

Clausing Vertical Knee Mills

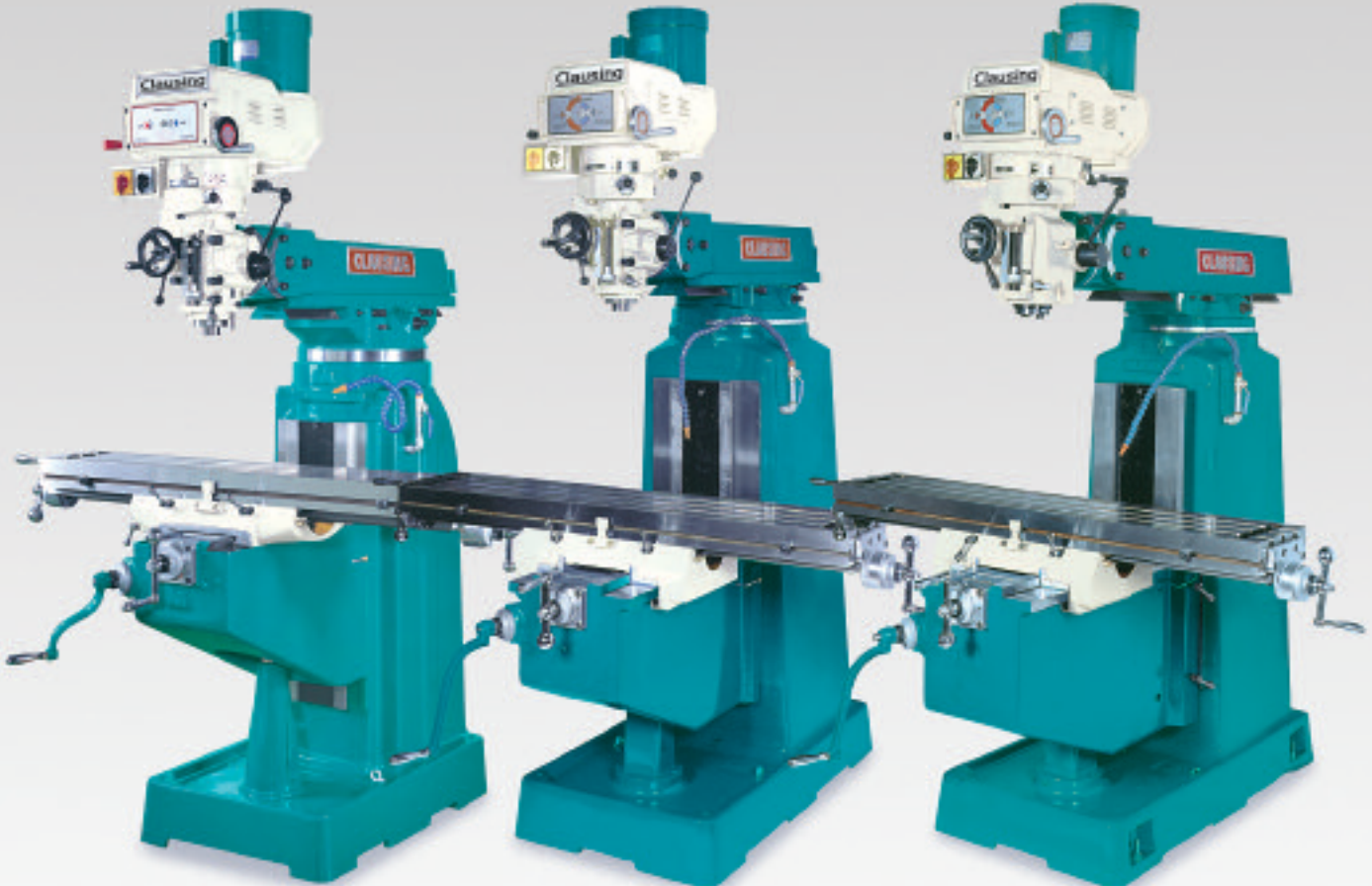
600Group

A full Line of Mechanical Variable Speed and Electronic Variable Speed Knee Mills



**Affordable, Durable and Versatile...
three good reasons for putting a Clausing
Vertical Knee Mill in Your Toolroom**

Clousing Mechanical Variable Speed Vertical Knee Mills



2VS

9" x 49" Table • 3 hp Spindle Motor

3VS

10" x 54" Table • 3 hp Spindle Motor

4VSQ

10" x 54" Table • 5 hp Spindle Motor

Here are more reasons for putting the Clousing vertical mill to work in Your Toolroom...

If you're looking for a Heavy-duty Standard Vertical Milling Machine, at an affordable price, the Clousing knee mills are what you're looking for.

Designed for precision, the Clousing Mills deliver all the power, precision and versatility you need to handle most milling jobs in your toolroom.

The Clousing Knee Mills are one of the heaviest in it's class and is equipped with a powerful spindle drive motor and an infinitely variable speed drive offering a speed range of 60 to 4300 rpm.

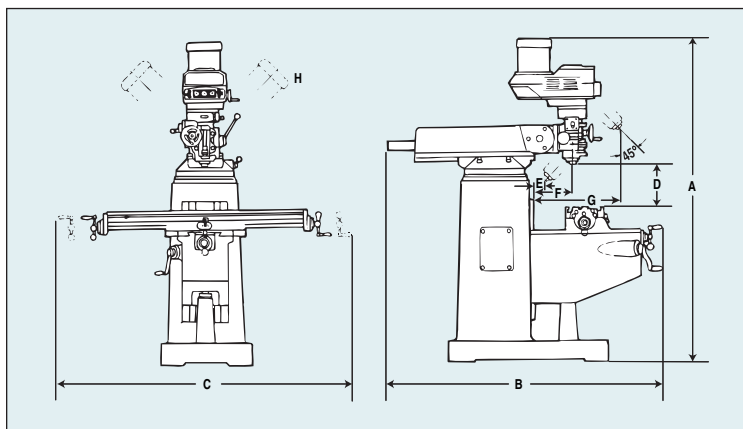
These Mills offer features often found only on higher priced milling machines...

Standard Features...

- Meehanite Castings for superior rigidity and wear resistance
- Hardened & Ground X,Y & Z Ways
- X/Y ways coated with Turcite B
- Column & Knee Way Covers
- T-slots are ground to provide reference edge for positioning your workpiece
- Hardened & Ground Table Surface
- Hardened & Ground Spindle
- Chromed & Ground Quill
- Chromed X, Y & Z Leadscrews
- Double Nut Leadscrew for backlash compensation
- ABEC 7/CP4 Spindle Bearings
- Coolant System w/Pump & Switch
- Flexible Segmented Coolant Nozzle
- Chromed Y Screw Covers and One-piece Wipers
- 7/16" Imperial Drawbar (2VS, 3VS)
- M16 Metric Drawbar w/ISO 40 Spindle (4VSQ)
- 3 hp AC Motor (2VS & 3VS)
- 5 hp AC Motor (4VSQ)
- AC Rapid Vertical Drive (4VSQ)
- Variable Speed Drive
- Articulating Head for Compound Angles
- Worm gear angular positioning of head in two directions
- Lever-operated manual rapid quill movement
- Handwheel for fine quill feed
- Adjustable automatic feed disengagement for quill feed
- Micrometer depth stop
- Reversing switch for clockwise or counter clockwise operation
- R-8 or ISO 30 Spindle (2VS & 3VS)
- ISO 40 Spindle (4VSQ)
- Spindle Brake (Hand operated)
- One-shot lubrication
- Halogen Work Light
- Tool Kit, Test and Accuracy Chart
- Operations Manual/Parts List
- Knee Assist on (4VSQ)

Specifications	2VS	3VS	4VSQ
Table & Ways			
Table Size	9" x 49" (230x1245mm)	10" x 54" (254x11370mm)	10" x 54" (254x11370mm)
No. of T-Slots	3	3	3
T-Slot Width	5/8" (16mm)	5/8" (16mm)	5/8" (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
Travels			
X Longitudinal	33.86" (860mm)	36" (915mm)	36" (915mm)
Y Cross	11.8" (300mm)	15.74" (400mm)m)	16.93" (430mm)
Knee	15.7" (400mm)	17.4" (450mm)	17.74" (450mm)
Ram	18.53" (470mm)	20.5" (520mm)	26.75" (680mm)
Motors & Spindle			
Spindle Motor	3 hp	3 hp	5 hp
Amp. Draw 208v.	10	10	15
Amp. Draw 230v.	10	10	15
Amp. Draw 460v.	5	5	8
Variable Spindle Speed rpm	60-4300	60-4300	60-4300
Low Range rpm	60-500	60-500	60-500
High Range rpm	550-4300	550-4300	550-4300
Main Spindle Taper	R-8 or ISO 30	R-8 or ISO 30	ISO 40
Spindle Travel	5" (127mm)	5" (127mm)	5" (127mm)
Quill Feed (in/rev.) (mm/rev)	.0015/.0031/.006 (.004/.008/.015mm)	.0015/.0031/.006 (.004/.008/.015mm)	.0015/.0031/.006 (.004/.008/.015mm)
Quill Diameter	3.38" (85mm)	3.38" (85mm)	4.13" (105mm)
Construction & Weight			
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)	19.69" (500mm)
Saddle/Table Bearing Length	19.88" (505mm)	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	2,200 lbs. (998kg)	2,866 lbs. (1300kg)	3,417 lbs. (1550kg)

Specifications are subject to change without notice.



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		

Clausing Heavy-duty Electronic Variable Speed (EVS) Vertical Knee Mills

Head mounted easy to use control



The LCD Display allows the operator to select spindle speeds quickly and accurately

Get the Advantages of an EVS Mill at a Very Affordable Price.

Clausing's line of Heavy Duty EVS Mills are easy to operate, require less maintenance than mechanical variable speed machines and offer features found only on higher priced EVS Mills...

- Quick and accurate rpm setting
- Convenient, head mounted, easy to use control panel
- LCD spindle speed display
- Up to 4 hp spindle motor standard
- Spindle brake with auto power off
- Totally enclosed electric's with Yaskawa A.C. inverter variable speed drive
- Carbon steel, hardened and ground, chrome plated quill
- Coolant system
- Up to 11" x 58" table size
- Meehanite castings for superior rigidity
- Hardened and ground table with 3 ground T-slots
- Double nuts for easy backlash adjustment
- Up to 38.2" X axis travel, 16" Y axis travel, 17.7" knee travel and 5" quill travel
- All ways are hardened and ground with Turcite B coating on X and Y axis ways for wear resistance and smooth operation

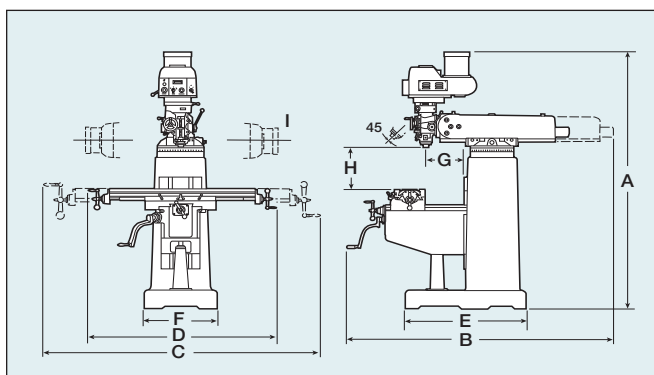


Standard Features...

- Meehanite castings for superior rigidity and wear resistance
- Hardened and ground ways
- Ground ram ways
- Column & knee way covers
- Hardened and ground table surface
- Ground T-slots to provide reference edge for positioning workpiece
- Hardened and ground spindle
- Hardened, ground and chromed quill
- Hardened X & Y axis leadscrew and Nickel Phosphorous treated
- Coolant system
- Flexible segmented coolant nozzle
- 3 hp AC motor on 400EVS & 450EVS, optional 4hp AC motor for 450EVS
- 4 hp AC motor on 500EVS
- Yaskawa inverter variable speed drive
- Dovetail X,Y & Z axis ways on 400EVS
- Square Y axis ways and dovetail X & Z axis ways on 450EVS
- Square Y & Z axis ways and dovetail X axis ways on 500EVS
- Lever operated manual rapid quill movement
- Handwheel for fine quill feed
- Adjustable automatic feed disengagement for quill feed in both directions
- Micrometer depth stop
- Reversing switch for clockwise or counter clockwise operation
- R-8 or ISO 30 spindle
- Spindle hand brake with auto power off
- One-shot lubrication
- Test and accuracy chart
- Tools, tool box, operation and parts manuals

SPECIFICATIONS	400EVS	450EVS	500EVS
TABLE			
Table Size	10" x 50" (254 x 1270mm)	10" x 54" (254 x 1372mm)	11" x 58" (254 x 11473mm)
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)
TRAVELS			
X axis, longitudinal	35" (889mm)	34.6" (879mm)	38.2" (970mm)
Y axis, cross	16" (406mm)	16" (406mm)	16" (406mm)
Z axis, knee	16" (406mm)	16" (406mm)	17.7" (450mm)
Ram travel	22" (559mm)	22" (559mm)	22" (559mm)
Ram swivel	360°	360°	360°
Spindle to column	5.9"-28.9" (150 - 734mm)	5.8"-28.9" (147 - 734mm)	5.3"-27.2" (135 - 691mm)
Spindle nose to table	3.54"-19.7" (90 - 500mm)	3.54"-19.7" (90 - 500mm)	1.57"-19.2" (40 - 489mm)
SPINDLE HEAD			
Spindle drive motor	3 hp (2.25 kw)	3 hp (2.25 kw)	4 hp (3 kw)
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 ISO 30
Quill travel	5" (127mm)	5" (127mm)	5" (127mm)
Quill diameter	3.28" (83mm)	3.38" (83mm)	3.38" (83mm)
Quill feed (in/rev) (mm/rev)	.00157"/.00315"/.006" (.004"/.08"/.152)		
Head tilt (front or back)	45°	45°	45°
Head tilt (left or right)	90°	90°	90°
DIMENSIONS AND WEIGHT			
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. (1198 kg)	2,750 lbs. (1247 kg)	3,300 lbs. (1497 kg)
Shipping weight	3,040 lbs. (1379 kg)	3,150 lbs. (1429 kg)	3,700 lbs. (1678 kg)

Specifications and design subject to change without notice.



MODEL	400EVS	450EVS	500EVS
A Height	88.6"(2250mm)	88.6"(2250mm)	90.6"(2300mm)
B Depth w/ram travel	78"(1980mm)	78"(1980mm)	82.7"(2100mm)
C Width w/table travel	102"(2590mm)	105"(2667mm)	110"(2795mm)
D Width	66"(1676mm)	70"(1778mm)	74"(1880mm)
E Base depth	39"(990mm)	39"(990mm)	44"(1118mm)
F Base width	23.6"(600mm)	23.6"(600mm)	25"(635mm)
G Spindle to column	5.9"-28.9"(150-735mm)	5.9"-28.9"(150-735mm)	5.3"-27.2"(135-690mm)
H Spindle to table	3.54"-19.7"(90-500mm)	3.54"-19.7"(90-500mm)	1.57"-19.2"(40-488mm)
I Head tilt	90° right or left		

Add Productivity with Clausing Mill Accessories

Spindle Assembly

Part No.	Description and Model	Weight
ISOR8	R-8 Spindle for 2VS & 3VS	10 lbs.
ISO30	# 30 Spindle for 2VS & 3VS	15 lbs.
ISO40	# 40 Spindle for 4VSQ	15 lbs.
EVS124	R-8 Spindle for 400EVS, 450EVS & 500EVS	15 lbs.
EVS124A	R-8 Spindle Only for 400EVS, 450EVS & 500EVS	10 lbs.
EVS125	NT 30 Spindle for 400EVS, 450EVS & 500EVS	15 lbs.
EVS125A	NT 30 Spindle Only for 400EVS, 450EVS & 500EVS	10 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.



Horizontal Milling Attachment

Right Angle Milling Attachment required

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.



Chip Tray

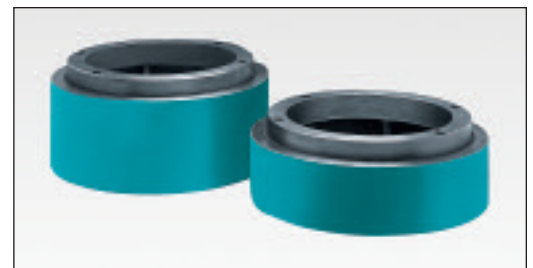
Part No.	Description and Model	Weight
2VS001	Chip Tray for 2VS	15 lbs.
2VS001A	Chip Tray for 3VS	15 lbs.
4VSQ001A	Chip Tray for 4VSQ	15 lbs.
EVS120	Chip Tray for 400EVS	15 lbs.
EVS120A	Chip Tray for 450EVS & 500EVS	15 lbs.

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.

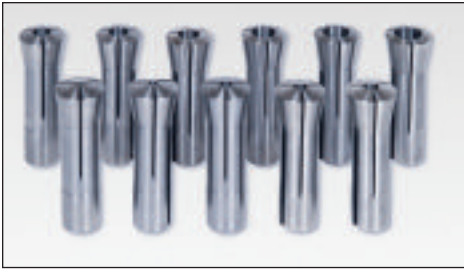


Part No.	Description and Spindle	Weight
2VS020	Milling Chuck Kit for R-8 Spindle	6 lbs.
2VS021	Milling Chuck Kit for #30 Spindle	6 lbs.
2VS021	Milling Chuck Kit for #40 Spindle	6 lbs.



Riser Blocks

Part No.	Description and Model	Weight
2VS040	4" Riser Block for 2VS	75 lbs.
2VS041	6" Riser Block for 2VS	90 lbs.
2VS042	8" Riser Block for 2VS	100 lbs.
3VS044	4" Riser Block for 3VS	75 lbs.
3VS040	8" Riser Block for 3VS	100 lbs.
4VSQ044	4" Riser Block for 3VS	75 lbs.
4VSQ040	8" Riser Block for 3VS	100 lbs.
EVS122	4" Riser Block for 400EVS, 450EVS & 500EVS	75 lbs.
EVS123	6" Riser Block for 400EVS, 450EVS & 500EVS	90 lbs.



R-8 Round Collet Sets

Part No.	Description
Z384-SET-1	R-8 Metric Set 2mm - 20mm by 1mm, 19 Collets
Z384-SET-5	R-8 Inch Set 1/8" - 3/4" by 32nds, 21 Collets
Z384-SET-6	R-8 Inch Set 1/8" - 3/4" by 16ths, 11 Collets
Z384-SET-7	R-8 Inch Set 1/8" - 3/4" by 8ths, 6 Collets



Power Feeds

Part No.	Description and Model	Weight
2VVSX150	X-Axis Servo Feed for 2VS, 3VS & 4VSQ	20 lbs.
2VVSXA	X-Axis Align Power for 2VS, 3VS & 4VSQ	20 lbs.
2VSY150	Y-Axis Servo Feed for 2VS, 3VS & 4VSQ	20 lbs.
2VSYA	Y-Axis Align Power for 2VS, 3VS & 4VSQ	20 lbs.
2VSK140	Knee Servo Feed for 2VS & 3VS	20 lbs.
2VSKA	Knee Align Power for 2VS, 3VS & 4VSQ	20 lbs.

ACU-RITE® 200S Digital Readout

As the industry standard in digital readout systems, the Acu-Rite 200S offers state-of-the-art features for milling applications.



DRO Features

- 2 or 3 axes
- 5.7" Transmissive LCD display
- Feed Rate Display
- Multiple Language Support
- Absolute/Incremental
- Near-Zero Warning
- Help Function
- 16 Tool Offsets/Diameter
- Preset and zero reset
- 4 Function Calculator/Trig Calculator
- Instant Inch/mm conversion
- Position-Trac™
- Bolthole pattern calculations with graphics (full and partial circles/linear patterns)
- Centerline calculation enables you to establish workpiece zero and midpoints
- Edge finder input
- I/O (option)



Power Drawbar

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



FAGOR Innova 40i DRO for 2, 3 and 4 axes milling machines

DRO Features

- Linear and angular axes
- Easy setup and diagnosis
- Feedback signal monitoring
- Linear and multi-point compensation
- Radius or diameter display
- Preset and zero setting of the axes
- Incremental and distance-coded reference marks
- Tool radius compensation
- Direct mm/inch conversion
- Fine/coarse axis resolution
- Buzzer
- Absolute / Incremental measurement
- Easy software update through USB adapter
- Alarms for excessive feed rate and travel limit overrun
- "Display OFF" mode
- Calculator
- 3D color display of tool path
- Bolt-hole drilling calculation
- Up to 50 part references (datum points)
- Linear drilling calculation
- Part centering
- Part alignment
- Axis coupling



NEWALL DP900 Digital Readout

Setting new performance standards

DRO Features

- Rugged Die-Cast Chassis
- Feather-Touch, Cap-Sense Keypad
- 5.7" QVGA Blue STN with CCFL Backlight
- 2, 3 or 4 Axes with Optional Rotary Axis
- Graphical Tool Path Verification
- Customized Canned Cycles
- Remote Storage via USB Port
- CMM / Inspection Functions with Probe Capabilities
- Feed Rate Display
- Polar Co-ordinate Readings
- Touch Probe Input
- Teach Mode with Graphics
- Intuitive Help Menus
- Bolt Hole Circle Routine (full and partial)
- Line Hole
- Frame (Pocketing)
- Grid Array
- Arc Function
- Tool Length Compensation
- Tool Diameter Compensation
- Tap Drill Library



Your Single Source for Machine Tools

Clausing Precision Drills

- Clausing Belt-drive Drills
- Clausing Geared-head Drills
- Clausing Radial Drills

Clausing Precision Mills

- Clausing Bed Mills
- Clausing CNC Bed Mills
- Clausing Knee Mills
- Clausing EVS Knee Mills

Clausing Precision Lathes

- Clausing/Colchester Geared Head Lathes
- Clausing/Colchester Professional V.S. Lathes
- Clausing/Harrison Standard Lathes
- Clausing Large Swing Standard and CNC Lathes
- Clausing/Metosa Standard Lathes

Clausing Precision Grinders

- Clausing Manual Grinders
- Clausing 2 Axes Hydraulic Grinders
- Clausing 3 Axes Hydraulic Grinders
- Clausing ASDII Automatic Grinders

Clausing Precision Cutting Machines

- Clausing/Kalamazoo Horizontal Bandsaws
- Clausing/Kalamazoo Vertical Bandsaws
- Clausing/Kalamazoo Tilt Frame Miter Bandsaws
- Clausing/Kalamazoo Cold Saws

For detailed catalogs of the full line of Clausing Machine Tools visit our Web Site:

www.clausing-industrial.com

or e-mail us and request an electronic (pdf) catalog at:

info@clausing-industrial.com

Your Authorized Clausing Precision Machine Tools Distributor



Clausing Industrial, Inc.
1819 North Pitcher Street
Kalamazoo, Michigan 49007-1886
Information: info@clausing-industrial.com

Toll Free: 800-323-0972
Phone: 269-345-7155
Fax: 269-345-5945
Web Site: www.clausing-industrial.com