

# BR6100IL

## Large Travel Bridge Mill



\*Shown with options

\*Shown with old color scheme.

*New color scheme is black/blue*

### **STANDARD FEATURES / OPTIONS**

- Milltronics 8200-B Series CNC control
- 45 mm Linear Roller Way Technology
- 10,000 RPM Big Plus® spindle
- 24/15 HP 2 speed spindle motor
- Spindle Air Purge
- X-Axis Metal way cover construction
- 12" LCD color display
- Networking
- Automatic lubrication
- Tri-Color End of Cycle Light
- 1000 IPM rapid traverse rate
- Solid model graphic display
- LCD hour meter
- Single spare "M" function
- 1 GB program storage memory
- One year warranty
- Remote Handwheel (option)
- Spindle Chiller (option)
- Chip Management System (option)
- Rigid tapping (option)
- Work lamp (option)

February 1, 2018 Version 3.3

\* Prices and specifications are subject to change without notice.

## **SPECIFICATIONS**

### **CAPACITY:**

X axis travel	100" (2540 mm)
Y axis travel	60" (1525 mm)
Z axis travel	28" (710 mm)
Table size	60" x 100" (1525 mm x 2540 mm)
Allowable table load	5000 lbs. (2270 kg)

### **SPINDLE:**

Spindle gage line to table distance	4"- 32"(100 - 810 mm)
Spindle taper	ISO No. 40 Big Plus®
Spindle speed (STD)	10,000 RPM
Spindle speed (OPT)	15,000 RPM
AC spindle motor (STD)	24/15 HP (18/11 kW) Delta/WYE
Spindle torque (STD)	85 ft-lbs (115 N.m)
AC spindle motor (OPT)	35/25 HP (26/18 kW) Delta/WYE
Spindle torque (OPT)	122 ft-lbs (165 N.m)

### **OPTIONAL AUTOMATIC TOOL CHANGER:**

ATC Type	Carousel
Number of tools	24
Tool shank	CT40
Pull stud	MAS Retention Knob Style CT-Flange 40 Taper
Max. tool diameter	3.5" (89 mm)
Max. tool length	11" (280 mm)
Max. tool weight	15 lbs. (7 kg)

### **MOTION:**

X, Y, Z axis rapid traverse rate	1000 IPM (25.4 m/min)
Max. cutting feed rate	500 IPM (12.5 m/min)
X axis ball screw diameter	2.48" (63 mm)
Y axis ball screw diameter	1.57 (40 mm)
Z axis ball screw diameter	1.25 (32 mm)
Least command increment	0.0001" (0.001 mm)
Positioning accuracy*	+/- 0.001" (+/- 0.025 mm)
Positioning accuracy (full travel)*	+/- 0.005" (+/- 0.127 mm)
Repeatability*	0.0003" (0.005mm)
Axis thrust force	5000 lbs (2270 kg)

### **GENERAL:**

Machine Height	152" (3850 mm)
Floor Space Required (W x D)	315" x 144" (8000 x 3650 mm)
Machine Weight	17,500lbs.(6400 kg)
Power required w/24/15 & 35/25 HP	48 KVA / 125amps
Power required w/48/40 HP Option	58 KVA / 150 amps
Voltage required	208-240 Volts / 3 Phase

Milltronics USA reserves the right to incorporate any modifications or improvements in machines and machine specifications that it considers necessary, but are not documented within this quotation. Milltronics is not responsible for misprints or typographical errors. Proposal is valid for 30 days after presentation.  
(\* ) Temperature, table loads and machine placement can affect tolerances. Contact Milltronics for details.

## **CONSTRUCTION**

### **\* BED, COLUMN AND BRIDGE:**

The base, column and bridge are constructed with reinforced steel. Extra webbing provides additional support for the axis. The columns on the machine are extremely wide providing full support for the bridge. The bridge design provides added rigidity and support to the tool. All critical components are pinned to ensure that machine geometry is maintained.

### **\* GUIDE WAYS:**

The axes are standard with heavy-duty 45 mm linear roller guide ways. Roller type guide ways have 44% more contact than standard linear ways. The guide ways are widely spaced to minimize table pitch and deformation. The guide ways are placed against shoulders to maximize rigidity and geometry. Six linear roller bearings are standard for the Z and Y axis.

### **\* SPINDLE:**

The 10,000 rpm spindle or optional 15,000 rpm cartridge style spindle is standard with a Big Plus® dual contact technology. Taper and face contact proves to provide the most rigidity allowing for decreased tool deflection and cycle times. The permanently greased spindle bearings require no maintenance. The 10,000 rpm spindle is driven by a 2 speed 24/15HP (18/11kW) In-line AC servo motor. In-line motor designs reduce vibration and heat improving part finishes and tolerances. The four 70mm ceramic spindle bearings help minimize thermal growth on the 15,000 rpm spindle. Rigid tapping is an option.

### **\* BALL SCREWS AND AXIS DRIVES:**

Each axis is driven using a high precision, fully ground ball screw. Each of the axes ball screws are double anchored to allow exceptionally fast feedrates. All the ball screws are supported using angular contact thrust bearings and are perfectly centered between the linear guide ways.

### **\* OPTIONAL AUTOMATIC TOOL CHANGER:**

The 24 pocket carousel ATC provides reliable tool changes. Remote tool changer control is included.

### **\* FLOOD COOLANT SYSTEM:**

A dedicated flood pump provides high volume coolant to the machine tool. The 100 gallon coolant tank provides adequate capacity for any application. Dual chip augers are included, that discharge into chip drawers. An optional chip conveyor is also available that is used in conjunction with the dual chip augers.

### **\* OPTIONAL CHIP MANAGEMENT SYSTEM: (Option)**

The Chip Management System (CMS) is designed to provide effective chip and coolant containment and to exhaust chips out of the machine. The system includes dual chip augers that run the length of the machine on either side of the table. The metal chips are strained and then discharged by a lift-up chip conveyor. The coolant system includes heavy-duty Loc-lines at the spindle to deliver coolant to the workpiece. A generous 100 gallon coolant tank and high capacity pump provides adequate capacity for most any application. Finally, the CMS includes a modular enclosure which includes a heavy-duty sheet metal base structure with unique modular removal panels. This design allows easy access to the table and aids in loading/unloading large or unwieldy parts (can load parts on the table with a forklift). The enclosure is open on both ends.

### **\* LUBRICATION:**

Automatic lubrication is provided to the linear guide ways and ball screws via way oil. Oil is delivered by metered valves, which precisely control the volume. A low-level alarm on the CNC warns the user preventing possible damage to the guide ways and ball screws.

### **\* OIL SPINDLE CHILLER: (Option)**

Thermal growth of the spindle can be reduced by using a refrigeration system that circulates cooled oil around the spindle increasing the accuracy and promoting longer spindle life.

### **\* EDIT KEY:**

The edit key enables protection of programs as well as parameters of the 8200-B CNC control. Removal of the key limits a user from loading programs and parameters such as work coordinates and tool offsets. With the edit key in the off position the data in the CNC control is available for editing.

## **STANDARD EQUIPMENT IN BASE PRICE**

- Milltronics 8200-B CNC
- 12" Color LCD display
- Ethernet Connection
- USB Port
- Auxiliary Keyboard jack
- User Definable Custom Macros
- Feedrate and Spindle speed overrides
- Spindle load meter
- Edit Key lockout switch
- LCD Hour meter
- Tri-color end of cycle warning light
- Single spare "M" Function and CNC "wait" channel
- Spindle Orientation
- 10,000 RPM 70mm Big Plus® spindle
- Two speed 24/15 HP (18/11 kW) closed loop spindle motor
- High precision spindle with four angular contact bearings
- Cartridge spindle design
- Spindle air purge
- 60" x 100" steel table
- 45 mm Linear Way Technology on all 3 axes
- AC Servo motors on all axes
- Precision ground, double anchored ball screws on all axes
- 25.4m (1,000 IPM) Rapid Traverse rate
- Matched AC Servo Amplifiers on all axes
- Automatic metered way oil lubrication
- Telescopic metal way covers on X axis
- Spindle taper blow out and tool release button
- DXF File import software
- UL certified
- Instruction manual, parts list, and electrical drawings
- Operator and maintenance manuals
- One year warranty

PRICE FOR MACHINE AS DESCRIBED ABOVE

BR6100IL with 8200-B Series CNC Control

PRICE IS F.C.A. Waconia, MN USA

## OPTIONAL ACCESSORIES:

### Spindle Options:

BR-752	70 mm Big Plus® dual contact 15,000 rpm spindle with ceramic Bearings- <i>Optional spindle includes electronic spindle chiller option</i>
9999-26	Rigid Tap
BR-726	Spindle Oil Chiller- <i>Includes std with purchase of 15,000RPM spindle</i>

### Horsepower Upgrade:

BR60-763	35/25 HP (26/18 kW) 2 Speed Delta/WYE Inline Spindle motor
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### Coolant:

8167-3	Trico Programmable Spray Mist Coolant System
BR-857	Chip Blaster D 30-70 High Pressure Coolant System 8 gpm @ 1000 psi 10 micron filtration (includes CTS Ready Kit)
BR-856	Chip Blaster D 30-35 High Pressure Coolant System 8 gpm @ 500 psi 10 micron filtration (includes CTS Ready Kit)
BR-760	Air Thru Spindle (requires CTS or CTS Ready Kit)
9322-6	Programmable Air Blast
BR-868	CTS Ready Kit for ChipBlaster® system (includes internal wiring)

### Chip Management System:

BR60-602	Chip Management System (includes chip augers, chip channel troughs, lift-up chip conveyor, coolant system and modular enclosure)
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### Rotary Tables:

BR-644	4 <sup>th</sup> Axis electrics package including a 1kW servo amplifier.
BR-643	5 <sup>th</sup> Axis electrics package including a 1 kW servo amplifier. <i>4<sup>th</sup> axis electrics must be purchased separately</i>
BR-680	Milltronics M-170 (6.7") Rotary Table including the servo motor & cable. <i>Requires purchase of 4<sup>th</sup> axis electrics</i>
BR-681	Milltronics M-200 (7.8") Rotary Table including the servo motor & cable <i>Requires purchase of 4<sup>th</sup> axis electrics</i>
BR-682	Milltronics M-250 (10") Rotary Table including the servo motor & cable <i>Requires purchase of 4<sup>th</sup> axis electrics</i>
BR-683	Milltronics M-320 (12.5") Rotary Table including the servo motor & cable <i>Requires purchase of 4<sup>th</sup> axis electrics</i>
VM-810	Milltronics TS-A135 Tail Stock – <i>For M-170 Rotary Table</i>
VM-811	Milltronics TS-A160 Tail Stock – <i>For M-200 Rotary Table</i>
VM-812	Milltronics TS-B185 Tail Stock – <i>For M-250 Rotary Table</i>
VM-813	Milltronics TS-B210 Tail Stock – <i>For M-320 Rotary Table</i>

VM-840	7" Manual 3-Jaw chuck with adaptor mounting plate – <i>For M-170 and M-200 Rotary Tables – Use with Milltronics rotary tables only</i>
VM-841	9" Manual 3-Jaw chuck with adaptor mounting plate – <i>For M-250 Rotary Table – Use with Milltronics rotary tables only</i>
VM-842	12" Manual 3-Jaw chuck with adaptor mounting plate – <i>For M-320 Rotary Table – Use with Milltronics rotary tables only</i>
BR-685	Tsudakoma RNE-160R (6") Rotary Table including the motor & cable <i>Requires purchase of 4<sup>th</sup> axis electrics</i>
BR-686	Tsudakoma RNE-200R (8") Rotary Table including the servo motor & cable <i>Requires purchase of 4<sup>th</sup> axis electrics</i>
BR-687	Tsudakoma RNE-250R (10") Rotary Table including the servo motor & cable <i>Requires purchase of 4<sup>th</sup> axis electrics</i>
3836	Tsudakoma TL-135M Tails Stock for RNE-160R Table
3836-1	Tsudakoma TL-160M Tail Stock for RNE-200R & RNE-250R Tables
Table:	The standard steel table is available with the following patterns: B

#### **Thermal Compensation:**

BR-990	Thermal head mapping – uses thermal sensors and proprietary algorithms to automatically offset growth in head casting. Note: head mapping compensation is most effective when used in conjunction with linear glass scales.
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#### **24 Pocket Carousel ATC:**

BR-823	24 Pocket carousel ATC with remote tool changer controls. CT40
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#### **Probing:**

VM-903	Renishaw OMI-2T interface including the Renishaw OMP40-2 Optical Spindle probe w/ macros and the Renishaw OTS contact tool setter w/ macros
VM-904	Renishaw OMI-2T interface including the Renishaw OMP40-2 Optical Spindle probe w/ macros
5167	Renishaw OMI-2T interface including the Renishaw OTS contact tool setter w/ macros
VM-910	Renishaw NC4-F300 non-contact laser tool setter

**Additional Machine Accessories:**

9999-118	BT Style Tooling
BR-275	Remote hand wheel (manual pulse generator)
8887	Tool release foot switch
BR-921	Bridge mounted work light
BR-850	6" (150 mm) Column Riser
8908-4	Spare "M" Functions – <i>Block of 4</i>
VM-270	Auxiliary keyboard (requires 1 USB slot)
9999-410	Printed programming manual
9999-329	Printed machine manual
BR-256	Air gun
9999-424	Offline FastCam Software for Programming and Training
VM-213	Windows® Software upgrade – <i>includes keyboard</i>
VM-210	Milltronics Shop View – machine monitoring from internet enabled Mobile device, tablet or PC
VM-299	Milltronics branded ant-fatigue floor mat
BR-925	Grease lubrication for Y & Z axis <i>Recommended when oil can not drip onto workpiece</i>

**Training & Extended Warranty:**

9999-422	2 <sup>nd</sup> year extended parts warranty
9999-257	Factory machine installation including on-site training U.S. Only - <i>Includes airfare and all expenses</i>
9999-256	Training at Milltronics

**Export Packaging:**

9999-395	Required for machines shipping outside of North America
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## Milltronics 8200-B Series CNC Control Features

- 12" LCD color display
- 2000 blocks/second high speed processor
- Conversational programming
- Fanuc based G&M Code programming
- Inch/Metric Conversion / programming
- Auto routines
- User definable macros with trig assist
- Custom Macro B
- Irregular pocket clearing
- Auto DXF file import
- 3D part and wire frame tool path graphics
- Solid Model Graphic Display
- Optional four and five axis simultaneous interpolation software and interface
- Onboard diagnostics
- Spindle load meter
- Part counter display
- 1 GB parts program memory
- Networking
- USB Port
- Manual pulse generator (option)
- Coordinate rotating
- Scaling
- Mirror image
- Helical interpolation
- Feedrate and Spindle Override
- Tool diameter and length offsets (199 total)
- Tool Load Monitoring
- 60 Work Coordinates (G540-G599)
- G92 Coordinate system setting
- Backlash Compensation
- Ball screw pitch error compensation
- Rigid tapping
- Canned cycles including:
  - Drilling
  - Boring
  - Tapping
  - Facing
  - Pocketing with or without islands
  - Threading
  - Bolt hole pattern
  - 3D Pocket/Sweep
  - Text/Engraving
  - Tangent/Circle Generate
- Subprogram Call-50 nested programs maximum
- MDI
- Background Editing
- Program/Parameter protect

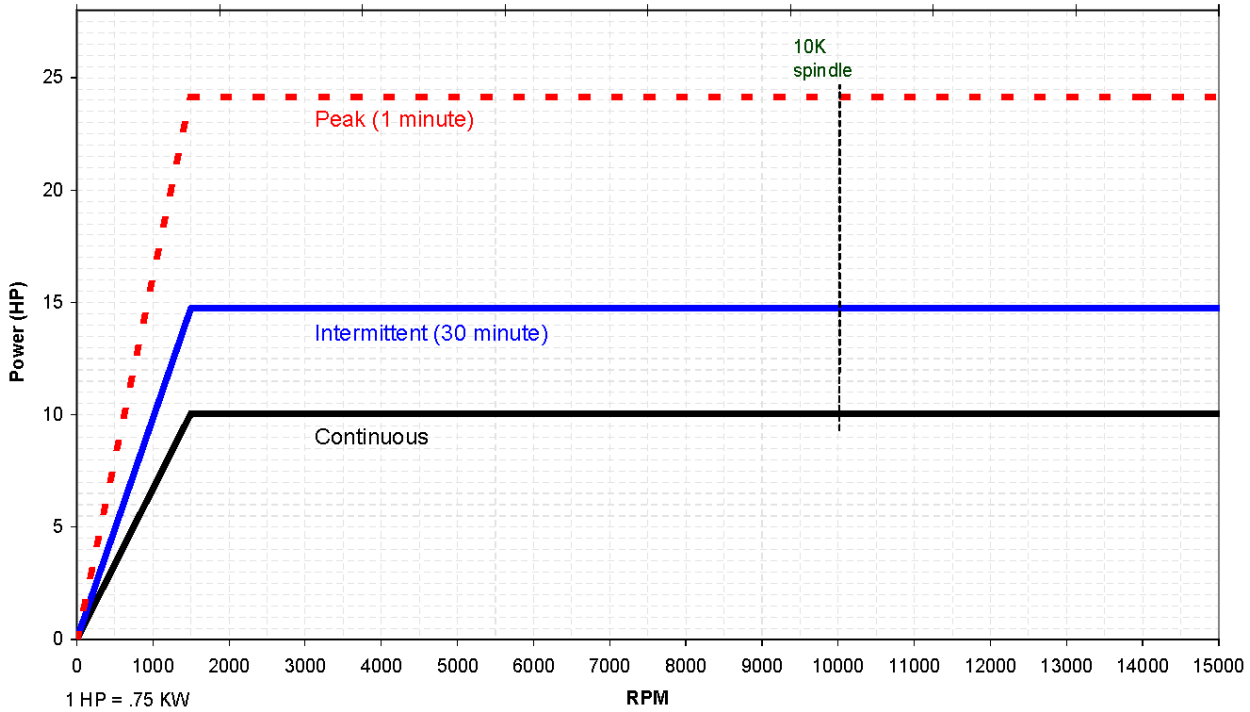


# Mitsubishi Torque Chart 24/15/2/M – Inline Spindle

Used on: Standard BR6100IL

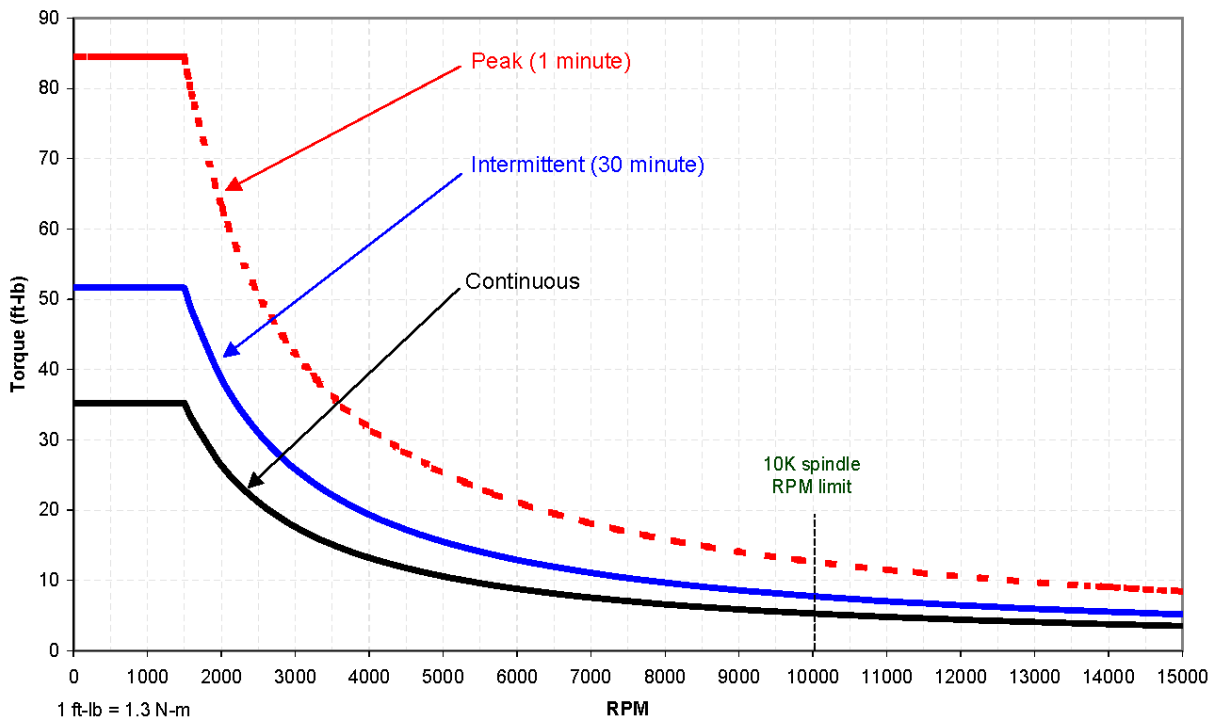
Mitsubishi VKS26-09ZM

Power Characteristics of Mitsubishi 24/15 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



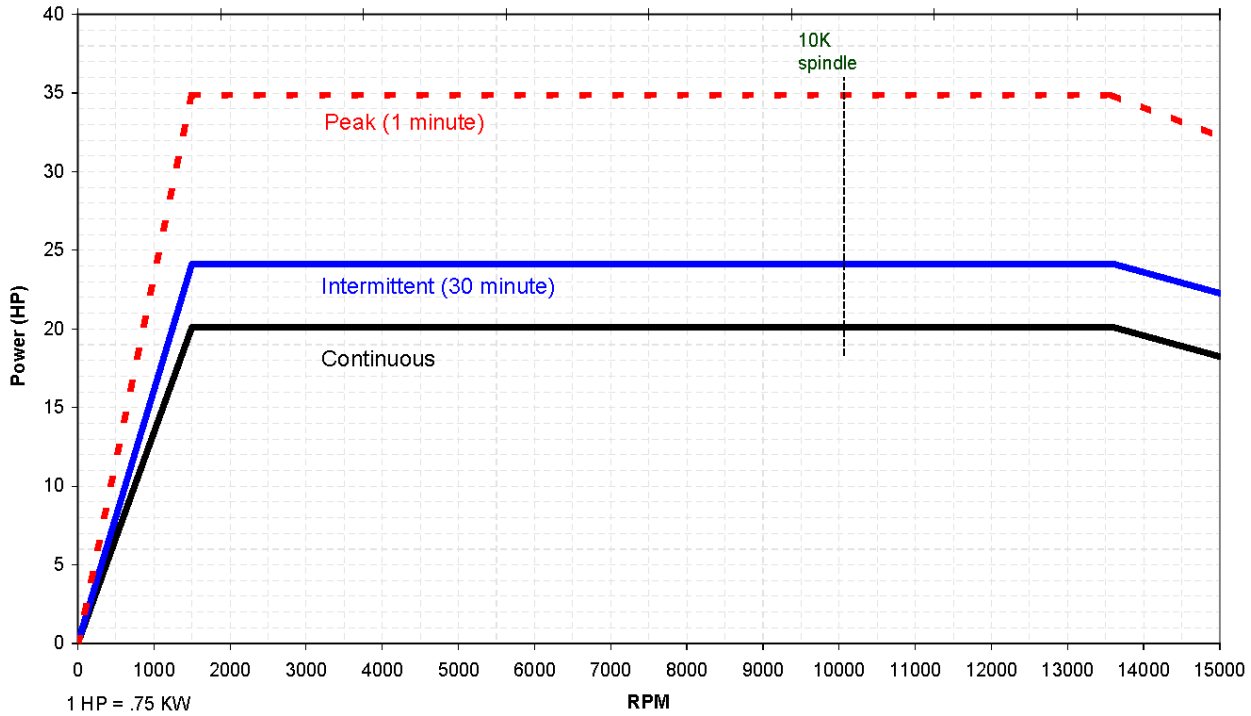
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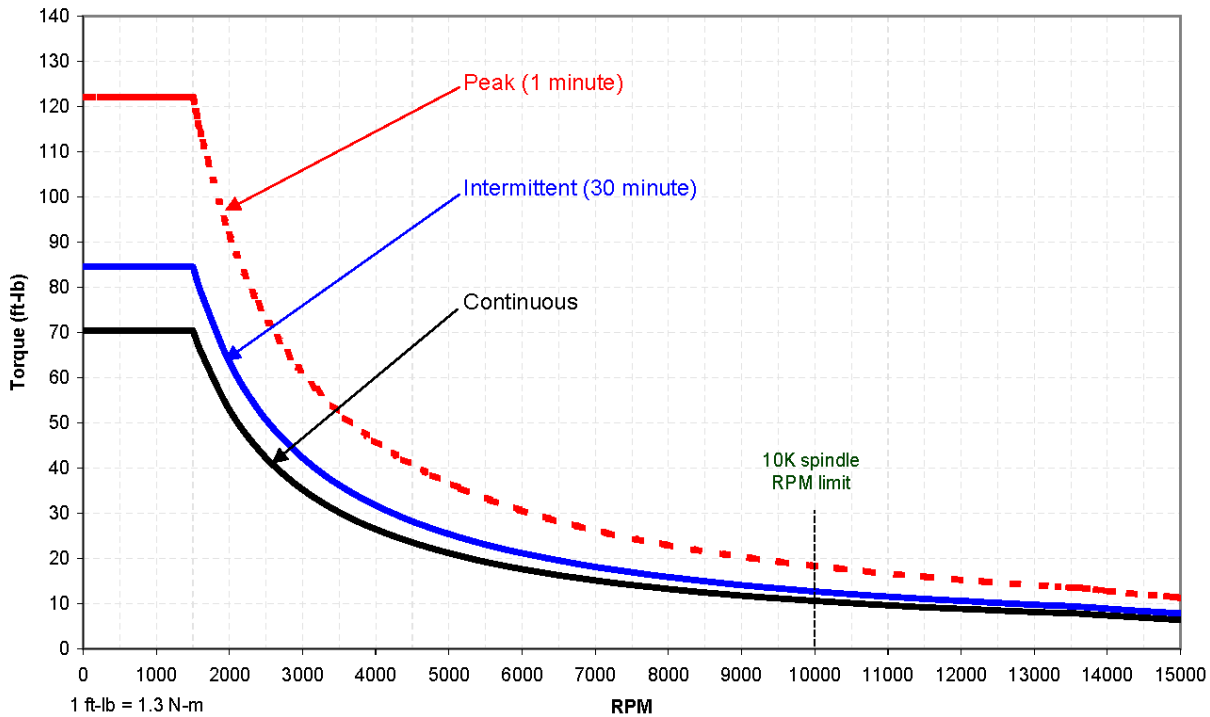
# Mitsubishi Torque Chart 35/25/2/1/M – Inline Spindle

Used on: Optional BR6100IL

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



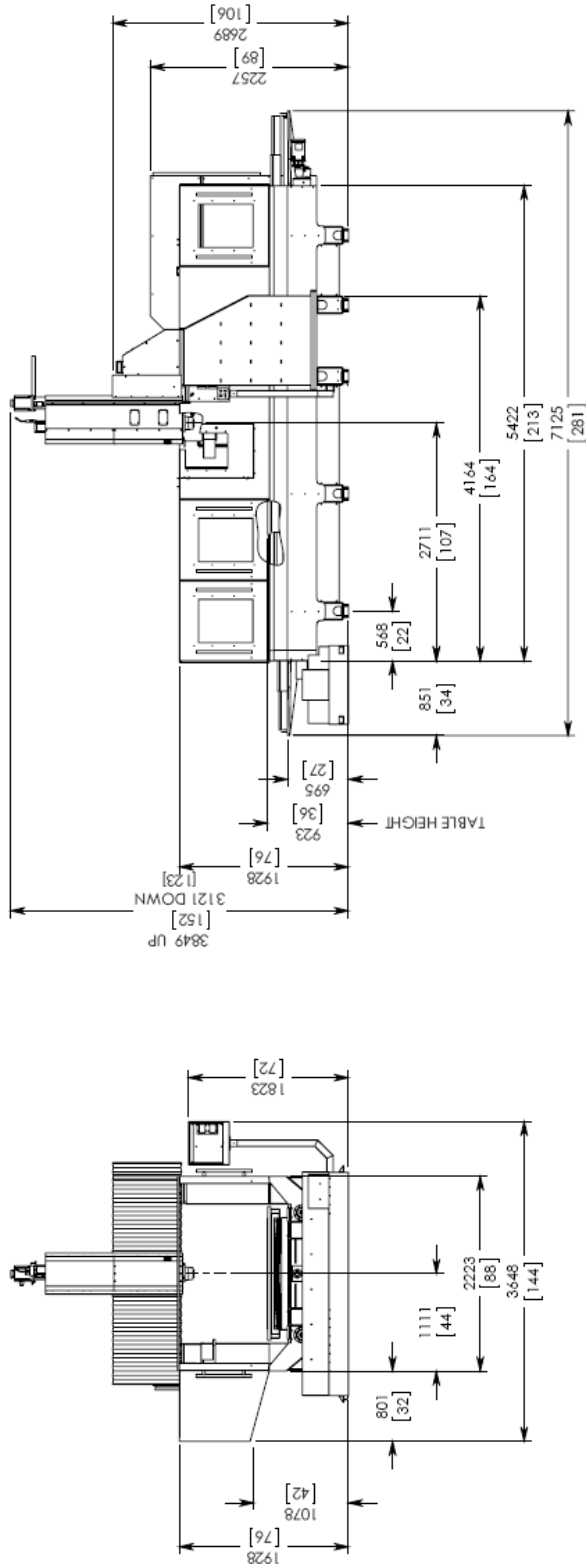
Mitsubishi VKS30-16ZM Torque Characteristics of Mitsubishi 35/25 HP  
15,000 RPM Hollow Shaft In-line Delta/WYE Motor



February 1, 2018 Version 3.3

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SEE PAGE TWO FOR BASE MOUNTING HOLES

	NAME	DATE
DRAWN	CHD	13 JUN 13
MATERIAL:		
FINISH:		
DRAWING TITLE: BR 60-100 FOOTPRINT		
UNLESS OTHERWISE SPECIFIED:		
DIMENSIONS ARE IN (MM) (INCHES)		
TOLERANCES:		
ANGULAR: MACH ± 1.0 BEND ±	SCALE: 1:50	DRAWING NUMBER: 10031081
NO DECIMAL PLACE ± 1 (0.05)	ESTIMATED WEIGHT: 7826.9 Kg	STOCK/ASSY. NUMBER: 10031081
ONE PLACE DECIMAL ± 2 (0.10)		SHEET NUMBER: 1 OF 2
TWO PLACE DECIMAL ± 2 (0.05)		
THREE PLACE DECIMAL ± 1 (0.04)		

## LIMITED WARRANTY

Subject to the terms of this Limited Warranty, Milltronics USA, Inc. ("**Milltronics**") warrants to the End User that the Milltronics Machine Tool, Replacement Part or Accessory (each, a "**Product**") for which this Limited Warranty is issued will be free from any Covered Defect during the Warranty Period for the Product.

Milltronics will replace or repair, at its option, a Product with a Covered Defect at no expense to its End User, except that:

(1) End User must pay for all shipping costs (including freight charges, taxes, and insurance), except shipping costs for repaired parts and components or a Replacement Part shipped under this Limited Warranty by Milltronics to End User or an Authorized Distributor.

End User must report to Milltronics in writing any Covered Defect as soon as practicable upon its discovery and in all events prior to the expiration of the Warranty Period for the Product. Milltronics shall have no responsibility with respect to any Covered Defect which is not reported to Milltronics by written notice prior to the expiration of the Warranty Period for the Product. End User must allow Milltronics or an Authorized Distributor to inspect and test the Product during business hours to determine if there is a Covered Defect. At the option of Milltronics, a Product with a Covered Defect will be repaired at End User's location, and should not be returned to Milltronics except upon inspection and testing by Milltronics or, with prior approval of Milltronics, an Authorized Distributor. Upon request, End User must return for repair or replacement, with shipping costs paid by End User, the Product or part(s) or component(s) of a Product with a Covered Defect to Milltronics at the following address: Milltronics USA, Inc., 1400 Mill Lane, Waconia, Minnesota 55387. All parts, components and Products replaced by Milltronics shall become the property of Milltronics.

This Limited Warranty is effective and valid only if the Authorized Distributor from which the Product is purchased (or Milltronics, if it is the seller) is paid in full for the Product, and the End User for that Product executes Milltronics-provided installation acknowledgments and forms upon completion of installation of the Product.

As used in this Limited Warranty:

(a) "**Accessory**" means a new accessory, kit or optional equipment supplied and installed on a Milltronics Machine Tool by Milltronics or an Authorized Distributor at any time *after* the initial installation of that Milltronics Machine Tool.

(b) "**Authorized Distributor**" means a Person authorized by Milltronics to sell and service Milltronics Machine Tools.

(c) "**Covered Defect**" means a failure of a Product during the Warranty Period to conform in any substantial way during normal use with the performance specifications and standards established by Milltronics for that Product; *provided that* such failure is not caused by or resulting from any of the following: (i) normal wear and tear or deterioration; (ii) inadequate or improper maintenance, such as End User's failure to clean, lubricate, replenish or replace oil, fluids, coolants, lamps, fuses, belts, filters and similar items; (iii) accident, negligence, theft, weather, electrical surges or lightning, fire or any other peril, misuse, abuse, programming error, improper operation or failure to follow fully maintenance and operation instructions provided by Milltronics or a Milltronics technical specialist to End User; (iv) mishandling, improper packaging or any other act which occurs during or in connection with shipment of the Product, or during or in connection with its rigging or installation, unless caused by Milltronics or an Authorized Distributor; and (v) any repair, replacement, modification or alteration of the Product which is not authorized by Milltronics.

(d) "**End User**" means the Person who purchases for its own use directly from Milltronics or an Authorized Distributor the Product for which this Limited Warranty is issued, and, so long as any relocating and reinstallation of the Product is performed by an Authorized Distributor or Milltronics, also any Person who purchases the Product from its initial End User prior to expiration of the Warranty Period for the Product. The term does not include any Person who purchases the Product for resale, lease or other transfer to, or use by, another Person.

(e) "**Milltronics Machine Tool**" means a machine tool manufactured by or for Milltronics, bearing the name "Milltronics" and a "Milltronics" trademark and serial number, and purchased by an End User new directly from Milltronics or an Authorized Distributor, together with any accessory, component, kit or optional equipment installed on that Milltronics Machine Tool by Milltronics or an Authorized Distributor prior to or at the time of initial installation of that Milltronics Machine Tool.

(f) "**Person**" means and includes an individual, partnership, joint venture, corporation, limited liability company, trust or other legal entity.

(g) "**Replacement Part**" means a new or rebuilt genuine part or component bearing a "Milltronics" trademark provided by Milltronics or an Authorized Distributor under this Limited Warranty in replacement of a part or component of a Product.

(h) "**Warranty Period**" means:

(i) for a Milltronics Machine Tool (other than a Tool Room Milltronics Machine Tool), unless a different warranty period is expressly stated in the quotation issued by Milltronics for that Product, a period of One (1) Year Parts and Labor, and for a Milltronics Tool Room Machine Tool, unless a different warranty period is expressly stated in the quotation issued by Milltronics for that Product, a period of One (1) Year Parts, Six (6) Months Labor. These periods begin on the earlier of: (1) the date of the first use of the Milltronics Machine Tool by its initial End User; and (2) the date which is 30 days after shipment by or for Milltronics of the Milltronics Machine Tool to an Authorized Distributor or the End User. (The warranty period may be extended, on exception basis, by a separate warranty extension issued in writing by Milltronics to the End User for a Milltronics Machine Tool);

(ii) for a Replacement Part, a period which is the longer of: (i) the 90 days after the date of its shipment by or for Milltronics to an Authorized Distributor or the End User; and (ii) expiration of the Warranty Period for the Milltronics Machine Tool on which that Replacement Part is installed; and

(iii) for an Accessory, a period which is the longer of: (i) the 90 days after the date of its shipment by or for Milltronics to an Authorized Distributor or the End User; and (ii) expiration of the Warranty Period for the Milltronics Machine Tool on which the Accessory is installed.

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#### **MILLTRONICS USA RESERVATIONS AND MACHINE SHUT DOWN DEVICE ADVISORY**

Milltronics USA reserves the right to incorporate any modifications or improvements in machines and machine specifications that it considers necessary, but are not documented within this quotation. Milltronics USA may install on any machine a CNC shut-down timer which requires a password to reactivate the Machine, will cause a machining or turning center to shut down. All purchasers are advised and at purchase shall be deemed to have consented to the installation of a shut-down timer, understanding that Milltronics USA or Authorized Distributor may have or obtain access to the required password to reactivate the machine should this be required in the event of payment default. Milltronics USA is not responsible for misprints or typographical errors in this Proposal. Proposal is valid for 30 days after presentation.

**For questions regarding this Limited Warranty, please contact the Authorized Distributor or:**

**Milltronics USA, Inc.**  
**1400 Mill Lane, Waconia, MN 55387 USA**  
**Main: 952-442-1410 Service: 952-442-1401**  
**[service@milltronics.com](mailto:service@milltronics.com) [www.milltronics.com](http://www.milltronics.com)**