

# JTEKT

**WELE**  
a TOYODA Strategic Alliance Company

## MG Series Moving Gantry Vertical Machining Centers

JTEKT Toyoda Americas  
Corporation



## Moving Gantry Vertical Machining Centers

### X & Y Axis Strokes

	X	5000	6000	8000	10000
Y	in	197	236.4	315.2	394
3000	118.2	MG530	MG630	MG830	MG1030
4000	157.6		MG640	MG840	MG1040
5000	197		MG650	MG850	MG1050

### Z Axis Stroke

	STD	OPT	OPT
Z	1000	1200	1400
in	39.4	47.3	55.2
	STD	OPT	OPT

### Table Dimensions

	Length	5000	6000	8000	10000
Width	in	197	236.4	315.2	394
2800	110.3	MG530	MG630	MG830	MG1030
3800	149.7		MG640	MG840	MG1040
4800	189.1		MG650	MG850	MG1050

### Table Load Capacity

- 2500 kg/ m<sup>2</sup> (512 lbs/ft<sup>2</sup>)

## Moving Gantry Vertical Machining Centers

### Solid Construction

- Utilizing FEM design and stress-relieved cast iron and high strength weldments
- Hand scraped accuracy
  - Unrivaled rigidity and strength
  - Low centers of gravity
- Ribbed construction
  - Durable for lasting performance
  - Rigidity to resist cutting forces
- Heavy Duty Linear Guideways
  - More rigid than competitor's designs
- Rugged and durable Geared Heads
  - Designed for long term performance and accuracy
  - Make heavy cutting simple
- Patent Pending Backlash Elimination Device
  - For Rack & Pinion (Xaxis)



Z axis Travel  
1,000 mm (STD), 1,200mm, 1,400mm (OPT)

Spindle Design  
2 Speed Geared Head, 6,000 RPM

Linear Guideways  
THK Heavy Duty Roller Guideways

Rack & Pinion  
Rigid & Smooth movement,  
with Special Design Backlash Eliminator

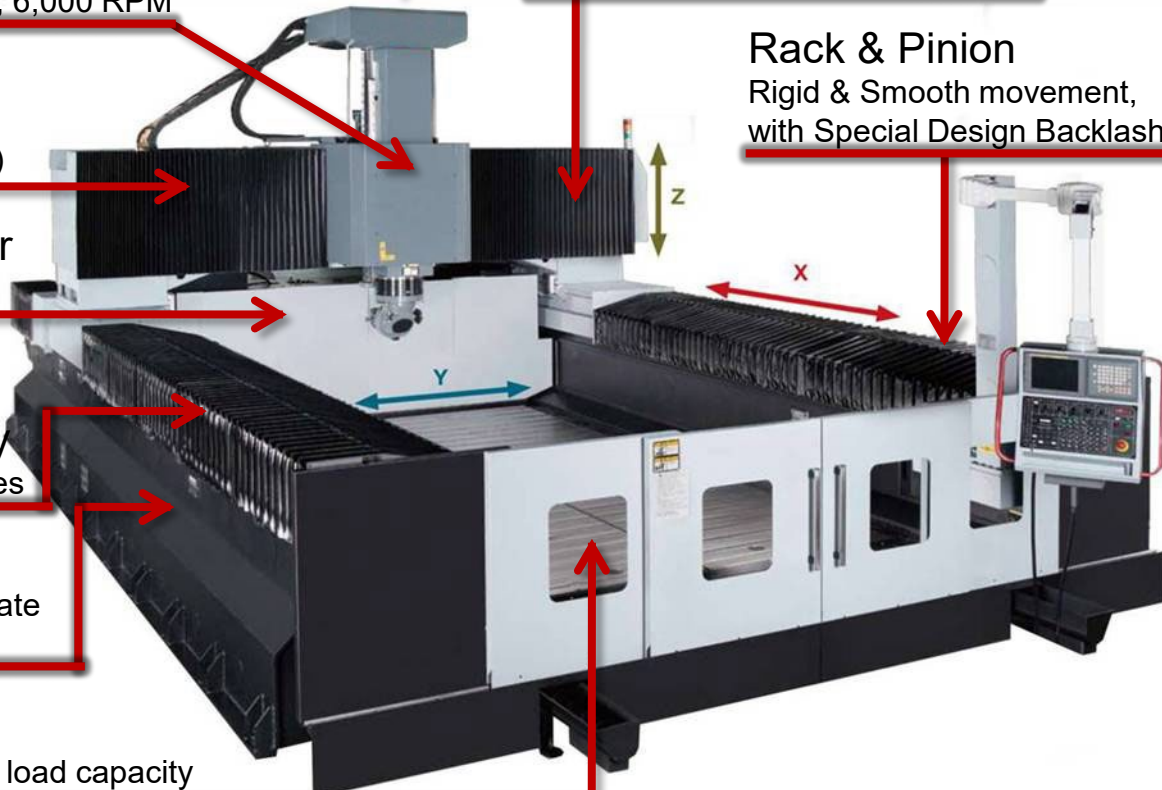
Feedrate  
10/18/12 M/min (MGxx30)

Auto Head Changer  
(OPT)

Positioning Accuracy  
Dual Servos & Linear Scales

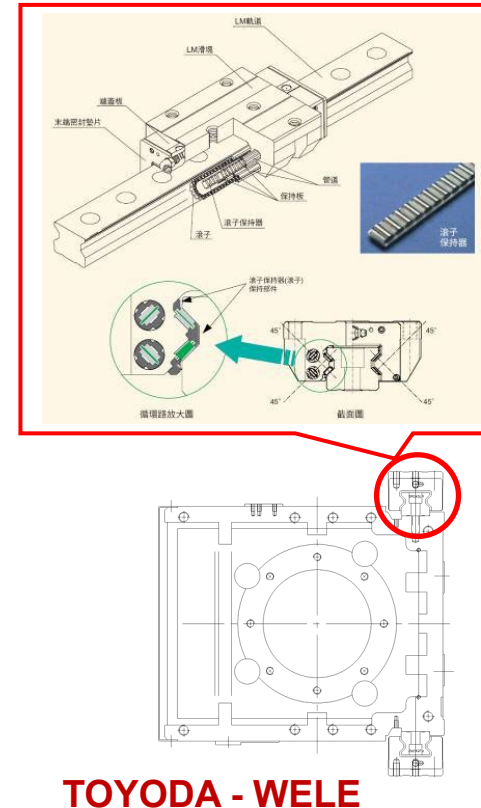
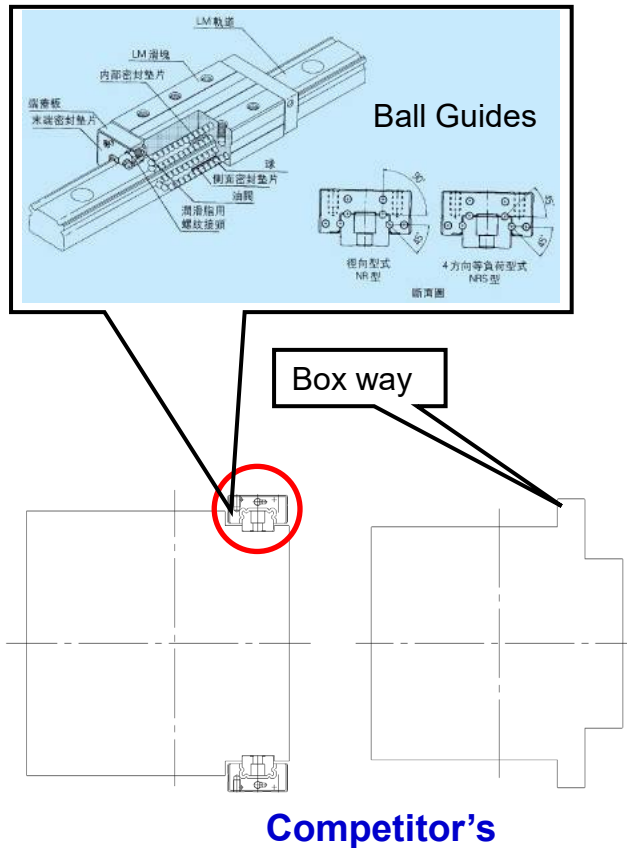
Machine Bases  
Robust and Rigid for accurate  
heavy cutting

Table  
Modular design, heavy duty load capacity



## Z Axis Support System Differences (Top Views)

Linear contact roller bearings provide improved rigidity over ball bearing packs and better Sustained cutting performance over box ways designs

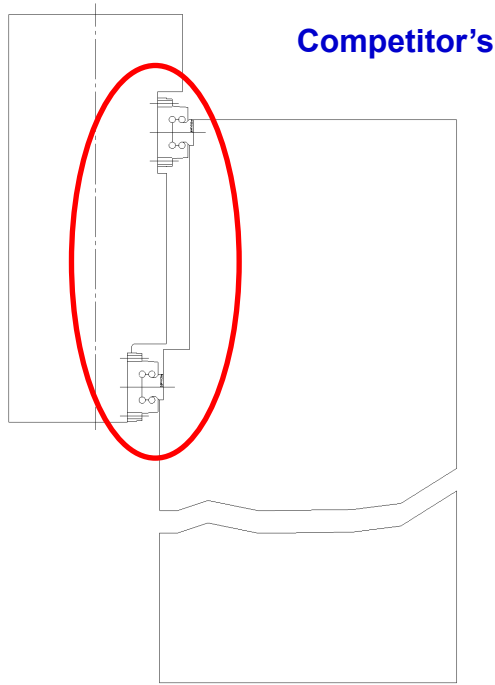


## Y Axis Guide Way and Spindle Transmission Design

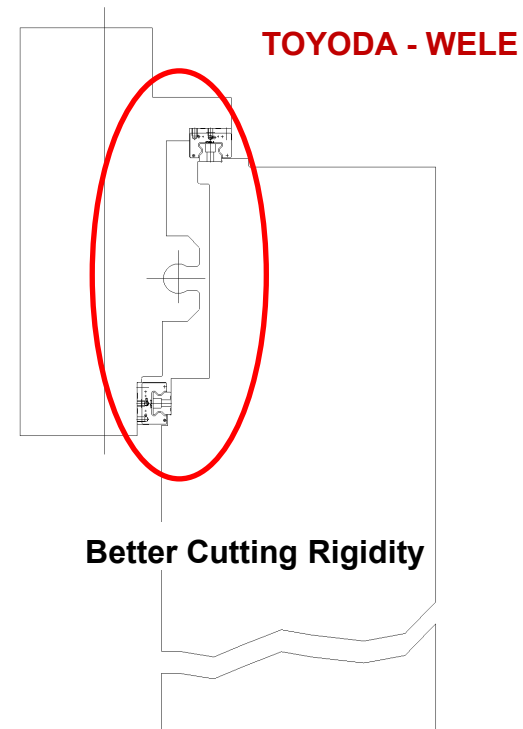
Dual plane support guide way offer better cutting support

Y Guide Way Arrangement:

**Parallel**

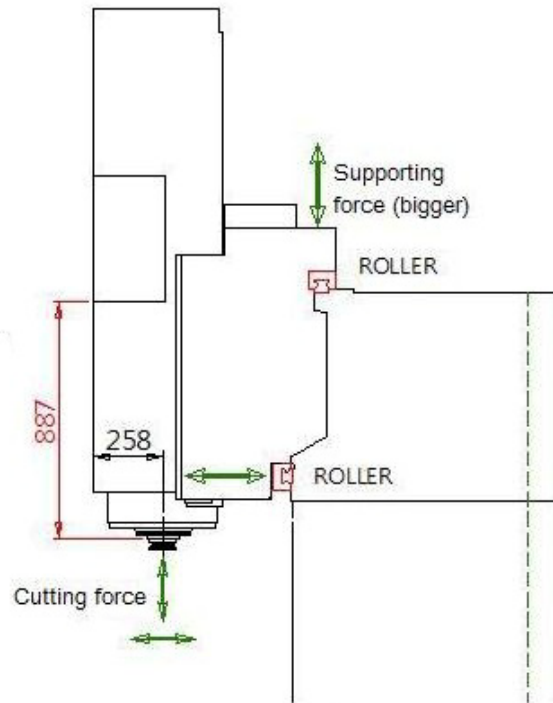
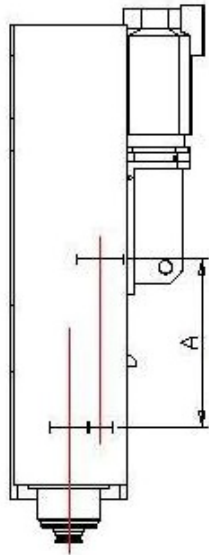


**Perpendicular**

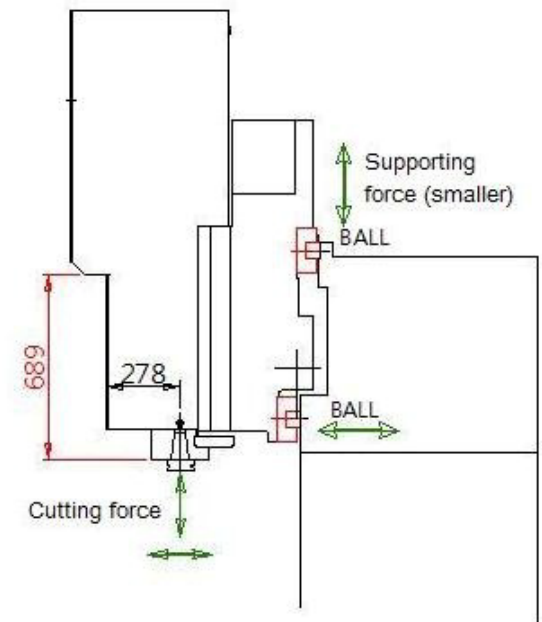


## Y Axis Guide Way and Spindle Transmission Design

Dual plane support guide way offer better cutting support



**TOYODA - WELE**

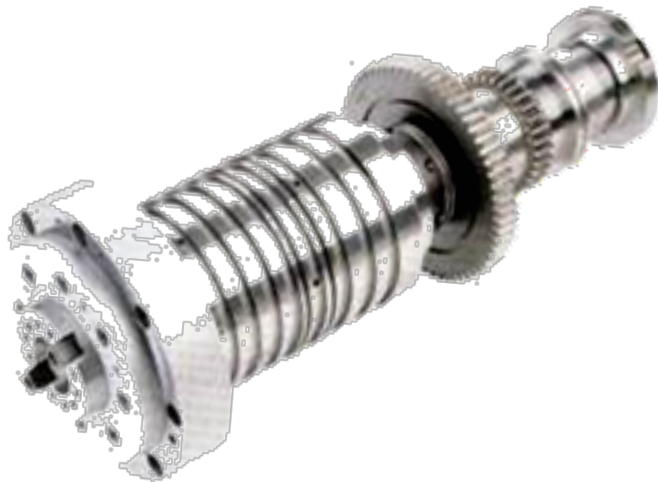


**Competitor's Design**

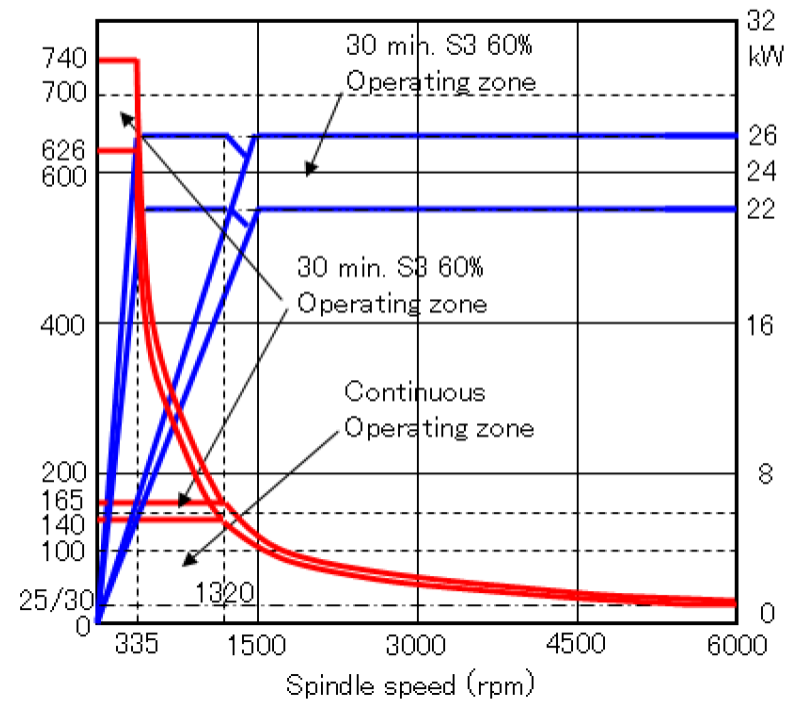


## Powerful Spindles

- 6,000 RPM (35HP) CAT50 Geared Headstock
- 626/740 Nm (461/545 ft-lb) Spindle torque



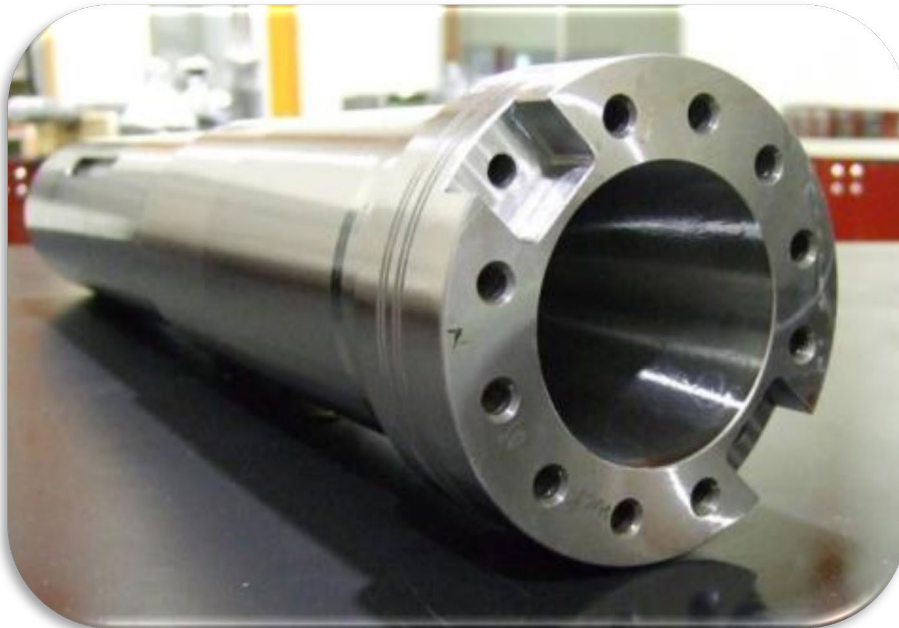
Speed up to 6000 rpm with gear driven of FANUC motor  $\alpha$  22/7000 i



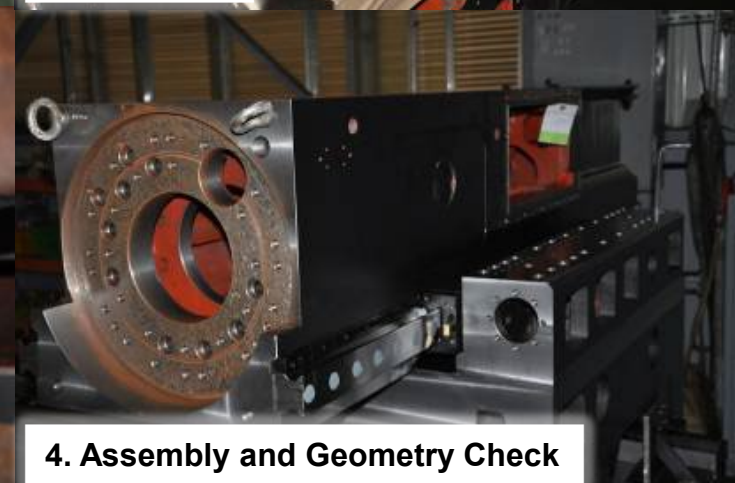
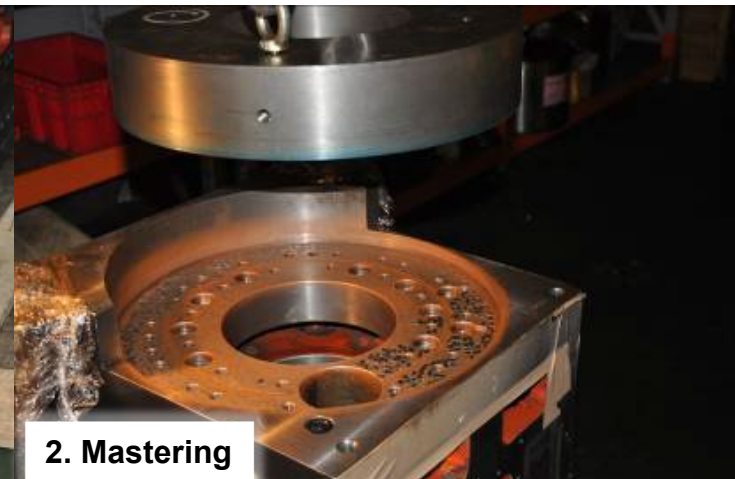
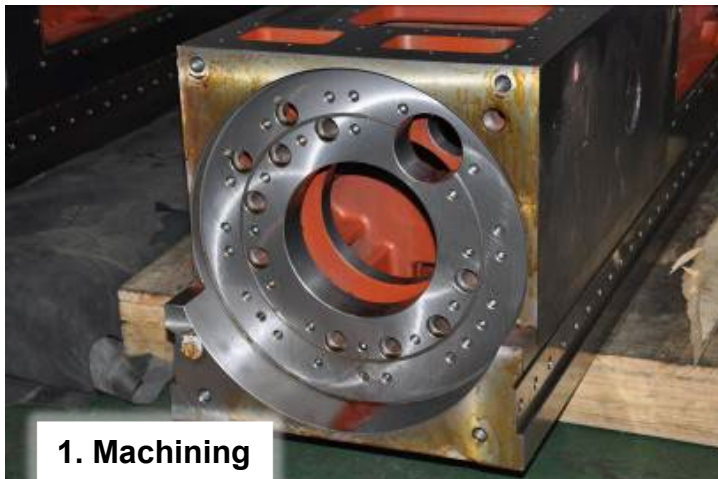


## Continuous Taper Contact Spindles

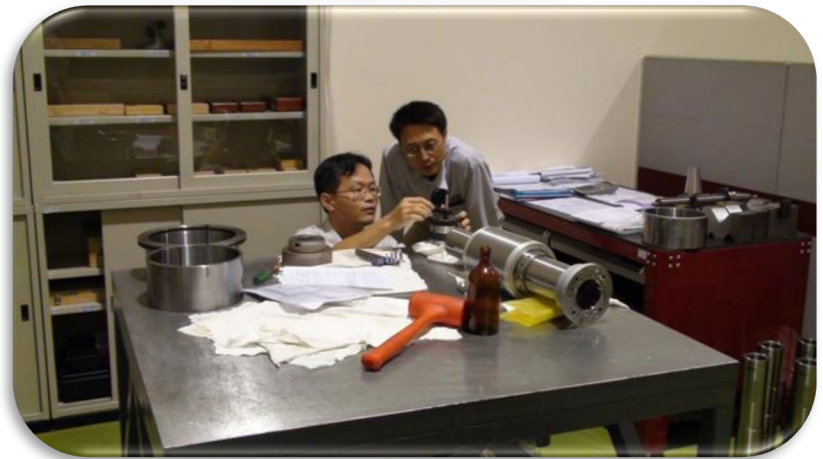
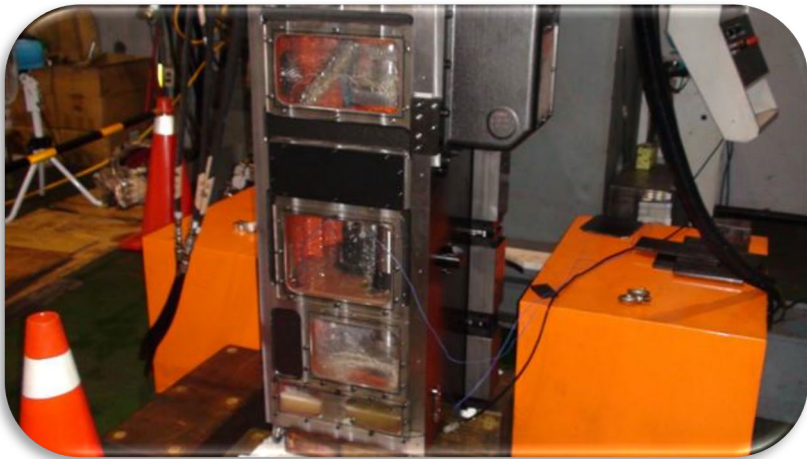
- Effective taper length increased 15%, contact surface increase 27%.
- More rigid compared with Competitor's Spindles



## Hand Scraping of Spindle Headstocks

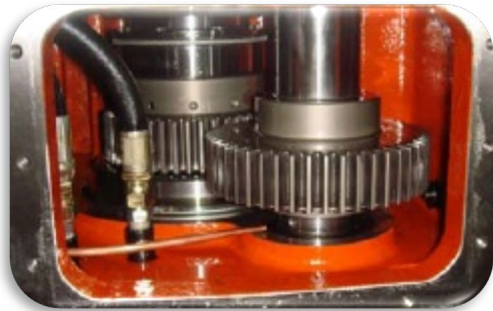


## Each Spindle & Gear Box is Run In and Tested



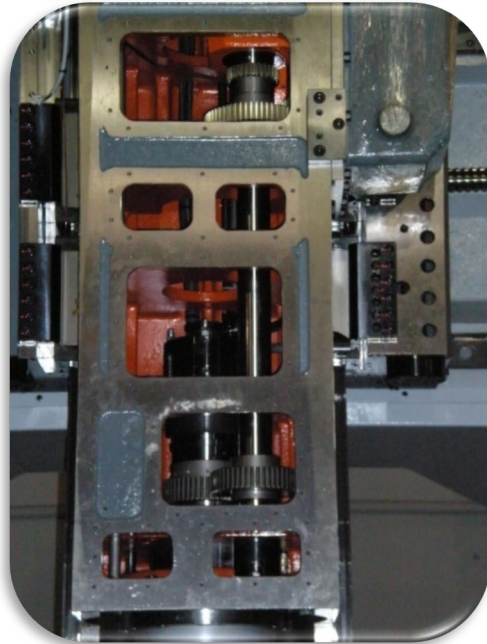


## Geared Head Spindle



A chilled oil bath is directed on all critical surfaces to decrease wear and eliminate thermal expansion.

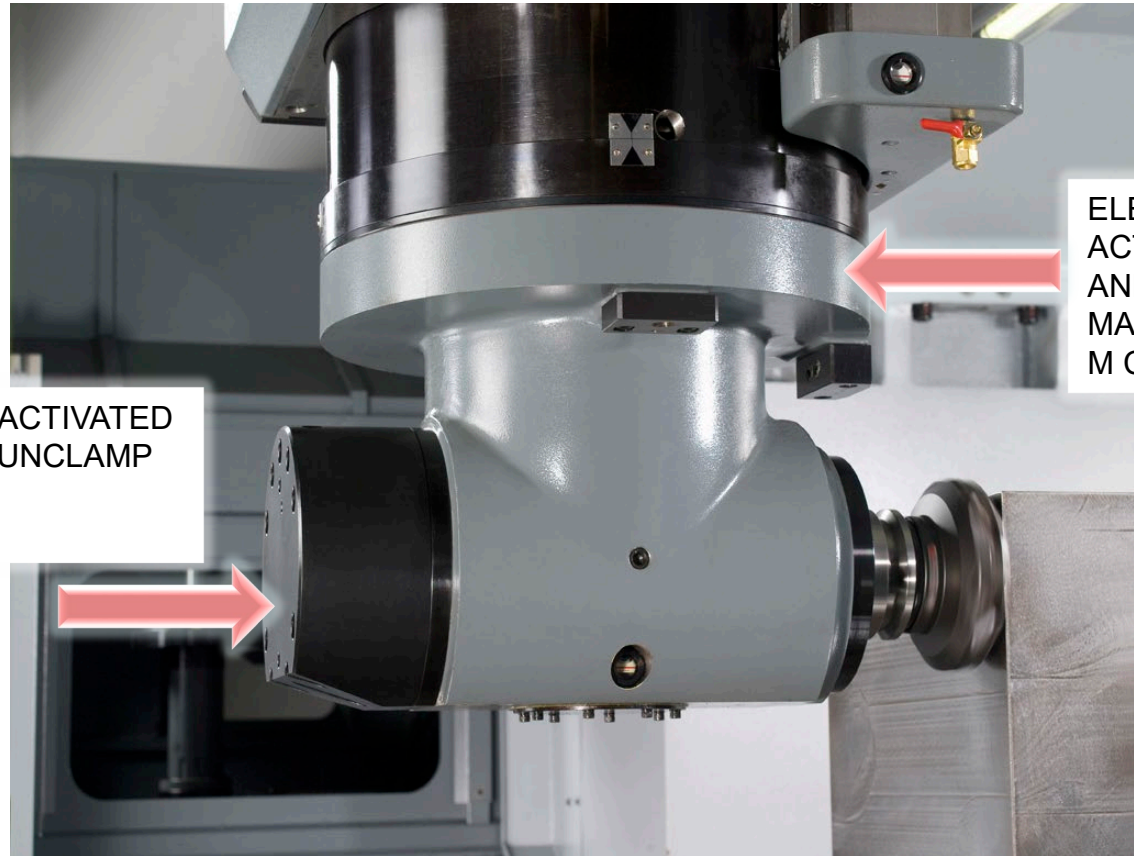
Spindle Motor Placement with direct coupled 2 speed gear box eliminates drive shaft vibration.  
 Spindle drive shaft is 800mm shorter than competitor's design.



During Vertical Machining a cast spindle nose cover is used to protect the Head interface.



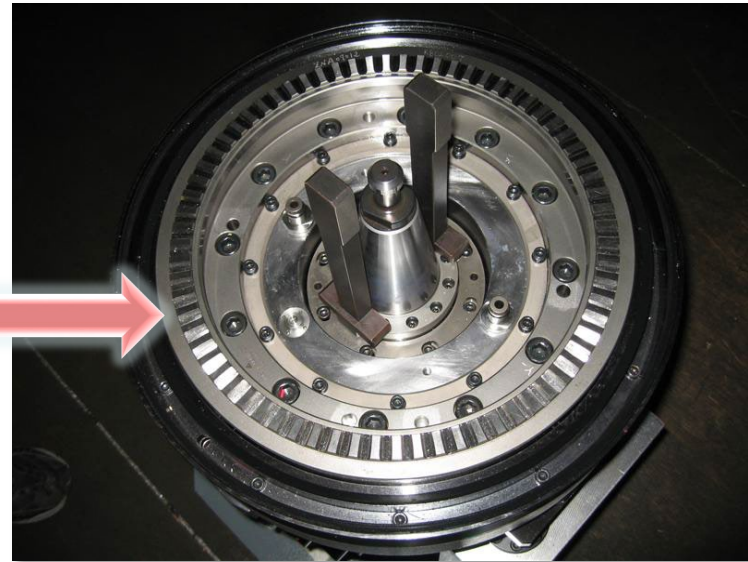
# Horizontal Machining (Using Optional 90 Deg. Head)



ELECTRONICALLY ACTIVATED  
TOOL CLAMP AND UNCLAMP  
IN MANUAL OR VIA  
M CODE

ELECTRONICALLY  
ACTIVATED HEAD CLAMP  
AND UNCLAMP IN  
MANUAL OR VIA  
M CODE

**HIRTH TYPE INTERFACE WITH 44,000 LBS  
HYDRAULIC CLAMPING PRESSURE**



**Auto Index 72 positions (5 degrees)**



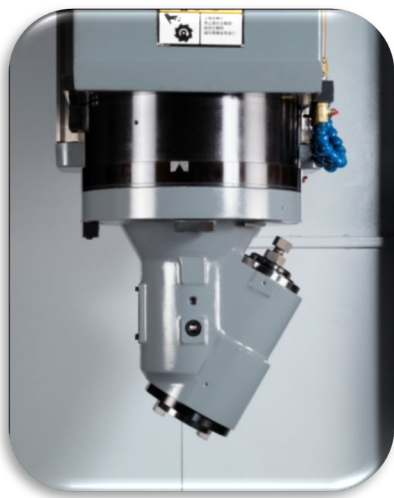


# 50 Taper Optional Heads Available (Manual or Automatic Head Change)

**All heads are available with 5 degree programmable positioning (C Axis)**



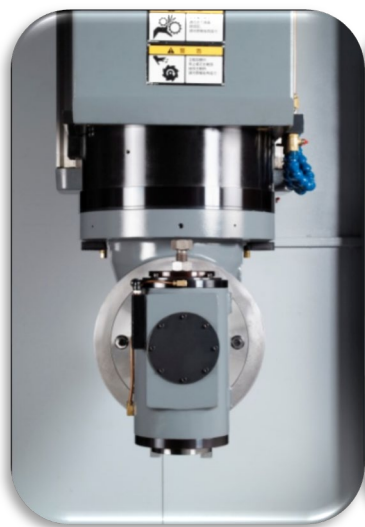
90 Degree, 2400 RPM 1:1 Gear Ratio



30 Degree, 3000 RPM 1:1.16 Gear Ratio

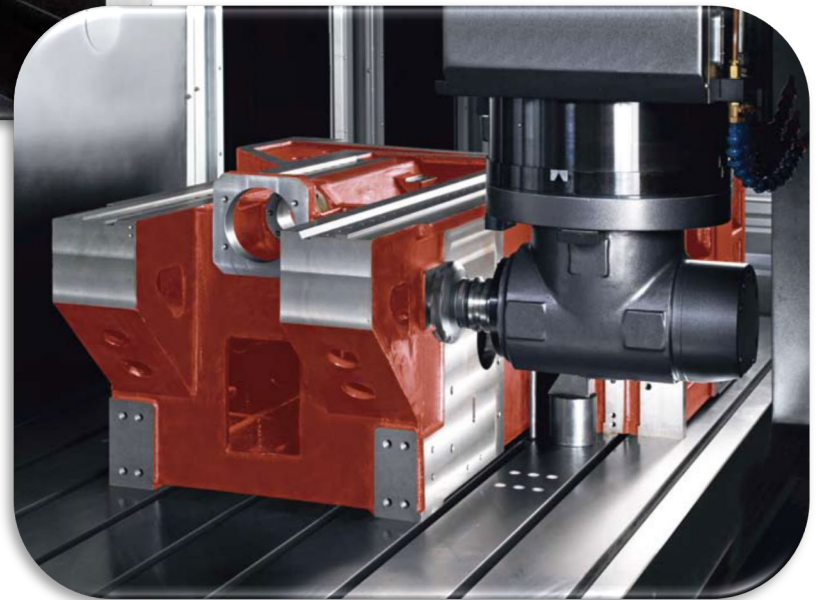


352mm (13.8") Extension, 4000 RPM 1:1 Gear Ratio



Universal, 2400 RPM 1:1 Gear Ratio, 5 Degree Positioning of Spindle (Manual Setting)

## Optional M Specification (Automatic 90 Deg Head Change and Tool Change)



## Fully Featured Toyoda Package (Standard)



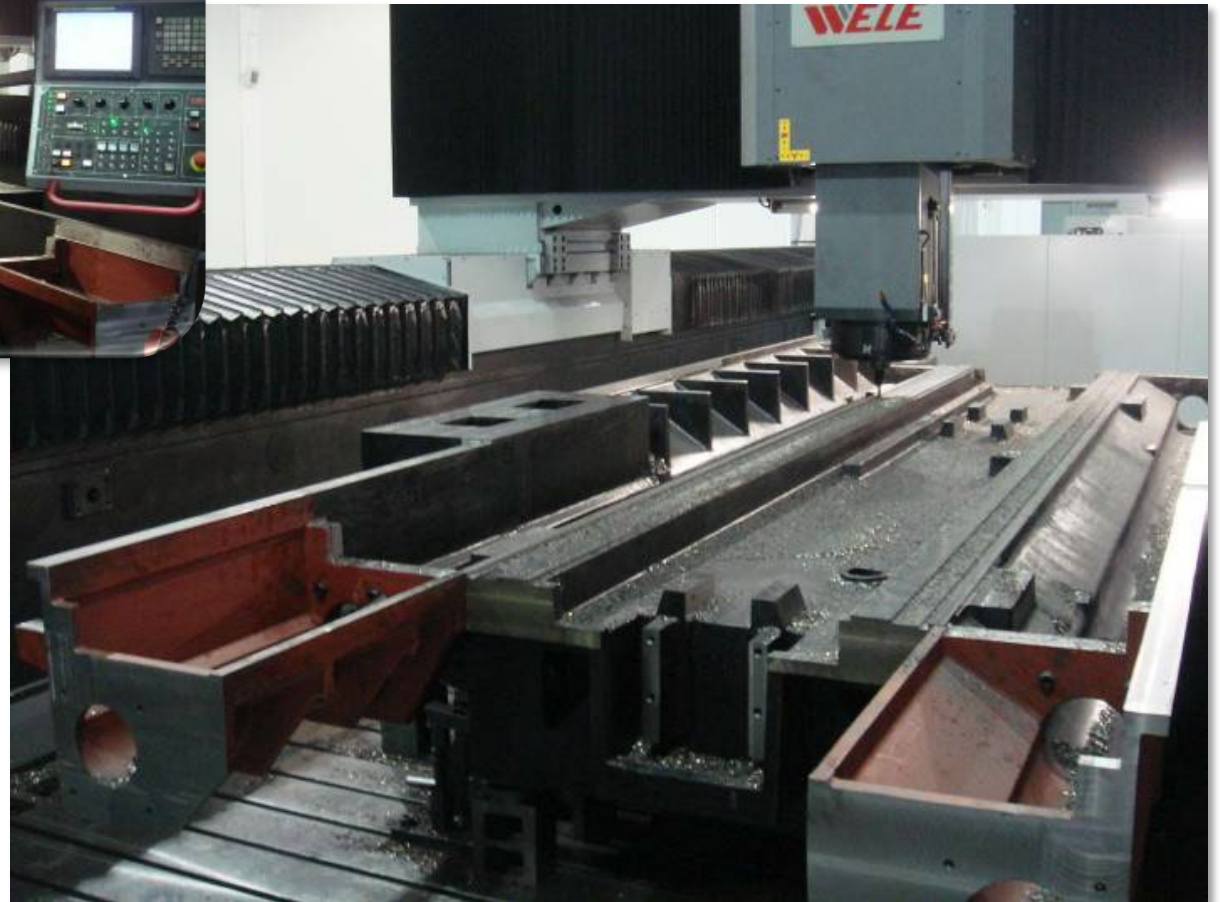
<b>Fanuc 31i MB CNC including:</b>	<b>Helical, cylindrical, rigid tapping, Manual Guide i, 10.4" color display, 48 sets work coordinates, custom ATC management, 200 block advance look ahead, conical, spiral, dynamic graphics, 4 axis, involute, jerk control, bell shaped acc/dec, cornering control, tool offset memory C, PC card slot, ATA data server, ethernet, programmable mirror image, pitch error comp., AI Nano (C), Custom Macro B</b>
<b>Solid Cast T-Slot Table</b>	<b>4<sup>th</sup> Axis ready (mounted to table side) Optional</b>
<b>Hinged Belt Chip Conveyor</b>	<b>1200mm drop height, with e-stop</b>
<b>Coolant thru spindle</b>	<b>300 Psi, 1000l separate CTS filter &amp; supply</b>
<b>Full Wrap Around Enclosure</b>	<b>Roof Enclosure Optional</b>
<b>Dual X axis chip augers</b>	<b>Solid steel construction, heavy duty</b>
<b>Status lamp, work lamp</b>	<b>Handheld air blast and coolant pistol</b>

# MG Model 1040 in Operation



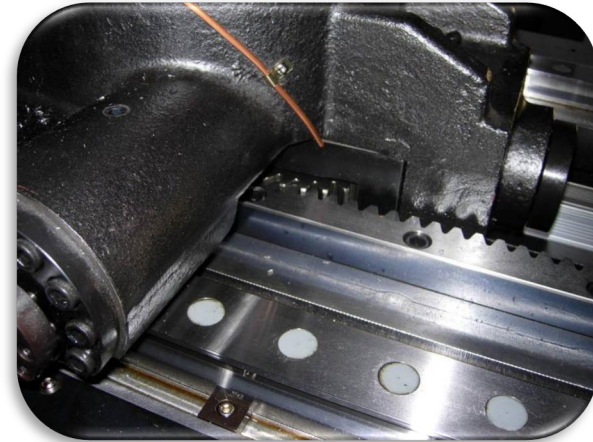


# MG Model 1040 in Operation



# MG Models (MG1550)

Rack & Pinion Gear Drive with P.A.F. Wele Backlash Eliminator

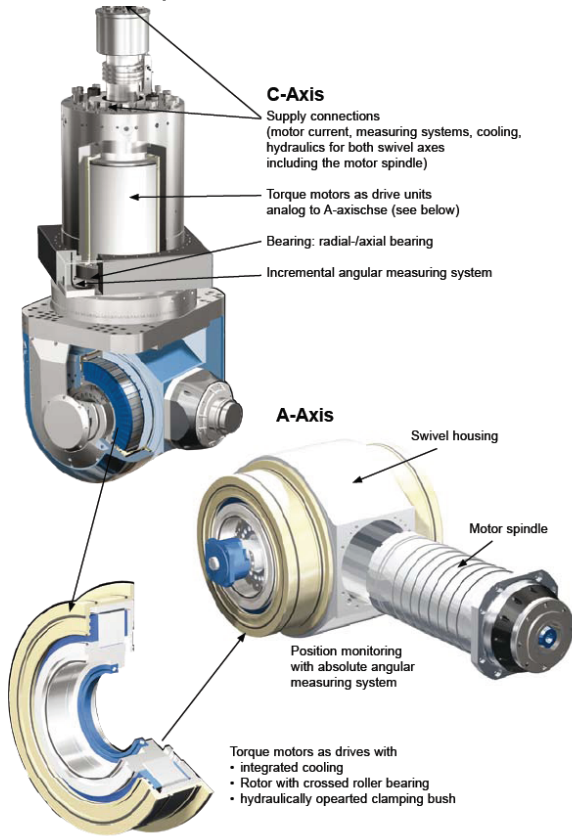




# MG-U Models (Five Axis with C/A Head)

Heidenhain TNCi530 CNC or FANUC 31i B5 (*FANUC Integration currently under development*)

CYTEC Head & Spindle (Made in Germany) Full Five Axis capability  
12,000 RPM Spindle, HSK 100A



**C Axis = 360 deg.  
Rotation**

**A Axis = 110 deg.  
Rotation**

**Direct Driven  
Motors**

**Direct Driven  
Spindle**





# MG Installations Worldwide (as of Aug 2012)



Delivery date	Model	M function	Five axes function
6/1/2009	MG-1040	*	
4/15/2009	MG-850	*	
1/14/2011	MG-1450Z	*	
4/29/2011	MG-650	*	
6/30/2011	MG-1650Z	*	
6/30/2011	MG-650	*	
8/17/2011	MG-650	*	
11/18/2011	MG-850Z4	*	
5/10/2012	MG-640	*	
5/31/2012	MG-640Z2-U		*
7/15/2012	MG-540U4		*
9/15/2012	MG-530		
10/30/2012	MG-530		
11/30/2012	MG-530		
2/5/2013	MG-1030Z2	*	

# JTEKT Rebuild, Retool & WELE JTEKT Retrofit Services

## Total lifecycle support for machine tools that operate well into 30+ years

- Full mechanical rebuild of entire CNC machines, or individual sub-assemblies:
  - Spindles, B-Axis Tables, Gearboxes, Ballscrews, Boxways, Guideways, Workhead & Tailstocks, Many More, Just Ask
- Factory-certified technicians & OEM drawings allow for warranted rebuilds
- CNC Control Retrofits for FANUC & Toyopuc GC/MC Series Controls
- Engineered Retools for new production applications with runoff facilities & climate-controlled QC lab with Zeiss Prismo CMM, Adcole Inspection, Jenoptik Waveline Roughness & Counter measurement, and other unique capabilities
- In-field evaluation services and machine health checks available at request
- Looking to Upgrade? [Ask about Buyback/Trade-In of your aged Toyota](#)
- Looking for a Machine that's already Rebuilt? [Check our Rebuilt Toyota Inventory](#)

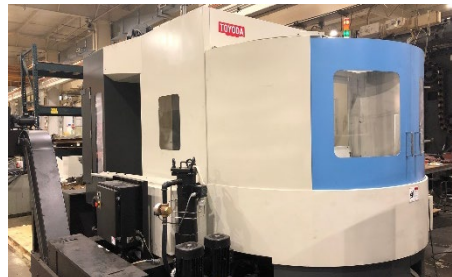


75,000 sq ft facility just outside Detroit (Wixom, MI)

FA630 Before



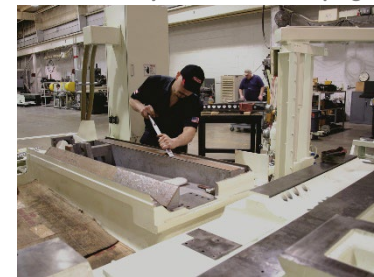
FA630 After



FANUC or Toyoda control retrofits



JTEKT Factory-trained Handscraping



## FULLY SUPPORTED FROM OUR FACTORY TO YOURS



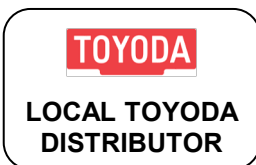
- Ownership of TOYODA and KOYO Brands
- 40% Ownership of Wele Mechatronics
  - Japanese Manufacturing Concepts
  - Japanese Quality Assurance Methods
- Financial Stability



- 20+ yrs. Experience Building Precision Machinery
  - Innovative Design and Engineering
- 5 Factories, Each Specialized by Product Type
- Worldwide Manufacturing Facilities of TOYODA brand  
Vertical Machining Centers



- North American Importer of All Toyoda and Wele Machinery
  - Over 30 Years of Engineering Expertise
  - Factory Direct Service and Technical Training
  - Large Spare Parts Inventory
  - Sales Support



- Sales
- Installation
- Factory Trained Service
  - Market Knowledge
  - Client Relationships

## Proven Technology

Our own experience with high-volume production helps us design and build machine tools that perform under pressure. We continually refine processes, build reliable machines and test them in our own factories. So when you decide to buy a Toyoda machining center, grinder, or make use of our services for your business, you can be confident that you are investing in proven technology.

## Customer Support

Toyoda works closely with its nation-wide dealer network to keep local servicemen on call should you ever need them. In addition, our own factory-trained service engineers are stationed across the US, Canada and Mexico. And our extensive spare parts inventory (\$20 million) ensures that virtually any replacement part will be shipped to you in 24 hours.

# THE TOYODA DIFFERENCE

## Corporate Headquarters

The 100,000 square foot plant in Arlington Heights, Illinois (just northwest of Chicago) is the Toyoda Machinery USA headquarters, providing a range of horizontal machining centers, factory automation systems, and the widest array of production cylindrical grinders in the industry.



## Repair, Rebuild & Remanufacture Division

Toyoda's Repair, Rebuild, and Remanufacturing division, located just outside of Detroit, Michigan, specializes in serving the needs of automotive OEMs and other high-volume parts suppliers.

