

# HH Roberts

## CNC Bed Mills and Machining Centers

powered by **ANILAM**

OR



**HEIDENHAIN**



**TW-43-HV**  
our unique horizontal /vertical  
machining center



**TW-32-Q**  
now with up to 15 Hp



**TW-60-MCO**  
# 40 or 50 taper  
and up to 30 hp

## TW-32-Q

- handwheels on X and Y for manual operation with the CNC displaying positions like a digital readout. Optionally a scale can be added to the quill and displayed.
- 50" x 12" table
- 32 1/2" x 20" x 22.2" travels
- 7 1/2, 10 or 15 Hp gearless vector drive with program controlled spindle speeds
- choice of 3 axis motor / drive combinations



## TW-31-Q

- wide machining center style saddle
- saddle is almost as wide as the table



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.



## TW-50-Q with Anilam 5300

shown without table guards to illustrate the very wide saddle  
( see picture of TW-50-MV later in this catalog showing table guards )

This picture is representative of the TW-31-Q TW-40-Q and TW-50-Q that have 31", 40" and 50" X axis travels respectively.

The 40" and 50" versions are also available in a wide table configurations that have an 18" wide table, 22" of cross travel and a taller column giving 24" of Z travel. and more height under the spindle.



## Options

- Anilam 5000 or 6000 series controls with up to 5 axes
- Heidenhain TNC 310, 426 or 430 controls
- additional ram up to 64 MB
- off-line software with DXF file processing
- 1 micron linear feedback systems
- 10 or 15 Hp. output spindle drive on some models
- mechanical handwheels ( standard on TW-32-models)
- full enclosures (not available on TW-32-models)
- spray mist systems
- digital readouts on the quill with axis coupling and out of position detection with operator setting of tolerance band.
- optional stop, and block delete
- additional M functions for controlling external devices like fixtures, vacuums, etc.
- low coolant level alarm
- flashing beacons on alarm or tool change
- storage cabinet on left side of column
- isolating transformers for shops with wild leg & 460 V supplies
- indexers and 4th / 5th axes
- 6" riser block for increased vertical capacity
- 3" throat extension to increase reach
- Yaskawa AC servo motors

## Q Series with Quill Type Heads

	TW-31-Q	TW-32-Q	TW-40-Q	TW-40-QW	TW-50-Q	TW-50-QW
travel X	31"	32"	40"	40"	50"	50"
travel Y	20"	20"	22"			
travel Z	21"	22"	21"	24"	20 1/2"	23 1/2"
quill stroke	5"					
quill diameter	4.175"					
quill feeds	3					
table surface	42" x 13"	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" 28"	22 3/8" 29 3/8"	34 1/2" 40 1/2"	33 1/2" 39 1/2"	34" 40"	33" 39"
saddle width	38"		46"		56"	
tools	# 40, Cat-V 40 or BT-40					
main bearing ID	50 mm ( ~ 2" )					
spindle vector drive power	7 1/2 Hp. (10 or 15 Hp optional )					
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	300 / 300 / 250 on models with handwheels 600 / 600 / 250 without handwheels ( up to 956 IPM with 6300 CNC )					
axis drives: stall torque AC (opt)	2.8 nm	5.4 nm				
axis drives: stall torque DC	40 lb.in.	40 lb.in.				
axis drives: peak torque	195 lb.in.	195 lb.in.				
main power supply	230/3/60	230/3/60				
optional	220/1/60	220/1/60				
full load amps, standard	40	40				
approximate weight, lbs	4,850	4,450	6,200	6,750	7,150	7,550
floor space L-R x F-B	100" x 110"	80" x 89"	107" X 131"		107" X 147"	
approximate max height	100"		102"	106"	102"	106"

Spindle speed range is changed by shifting the drive belt on the 2 step motor pulley.

### Standard Equipment and Features

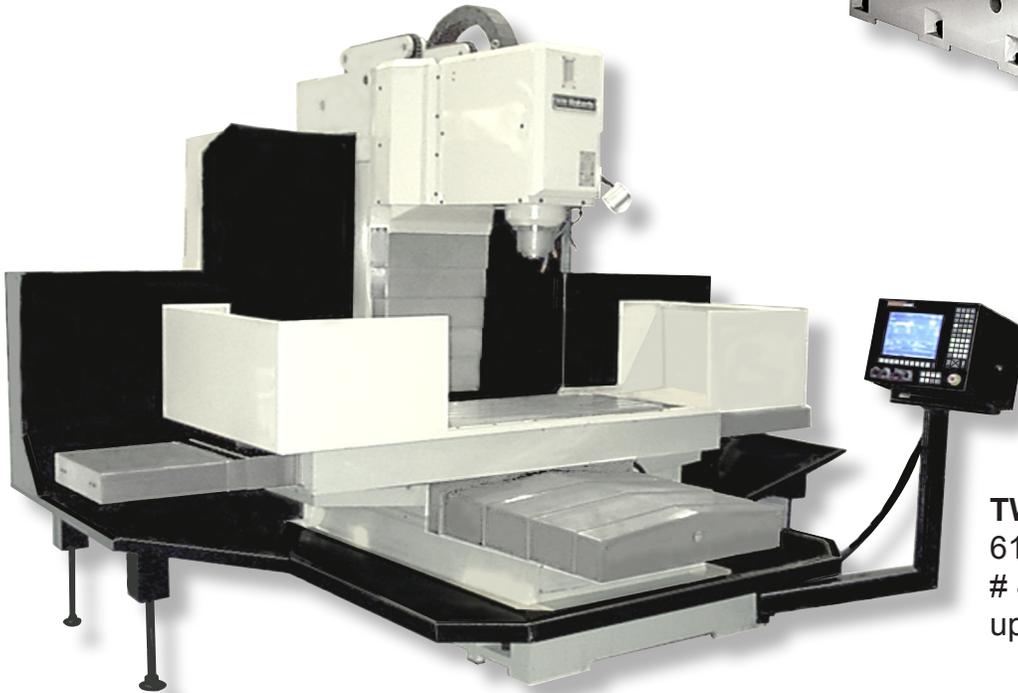
- **Anilam 3300 CNC**, 3 axis system with
  - 6 GB hard disk (often larger )
  - floppy disk
  - 32 MB RAM expandable to 64 MB
  - Ethernet port,, RS-232 port and parallel port
- multifunction handheld MPG with axis select, feed rate select, coolant on/off, feed hold and E-stop (optional on TW-32 models )
- program controlled spindle speeds
- program controlled coolant system
- power draw bar ( optional on QE model )
- large rigid chip pan 68" wide and 50" deep
- side splash guards approximately 6' high x 68" wide
- TW-32-Q has handwheels on X and Y with folding grips
- high intensity worklight
- automatic central lube system with low oil alarm
- telescopic steel slideway protector on front Y axis slideways
- SEM (British made) servo motors
- box slideways on Y and Z
- hardened and ground slideways on X, Y , and Z with Turcite counterslides
- high precision ballscrew thrust bearings on all ballscrews
- base mounted console arm
- class 4 precision ballscrews.
- gearless vector drive head
- program controlled spindle speeds
- tapping cycle without need for reversing tapping heads
- your choice of Cat-V 40, BT-40 or NMTBA-40
- inspected with Heidenhain equipment and ballscrew compensations installed ( optional on QE model )

## MV Series: Machining Center Style Heads

**TW-40-MVW**  
40" x 22" x 24"  
15 Hp



**TW-31-MV**  
31" x 20" x 22.2"  
15 Hp.



**TW-60-MV**  
61" x 31" x 27"  
# 40 or # 50 taper  
up to 30 Hp

### Options:

- Anilam 5000 or 6000 series controls with up to 5 axes
- Heidenhain TNC 310, 426 or 430 controls
- additional ram up to 64 MB
- offline software with DXF file processing for use on a PC
- 1 micron linear feedback systems
- spindle orient & rigid tapping, requires 5000 or 6000 series control
- mechanical handwheels on models 40 and 50
- Yaskawa AC axis drives
- up to 12,000 rpm spindles
- geared headstocks with ZF gearboxes
- optional stop and block delete
- additional M functions for controlling external devices like fixtures, vacuums, etc.
- 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 power supply
- indexers and 4th / 5th axes
- 6" riser block for increased vertical capacity
- solid state silent phase converters

## MV Series: Machining Center Style Heads

	TW-31-MV	TW-40-MV	TW-40-MVW	TW-50-MV	TW-50-MVW	TW-60-MV #40 spindle	TW-60-MV #50 spindle
travel X	31"	40"		50"		61"	
travel Y	20"	22"		22"		31"	
travel Z	22.2"	20"	24"	20"	24"	27"	
table surface	42" X13"	59" x 13"	59" x 18"	68" x 16"	68" x 18"	66" x 22"	
table height above floor	41"					35"	
spindle C/L to column	20 1/4"	22"				32"	
spindle to table surface optional	22" 28"	24" 30"	29" 35"	23 1/2" 29 1/2"	28 1/2" 34 1/2"	30" 30"	31" 37"
saddle width	38"	46"		56"		86.6"	
tooling Cat or BT	# 40					# 40	# 50
main spindle bearing ID	70 mm					70 mm	85 mm
no. of bearings: standard	4	4	4	4	4	6	6
optional	6	6	6	6	6		
spindle drive output	15 Hp					15 Hp	30 Hp
optional (requires 460/3/60 )	22 Hp					22 Hp	
spindle speeds * - optional - with ZF 2 gearbox	80 - 6,000 60 - 4,000 40 - 10,000					65 - 4,500 20 - 4,500	
ballscrew diameter	1 1/4"					2"	
rapid traverse rates	300 / 300 / 300 IPM optionally 600, or 956 IPM with Anilam 6300 CNC						
Axis drives: stall torque AC	5.4 nm					8.6 nm	
Axis drives: stall torque DC	40 lb.in.					75 lb.in.	
peak torque	195 lb.in.					440 lb.in	
main power supply optional	230/3/60 220/1/60					230/3/60 220/1/60	460/3/60 -
full load amps, standard	55					65	60
approximate weight	5,150	6,450	6,850	7,300	7,550	23,800	24,250
approximate floor space	100" x 110"	107" x 131"		107" x 147"		158" x 106"	
approximate max. height	100"	106"				116"	

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

### Standard Equipment and Features

- **Anilam 3300 CNC**, 3 axis system with
  - 6 GB hard disk
  - floppy disk
  - 16 MB RAM expandable to 64 MB
  - Ethernet port, RS-232 port and parallel port
- multifunction handheld MPG with axis select, feed rate select, coolant on/off, feed hold and E-stop
- program controlled spindle speeds
- program controlled coolant system
- large capacity table guards with sliding doors
- large chip pan and side splash guards
- 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
- box slideways on all slides on TW-60 models
- hardened and ground slideways on X, Y and Z with Turcite counterslides
- high precision ballscrew thrust bearings on all ballscrews
- pretensioned ballscrews on all axes of TW-60
- base mounted console arm
- class 4 precision ballscrews.
- gearless vector drive head, geared drives optional
- tapping cycle without need for reversing tapping heads rigid tapping optional
- your choice of Cat-V 40, BT-40 or NMTBA-40
- inspected with Heidenhain equipment and ballscrew compensations installed
- program controlled workpiece chip air blast on TW-60

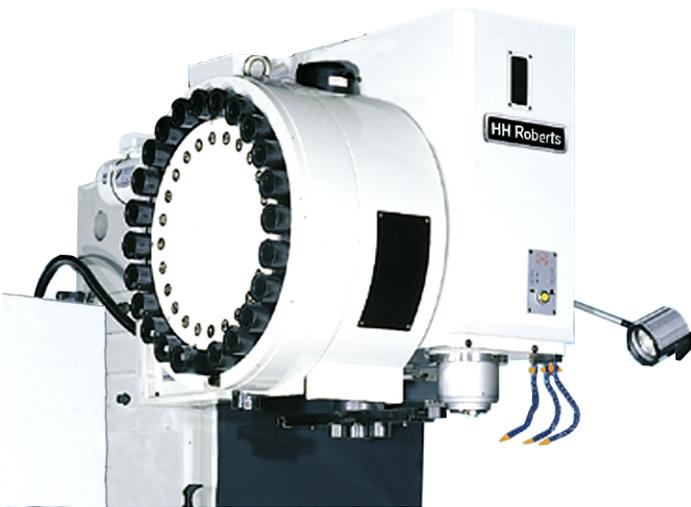
## MCO Series: Open Machining



TW-31-MCO



TW-40-MCO



Arm type tool changers with 16, 20 or 24 tools are available as options



TW-60-MCO

### Options

- Anilam 5000 series controls with up to 5 axes (lower cost )
- Heidenhain TNC 310, 426 or 430 controls
- additional ram up to 64 MB
- faster arm type tool changers
- up to 12,000 rpm spindles
- geared heads with ZF gearboxes
- flat panel LCD display on models where it is not standard
- offline software with DXF file processing
- 1 micron linear feedback systems
- handwheels on TW-40 and 50
- spray mist systems
- optional stop, and block delete
- additional M functions for controlling external devices like fixtures, vacuums, etc.
- low coolant level alarm
- flashing beacons on alarm or tool change
- storage cabinet on left side of column
- indexers and 4th / 5th axes
- 6" riser for increased vertical capacity
- solid state silent phase converters

# MCO Series: Open Machining Centers

	TW-31-MCO	TW-40-MCO	TW-50-MCO	TW-60-MCO # 40 spindle	TW-60-MCO # 50 spindle
travel X	31"	40"	50"	61"	
travel Y	20"	22"		31"	
travel Z	22.2"	24"		27"	
table surface	42" x 13"	59" x 18"	68" x 18"	66" x 22"	
table height above floor	41"		41 1/2"	35"	
spindle C/L to column	20 1/4"	22"		32"	
spindle nose to table	22"	28"		30"	31"
optional	28"	34"		36"	37"
saddle width	38"	46"	56"	86.6"	
number of tools:					
carousel type ATC	20	20	20	20	20
optional arm type ATC	20	20-24	20-24	24-30	24
main spindle bearings ID	70 mm ( ~ 2 3/4")				85 mm
spindle motor	10 / 15 Hp				15 / 20 Hp
optional	-	15 / 20 Hp			-
spindle speeds stanard *	80 - 6,000				65 - 4,500
optional	150 - 12,000				80 - 6,000
optional	60 - 4,000				20 - 4,500
optional with ZF gearbox	40 - 10,000				
ballscrew diameter	1 1/4"			2"	
rapid traverse rates	600 / 600 / 300 or optionally 956 x 956 x 300 IPM				
axis drives: stall torque	5.2 nm / 46 lb.in	8.5 nm / 75 lb.in.		11 nm / 97 lb.in.	
peak torque	16nm / 141 lb.in	43.5 nm / 385 lb.in		43.5 nm / 385 lb.in.	
main power supply	208, 230, 460 or 600/3/60				
full load amps, standard	55			65	60
floor space LR x FB	113" x 97"	131" x 105"	150" x 105"	158" x 108"	
approximate max height	100"	106"		116"	
approximate weight	5,550 lbs	7,550 lbs	8,100 lbs	24,900 lbs	25,250 lbs

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

## Standard Equipment and Features

- **Anilam 6300 CNC**, 3 axis system with all German CNC, motors and amplifiers.
- 4 GB hard disk
- foppy disk drive
- 16 MB RAM expandable to 64 MB
- Ethernet port, RS-232 port and parallel port
- flat panel, LCD display (on TW-31, 40 and 50 MCV )
- 20 tool carousel style automatic tool changer
- multifunction handheld MPG with axis select, feed rate select, coolant on/off, feed hold and E-stop
- program controlled spindle speeds
- program controlled coolant system with MPG override
- spindle orient
- rigid tapping
- large capacity table guards with sliding doors
- large chip pan and side splash guards
- 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
- box slideways on all three axes of TW-60 models
- hardened and ground slideways on X, Y , and Z with Turcite counterslides
- high precision ballscrew thrust bearings on all ballscrews
- pretensioned ballscrews on all axes of TW-60
- base mounted console arm
- class 4 precision ballscrews.
- standard tapping cycle without need for reversing tapping heads
- your choice of Cat-V 40 or BT-40
- inspected with Heidenhain equipment and ballscrew compensations installed
- workpiece chip air blast, program controlled on TW-60
- drive isolating transformer with 208, 230, 460 and 600 volt inputs.

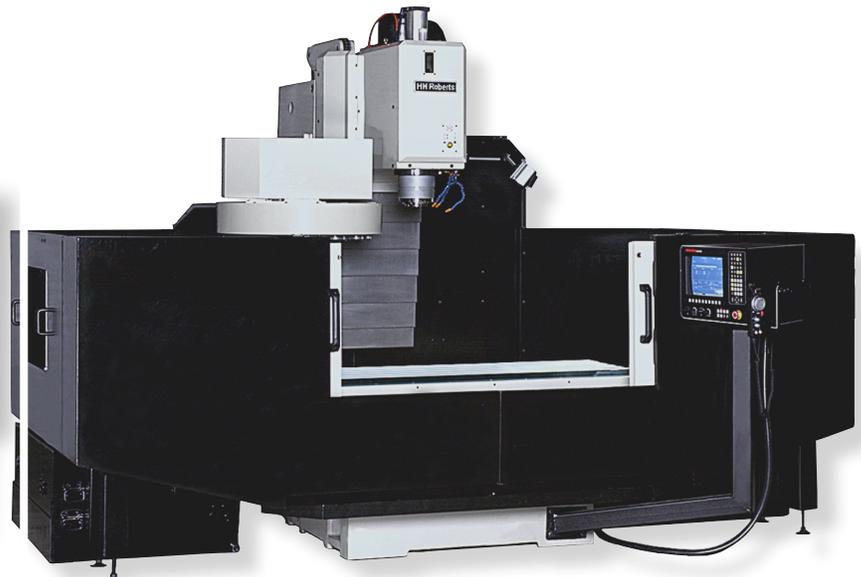
# MCV Series: Enclosed Machining Centers



**TW-31-MCV**



51" wide column on base



**TW-60-MCV**

- Options**

  - Anilam 5000 series control with up to 5 axes. (lower cost )
  - Heidenhain TNC 310, 426 or 430 controls
  - additional ram up to 64 MB
  - up to 12,000 rpm spindles
  - geared heads with ZF gearboxes
  - offline software with DXF file processing
  - 1 micron linear feedback systems
  - handwheels on TW-40 and 50
  - spray mist systems
  - optional stop, and block delete
  - additional M functions for controlling external devices like fixtures, vacuums, etc.
  - low coolant level alarm
  - flashing beacons on alarm or tool change
  - storage cabinet on left side of column
  - indexers and 4th / 5th axes
  - 6" riser for increased vertical capacity
  - solid state silent phase converters

# MCV Series: Enclosed Machining Centers

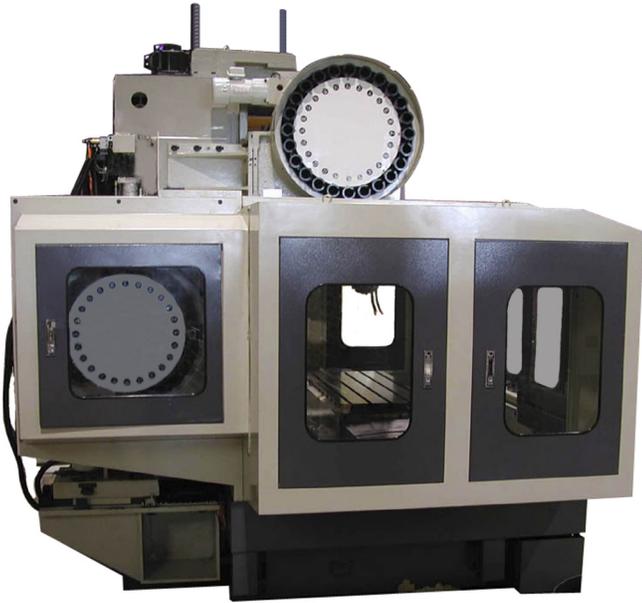
	TW-31-MCV	TW-40-MCV	TW-50-MCV	TW-60-MCV #40 spindle	TW-60-MCV #50 spindle
travel X	31"	40"	50"	61"	
travel Y	20"	22"		31"	
travel Z	22.2"	24"		27"	27"
table surface	42" x 13"	59" x 18"	68" x 18"	66" x 22"	
table height above floor	41"			36"	
spindle C/L to face of column	20 1/4"	22"		32"	
spindle nose to table	22"	28"		30"	31"
spindle nose to table optional	28"	34"		36"	37"
saddle width	38"	46"	56"	86.6"	
tooling	Cat-V 40 or BT-40				Cat-V or BT-50
main spindle bearing ID	70 mm (~ 2 3/4" )				85mm ( 3.34" )
number of spindle bearings: standard optional	4 ( 5 total ) 6 ( 7 total )				6 ( 7 total )
tool changers: standard optional	carousel type 20 tools arm type 26 to 30 tools				
spindle drive output	10 / 15 Hp				15 / 20 Hp
spindle drive output optional	15 / 20 Hp				20 / 25 Hp
spindle speeds, standard * optional optional with ZF gearbox	80 - 6,000 160 - 12,000 60 - 4,000 40 - 10,000				65 - 4,500 80 - 6,000 20 - 4,500
ballscrew diameter X, Y and Z	32 mm (~ 1 1/4" )			50mm (~2" )	
rapid traverse X / Y / Z	600 / 600 / 300 or optionally 956 x 956 x 300 IPM				
axis drives: stall torque	5.2 nm	8.5 nm / 75 lb.in.		11 nm / 97 lb.in	
axis drives: peak torque	16 nm	43.5 nm / 385 in.lb		43.5 nm / 385 lb.in.	
main power supply	208, 230, 460 or 600/3/60				
full load amps, standard	55			65	60
approximate weight, lbs	5,550	7,750	8,100	24,900	25,250
floor space L-R x F-B	113" x 97"	131" x 105"	150" x 105"	158" x 108"	

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

## Standard Equipment and Features

- **Anilam 6300 CNC**, 3 axis system  
with German CPU and drives
- 4 GB hard disk
- floppy disk drive
- 16 MB RAM expandable to 64 MB
- Ethernet port, RS-232 port and parallel port
- flat panel, LCD display
- 20 tool carousel style automatic tool changer
- multifunction handheld MPG
- program controlled spindle speeds
- program controlled coolant system
- spindle orient
- rigid tapping
- full enclosure with pull out chip pan / coolant tank
- large capacity table guards with sliding doors
- large chip pan and side splash guards
- 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
- box slideways on all three axes of TW-60 models
- hardened and ground slideways on X, Y, and Z  
with Turcite counterslides
- high precision ballscrew thrust bearings on all ballscrews
- pretensioned ballscrews on all axes of TW-60
- base mounted console arm
- class 4 precision ballscrews.
- gearless vector drive head
- standard tapping cycle without need for reversing tapping heads
- your choice of Cat-V 40 or BT-40
- inspected with Heidenhain equipment and ballscrew compensations installed
- workpiece chip air blast, program controlled on TW-60

## 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 rotary tables and tool changers.

**See our separate catalog for details.**

US Patent # 6,145,178



Shown above and to right in enclosed configuration

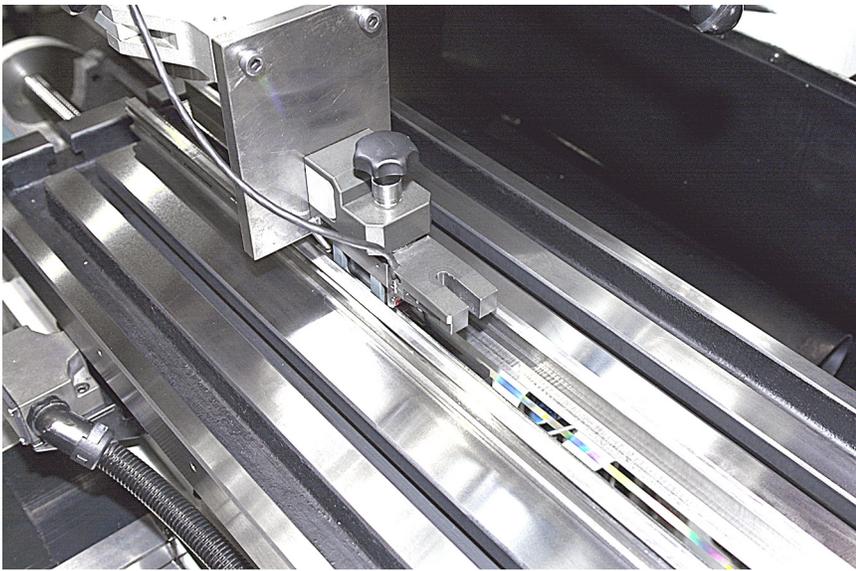


This version of the H/V has TWIN 24 tool arm type automatic tool changers fitted, for a total of 48 tools.

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

Shown open and without enclosures

The horizontal spindle has a 6" quill stroke to reach over the table.



The Heidenhain VLM scale during inspection for positioning and repeatability.

### **The Inspection Process**

We have invested in a Heidenhain linear scale and double ball-bar system. The accuracy of these far exceeds what is required for machine tool calibration. The linear scale captures positioning data to 6 decimal places of a millimeter. That's one thousandth of a micron, or 0.000,000,039". We make the inspection from the table top to the spindle. This is significant because it also captures some mechanical factors that effect positioning accuracy, like saddle rock, unlike many laser systems that measure from the shop floor to the table.

The data is captured on multiple passes in each direction and inserted into correction tables in the Anilam CNC. The result is typical positioning accuracy of .0004" and repeatability better than .0002". The final inspection after putting in the corrections gives printed reports that are according to DIN ISO 230-2.

This process is standard on all models except the TW-32-QE and TW-32-TRHE, where it is an option.



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"



**New !**

**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.*

Made in Canada by:  
**HH Roberts Machinery Mfg.**  
1324 Matheson Blvd E  
Mississauga, Ontario, L4W 2Z7  
Ph 905-624-5536 Fx 905-624-9065  
inbox@hrobertsmachinery.com  
www.hrobertsmachinery.com

sold and serviced in Canada by  
**HH Roberts Machinery Ltd**  
1324 Matheson Blvd E  
Mississauga, Ontario, Canada, L4W 2Z7  
Ph 905-624-5536 Fx 905-624-9065  
Au Quebec appelez 514-231-9500  
www.hrobertsmachinery.com