HH Roberts

Conventional Bed Mills

Available in 3 styles:

- quill heads
- medium duty rigid heads
- heavy duty machining center heads

Available in 3 sizes:

- 32” x 20”
- 40” x 22”
- 50” x 22”

The Pendant - your control center

The pendant has the spindle speed display at the top left.

The forward / stop / reverse selector and the sensitive speed setting knobs are directly below the display.

The top right selector switch is the Z axis brake.

The axis feed engage joysticks are in a horizontal row and protected by a safety bar. Below each axis joystick are the sensitive feed setting knobs and the yellow rapid traverse buttons.

On the bottom row are the coolant on/off, worklight and E-stop.

The feeds can be engaged one at a time or in any combination, and each operated in feed or rapid mode indepentantly, in any combinations of directions and rates.

Unique Digital Readout Systems

The machine frames used in all our mills shown in this catalog are common to the frames of our CNC bed mills, with the addition of handwheels for manual use. On most of our CNC knee mills the axis positioning system comes from encoded signals in the axis servo motor drive system. We fit Heidenhain or Fagor digital readout systems that use the the same signals to display position on the digital readout.
This feedback is very satisfactory on our CNC frames and offers excellent value on these conventional machines.

These two readouts are offered because they allow backlash compensation, the same as a CNC system.

CNC Upgrade in the Future

Furthermore it should be noted that the servo motors and amplifiers used are the same series as those used on our CNC machines. If the optional high power servos are used then there can be a very significant saving in the cost of upgrading to a CNC system in the future. The upgrade will only require the addition of the CNC itself. The servo and spindle drive system are already installed.

A Note About Our Castings

Almost every machine tool made in Taiwan bears the stylized “M” that is the trademark of the Meehanite Metal organization.asdf

Some grades of Meehanite are ideal for machine tools, having high tensile strength, resistance to wear, vibration dampening properties, and accept heat treating for slideways well.

The castings on these machines are GA-50 and GA-350.

At the time of preparation of this catalog, we have in our showroom a ***used*** CNC knee mill from the same frame supplier as builds this H/V frame. The cross slide ways are square or ‘box’ style. This makes it very easy to use a micrometer to check wear. We invite customers to measure the wear. It is less than 1/10th of a thou. It was built in 1994 and was the only mill in the shop until the customer traded it for another of our millls with a tool changer.

You can check the attributes of these grades at **www.meehanitemetal.org**.

Some of the features of this series of machines

- our gearless vector drive head with spindle speeds to 6,000 rpm up to 20 Hp.
- ballscrews on X and Y
- CNC class servo drive system for X and Y feeds
- pendant with complete controls
    - large LED for spindle speed display
    - forward-stop-reverse for spindle with automatic braking and auto release
    - sensitive knob for spindle speed control
    - independent controls for each axis
    - joystick for intuitive feed direction selection
    - sensitive feed rate adjusting knob
    - pushbutton rapid traverse
    - coolant on-off selector
    - co-mounted Fagor digital readout, see functions below
- built in coolant system with chip pan, with original Lockline nozzle
- automatic timed central lubrication system
- folding grips on X and Y handwheels on 40” and 50” models
- tool tray on left side of table on TW-32 series
- twin tool trays on TW-40 and 50 series
- halogen high intensity worklight
- telescopic steel slideway covers on front of saddle
- rubber chip guard between saddle and column

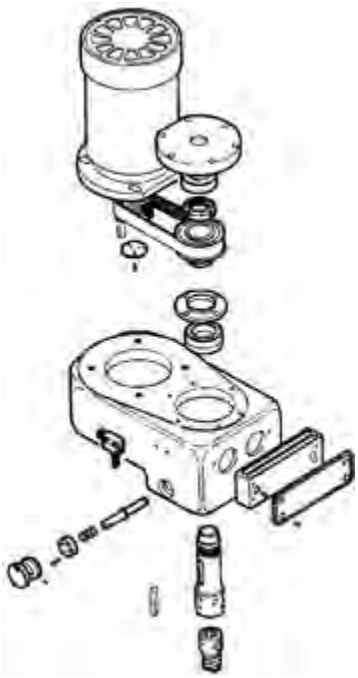
When equipped with CNC servo system and feedback encoders, the Fagor Readout has the following features

- **custom Fagor NVP200M Digital readout** with:
    - backlash compensation for X and Y
    - machine reference signal (homing)
    - part centering
    - feed rate display and calculation
    - bolt hole, linear and grid pattern drilling and parallel hole drilling
    - pocket, line and frame machining
    - corner rounding
    - teach in
    - program cycles
    - tool calibration
    - tool radius compensation
    - 10 tool length offsets
    - tool change
    - messaging in 6 languages (English, Spanish and French included)
    - 2 axis coupling
    - 100 memory blocks
    - angular counting
    - auxiliary LCD display for operating
    - 10 datum points
    - part rotation
    - scaling factor
    - mirror image
    - .0002” or .0005” display
    - axis preset
    - axis reset
    - counts in “display off” mode
    - absolute / incremental
    - direct inch / metric conversion
    - speed and feedback alarms
    - multi-point machine error compensation
    - data backup via EEPROM
    - hold function
    - block repeat

Q Series with Quill Type Heads

TW-32-Q

- 50” x 12” table
- 32 1/2” x 20” x 22.2” travels
- 7 1/2 Hp gearless vector drive to 6,000 rpm



It can’t get much simpler than this.
- motor shaft and pulley
- belt
- spindle hub and spindle

That’s about 85 fewer parts than a typical vari-disk type head.

It’s so reliable that we guarantee the spindle drive mechanism for 3 years.

In this photograph the TW-32-Q is shown with the standard chip pan. Larger chip pans and side splash guards are available as shown on the TW-50-RH on the next page. Also on current models the spindle speed and direction controls are placed on the head, not in the pendant as shown in the pictures.

Options

- 12 Hp. output spindle drive on some models
- spray mist systems
- large rigid chip pan 68” wide and 50” deep
- side splash guards approximately 6’ high x 68” wide
- low coolant level alarm
- storage cabinet on left side of column
- isolating transformers for shops with wild leg & 460 V supplies
- 6” riser block for increased vertical capacity
- 3” throat extension to increase reach
- Erikson style quick change spindle nose

Q Series with Quill Type Heads

	TW-32-Q	TW-40-Q	TW-40-QW	TW-50-Q	TW-50-QW
travel X	32”	40”	40”	50”	50”
travel Y	20”	22”			
travel Z - on column	22”	21”	24”	20 1/2”	23 1/2”
travel Z - quill stroke	5”				
quill diameter	4.175”				
quill feeds	3				
table surface	50” x 12”	59” x 13”	59” x 18”	69” x 16”	69” x 18”
table height above floor	41”			42”	
spindle C/L to face of column optional	20 1/4” 23 1/4”	22” 25”			
spindle nose to table optional	22” 26”	34 1/2” 40 1/2”	33 1/2” 39 1/2”	34” 40”	33” 39”
saddle width	46”			56”	
tools	# 40, Cat-V 40 or BT-40				
main bearing ID	50 mm (~ 2”)				
spindle vector drive power	7 1/2 Hp.				
spindle speeds 1st range	60 - 4,000 rpm				
spindle speeds 2nd range	75 - 6,000 rpm				
ballscrew diameter X, Y and Z	1 1/4”				
rapid traverse X, Y / Z					
axis drives: stall torque standard optional	2.1 NM, 18 lb.in 40 lb.in				
axis drives: peak torque, standard optional	lb.in.				
main power supply optional	230/3/60 220/1/60				
power requried	9 KVA				
approximate weight, lbs	4,450	6,100	6,650	7,050	7,450
floor space L-R x F-B	80” X 89”	107” X 131”		107” X 147”	
approximate max height	100”	102”	106”	102”	106”

Spindle speed range is changed from standard 6,000 rpm. max. to high torque 4,000 rpm. max. by shifting the drive belt on the 2 step motor pulley.

Standard Equipment and Features

- **choice of Heidenhain ND710 or Fagor NVP200N3 axis digital readout display**
- pendant with speed display, joysticks for each axis feed, rapid traverse etc. see details later in this leaflet.
- gearless vector drive head.
- precision class 4 ballscrews on all axes
- US made power draw bar
- chip pan
- high intensity worklight
- automatic central lube system with low oil alarm
- telescopic steel slideway protector on X and on front of Y
- box slideways on Y and Z on all models
- hardened and ground slideways on X, Y and Z with Turcite counterslides
- high precision ballscrew thrust bearings on all ballscrews
- gearless vector drive head, geared drives optional
- your choice of Cat-V 40, BT-40 or NMTBA-40

Medium Duty Rigid Head Series

The TW-50-RH shown with standard equipment and an optional Heidenhain digital readout.

Options:

- spray mist systems
- spindle speeds up to 12,000 rpm
- geared headstocks with ZF gearboxes
- 6” increased vertcial capacity
- low coolant level alarm
- coolant through the spindle
- coolant through the tool
- flashing beacons on alarm or tool change
- storage cabinet on left side of column
- isolating transformers for shops with wild leg and / or 460 V supplies
- 6” riser block for increased vertical capacity

Medium Duty Rigid Head Series

	TW-32-RH	TW-40-RH	TW-40-RHW	TW-50-RH	TW-50-RHW
travel X	32”	40”		50”	
travel Y	20”	22”		22”	
travel Z	22”	20”	24”	20”	24”
table surface	50” x 12”	59” x 13”	59” x 18”	68” x 16”	68” x 18”
table height above floor	41”				
spindle C/L to column	20 1/4”	22”			
spindle to table surface optional		24” 30”	29” 35”	23 1/2” 29 1/2”	28 1/2” 34 1/2”
saddle width	22”	46”		56”	
tooling Cat or BT	# 40				
main spindle bearing ID	50 mm	60 mm			
no. of bearings: standard	2	4	4	4	4
optional	4	6	6	6	6
spindle drive output	7 1/2 Hp	15 Hp			
spindle speeds * - optional		80 - 6,000 60 - 4,000			
ballscrew diameter	1 1/4”				
rapid traverse rates					
Axis drives: stall torque	18 lb.in.				
peak torque	195 lb.in.				
main input power optional	230/3/60 220/1/60				
full load amps, standard	40	55			
approximate weight	4,500	6,450	6,850	7,300	7,550
approximate floor space	100” x 110”	107” x 131”		107” x 147”	
approximate max. height	100”	106”			

Standard Equipment and Features

- choice of Fagor NVP200N or Heidenhain ND710 3 axis digital readout display

- pendant with speed display, joysticks for each axis feed, rapid traverse etc. see details later in this leaflet
- power draw bar for Cat-V 40, BT-40 or NMTBA-40
- chip pan
- high intensity worklight
- automatic central lube system with low oil alarm
- telescopic steel slideway protector on front of Y
- box slideways on Y and Z on all models
- hardened and ground slideways on X, Y and Z with Turcite counterslides
- high precision ballscrew thrust bearings on all ballscrews
- class 4 precision ballscrews.
- gearless vector drive head, geared drives optional
- your choice of Cat-V 40, BT-40 or NMTBA-40

Heavy Duty Head and Spindle, MV Series

This series has the same heads and spindles as our CNC machines and therefore uses CAT-V40 or BT-40 tooling with standard pull studs.

Sorry the pictures of the manual version of the MV series got lost at the time of printing

This photo is the CNC version of our TW-40-MV.
The conventional models offered in this catalog have handwheels as pictured on the, but are otherwise the same.

This machine has the optional larger chip pan, side splash guards and table guards.

Options:

- larger chip pan and side splash guards
- table guards
- spray mist systems
- spindle speeds up to 12,000 rpm
- geared headstocks with ZF gearboxes
- 6” increased vertcial capacity
- low coolant level alarm
- coolant through the spindle
- coolant through the tool
- flashing beacons on alarm or tool change
- storage cabinet on left side of column
- isolating transformers for shops with wild leg and / or 460 V supplies
- 6” riser block for increased vertical capacity

Heavy Duty Head and Spindle, MV Series

	TW-40-MV	TW-40-MVW	TW-50-MV	TW-50-MVW
travel X	40”		50”	
travel Y	22”		22”	
travel Z	20”	24”	20”	24”
table surface	59” x 13”	59” x 18”	68” x 16”	68” x 18”
table height above floor	41”			
spindle C/L to column	22”			
spindle to table surface optional	24” 30”	29” 35”	23 1/2” 29 1/2”	28 1/2” 34 1/2”
saddle width	46”		56”	
tooling Cat or BT	# 40			
main spindle bearing ID	70 mm			
no. of bearings: standard	4	4	4	4
optional	6	6	6	6
spindle drive output	15 Hp			
optional (requires 460/3/60)	22 Hp			
spindle speeds * - optional - with ZF 2 gearbox	80 - 6,000 60 - 4,000 40 - 10,000			
ballscrew diameter	1 1/4”			
rapid traverse rates				
optional				
Axis drives: stall torque	40 lb.in.			
peak torque	195 lb.in.			
main input power optional	230/3/60 220/1/60			
full load amps, standard	55			
approximate weight	6,450	6,850	7,300	7,550
approximate floor space	107” x 131”		107” x 147”	
approximate max. height	106”			

* Other spindle speed ranges are available up to 12,000 rpm

Standard Equipment and Features

- choice of Fagor NVP200N or Heidenhain ND710
3 axis digital readout display

- pendant with speed display, joysticks for each axis feed, rapid traverse etc. see details later in this leaflet
- machining center type tool clamp for CAT-V-40 or BT-40 pull stud tooling.
- chip pan
- high intensity worklight
- automatic central lube system with low oil alarm
- telescopic steel slideway protector on front of Y
- box slideways on Y and Z on all models
- hardened and ground slideways on X, Y and Z with Turcite counterslides
- high precision ballscrew thrust bearings on all ballscrews
- class 4 precision ballscrews.
- gearless vector drive head, geared drives optional
- your choice of Cat-V 40, BT-40 or NMTBA-40

Notes

Introducing our Universal Horizontal / Vertical Machining Center

Travels X 43” Y 22” and 32” on BOTH the vertical and horizontal heads.
Models 50” and 60” travel models coming soon.
15 Hp output on BOTH spindles.
Machine 5 sides of a workpiece up to 50”
square and 20” high in one set up on a rotary table.
Available with or without rotatry tables and tool changers.
See our separate catalog for details.

US Patent # 6,145,178

This version of the H/V has TWIN 24 tool arm type automatic tool changers fitted, for a total of 48 tools.

The capacity under the vertcal spindle is 32” plus 4 1/2” for a tool. The horizontal spindle can face a part 43” long and 32” high.

The horizontal spindle has a 6” quill stoke to reach over the table.

Vertical machining centers, open and enclosed 31” x 20” to 60” x 32”

Bridge type electrode and engraving mills with 25,000 rpm spindles.

Bed mills with gearless quill heads to 7 1/2 Hp and handwheels.

Vertical bed mills with machining center heads to 31” x 20” to 60” x 32”

Unique horizontal / vertical machining center

2 and 3 axis knee mills with tilting heads or rigid heads up to 7 1/2 Hp and 40” x 20”

CNC lathes from 15” x 30” to 20” x 80”

Precision gang tooling lathes

Precision dovetail bed lathes

Our products are continuously developing and specifications change frequently. It is suggested that you reconfirm any critical specifications at the time of order.

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