel	24 Arm	24 Arm	24 Arm	24 Arm
	Option 2	24 Arm	N/A	40 Arm	40 Arm	40 Arm
Flood Coolant with Tank		Standard	Standard	Standard	Standard	Standard
Lubrication		Autolube	Autolube	Autolube	Autolube	Autolube
Roller Linear Ways		X, Y, Z: 35 mm		X, Y: 35 mm, Z: 45 mm	X: 35 mm Y, Z: 45 mm	
Horsepower Standard 1 minute / 30 minutes		Two Speed 24/15 hp 18/11 kw				
Horsepower Option 1 minute / 30 minutes		N/A	Two Speed 35/25 hp 26/18 kw			
Standard Inline Spindle Size		70 mm	70 mm	70 mm	70 mm	70 mm
<b>MACHINE FEATURES</b>			<b>CONTROL FEATURES</b>			
<ul style="list-style-type: none"> <li>• Two Year Parts Warranty</li> <li>• Massive Heavily Ribbed Machine Tool Grade Cast Iron Construction</li> <li>• Precision Ground Table, Rail and Rail Block Mounting Surfaces</li> <li>• Auger Style Chip Removal System with Optional Conveyor</li> <li>• Inverted Rail Table Designs Keeps Bearing Blocks Centered Under Spindle</li> <li>• Heavy Duty Enclosure With Work Light &amp; Overhead Loading</li> <li>• Wide Side Doors for Cleaning or Large Parts That Can Extend Through</li> <li>• Precision Ground Double Anchored Ball Screws with Dampening Couplings</li> <li>• Four Bearing Air Purged 10,000 RPM <b>BIG PLUS</b>® Dual Contact Inline Spindle Cartridge Assembly (15,000 RPM Optional)</li> <li>• Spindle Taper Blow-out and Tool Release Push Button</li> <li>• Roller Type Linear Ways</li> <li>• High Pitch, High Speed Ball Screws</li> <li>• Air Blast &amp; Chip Wash Down Hose</li> <li>• Edit Key Lock-Out Switch</li> <li>• Single Spare "M" Function and CNC "Wait" Channel</li> <li>• LCD Hour Meter</li> <li>• Two Nozzle Flood Coolant System with Flow Control Valve</li> <li>• Spindle Chiller</li> <li>• Electronic Spindle Orient and Rigid Tap</li> <li>• Programming &amp; Machine Manuals in Electronic Format</li> </ul>			<ul style="list-style-type: none"> <li>• PC-based Milltronics 7200 CNC with 12 MB Parts Storage Memory</li> <li>• 12" LCD Active Matrix Color Display</li> <li>• 3.5" Floppy Drive / RS-232 with DNC Buffer (7200 CNC Only)</li> <li>• 3-D Part and Wire Frame Tool Path Graphics on Series 7200 Plus Solid Modeling Graphics on Series 8200</li> <li>• Optional Four &amp; Five Axis Simultaneous Interpolation Software and Interface</li> <li>• Conversational plus G &amp; M Code Programming including Coordinate Rotating, Scaling, Mirror Image, Thread Mill, Engraving, Helical Interpolation, Auto Routines, &amp; User definable Macros with Trig Assist, &amp; Irregular Pocket Clearing</li> <li>• Auto DXF File Import</li> <li>• High Torque Two Speed Vector Spindle Drive Motors</li> <li>• Front Panel Electronic Handwheel with Handwheel Feed</li> <li>• Auxiliary Keyboard Port for PC Keyboard with Tray</li> <li>• High Torque AC Digital Servo Drives</li> <li>• All Axes Laser Calibrated and Ballbar Inspected</li> <li>• Spindle Load Meter</li> <li>• Large Program Management Software (Allows Editing of 10 MB Files)</li> <li>• Off-line FastCAM Software</li> <li>• End of Cycle Light</li> <li>• Networking Option Includes 30 days Phone Support</li> </ul>			

<b>8200 CONTROL PACKAGE – Purchase as a Complete Package Only and Includes all the following:</b>				
<ul style="list-style-type: none"> <li>• Solid State Non-Volatile Memory Upgrade to 1 GB</li> <li>• Enhanced CPU Increases Block Processing Speed from 1200 to 2000 bps</li> <li>• Solid Model Graphics Functionality</li> <li>• USB Connectivity in lieu of 3.5" Floppy Disk Drive</li> <li>• High Speed Performance with Enhanced Jerk Control and Look Ahead</li> <li>• MT Connect Compliant</li> </ul>				
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.				
<b>MACHINE MODEL</b>	<b>VM16 IL</b>	<b>VM20 IL</b>	<b>VM IL 22, 25, 30</b>	
<b>SPINDLE CONFIGURATIONS #40 Taper – Std Spindle on All Models is CT Type</b>				
#40 BT Type	Optional	Optional	Optional	
35/25 HP 26/18 kw Two Speed Upgrade	N/A	Optional	Optional	
Upgrade to 15,000 RPM Ceramic Bearing 70 mm Spindle	Optional	Optional	Optional	
<b>BIG PLUS®</b> Spindle Nose	Standard	Standard	Standard	
Coolant Through Spindle – 300 PSI Low Pressure System <i>Includes drawbar assembly for ANSI retention knobs and rotary coupling.</i>	Optional	Optional	Optional	
Coolant Through Spindle – 700 PSI High Pressure System <i>Includes drawbar assembly for ANSI retention knobs and rotary coupling.</i>	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.</i>	Optional	Optional	Optional	
<b>AUTOMATIC TOOL CHANGER</b>				
Upgrade from 16 Pocket Carousel ATC to 24 Carousel ATC	Optional	N/A	N/A	
Upgrade from 16 Pocket Carousel ATC to 24 Arm ATC	Optional	N/A	N/A	
Upgrade from 24 Pocket Carousel ATC to 24 Arm ATC	N/A	Optional	Optional	
Upgrade from 24 Pocket Carousel ATC to 40 Arm ATC – VM22, VM25 and VM30 only	N/A	N/A	Optional	
<b>ROTARY TABLE ACCESSORIES</b>				
Rotary Tables <i>Includes 4<sup>th</sup> axis amp &amp; motor Application may require riser</i>	6.5" (165 mm)	Optional	Optional	N/A
	9.0" (228 mm)	Optional	Optional	Optional
	10.0" (254 mm)	Optional	Optional	Optional
	5C Collet Table	Optional	Optional	Optional
Rotary Table Tail Stock	6.5" (165 mm) Optional	9.0" (228 mm) Optional	10.0" (254 mm) Optional	
4 <sup>th</sup> 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
<i>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</i>				
<b>OTHER ACCESSORIES</b>				
<b>MACHINE MODEL</b>	<b>VM16 IL</b>	<b>VM20 IL</b>	<b>VM IL 22, 25, 30</b>	
Upgrade to Solid State Non-Volatile Memory 256 MB Flash Card – 7200 Controls only	Optional	Optional	Optional	
Upgrade from Chip Auger to Chip Conveyor	Optional	Optional	Optional	
Multi Format Flash Card Reader – 7200 Controls only	Optional	Optional	Optional	

<b>OTHER ACCESSORIES</b>				
<b>MACHINE MODEL</b>		<b>VM16 IL</b>	<b>VM20 IL</b>	<b>VM IL 22, 25, 30</b>
Pressurized Air/Oil Purge System for Ball Screws and Bearing Blocks		Optional	Optional	Optional
Chip Wash Down System		Optional	Optional	Optional
Automatic Door Opener		Optional	Optional	Optional
Chip Bucket for Chip Auger or Conveyor		Optional	Optional	Optional
Programmable Spray Mist <i>On/Off</i>		Optional	Optional	Optional
Programmable Air Blast		Optional	Optional	Optional
Remote Handheld Electronic Handwheel (Not CE)		Optional	Optional	Optional
Upgrade Ball Screws For Increased Rapid Traverse Rates – <i>Consult factory for application</i>		Optional	Optional	Optional
Thermal Ball Screw Compensation on X and Y Axis		Optional	Optional	Optional
Thermal Ball Screw Compensation on Z Axis		Optional	Optional	Optional
Spindle Chiller Loop		Standard	Standard	Standard
Riser Block <i>Consider Extended Z Travel on VM16</i>	Column 4" <i>100 mm Not Removable</i>	Optional	Optional	Optional
	Column 6" <i>150 mm Not Removable</i>	Optional	Optional	Optional
Spare “M” Functions – Block of 4 <i>Maximum 2 blocks; price is for each block</i>		Optional	Optional	Optional
Contact Tool Offset Probing with Macros		Optional	Optional	Optional
Work Offset Probing with Macros		Optional	Optional	Optional
Combo Pack – Contact & Work Tool Offset Probing with Macros		Optional	Optional	Optional
Laser Tool Setter		Optional	Optional	Optional
<i>Digiscan</i> Digitizing 3-D Software, Probe, Manuals - <i>Not available with 8200 Control Package</i>		Optional	Optional	Optional
RS-232 Cable, 50' <i>15 Meters</i>		Optional	Optional	Optional
Printed Programming Manual (Electronic Format Standard)		Optional	Optional	Optional
Printed Machine Manual (Electronic Format Standard)		Optional	Optional	Optional
Power Requirements 208-240 VAC, 50 – 60 hz, 3Ø		Standard		
380-480 Transformer (Reduces Voltage to 208-240) - <i>Factory recommended sizes. Consult local electrical codes for proper transformer sizing.</i>	40 KVA	Optional	Optional	Optional
UL/CUL Code Compliance		Optional	Optional	Optional
CE Code <i>Required for European Union Countries</i>		Optional	Optional	Optional
Export Handling Fee		Consult Factory		
Crating Charge		Consult Factory		
Two Year Parts Warranty <sup><i>See Note</i></sup>		Standard	Standard	Standard
Factory Start-up and Training On Site, U.S. only		Optional	Optional	Optional
Training at Milltronics <i>Includes lunches, training, materials and manual</i>		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, MN 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 IL Vertical Inline Spindle #40 Taper Linear Way Machining Center Specifications



Effective June 1, 2011

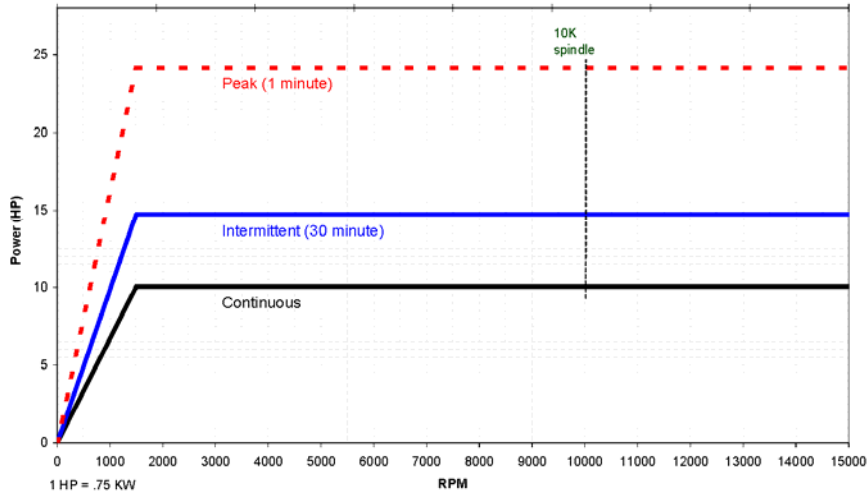
MACHINE MODEL	VM16 IL	VM20 IL	VM22 IL	VM25 IL	VM30 IL
Standard Control Type	Milltronics 7200 CNC	Milltronics 7200 CNC	Milltronics 7200 CNC	Milltronics 7200 CNC	Milltronics 7200 CNC
Optional Control Type	Milltronics 8200 CNC	Milltronics 8200 CNC	Milltronics 8200 CNC	Milltronics 8200 CNC	Milltronics 8200 CNC
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)
<b>CAPACITY</b>					
Table Size	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	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	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	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>	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>	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	26" <i>660 mm</i>	N/A	N/A	N/A	N/A
Throat Distance – Spindle to Column	15.5" <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" - 30" <i>100 - 760 mm</i>	4.25" - 30.25" <i>110 - 770 mm</i>	4" - 28" <i>100 - 770 mm</i>	4" - 28" <i>100 - 770 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>	4" - 30" <i>100 - 760 mm</i>	N/A	N/A	N/A	N/A
Maximum Table Load with Linear Roller Ways	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	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>
Ball Screw Grade	C5	C5	C5	C5	C5
Ball Screw Diameter: X, Y, Z	1.25"	1.25"	1.25"	1.5"	1.5"
Standard Ball Screw Pitch: X, Y, Z Lead	10 mm	10 mm	10 mm	10 mm	10 mm
Optional Ball Screw Pitch: X, Y, Z Lead	16 mm	16 mm	16 mm	16 mm	16 mm
Linear Roller Way Size	35 mm	35 mm	X/Y 35 mm Z 45mm	X 35 mm Y/Z 45mm	X 35 mm Y/Z 45mm
<b>INLINE SPINDLE</b>					
Standard Horsepower <i>1 minute / 30 minutes</i> Reference Torque Chart:	24/15 HP <i>18/11 kw</i> Two Speed	24/15 HP <i>18/11 kw</i> Two Speed	24/15 HP <i>18/11 kw</i> Two Speed	24/15 HP <i>18/11 kw</i> Two Speed	24/15 HP <i>18/11 kw</i> Two Speed
Optional Horsepower <i>1 minute / 30 minutes</i> Reference Torque Chart:	N/A	35/25 HP <i>26/18 kw</i> Two Speed	35/25 HP <i>26/18 kw</i> Two Speed	35/25 HP <i>26/18 kw</i> Two Speed	35/25 HP <i>26/18 kw</i> Two Speed
Spindle Size	70 mm	70 mm	70 mm	70 mm	70 mm
Standard Spindle RPM	50 – 10,000	50 – 10,000	50 – 10,000	50 – 10,000	50 – 10,000
Optional Spindle RPM Ceramic Bearing <i>Req. Balanced Tooling</i>	100 - 15,000	100 - 15,000	100 - 15,000	100 - 15,000	100 - 15,000
Balanced Tooling Requirements	*****For 15,000 RPM Spindle 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
<b>COOLANT THROUGH SPINDLE</b>					
Coolant Through Spindle Option (CTS) <i>Requires ANSI Retention Knob</i>	High Pressure	700 psi <i>48 bar</i>	700 psi <i>48 bar</i>	700 psi <i>48 bar</i>	700 psi <i>48 bar</i>

<b>MACHINE MODEL</b>		<b>VM16 IL</b>	<b>VM20 IL</b>	<b>VM22 IL</b>	<b>VM25 IL</b>	<b>VM30 IL</b>
<i>and 70 mm Spindle</i>	Low Pressure	300 psi <i>21 bar</i>	300 psi <i>21 bar</i>	300 psi <i>21 bar</i>	300 psi <i>21 bar</i>	300 psi <i>21 bar</i>
High Pressure CTS – Pump Filtration		11 Micron	11 Micron	11 Micron	11 Micron	11 Micron
High Pressure CTS – Additional Coolant Capacity		118 Gal <i>450 L</i>	118 Gal <i>450 L</i>	118 Gal <i>450 L</i>	118 Gal <i>450 L</i>	118 Gal <i>450 L</i>
High Pressure CTS – Flow Rate		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>	5 gal/min <i>19 L/min</i>
High Pressure CTS – Pump HP		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>	5 HP <i>3.7 kw</i>
<b>AUTOMATIC TOOL CHANGER</b>						
Standard Carousel ATC – Number of Pockets		24	24	24	24	24
Tool Changer Time – Tool to Tool		8 Seconds	8 Seconds	8 Seconds	8 Seconds	8 Seconds
Maximum Tool Diameter / Length / Weight		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 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
Maximum Tool Diameter – <i>Over 4" diameter tool requires adjacent empty pockets</i>		4" <i>100 mm</i> or 5" <i>125 mm</i>	4" <i>100 mm</i> or 5" <i>125 mm</i>	4" <i>100 mm</i> or 5" <i>125 mm</i>	4" <i>100 mm</i> or 5" <i>125 mm</i>	4" <i>100 mm</i> or 5" <i>125 mm</i>
Maximum Tool Length / Width		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>
<b>PERFORMANCE</b>						
Servo Type		Digital, AC Brushless	Digital, AC Brushless	Digital, AC Brushless	Digital, AC Brushless	Digital, AC Brushless
Rapid Traverse X, Y / Z ( <i>Standard Ball Screws</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>
Rapid Traverse X, Y / Z ( <i>Optional Ball Screws</i> )		1600/1200 ipm <i>40 / 30 mpm</i>	1600/1200 ipm <i>40 / 30 mpm</i>	1600/1200 ipm <i>40 / 30 mpm</i>	1600/1200 ipm <i>40 / 30 mpm</i>	1600/1200 ipm <i>40 / 30 mpm</i>
Rapid Traverse with 60" Option X axis		N/A			1200 ipm <i>30 mpm</i>	
Maximum Feedrate – Part Dependent		500 ipm <i>12.7 mpm</i>	500 ipm <i>12.7 mpm</i>	500 ipm <i>12.7 mpm</i>	500 ipm <i>12.7 mpm</i>	500 ipm <i>12.7 mpm</i>
Positioning Accuracy <sup>see note</sup>		±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 <sup>see note</sup>		.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>
Thrust, Machine Duty Rating 16 mm Lead Ball Screws		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>
<b>MISCELLANEOUS</b>						
Flood Capacity		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>
Power 208-240 VAC 50-60hz, 3Ø		100 amps 38 kVA	100 amps 38 kVA	100 amps 38 kVA	100 amps 38 kVA	100 amps 38 kVA
Power 400-440 VAC		Requires Transformer	Requires Transformer	Requires Transformer	Requires Transformer	Requires Transformer
Floor Space Requirement – Standard <i>Minimum required with no options</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>		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 <a href="http://www.milltronics.net">www.milltronics.net</a>.</i></p> <p><i>Milltronics reserves the right to change specifications at any time without incurring obligation.</i></p>						

### Mitsubishi Torque Chart 24/15/2/I/M – Inline Spindle

Used on: Standard VM16IL, VM20IL, VM22IL, VM25IL, VM30IL  
 Optional N/A

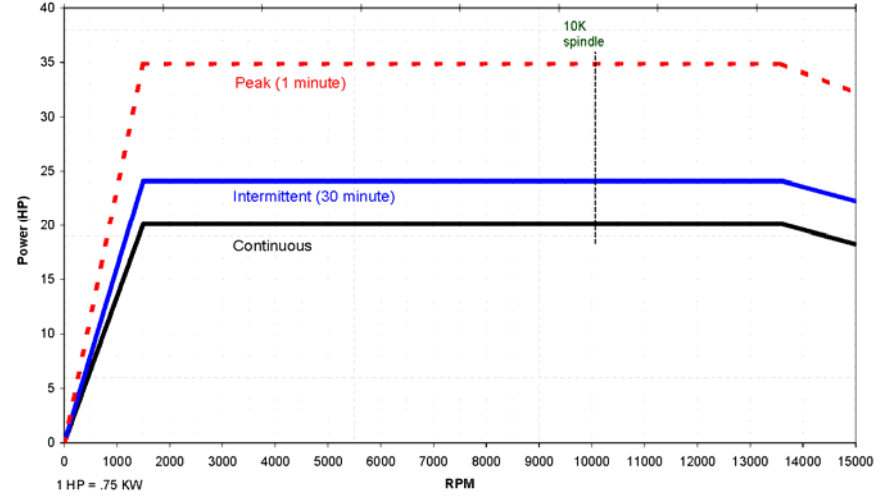
Mitsubishi VKS26-09ZM Power Characteristics of Mitsubishi 24/15 HP  
 15,000 RPM Hollow Shaft In-line Delta/WYE Motor



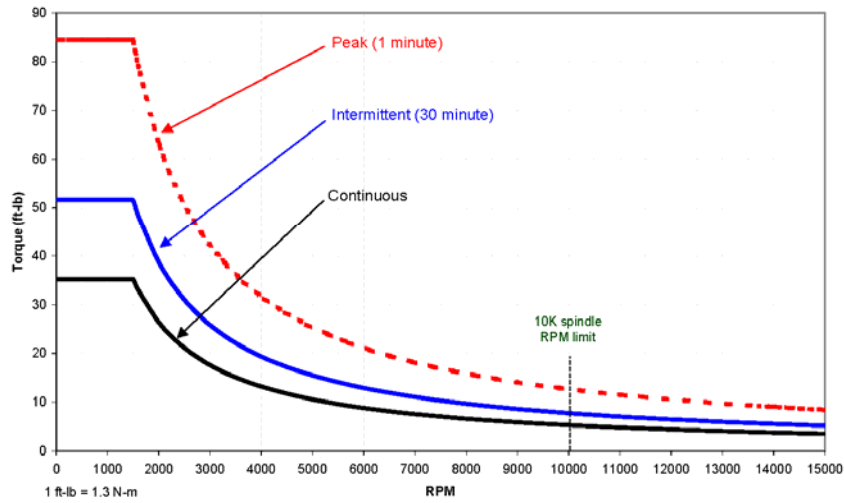
### Mitsubishi Torque Chart 35/25/2/I/M – Inline Spindle

Used on: Standard N/A  
 Optional VM20IL, VM22IL, VM25IL, VM30IL

Mitsubishi VKS30-16ZM Power Characteristics of Mitsubishi 35/25 HP  
 15,000 RPM Hollow Shaft In-line Delta/WYE Motor



Mitsubishi VKS26-09ZM Torque Characteristics of Mitsubishi 24/15 HP  
 15,000 RPM Hollow Shaft In-line Delta/WYE Motor



Mitsubishi VKS30-16ZM Torque Characteristics of Mitsubishi 35/25 HP  
 15,000 RPM Hollow Shaft In-line Delta/WYE Motor

