

HH Roberts

3-GL, 4-GL, 5-GL and 5A-GL

- knee mills with gearless drive heads
- turret mills for the new millennium



5-GL



5A-GL

Travels 32" x 16" to 40" x 20"

4 1/2 Hp or 7 1/2 Hp heads

12" x 50" or
13" x 59" tables

R-8, # 30 or # 40 taper spindles

Square or dovetail ways

The VF series: for those who appreciate the best !

The 5-GL-VF

This model is prepared with a 3 axis Fagor digital readout. The 3rd axis can be on the quill or the knee.



- 6000 RPM gearless head
- up to 7 1/2 Hp spindle drive
- pentant with speed display, joysticks for feeds, coolant control etc
- 225 IPM rapid traverse on X and Y
- feeds 1/2 to 100 IPM on X and Y
- rapid traverse for knee positioning
- CNC grade ballscrews on X and Y
- advanced digital readout is standard, and displays feed rate, makes bolt hole patterns pockets etc.
- CNC type servo motors and amplifiers make CNC upgrade in the future very easy



The 3-GL-VF

Pictured here with the Fagor readout, is also available with the Heidenhain ND-710 readout shown on the back inside cover on a bed mill.

The VF versions of our GL Mills:

- combining the best of today's technology
- available on **all** sizes of our GL knee mills

- our gearless vector drive head with spindle speeds to 6,000 rpm up to 7 1/2 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
- rapid traverse knee positioning
- built in coolant system with chip pan, with Lockline nozzle
- automatic timed central lubrication system
- folding grips on X and Y handwheels
- tool tray on left side of table
- halogen high intensity worklight
- telescopic steel slideway covers on front of saddle for #4 and 5 series, bellows on #3 series
- rubber chip guard between saddle and column
- **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

3-GL and 4-VF



The 3-GL shown with optional power draw bar, but without the standard chip protectors.



The 4-VF with the standard Fagor digital readout. In this picture the telescopic steel chip guards are not yet fitted on the cross slide. The power drawbar shown is optional. The telescopic guards can be seen in the 5-VF pictures on page 6

Optional Equipment

- Digital readouts by Anilam, Fagor, Heidenhain for X, Y, Z, (quill and/or knee) and ram
- ballscrews on X and Y
- rapid traverse for knee positioning
- coolant systems
- chip pan
- larger chip pan with side splash guards
- riser blocks, 4", 6", and 8"
- spray mist systems
- tool storage cabinet on left side of column
- Erickson style quick change spindle nose
- E-stop button on head
- power drawbar
- telescopic steel slideway cover in front of saddle on # 4 series
- high intensity halogen worklight
- transformers to correct wild leg power supplies
- 575 - 600 Volt transformers
- preparation to run on 220/1/60
- preparation to run on 440/3/60

3 and 4 GL and VF

	3-GL	4-GL	3-VF	4-VF
Table surface	12" x 50"			
Travels, long x cross, with power feed fitted	34" x 15 3/4"		35 3/4" x 15 3/4"	
Quill travel	5"			
Quill diameter	3.375"			
Quill power feeds	3			
Quill feed rates, inches per rev.	.0015", .003", .008"			
Head tilt	left - right & front - back			
Knee travel	16"			
X axis feed rate	0.5 to 30 IPM		0.5 to 225 IPM	
X axis rapid traverse rate	30 IPM		225 IPM	
Y axis feed	0.5 to 30 IPM (optional)		0.5 to 225 IPM	
Y axis rapid traverse rate	30 IPM (optional)		225 IPM	
Knee lift: rapid traverse	10 IPM (optional)		60 IPM	
Spindle Power	4 1/2 Hp			
Spindle Speeds, standard, continuous in one range	75 to 6,000			
Spindle speeds with 2nd step pulley	60 to 4,000			
Spindle nose	R-8			
Spindle nose, optional	# 30			
Spindle bearings with standard spindle	P4, 2 sets			
Spindle bearings with # 30 spindle	P4, increased size, 2 sets			
Spindle nose, optional	# 40, Cat-V, BT			
Spindle bearings with #40 spindles	P4, 3 sets			
Distance, spindle nose to table	2" - 18"			
Distance, spindle C/L to face of column	5 1/2" - 21 1/2"			
Saddle width	20"	22"	20"	22"
Knee height on column	18"	20"	18"	20"
Weight	2,950 lbs	3,300 lbs	3,180 lbs	3,530 lbs

Standard Equipment

- vector spindle drive
- power feed on table
- simple service tool kit
- parts manual
- centralized lubrication system
- drawbar
- power supply required: clean, balanced 230/3/60 or optionally 220/1/60
- bellows type chip protector in front of saddle
- neoprene chip protector between saddle and top of column

Additional Standard Equipment on VF versions

- ballscrews on X and Y axes
- Fagor NVP200M digital readout with 3 axis display, with X and Y operational and Z axis optional on knee or quill
- CNC style servo feed drives on X and Y
- telescopic steel covers on knee in front of table
- rapid traverse knee elevation
- coolant system
- automatic timed central lubrication system
- tool tray on left side of table
- electronics cabinet with space provided for future conversion to CNC
- pendant with separate feed control knobs and rapid traverse button for both X and Y axes
- folding grips on handwheels for safety

5-GL and 5-VF



The 5-GL shown with all standard equipment.



The 5-VF shown with the Fagor digital readout and optional power draw bar.

Optional Equipment

- 11 or 15 Hp spindle drives
- spindle with additional bearings for HD cutting
- Digital readouts by Anilam, Fagor, Heidenhain for X, Y, Z, quill and ram
- ballscrews on X and Y
- rapid traverse for knee positioning
- coolant systems
- chip pan
- larger chip pan with side splash guards
- riser blocks, 4", 6", and 8"
- spray mist systems

- tool storage cabinet on left side of column
- 3" throat extension to increase reach
- Erickson style quick change spindle nose
- E-stop button on head
- power drawbar
- telescopic steel slideway cover in front of saddle on # 4 series
- high intensity halogen worklight
- transformers to correct wild leg power supplies and operation in Canada on 600 volts.
- preparation to run on 220/1/60
- preparation to run on 440/3/60

5-GL and 5-VF

	5-GL	5-VF
Table surface	12" x 50"	
Travels, with power feed fitted	32" x 15 3/4"	35 3/4" x 15 3/4"
Quill travel	5 1/2"	
Quill diameter	4.175"	
Quill power feeds	3	
Quill feed rates per spindle rev.	.007", .0032", .0054"	
Head tilt	90 degrees left and right	
Knee travel	16"	
X axis feed rates	0.5 to 30 IPM	0.5 to 225 IPM
Y axis feed rates	optional - 0.5 to 30 IPM	0.5 to 225 IPM
Z axis rapid traverse	optional 10 IPM	30 IPM
Spindle Power	7 1/2 Hp (11 and 15 Hp optional)	
Spindle Speeds, standard, continuous in one range	75 to 6,000 rpm	
Spindle speeds with built-in 2nd step on motor pulley	60 to 4,000 rpm	
Spindle nose, optional	# 40, Cat-V, BT, or NMTBA	
main spindle bearings, ID x number	50mm x 2 sets	
optionally, for extra rigidity	50mm x 4 sets	
Distance, spindle nose to table	2" - 18"	
Distance, spindle C/L to face of column	5 1/2" - 21 1/2"	
Ram travel	24"	
Saddle width	22"	
Knee height on column	20"	
Max table load	750 lbs	
Weight	3,650 lbs	3,970 lbs

Standard Equipment

- power feed on table end
- simple service tool kit
- parts manual
- centralized lubrication system
- drawbar
- power supply required, clean, balanced 230/3/60 or optionally 220/1/60
- bellows type chip protector in front of saddle
- neoprene chip protector between saddle and top of column

Additional Standard Equipment on 5-VF

- ballscrews on X and Y axes
- Fagor NVP200M digital readout with 3 axis display, with X and Y operational and Z axis optional on knee or quill
- CNC style servo feed drives on X and Y
- telescopic steel covers on knee in front of table
- rapid traverse knee elevation
- coolant system
- automatic timed central lubrication system
- tool tray on left side of table
- electronics cabinet with space provided for future conversion to CNC
- pendant with separate feed control knobs and rapid traverse button for both X and Y axes
- folding grips on handwheels for safety

5A-VF

- 7 1/2 Hp spindle vector drive giving 75 to 6,000 rpm in a continuous range.
- massive column and ram assembly
- GA-50 high grade Meehanite castings with slideways hardened ~ 50 RC.
- table surface is hardened to ~ 50 RC
- Turcite B on table and saddle slideways
- wide box ways on column and cross slide
- nickel-chrome-molybdenum steel spindle carburised to minimum HRC62 on the spline and tool taper
- **ballscrews** on X, Y and knee lift
- SEM (British made) CNC class servo motors on X and Y
- rapid traverse positioning on knee
- telescopic steel slideway covers in front of saddle
- coolant system with Lockline nozzle system
- halogen high intensity worklight
- spring de-clutching handwheels and cranks
- pendant with:
 - large LED display of spindle speeds
 - sensitive knob for setting spindle speeds
 - forward / stop / reverse spindle switch
 - joysticks for intuitive axis feed direction selection
 - sensitive feed setting knob
 - pushbutton for rapid traverse
 - coolant on / off selector
 - E-stop
- tool storage cabinet on left side of column
- automatic timed central lubrication system
- chip pan
- tool trays at each end of the table
- pushbutton release of stop nut allows quick positioning quill depth stop



Shown with vari-disk type head. Current production features the gearless vector drive head as shown on the 5-GL on the previous page

5A-VF

	5A-VF-31	5A-VF-40
Table surface	50" x 13"	59" x 13"
Optional table surface (reduces cross travel to 17")	-	59" x 18"
Travels, long x cross, with power feed fitted	31 1/2" x 20"	40" x 20"
Quill travel	5 1/2"	
Quill diameter	4.175"	
Quill power feeds	3	
Quill feed rates per spindle rev.	.007", .0032", .0054"	
Head tilt	90 degrees left and right	
Knee travel	20"	
Spindle Power	7 1/2 Hp	
Spindle Speeds, standard, continuous in one range	75 to 6,000 rpm	
Spindle speeds with built in 2nd step on motor pulley	60 to 4,000 rpm	
Spindle nose, optional	# 40, Cat-V, BT or Erickson	
main spindle bearings, ID x number	50mm x 2 sets	
optionally, for extra rigidity	50mm x 4 sets	
Distance, spindle nose to table	3.15" - 23.23"	
Distance, spindle C/L to face of column	5.3"- 30"	
Ram travel	24.7"	
Saddle width	46"	
Max table load	1,250 lbs	
Base footprint	25" x 48"	
Dimensions, L-R x F-B x Height	106" x 98" x 101"	115" x 98" x 101"
Weight	5,500 lbs	6,050 lbs

Standard Equipment

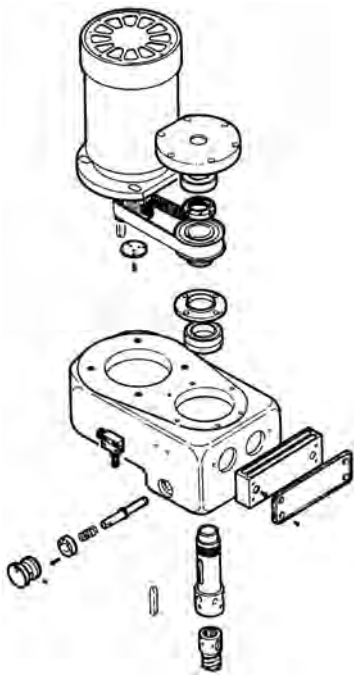
- tool cabinet on left side of column
- simple service tool kit
- parts manual
- coolant system with chip pan
- automatic timed lubrication system
- steel telescopic cover on front of knee
- high intensity halogen worklight
- rapid traverse for knee positioning
- declutching handwheels
- electric panel with low voltage control.
- power supply required, 230/3/60 or optionally 220/1/60
- pendant operator's panel



The heart of our GL knee mills is our vector drive heads. With about 85 less parts than a Bridgeport vari-disc type head, maintenance is reduced to near zero. Only 3 moving parts in the drive train. The motor shaft and pulley, the drive belt, and the spindle and pulley. Gone are vari-disks, springs, brake pads and fingers, hi-lo clutch and shift mechanism, back gears and the extra timing belt, speed adjusting handwheel with its inaccurate setting, chain linkage etc.

What you get is a state of the art electronic drive that is equally happy to run on 230/3/60 or 220/1/60. Accurate speed settings.

Spindle speeds to 6,000 rpm. Increased power output to 4 1/2 Hp on R-8 class heads and 7 1/2 Hp on the heavier 5 series heads.



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.

A Note about the Castings

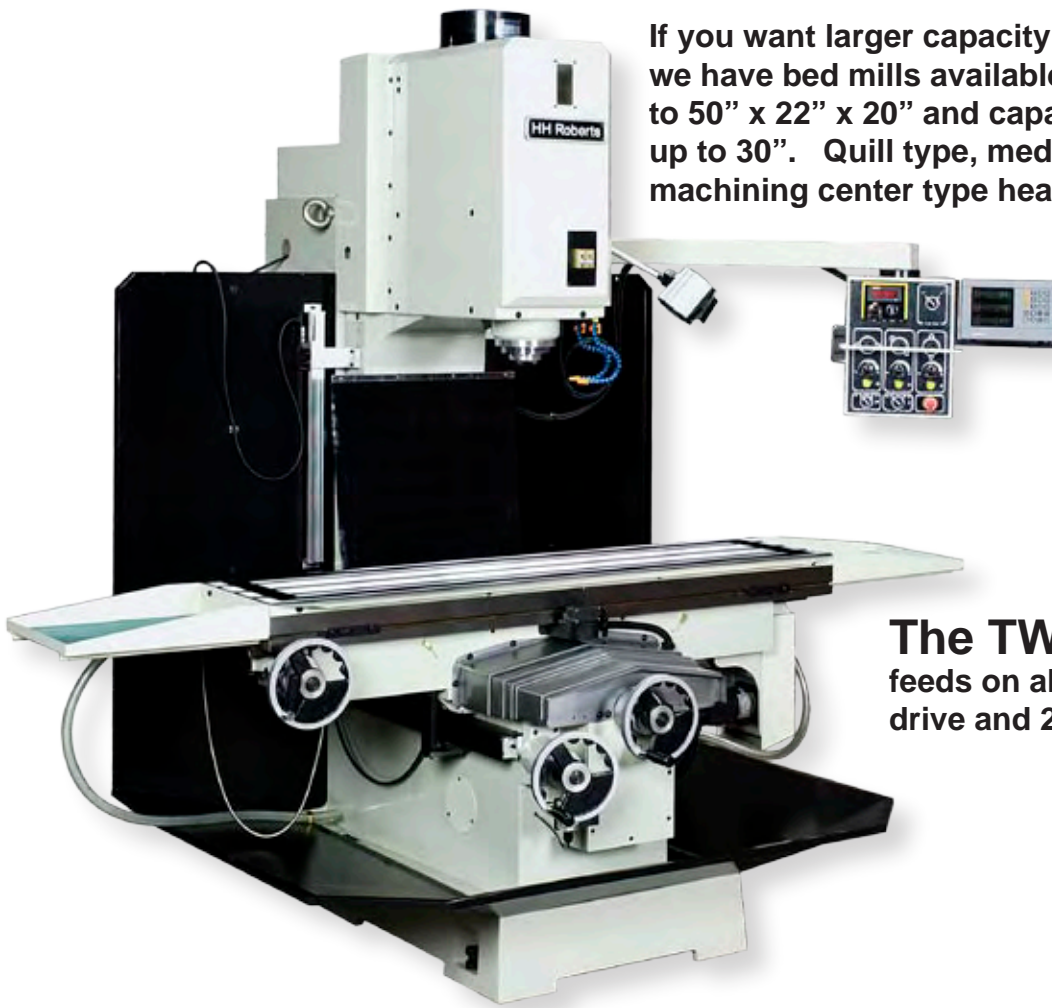
Almost every milling machine from Taiwan has the big 'M' cast in frame. indicating that the main castings are Meehanite. There are dozens of grades of Meehanite. Our frames are GA-50 and 350, some of the best formulations for machine tools. Some other builders use lower, less expensive grades. Machine tool service people who drill castings to install digital readouts will tell you that some drill like butter and some are like drilling steel.

At the time of preparation of this catalog we have a 5-VK mill that was built in 1994 and fitted with a CNC system. The box ways on the cross slide can easily be checked with a micrometer for wear. They are still within 1/10th of a thou, front > middle > back - after 7 years of CNC use as the only mill in the shop !

We challenge you to find out the certified castings used on any other machine you are considering, then check www.meehanitemetal.com to get the real story. There you will see that some grades have less than half the tensile strength and resistance to elasticity than the grade we use.

Better castings and Turcite are worth the investment !!!

If you want larger capacity or more stability we have bed mills available with travels 32" x 20" x 20" to 50" x 22" x 20" and capacity under the spindle of up to 30". Quill type, medium duty and heavy duty machining center type heads are available.



The TW-50-RH with servo feeds on all 3 axes, 15 Hp spindle drive and 2,000 lb table load.



Our current location, 5 minutes from the Toronto International Airport



Our founder Harold Hobday Roberts, in front of our first shop, circa 1937.

Our Background

HH Roberts Machinery was founded in Toronto in the early 1930's and now has the 3rd and 4th generations of the family active. We have grown from a used machinery dealer / repair and rebuild shop to one of the major machine tool distributors in Canada. We have a modern 20,000 square foot facility just minutes from the Toronto International Airport.

We have been offering mills prepared by Topwell Machines, Taiwan for 20 years, and we have been fitting them with Anilam CNCs for more than 10 years.

There are over 30 models to choose from, including knee

mills, bed mills, open and enclosed machining centers, our unique HV combination horizontal / vertical machining center and bridge type graphite mills not detailed in this catalog. We keep nearly 100 machine frames in stock, ready to be assembled on your order. We have a complete stock of spare parts available at very reasonable costs for overnight shipping.

The dealers we sell through in the USA have demonstrated a commitment to the Anilam system and should be capable of supporting your staff and the machine in start-up, training and after sales service.



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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