

HH Roberts

CNC Knee Mills

powered by

ANILAM

or



HEIDENHAIN



The 5-GLS 3 axis version

Optional version of 4-GL and 5-GL available with redesigned X axis



The 5-BVK with it's wide saddle and the Anilam 3300 CNC

2-VS Series: 2 & 3 axis CNC

R-8 or # 30, 3 Hp.



This is the manual version. A photo of the machine with the CNC fitted is not available at the time of printing. This machine can also be fitted with the gearless vector drive head as on the machines on following pages, This gives spindle control on the CNC for speed settings, automatic start and stop and tapping.

Options

- Anilam 5000 or 6000 series controls with up to 5 axes
- Heidenhain TNC 124, 310, 426 or 430 controls
- additional ram up to 64 MB
- off-line software with DXF file processing
- 1 micron linear feedback systems
- 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
- # 30 or # 40 Erikson style quick change spindle nose with 4 bearing spindle.
- # 40 NMTBA, Cat-40 or BT-40 spindle with larger spindle bearings
- ballscrew inspection with Heidenhain equipment and compensation tables loaded in CNC

2-VS Series: 2 & 3 axis CNC

R-8 or # 30, 3 Hp.

X axis travel, with standard table with optional table	28" 34"
Y axis travel	11"
Quill travel: manual on 2 axis systems CNC on 3 axis systems	5" 4"
Knee travel, vertical	16"
Ram adjustment	14"
Table surface	9" x 42" (opt 9" x 49")
Spindle taper, standard optional	R-8 # 30, #30 Erickson
Spindle motor, single speed	3 Hp.
Spindle speeds, back geared, set by handwheel	70 - 4,200 rpm.
Spindle speeds control / setting	manual
Rapid traverse rate with 1.8 NM servo system	250 IPM.
Head tilt left - right front - back	+ / - 90 deg. + / - 45 deg.
Distance spindle nose to table	0 to 18"
Distance spindle C/L to column	6 3/4" to 18 3/4"
Width of cross slide ways	12"
Saddle width	20"
Height of knee ways on column	17"
Ballscrew diameter, X and Y	1"
Power Supply required, standard - optional - for CNC system with 1.8 and 3.5 NM drive packages	220-440 or 575/3/60 110-220/1/60 120/1/60
Maximum table load	650 lbs.
Weight, approximaely	2,250 lbs.

The 2-VS models are build on a traditional Bridgeport type frame. The head has a vari-speed disk system with a back gear and manual brake. The spindle can be R-8, # 30 NMTBA, # 30 Erickson or Universal Kwik-Switch. The spindle motor can be 220-440/3/60, 575/3/60 or 220/1/60.

Standard Equipment

- Anilam 3200 or 3300 Control as selected with
 - 8 MB RAM
 - 4 GB hard disk
 - floppy disk
 - RS-232 serial port
 - Anilam 1.8 NM axis motors & Anilam servo system
- set of machining center style limit & homing switches
- 4 1/2 Hp vector drive on GL series, with program controlled spindle speeds for operation on 208 - 230/3/60 or 220/1/60
- automatic timed lubrication system
- Anilam programming manual
- simple toolkit
- parts list

3 & 4 GL Series: 2 & 3 axis CNC

R-8, # 30 or # 40, 4 1/2 Hp.



Above is our new compact version with a 42" table, the X axis motor in front of the table and protected by the black guard. This saves about 30" of floor space left to right.

Standard Equipment

- Anilam 3200 or 3300 Control as selected with
 - 8 MB RAM
 - 4 GB hard disk
 - floppy disk
 - RS-232 serial port
 - ethernet port
 - Anilam 1.8 NM axis motors & Anilam servo system
- set of machining center style limit & homing switches
- 4 1/2 Hp vector drive on GL series, with program controlled spindle speeds for operation on 208 - 230/3/60 or 220/1/60
- hardened and ground slideways with Turcite
- automatic timed lubrication system
- Anilam programming manual
- simple toolkit
- parts list

3 & 4 GL Series: 2 & 3 axis CNC

R-8, # 30 or # 40, 4 1/2 Hp.

	3-GL	4-GL
Slideway style	dovetail ways	box ways on Y and Z
Travels, X x Y	31 1/2" x 15" optionally 24" x 15"	
Travel, Z axis	6"	
Travel, knee, vertical	16"	
Table surface	12" x 50" optionally 10 or 12" x 42"	
Spindle taper, NMTBA, Cat-V or BT	# 40	
Spindle power	continuous 5 Hp 30 minute 7 1/2 Hp	
Spindle speeds with direct drive head, program controlled standard range high torque range with built-in 2 step pulley	75 - 6,000 rpm 60 - 4,500 rpm	
Spindle speeds with optional back geared head	low 15 - 750 rpm high 750 to 6,000 rpm	
Rapid traverse rate X and Y / Z	250 / 200 IPM	
Axis motors, standard	3.5 Nm	
Axis motors, optional drive package	4.5 Nm	
Ballscrew diameter, X and Y	1 1/4"	
Distance spindle nose to table	16 3/4"	17 1/2"
Distance spindle C/L to column	4 1/2 - 26 1/2	5 1/4" - 28 1/4"
Width of cross slide ways	13 3/4 "	14 3/8"
Saddle width	20"	22"
Length of ways on column	18 1/4	20"
Maximum table load	650 lbs	
Power supply	220/3/60 optionally 220/1/60	
Weight, approx	3,300 lbs	3,600 lbs
Power Supply required, standard - optional	220/3/60 220/1/60	

Optional Equipment

- Anilam 5300, 5400 or 5500 series controls
- Heidenhain or Fagor CNC
- HHRM servo system with 4.5 NM servo system, single source power supply, I/O system with additional inputs and outputs.
- spindles to take NMTBA 30, Cat 30, BT-30, Erickson 30 NMTBA 40, Cat-V 40, BT-40 or Erickson 40 tooling
- power draw bars
- riser blocks
- linear feedback scales
- 12 x 50 table with table end tray on left side of table and X axis motor protected under the tray
- automatic time lubrication system
- coolant system
- chip pan
- worklight
- low coolant level alarm
- inspection with our Heidenhain equipment and ballcrew compensations loaded into CNC.
- manual feed knob / handwheel on spindle (Z axis)
- rapid traverse for knee elevation
- 4th axis systems and indexers

5-GL Series: CNC

2 or 3 axis, with handwheels

40 taper spindle, 7 1/2 HP



Above is our new compact version with a 42" table, the X axis motor in front of the table and protected by the black guard. This saves about 30" of floor space left to right.
(This photo is actually a 4-GL model)

Optional Equipment

- Anilam 5300, 5400 or 5500 series controls
- HHRM servo system with 4.5 NM servo system, single source power supply, I/O system with additional inputs and outputs.
- spindles to take NMTBA 30, Cat 30, BT-30, Erickson 20 NMTBA 40, Cat-V 40, BT-40 or Erickson 40 tooling
- power draw bar
- riser block
- linear feedback scales
- 12 x 50 table with table end tray on left side of table and X axis motor protected under the tray
- automatic time lubrication system
- coolant system
- chip pan
- worklight
- low coolant level alarm
- inspection with our Heidenhain equipment and ballcrew compensations loaded into CNC.
- manual feed knob / handwheel on spindle (Z axis)
- rapid traverse for knee elevation
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5-GL Series: CNC

2 or 3 axis, with handwheels

40 taper spindle, 7 1/2 HP

Travels, X x Y	31 1/2" x 15"
Travel, Z axis	4 3/4"
Travel, knee, vertical	16"
Table surface	12" x 50"
Spindle taper, NMTBA, Cat-V or BT	# 40
Spindle power	continuous 5 Hp 30 minute 7 1/2 Hp
Spindle speeds with direct drive head, program controlled standard range high torque range with built-in 2 step pulley	75 - 6,000 rpm 60 - 4,500 rpm
Spindle speeds with optional back geared head	low 15 - 750 rpm high 750 to 6,000 rpm
Rapid traverse rate X and Y / Z	250 / 200 IPM
Axis motors, standard	3.5 NM
Axis motors, optional drive package	4.5 NM
Ballscrew diameter, X and Y	1 1/4"
Distance spindle nose to table	4" to 20"
Distance spindle C/L to column	14 1/8"
Width of cross slide ways	14 "
Saddle width	22"
Height of knee ways on column	20"
Power Supply required, standard - optional	220/3/60 220/1/60
Maximum table load	750 lbs.
Weight, approximately	4,400 lbs

Standard Equipment

- **Anilam** 3200 or 3300 Control as selected with
 - 8 MB RAM
 - 4 GB hard disk
 - floppy disk
 - RS-232 serial port
 - Anilam 1.8 NM axis motors & Anilam servo system
- set of machining center style limit & homing switches
- 7 1/2 Hp vector drive on GL series, with program controlled spindle speeds for operation on 208 - 230/3/60 or 220/1/60
- coolant system
- high intensity worklight
- automatic timed lubrication system
- Anilam programming manual
- simple toolkit
- parts list

5-BGL: CNC

Rigid C Frame, robust saddle, no handwheels

40 taper spindle, 7 1/2 or 12 Hp.



This version has a saddle almost as wide as the table. The X and Y axis ballscrews are mounted like those in a machining center, avoiding the problems associated with the Y axis nut housing in typical turret mills with handwheels.

The 5.33" diameter quill is extra large and the entire rigid head has been designed as a CNC head with a sturdy mount for the ballscrew of the quill that is much stonger than bolt on kits.

Optional Equipment

- Anilam 5300, 5400 or 5500 series controls
- Anilam 3.5 NM servo motors on axis drive
- Heidenhain TNC 124, 426 or 430 CNC
- HHRM servo system with 4.5 NM servo system, single source power supply, I/O system with additional inputs and outputs.
- heads to take NMTBA 30, Cat 30, BT-30, Erickson 30 NMTBA 40, Cat-V 40, BT-40 or Erickson 40 tooling
- power draw bars
- riser blocks
- linear feedback scales
- automatic time lubrication system
- coolant system
- chip pan
- worklight
- low coolant level alarm
- inspection with our Heidenhain equipment and ballcrew compensations loaded into CNC.
- rapid traverse for knee elevation

5-BGL: CNC

Rigid C Frame, robust saddle, no handwheels

40 taper spindle, 7 1/2 or 12 Hp.

Travels, X x Y	31" x 15"
Travel, Z axis	6"
Travel, knee, vertical	16"
Table surface	13" x 42"
Spindle taper, NMTBA, Cat-V or BT	# 40
Spindle power	continuous 5 Hp 30 minute 7 12 Hp
Spindle speeds with direct drive head, program controlled standard range high torque range with built-in 2 step pulley	75 - 6,000 rpm 60 - 4,500 rpm
Spindle speeds with optional back geared head	low 15 - 750 rpm high 750 to 6,000 rpm
Rapid traverse rate X and Y / Z	300 / 250 IPM
Axis motors, standard	3.5 NM
Axis motors, optional drive package	4.5 NM
Ballscrew diameter, X and Y	1 1/4"
Distance spindle nose to table	4" to 20"
Distance spindle C/L to column	16"
Width of cross slide ways	14 1/8"
Saddle width	38"
Height of knee ways on column	20"
Power Supply required, standard - optional	220/3/60 220/1/60
Maximum table load	750 lbs.
Weight, approximatley	4,400 lbs

Standard Equipment

- Anilam 3300 Control as selected with
 - 16 MB RAM
 - 4 GB hard disk
 - floppy disk
 - RS-232 serial port
 - ethernet port
 - Anilam 1.8 NM axis motors & Anilam servo system
- OR - Heidenhain TNC 310
- 7 1/2 Hp vector drive on GL series, with program controlled spindle speeds for operation on 208 - 240/3/60 or 220/1/60

- coolant system
- high intensity worklight
- automatic timed lubrication system
- Anilam programming manual
- simple toolkit
- parts list and machine manual
- table end trays
- telescopic Y axis slideway covers in front of saddle
- large chip pan and side splash guards
- set of machining center style limit & homing switches
- program controlled spindle speeds with load meter

5B-GL-S: CNC

Rigid C Frame, conventional saddle, with handwheels

40 taper spindle, 7 1/2 Hp.



This model has the same rigid head design as our 5-B-GL but it has a traditional type table and saddle that allows the fitting of handwheels.

We apologize for the poor out of date photo. This picture shows the machine as prepared with a vari-disk drive head and the X axis motor mount on the right side of the table without the tool tray. See the photos on pages 3 and 5 for the correct head and X axis motor mount configuration. For a better profile view of the rigid head see the photo on page 7

Optional Equipment

- Anilam 5300, 5400 or 5500 series controls
- Anilam 3.5 NM servo motors on axis drive
- Heidenhain TNC 124, 130, 426 or 430 CNC
- HHRM servo system with 4.5 NM servo system, single source power supply, I/O system with additional inputs and outputs.
- heads to take NMTBA 30, Cat 30, BT-30, Erickson 30 NMTBA 40, Cat-V 40, BT-40 or Erickson 40 tooling
- power draw bars
- riser blocks
- linear feedback scales
- 12 x 50 table with table end tray on left side of table
- and X axis motor protected under the tray
- automatic time lubrication system
- coolant system
- chip pan
- worklight
- low coolant level alarm
- inspection with our Heidenhain equipment and ballcrew compensations loaded into CNC.
- manual feed knob / handwheel on spindle (Z axis)
- rapid traverse for knee elevation.

5B-GL-S: CNC

Rigid C Frame, conventional saddle, with handwheels

40 taper spindle, 7 1/2 Hp.

Travels, X x Y	31 1/2" x 15"
Travel, Z axis	6"
Travel, knee, vertical	16"
Table surface	12" x 50"
Spindle taper, NMTBA, Cat-V or BT	# 40
Spindle power	continuous 5 Hp 30 minute 7 1/2 Hp
Spindle speeds with direct drive head, program controlled standard range high torque range with built-in 2 step pulley	75 - 6,000 rpm 60 - 4,500 rpm
Spindle speeds with optional back geared head	low 15 - 750 rpm high 750 to 6,000 rpm
Rapid traverse rate X and Y / Z	250 / 200 IPM
Axis motors, standard	3.5 NM
Axis motors, optional drive package	4.5 NM
Ballscrew diameter, X and Y	1 1/4"
Distance spindle nose to table	4" to 20"
Distance spindle C/L to column	14 1/8"
Width of cross slide ways	14 "
Saddle width	22"
Height of knee ways on column	20"
Power Supply required, standard - optional	220/3/60 220/1/60
Maximum table load	750 lbs.
Weight, approximatley	4,400 lbs

Standard Equipment

- **Anilam** 3200 or 3300 Control as selected with
 - 8 MB RAM
 - 4 GB hard disk
 - floppy disk
 - RS-232 serial port
 - Anilam 1.8 NM axis motors & Anilam servo system
- set of machining center style limit & homing switches
- 7 1/2 Hp vector drive on GL series, with program

- controlled spindle speeds for operation on
208 - 230/3/60 or 220/1/60
- coolant system
- high intensity worklight
- automatic timed lubrication system
- Anilam programming manual
- simple toolkit
- parts list

5A-GL Large CNC Knee Mill

2 or 3 axis, with handwheels

HUGE 29" reach spindle C/L to face of column

20" x 40" travels



Actual machine photo not available at time of printing

This photo is the manual version of the 5-AGL.

This version has the same series servo motors and axis amplifiers as the CNC machine. The manual machine is therefore very easy to upgrade to CNC. In fact the first step up to a Heidenhain TNC-124 point to point system is only about \$3000. US. Full contouring controls are available.

Optional Equipment

- Anilam 5300, 5400 or 5500 series controls
- Heidenhain TNC 124, 130, 426 or 430 CNC
- HHRM servo system with 4.5 NM servo system, single source power supply, I/O system with additional inputs and outputs.
- heads to take NMTBA 30, Cat 30, BT-30, Erickson 30 NMTBA 40, Cat-V 40, BT-40 or Erickson 40 tooling
- power draw bars
- riser blocks
- linear feedback scales
- 12 x 50 table with table end tray on left side of table and X axis motor protected under the tray
- automatic time lubrication system
- coolant system
- chip pan
- worklight
- low coolant level alarm
- inspection with our Heidenhain equipment and ballcrew compensations loaded into CNC.
- manual feed knob / handwheel on spindle (Z axis)

5A-GL Large CNC Knee Mill

2 or 3 axis, with handwheels

HUGE 29" reach spindle C/L to face of column

20" x 40" travels

Travels, X x Y	40" x 20"
Travel, Z axis on 3 axis systems	4 3/4"
Travel Z axis, on 2 axis or manual version	5"
Travel, knee, vertical, power rapid positioning	20"
Ram adjustment	22"
Table surface	13" x 59" optionally 18" x 59"
Spindle taper, NMTBA, Cat-V or BT	# 40
Spindle power	7 1/2 or 12 Hp
Spindle speeds with direct drive head: program controlled standard range high torque range with built-in 2 step pulley	75 - 6,000 rpm 60 - 4,500 rpm
Spindle speeds with optional back geared head	low 15-750 high 750 to 6,000 rpm
Rapid traverse rate	300 IPM
Axis motors	4.5 Nm
Ballscrew diameter, X and Y	1 1/4"
Distance spindle nose to table	3.15" to 23.23"
Distance spindle C/L to column	5.31" to 26.38"
Width of cross slide ways	20"
Saddle width	46"
Maximum table load	1000 lbs

Standard Equipment

- hardened and ground slideways with Turcite
- hardened and ground table top
- box ways on saddle and column
- power feeds on X and Y axes with 3 NM servo drives
- rapid traverse for knee positioning.
- pendant control center with joystick control for each axis, sensitive dial for setting each axis, coolant switch, spindle speed LED and sensitive dial,
- set of limit switches on each axis
- 7 1/2 Hp vector drive on GL series, with program controlled spindle speeds for operation on 208 - 230/3/60 or 220/1/60
- rapid traverse on knee elevation
- telescopic steel slideway cover in front of saddle
- table end trays
- declutching handwheels on each axis
- coolant system
- ship pan
- high intensity worklight
- automatic timed lubrication system
- tool cabinet on left side of column
- ballscrews on X and Y axes
- simple toolkit
- parts list



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.