

# Clausing CNC Knee Mills

600 Group

*Celebrating Over 105 Years  
in the Machine Tool Business*

*A Line of Precision, Affordable,  
Heavy-duty CNC Vertical Knee Mills*



- Two Control Options to Choose From
- Manual Operation with DRO, Semi-Automatic Operation or Full 2 or 3 Axes CNC Operation

# ***Clausing EVS CNC Vertical Mills...***

***A Line of Affordable Heavy-duty  
CNC Electronic Variable Speed (EVS)  
Vertical Knee Mills with Two CNC  
Control Options.***



The LCD Display allows the operator to select spindle speeds quickly and accurately.  
(Not available on models with Programmable Spindle Speeds)

Shown with Fagor 8055i CNC Control



## ***Machine Features***

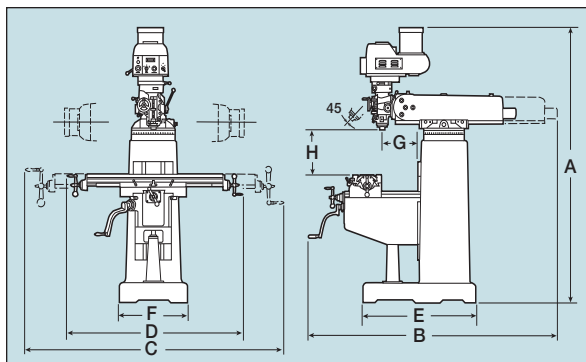
- CNC Control options Fagor 8055i MC or-- ACU-RITE MILLPWR G2
- Flexible operating modes: manual operation with DRO, semi-automatic operation and two or three axes full CNC operation
- Meehanite Castings for superior rigidity and wear resistance
- Hardened and Ground X, Y, and Knee ways for superior accuracy and wear resistance
- Turcite B applied to X, Y ways for wear resistance and extend machine life
- Table size up to 11" x 58"
- Ground T-Slots provide a reference edge for positioning workpieces or fixtures
- Large travel range up to 35.5" X axis travel, 16" Y axis travel, 17.7" knee travel and 4.75" quill travel
- Inverter Drive Variable Speed Spindle achieving more accurate surface speeds for enhanced tool life
- Up to 5 Hp Spindle Motor for exceptional machining power
- Spindle Brake manually operated with auto power off
- ABEC 7/CP4 Spindle Bearings provide accuracy and smooth operation for close tolerance machining
- Hardened and Ground Chrome Plated, Carbon Steel Quill giving the quill wear resistance with close tolerances between the quill and housing
- One Shot Lubrication maintains proper lubrication to all critical machine components
- Built in Coolant System w/pump, switch, and flexible coolant nozzle giving the operator full control over tool cooling
- Precision Hardened and Ground Ballscrews for smooth positioning and accuracy

## Machine Specifications: *(see pages 6 & 7 for control options and Model numbers)*

Model	400EVSCNC	450EVSCNC	500EVSCNC
<b>Table:</b>			
Table Size	10" x 50" (254x1370mm)	10" x 54" (254x1270mm)	11" x 58" (254x1475mm)
No. of T-slots	3	3	3
T-slot width	.63" (16mm)	.63" (16mm)	.63" (16mm)
T-slot center distance	2.48" (63mm)	2.48" (63mm)	2.76" (70mm)
Table load capacity	700 lbs. (318kg)	880 lbs. (400kg)	990 lbs. (450kg)
Table Ways	Dovetail	Dovetail	Dovetail
Knee Ways	Dovetail	Square	Square
Column Ways	Dovetail	Dovetail	Square
<b>Travels:</b>			
X axis, longitudinal	32.3" (820mm)	31.9" (810mm)	35.5" (902mm)
Y axis, cross	16" (406mm)	16" (406mm)	16" (406mm)
Z axis, knee	16" (406mm)	16" (406mm)	17.7" (450mm)
Ram travel	22" (560mm)	22" (560mm)	22" (560mm)
Ram swivel	360°	360°	360°
<b>Spindle Head:</b>			
Spindle drive motor	3 Hp (2.25Kw)	3 Hp (2.25Kw)	5 Hp (3.75Kw)
Spindle speed range	50-5000 rpm	50-5000 rpm	50-5000 rpm
Spindle taper	R-8 or ISO-30	R-8 or ISO-30	R-8 or IS-O30
Quill travel	4.75" (120mm)	4.75" (120mm)	4.75" (120mm)
Quill diameter	3.28" (83mm)	3.38" (86mm)	3.38" (86mm)
Quill feed (2 axis)	.00157/.00315/.006in/rev (0.04/.08/.152mm/min)		
Head tilt (front or back)	45°	45°	45°
Head tilt left or right (2 axis)	90°	90°	90°
<b>Construction:</b>			
Column turret diameter	15.75" (400mm)	15.75" (400mm)	16.54" (420mm)
Knee width	13.75" (349mm)	15.35" (390mm)	15.35" (390mm)
Knee bearing length	17.72" (450mm)	17.72" (450mm)	19.69" (500mm)
Saddle length	20.08" (510mm)	25.59" (650mm)	25.59" (650mm)
Table bearing length	11.26" (286mm)	11.26" (286mm)	11.02" (280mm)
Ram/turret bearing length	17.72" (450mm)	17.72" (450mm)	17.72" (450mm)
Machine weight	2,640 lbs. (1198kg)	2,750 lbs. (1247kg)	3,300 lbs. (1497kg)
Shipping weight	3,040 lbs. (1379kg)	3,150 lbs. (1429kg)	3,700 lbs. (1678kg)

Specifications and design subject to change without notice.

## Machine Dimensions:



Model	400EVSCNC	450EVSCNC	500EVSCNC
Height (A)	88.6" (2250mm)	88.6" (2250mm)	90.6" (2300mm)
Depth w/ram travel (B)	78" (1980mm)	78" (1980mm)	82.7" (2100mm)
Width w/table travel (C)	102" (2590mm)	105" (2667mm)	110" (2795mm)
Width (D)	66" (1676mm)	70" (1778mm)	74" (1880mm)
Base depth (E)	39" (990mm)	39" (990mm)	44" (1118mm)
Base width (F)	23.6" (600mm)	23.6" (600mm)	25" (635mm)
Spindle to column (G)	5.9"-28.9" (150-734mm)	5.9"-28.9" (150-734mm)	5.3"-27.3" (135-691mm)
Spindle nose to table (H)	3.54"-19.7" (90-500mm)	3.54"-19.7" (90-500mm)	1.57"-19.2" (40-489mm)

# ***Clausing CNC Vertical Mills...***

***A Line of Affordable Heavy-duty Precision CNC Vertical Knee Mills with A Wide Range of 2 or 3 Axes CNC Control Options and Features Found Only on Higher Priced Machines.***

***Clausing CNC Mills can be operated as manual machines with a DRO, semi-automatic operation or full X, Y and Z axes (quill) CNC operation.***

Shown with ACU-RITE MILLPWR G2 CNC Control



## ***Machine Features***

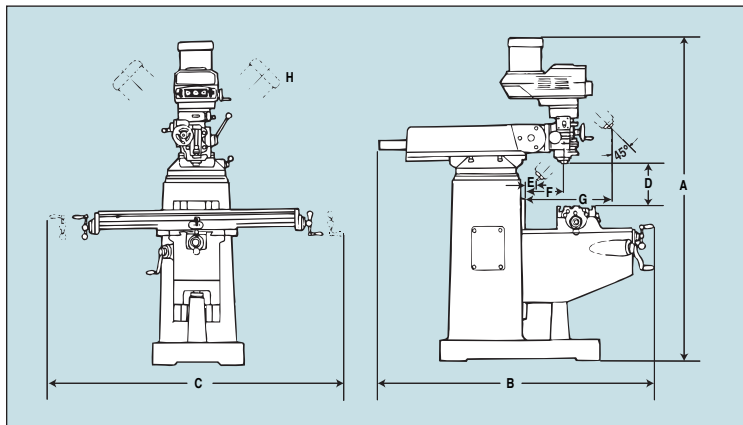
- CNC Control options Fagor 8055i MC or ACU-RITE MILLPWR G2
- Flexible operating modes: manual operation with DRO, semi-automatic operation, and two or three axes full CNC operation
- Meehanite Castings for superior rigidity and wear resistance
- Hardened and Ground X, Y, and Knee ways for superior accuracy and wear resistance
- Turcite B applied to X, Y ways for wear resistance and extend machine life
- Work areas up to 10" x 54" table size
- Ground T-Slots provide a reference edge for positioning workpieces or fixtures
- Large travel range up to 38.7" X axis travel, 16" Y axis travel, 16" knee travel and 4.5" quill travel
- Two Range Variable Speed Spindle: 60-500 rpm low range and 550-4300 high range
- Up to 5 Hp Spindle Motor for exceptional machining power
- Spindle Brake manually operated with auto power off
- ABEC 7/CP4 Spindle Bearings provide accuracy and smooth operation for close tolerance machining
- Hardened and Ground Chrome Plated, Carbon Steel Quill giving the quill wear resistance with close tolerances between the quill and housing
- One Shot Lubrication maintains proper lubrication to all critical machine components
- Built in Coolant System w/pump, switch, and flexible coolant nozzle
- Precision Hardened and Ground Ballscrews for smooth positioning and accuracy

## Specifications: *(see pages 6 & 7 for control options and accessories)*

Model	2VSCNC	3VSCNC	4VSQCNC
<b>Table &amp; Ways:</b>			
Table Size	9"x49" (228x1244mm)	10"x54" (254x1372mm)	10"x54" (254x1372mm)
No. of T-Slots	3	3	3
T-Slot Width	.63" (16mm)	.63" (16mm)	.63" (16mm)
T-Slot Center Distance	2.48" (63mm)	2.48" (63mm)	2.48" (63mm)
Table Ways	Dovetail	Dovetail	Dovetail
Knee Ways	Dovetail	Square	Square
Column Ways	Dovetail	Dovetail	Square
<b>Travels:</b>			
X Longitudinal	33.7" (856mm)	38.7" (983mm)	37" (940mm)
Y Cross	13.5" (343mm)	15.5" (394mm)	16" (406mm)
Knee	14" (356mm)	16" (406mm)	17.7" (450mm)
Ram	18.5" (470mm)	20.5" (520mm)	26.75" (680mm)
<b>Motors &amp; Spindle:</b>			
Motor Hp. variable	3 ( 2.25Kw)	3 (2.25Kw)	5 (3.75Kw)
Variable Spindle Speed rpm			
Low Range	60-500	60-500	60-500
High Range	550-4300	550-4300	550-4300
Main Spindle Taper	R-8 or ISO-30	R-8 or ISO-30	ISO-40
Spindle Travel	4.5" (115mm)	4.5" (115mm)	4.5" (115mm)
Quill Feed (2 axis)	0015/.003/.006in/rev. (.004/.008/.015mm/rev)		
Quill Diameter	3.38" (86mm)	3.38" (86mm)	3.9" (100mm)
<b>Construction:</b>			
Column Turret Diameter	14.96" (380mm)	16.33" (415mm)	16.33" (415mm)
Knee Width	11.81" (300mm)	14.17" (360mm)	14.96" (380mm)
Column Bearing Length	16.83" (427mm)	18.11" (460mm)	19.7" (500mm)
Saddle/Table Bearing Length	19.88" (305mm)	20.47" (520mm)	20.47" (520mm)
Ram/Turret Bearing Length	17.51" (445mm)	17.51" (445mm)	20.67" (525mm)
Ram Length	32.75" (832mm)	32.75" (832mm)	38.63" (980mm)
Table Load	700 lbs. (316kg)	880 lbs. (400kg)	990 lbs. (450kg)
Net Weight	2250 lbs. (1020kg)	2970 lbs. (1348kg)	3630 lbs. (1647kg)

Specifications subject to change without notice.

## Machine Dimensions:

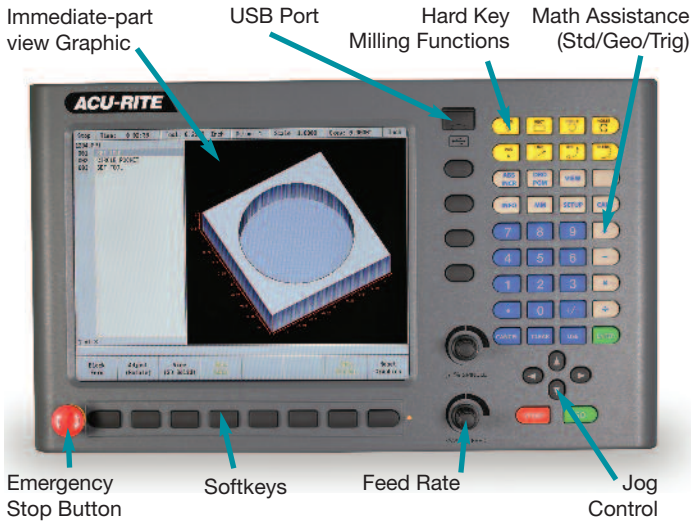


Model	2VS	3VS	4VSQ
A Height	86" (2185mm)	91" (2310mm)	91" (2310mm)
B Depth	75" (1905mm)	71" (1803mm)	80.3" (2040mm)
C Width	69" (1752mm)	73.6" (1870mm)	73.6" (1870mm)
D Table to Spindle	3.54"-19.29" (90-490mm)	1.97"-19.68" (50-500mm)	1.97"-19.68" (50-500mm)
E 45° Inward	0-13" (0-330mm)	0-18" (0-457mm)	0-16.53" (0-420mm)
F Spindle ø to column	5.5"-26" (140-660mm)	5.5"-24" (140-610mm)	0-26" (0-660mm)
G 45° Outward	10.43"-27.95" (265-710mm)	10.43"-27.95" (265-710mm)	8.85"-29.13" (225-740mm)
H Head Tilt	90° right & left		

# CNC Control Options

**ACU-RITE®** MILLPWRG2

**Full Three axes\*  
CNC Control** \*(in G Code only)



## Hardware Features

- Precision Ground and Hardened Ball Screws
- Powerful AC Servo Motors Assemblies
- Closed Loop Feedback using ACU-RITE Precision Glass Scales with (1µm/.00004 Resolution)
- 10" Flat Panel, Color, LCD Display
- Large Internal Part Program Storage Capacity
- RS-232 Port for Downloading from an Offline Source
- Remote Stop/Go Switch • USB and Ethernet
- Maximum Table Feedrate of 100 IPM

## Features and Benefits

- 3 axes Control/4-axes Readout Optional
- Conversational Menu-prompted Programming
- Position-Trac™/Find Home: Quickly find workpiece zero after power loss • 3-D, Tactile-Feel, Color Keypad
- ACU-RITE Precision Glass Scales for better accuracy, repeatability, high resolution, closed loop feedback and proven reliability
- Jog Control: One axis or two axes simultaneously
- Remote Stop/Go Switch, with hand-held switch
- Travel Limits: With software
- Engrave: Alphanumeric references into parts
- Tool Offset Compensation • Tool Library
- Hard Key Milling Functions: Select routine functions (lines, arcs, rectangles, circles, etc.)
- Bolthole Calculations: Calculate full & partial circles
  - Linear row/column • Rectangle frame
  - Rectangle array • Mirror/Repeat/Rotate
- Custom Pocket • Skew: Save time aligning parts
- Bend • Explode • Feed Rate Override • DXF File Input
- Teach Position • Edit Capabilities • Reference Tables
- Math Functions: Standard • Trigonometry • Geometry • rpm

**FAGOR**  **8055i MC CNC Control**



The Fagor 8055i MC Control System is one of the most versatile CNC in existence due to its Dual Operating System. In one mode, it is a very powerful ISO G-code control System and in the other mode Icon conversational programming with highly interactive graphics.

## Icon Conversational Programming

- 26 canned cycles... Slot Milling, Profile Milling, Multiple Drilling cycles, Boring cycles, Reaming cycles, Arc bolt hole cycles, Random position cycles, Grid Pattern position cycles and more
- Mirror Imaging • Automatic chamfer blending
- Arc defined by three points • Automatic radius blending
- Part Scaling (in part or whole)
- Programming in absolute arc center coordinates
- Main plane selection • Individual plane selections
- Definition of lower work area limits
- Zero offsets and auto-deletion of offsets referencing
- Automatic machine home sequence
- Preset of coordinate values • Preset of polar origin

## G Code Programming

- DNC (RS232) • Geometric help • Execution mode
- MDI mode (Manual Data Input) • Teach-in mode
- Play back mode • Single block mode • Manual mode
- Background editing mode • Mid program start
- Automatic tool calibration mode
- Tool inspection mode with auto-return
- Programmable spindle speed (SUP models)
- Number of main programs: 999,999 \*3
- Repeat of sections of program
- Part zero offsets • Number of nesting levels: 15
- Feedrate: 0.00001 to 7900 inches/min.
- Machining canned cycles in all planes
- User defined canned cycles • On board graphic editor
- Override control for feed rate and spindle

# Clausing CNC Vertical Mill Accessories



**Chip Tray**

Part No.	Description and Model	Weight
2VS001P	Chip Tray for 2VS	15 lbs.
3VS001P	Chip Tray for 3VS	15 lbs.
3VS001P	Chip Tray for 4VSQ	15 lbs.
EVS120	Chip Tray for 400EVS	15 lbs.
EVS120A	Chip Tray for 450EVS & 500EVS	15 lbs.

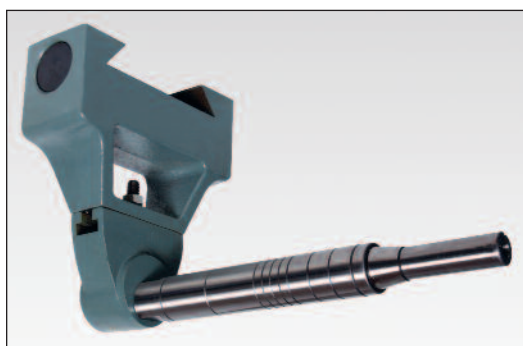


**Power Drawbar**

Part No.	Description and Spindle	Weight
2VS8408-CNC	Power Drawbar for R-8 Spindle	25 lbs.
2VS8430-CNC	Power Drawbar Kit for #30 Spindle	25 lbs.
2VS8440-CNC	Power Drawbar Kit for #40 Spindle	25 lbs.

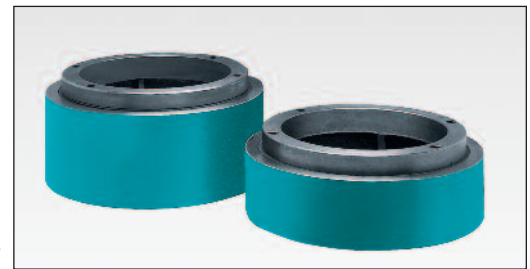
## Milling Chuck Kit

Milling Chuck Kit with 7 ER collets, in sizes 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" & 1" in carrying case.



**Horizontal Milling Attachment**

Right Angle Milling Attachment required for Right Angle Milling Attachment



**Riser Blocks**

Part No.	Description and Model	Weight
2VS040P	4" Riser Block for Model 2VS	75 lbs.
2VS041P	6" Riser Block for Model 2VS	90 lbs.
2VS042P	8" Riser Block for Model 2VS	100 lbs.
3VS044P	4" Riser Block for Model 3VS	75 lbs.
3VS040P	8" Riser Block for Model 3VS	100 lbs.
4VSQ044	4" Riser Block for Model 4VS	75 lbs.
4VSQ040	8" Riser Block for Model 3VS	100 lbs.
EVS123	6" Riser Block for Models 400 & 450	90 lbs.
EVS123A	8" Riser Block for Models 400 & 450	100 lbs.
EVS223	6" Riser Block for Model 500	90 lbs.
EVS223A	8" Riser Block for Model 500	100 lbs.



## Clamping Kit

52 pc. Clamping Kit for all models.  
Part No. 2VS010



**Right Angle Milling Attachment**

Part No.	Description, Spindle or Model	Weight
4VS031	Rt. Angle Milling Attachment for 4VSQ	20 lbs.
EVS126	Rt. Angle Milling Attachment, R-8 Spindle for EVS400	20 lbs.
EVS126A	Rt. Angle Milling Attachment, #30 Spindle for EVS400	20 lbs.
EVS126B	Rt. Angle Milling Attachment, #40 Spindle for EVS400	20 lbs.
EVS127	Rt. Angle Milling Attachment, R-8 Spindle for EVS450	20 lbs.
EVS127A	Rt. Angle Milling Attachment, #30 Spindle for EVS450	20 lbs.
EVS127B	Rt. Angle Milling Attachment, #40 Spindle for EVS450	20 lbs.
EVS128	Rt. Angle Milling Attachment, R-8 Spindle for EVS500	20 lbs.
EVS128A	Rt. Angle Milling Attachment, #30 Spindle for EVS500	20 lbs.
EVS128B	Rt. Angle Milling Attachment, #40 Spindle for EVS500	20 lbs.

Part No.	Description, Spindle or Model	Weight
2VS030	Horizontal Milling Attachment, R-8 & #30 Spindle	20 lbs.
2VS030A	Horizontal Milling Attachment, #40 spindle	20 lbs.
EVS129	Horiz. Mill Arbor Support for 400EVS, 450EVS & 500EVS	15 lbs.
EVS129	1" Milling Arbor for 400EVS, 450EVS & 500EVS	10 lbs.

# Clausing CNC Vertical Knee Mill Buyers Guide

Machine		Spindle		CNC Control	
Model	Table Size	Model	Description	Model	Description
<b>2VS</b>	9" x 49" Table	08 30	R8 Spindle ISO 30 Spindle	CNCAR CNC3 CNC3L CNC3FG	MILLPWR G2 2-axes MILLPWR G2 3-axes MILLPWR G2 3-axes w/Linear Quill Scale Fagor 8055i 3-axes
<b>3VS</b>	10" x 54" Table	08 30	R8 Spindle ISO 30 Spindle	CNCAR CNC3 CNC3L CNC3FG	MILLPWR G2 2-axes MILLPWR G2 3-axes MILLPWR G2 3-axes w/Linear Quill Scale Fagor 8055i 3-axes
<b>4VSQ</b>	10" x 54" Table	40	ISO 40 Spindle	CNCAR CNC3 CNC3L CNC3FG	MILLPWR G2 2-axes MILLPWR G2 3-axes MILLPWR G2 3-axes w/Linear Quill Scale Fagor 8055i 3-axes
<b>400EVS</b>	10" x 50" Table	08 30	R8 Spindle ISO 30 Spindle	CNCAR CNC3 CNC3L CNC3FG	MILLPWR G2 2-axes MILLPWR G2 3-axes MILLPWR G2 3-axes w/Linear Quill Scale Fagor 8055i 3-axes
<b>450EVS</b>	10" x 54" Table	08 30	R8 Spindle ISO 30 Spindle	CNCAR CNC3 CNC3L CNC3FG	MILLPWR G2 2-axes MILLPWR G2 3-axes MILLPWR G2 3-axes w/Linear Quill Scale Fagor 8055i 3-axes
<b>500EVS</b>	11" x 58" Table	08 30	R8 Spindle ISO 30 Spindle	CNCAR CNC3 CNC3L CNC3FG	MILLPWR G2 2-axes MILLPWR G2 3-axes MILLPWR G2 3-axes w/Linear Quill Scale Fagor 8055i 3-axes

**How to order:** Pick your Machine Model, Spindle Taper and CNC Control Option Model

**For example:** Model **3VS08CNC3L**= 3VS with a 10" x 54" table, R8 spindle and a MillPwr 3-axes w/Linear Quill Scale.



Call 800-323-0972 for the Clausing Dealer Nearest You  
or visit [www.clausing-industrial.com](http://www.clausing-industrial.com)

*Celebrating Over A Century in the Machine Tool Business*