



VERTICAL KNEE MILLS

AFFORDABLE. DURABLE. VERSATILE.

A full line of mechanical variable speed
and electronic variable speed 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

Reasons for putting the Clausing Vertical Mill to work in Your Toolroom...

- If you're looking for a Heavy-duty Standard Vertical Milling Machine, at an affordable price
- Designed to deliver all the power, precision and versatility you need to handle most milling jobs in your toolroom
- One of the heaviest in it's class, equipped with a powerful spindle drive motor, and an infinitely variable speed sheeve pulley drive offering a speed rang of 60 to 4300 rpm

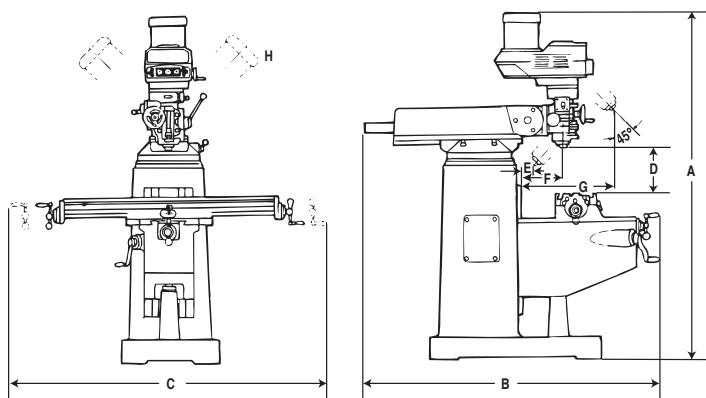
Features

- 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)
- 5/8" Drawbar w/NMTB 40 Spindle (4VSQ)
- 3 hp AC Motor (2VS & 3VS)
- 5 hp AC Motor (4VSQ)
- AC Rapid Vertical Drive Knee (4VSQ)
- Mechanical Variable Speed Drive with High/Low gear range on head
- 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 (changes direction with High/Low gear change)
- R-8 or NMTB 30 Spindle (2VS & 3VS)
- NMTB 40 Spindle (4VSQ)
- Spindle Brake (Hand operated)
- One-shot lubrication
- Tool Kit, Test and Accuracy Chart
- Operations Manual/Parts List

SPECIFICATIONS

MODEL	2VS		3VS		4VSQ	
TABLE & WAYS						
Table Size	9" x 49" (230 x 1245mm)		10" x 54" (254 x 11370mm)		10" x 54" (254 x 11370mm)	
Number of T-Slots	3		3		3	
T-Slot Width	.638" (16mm)		.638" (16mm)		.638" (16mm)	
T-Slot Center Distance	2.08" (52mm)		2.48" (63mm)		2.48" (63mm)	
Table Ways (X)	Dovetail		Dovetail		Dovetail	
Cross Feed Ways (Y)	Dovetail		Square		Square	
Knee Ways (W)	Dovetail		Dovetail		Square	
TRAVELS	MANUAL	W/PWR FEED	MANUAL	W/PWR FEED	MANUAL	W/PWR FEED
X Longitudinal	38.2" (970mm)	35" (890mm)	39.6" (1005mm)	34.1" (865mm)	41.3" (1050mm)	38.2" (970mm)
Y Cross	14.2" (360mm)	14.2" (360mm)	15.6" (395mm)	15.6" (395mm)	15.4" (390mm)	15.4" (390mm)
Knee	15" (380mm)	15" (380mm)	15" (380mm)	15" (380mm)	14" (355mm)	14" (355mm)
Ram	18.5" (470mm)	—	22" (560mm)	—	21.9" (555mm)	—
MOTORS AND SPINDLE						
Spindle Motor	3 hp		3 hp		5 hp	
Amp. Draw 230v.	11		11		17	
Amp. Draw 208v.	10		10		16	
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	R8 or NMTB30		R8 or NMTB30		NMTB40	
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" (86mm)		3.38" (86mm)		4.13" (105mm)	
CONSTRUCTION AND WEIGHT						
Column Turret Diameter	14.96" (380mm)		14.96" (380mm)		15.35" (390mm)	
Knee Width	11.42" (290mm)		12.99" (330mm)		13.39" (340mm)	
Column Bearing Length	16.54" (420mm)		17.91" (455mm)		16.93" (430mm)	
Saddle/Table Bearing Length	19.88" (505mm)		20.28" (515mm)		20.28" (515mm)	
Ram/Turret Bearing Length	16.14" (410mm)		17.32" (440mm)		17.13" (435mm)	
Ram Length	28.94" (735mm)		32.68" (830m)		33.46" (850mm)	
Table Load	665 lbs. (302kg)		665 lbs. (302kg)		1,108 lbs. (503kg)	
Machine Net Weight	2,100 lbs. (950kg)		2,985 lbs. (1350kg)		3,190 lbs.	
Machine Shipping Weight	2,500 lbs. (1136kg)		3,385 lbs. (1538kg)		3,610 lbs (1641kg)	

All specifications subject to change without notice or obligation.

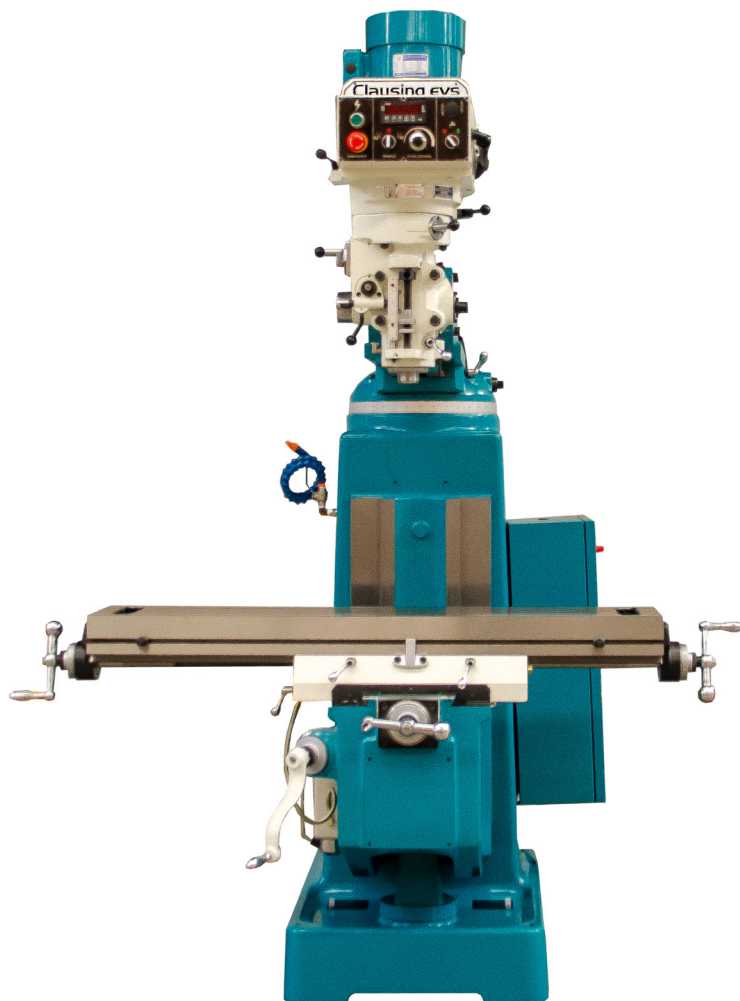
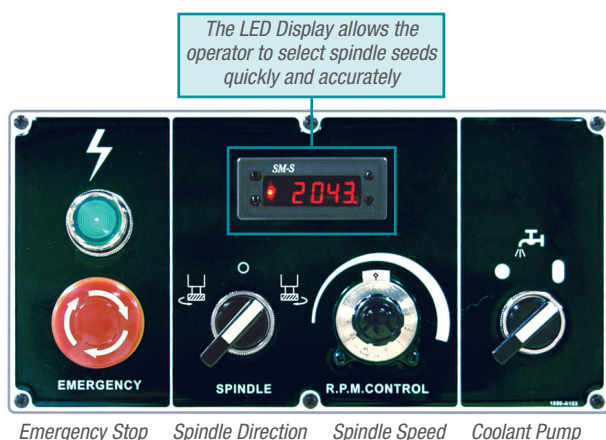


MODEL	2VS	3VS	4VSQ
A Height	88.6" (2250mm)	87" (2210mm)	88.8" (2255mm)
B Depth	66" (1675mm)	78" (1980mm)	106.3" (2700mm)
C Width	99" (2520mm)	101" (2570mm)	77.6" (1970mm)
D Table to Spindle	3.15"–17.12" (80–435mm)	4.33"–19.3" (110–490mm)	4.52"–18.50" (115–470mm)
E 45° Inward	0–19.68" (0–500mm)	0–18.89" (0–480mm)	0–18.89" (0–480mm)
F Spindle to Column	4.53"–23.03" (115–585mm)	3.5"–25.5" (90–650mm)	7.28–29.13" (185–740mm)
G 45° Outward	6.89"–25.4" (175–645mm)	7"–29.13" (180–740mm)	7.48"–29.33" (190–745mm)
H Head Tilt	90° right & left		

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

Clausing's line of Heavy Duty EVS Mills have a convenient head mounted easy to use control panel with LED spindle speed display allowing for quick and accurate rpm setting. Requires less maintenance than a mechanical variable speed machine. Offers 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 5 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 42.7" 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

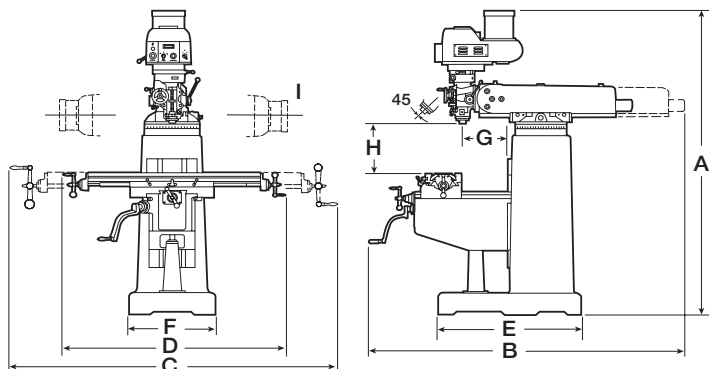


Features

- Meehanite castings for superior rigidity and wear resistance
- All ways are hardened and ground with Turcite B coating on X and Y axis ways for wear resistance and smooth operation
- 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 and Y Axis leadscrew with Nickel Phosphorous treatment and double nuts for easy backlash adjustment
- Coolant system
- Flexible segmented coolant nozzle
- 3 hp AC motor on 400EVS & 450EVS, optional 4hp AC motor for 450EVS
- 5 hp AC motor on 500EVS
- Yaskawa inverter variable speed drive
- 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 (changes direction with High/Low gear change)
- 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
- Standard voltage 230/3/60 other voltages require an optional transformer

SPECIFICATIONS

MODEL	400EVS		450EVS		500EVS	
TABLE & WAYS						
Table Size	10" x 50" (254 x 1279mm)		10" x 54" (254 x 1372mm)		11" x 58" (279 x 1473mm)	
Number 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 (X)	Dovetail		Dovetail		Dovetail	
Cross Feed Ways (Y)	Dovetail		Square		Square	
Knee Ways (W)	Dovetail		Dovetail		Square	
TRAVELS	MANUAL	W/PWR FEED	MANUAL	W/PWR FEED	MANUAL	W/PWR FEED
X Longitudinal	35" (890mm)	32" (813mm)	34.6" (879mm)	31.6" (803mm)	38.2" (970mm)	35.2" (894mm)
Y Cross	16" (406mm)	16" (406mm)	16" (406mm)	16" (406mm)	16" (406mm)	16" (406mm)
Knee	16" (406mm)	16" (406mm)	16" (406mm)	16" (406mm)	17.7" (450mm)	17.7" (450mm)
Ram	22" (560mm)	—	22" (560mm)	—	22" (560mm)	—
MOTORS AND SPINDLE						
Spindle Motor	3 hp		3 hp		5 hp	
Amp. Draw 230v.	11		11		17	
Amp. Draw 208v.	10		10		16	
Amp. Draw 460v.	5		5		8	
Variable Spindle Speed rpm	50–5000		50–5000		50–5000	
Low Range rpm	50–500		50–500		50–500	
High Range rpm	500–5000		500–5000		500–5000	
Main Spindle Taper	R-8 or NMTB30		R-8 or NMTB30		R-8 or NMTB30	
Spindle Travel	5" (127mm)		5" (127mm)		5" (127mm)	
Quill Feed in/rev (mm/rev)	.00157"/.00315"/.006" (0.04/.08/.152mm)		.00157"/.00315"/.006" (0.04/.08/.152mm)		.00157"/.00315"/.006" (0.04/.08/.152mm)	
Quill Diameter	3.28" (83mm)		3.28" (83mm)		3.28" (83mm)	
CONSTRUCTION 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)	
Column Bearing Length	17.72" (450mm)		17.72" (450mm)		19.69" (500mm)	
Saddle/Table Bearing Length	20.08" (510mm)		25.59" (650mm)		25.59" (650mm)	
Ram/Turret Bearing Length	17.72" (450mm)		17.72" (450mm)		17.72" (450mm)	
Ram Length	32.75" (832mm)		32.75" (832mm)		32.75" (832mm)	
Table Load	665 lbs. (302kg)		665 lbs. (302kg)		1,108lbs. (503kg)	
Machine Net Weight	2,640 lbs. (1198 kg)		2,750 lbs. (1247 kg)		3,300 lbs. (1497 kg)	
Machine Shipping Weight	3,040 lbs. (1379 kg)		3,150 lbs. (1429 kg)		3,700 lbs. (1678 kg)	



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, 45° Front or Back		

SPINDLE ASSEMBLY

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

RIGHT ANGLE MILLING ATTACHMENT



Part No.	Description, Spindle or Model	Approx. Weight
2VS031P	R-8 Rt. Angle Milling Attachment 2VS	20 lbs.
2VS031AP	NMTB 30 Rt. Angle Milling Attachment 2VS	20 lbs.
3VS031P	R-8 Rt. Angle Milling Attachment 3VS	20 lbs.
3VS031AP	NMTB 30 Rt. Angle Milling Attachment	20 lbs.
4VS031BP	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.
EVS127	Rt. Angle Milling Attachment, R-8 Spindle for EVS450	20 lbs.
EVS127A	Rt. Angle Milling Attachment, #30 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.



HORIZONTAL MILLING ATTACHMENT

3 Piece Set (includes Right Angle Attachment, Arbor Support, 1" Arbor)

Part No.	Description, Spindle or Model	Approx. Weight
2VS030P	R-8 Horizontal Milling Attachment 3 Pc Set VS Series	20 lbs.
2VS030AP	NMTB 30 Horizontal Milling Attachment 3 Pc Set VS Series	20 lbs.
4VS030BP	NMTB 40 Horizontal Milling Attachment 3 Pc Set VS Series	20 lbs.
EVS131	R-8 Horizontal Milling Attachment 3 Pc Set All EVS Series	15 lbs.
EVS131A	NMTB30 Horizontal Milling Attachment 3 Pc Set All EVS Series	10 lbs.

CHIP TRAY



Part No.	Description and Model	Approx. Weight
2VS001P	Chip Tray for 2VS	15 lbs.
3VS001P	Chip Tray for 3VS/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	Approx. Weight
2VS020	Milling Chuck Kit for R-8 Spindle	6 lbs.
2VS021	Milling Chuck Kit for NMTB 30 Spindle	6 lbs.
2VS022	Milling Chuck Kit for NMTB 40 Spindle	6 lbs.

RISER BLOCKS



Part No.	Description and Model	Approx. Weight
2VS040P	4" Riser Block for All VS Series	75 lbs.
2VS041P	6" Riser Block for All VS Series	90 lbs.
2VS042P	8" Riser Block for All VS Series	100 lbs.
EVS123	6" Riser Block for 400EVS & 450EVS	90 lbs.
EVS123A	8" Riser Block for 400EVS & 450EVS	100 lbs.
EVS223	6" Riser Block for 500EVS	90 lbs.
EVS224	8" Riser Block for 500EVS	100 lbs.

CLAMPING KIT

52 pc. Clamping Kit for all models.
Part No. 2VS010
Approx. Weight 20 lbs.



VERTICAL KNEE MILL ACCESSORIES

R-8 ROUND COLLET SETS



Part No.	Description	Approx. Weight
Z384-SET-1	R-8 Metric Set 2mm–20mm by 1mm, 19 Collets	15 lbs.
Z384-SET-5	R-8 Inch Set 1/8"–3/4" by 32nds, 21 Collets	18 lbs.
Z384-SET-6	R-8 Inch Set 1/8"–3/4" by 16ths, 11 Collets	10 lbs.
Z384-SET-7	R-8 Inch Set 1/8"–3/4" by 8ths, 6 Collets	7 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 DP700 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

POWER FEEDS



Part No.	Description and Model	Approx. Weight
2VSX150	X-Axis Servo Feed for 2VS, 3VS & 4VSQ	20 lbs.
2VSXA	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.

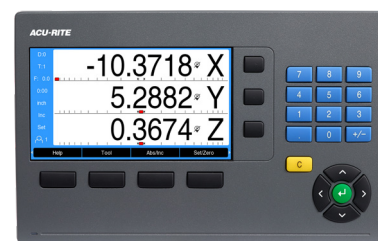
POWER DRAWBAR



Part No.	Description and Spindle	Approx. 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.

ACU-RITE® DRO203

An industry standard in digital readout systems, the Acu-Rite DRO203 offers state-of-the-art features for milling applications.



DRO Features

- 2 or 3 axes
- Crystal-Clear 7" color 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-TracTM
- 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)



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 CNC Knee Mills
- Clausing Universal Mills

Clausing Precision Lathes

- Clausing/Colchester Geared Head Lathes
- Clausing/Colchester Professional V.S. Lathes
- Clausing/Colchester MAGNUM V.S. Lathes
- Clausing C Series Lathes
- Clausing Large Swing Standard Lathes
- Clausing Large Swing CNC Lathes
- Clausing Precision Toolroom Lathes

Clausing Precision Grinders

- Clausing Manual Grinders
- Clausing 2 Axes Hydraulic Grinders
- Clausing 3 Axes Hydraulic Grinders
- Clausing ASDIII Automatic Grinders
- Clausing OD/ID Grinders

Clausing Precision Cutting Machines

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

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