fives

HIGH PRECISION MACHINES

MATERIAL REMOVAL

Giddings & Lewis

V Series Vertical Turning Centers



Available with tables from 800 to 1600 mm

Ultimate Turning Value

- Hydrostatic ram adds rigidity for heavy or extended ram machining
- Precision dual-scale infinitely-adjustable cross rail handles a wide range of parts
- Cost-effective tooling system uses standard modular tools
- Compact design minimizes floorspace requirements

Giddings & Lewis V Series Vertical Turning Centers

PRODUCTIVE ADDITION TO ANY SHOP FLOOR

Giddings & Lewis V Series lathes offer robust construction capable of high metal removal rates and ultimate precision. Designed with industry-leading functionality and reliability, no other vertical turning center includes the infinitely-adjustable cross rail and hydrostatic ram as STANDARD. V Series verticals are a productive addition to any shop floor.

Fives Giddings & Lewis provides industry leading functionality and reliability

Hydrostatic ram for heavy cuts and reduced maintenance

Stiff tooling interfaces utilizing Kennametal or Capto tooling for turing and 50 taper for milling

Live spindle option provides machining versatility

Floor-level installation eliminates need for special foundations



Infinitely-adjustable, cross rail self leveling

Variety of chucks and workholding systems

Table base designed for efficient chip removal

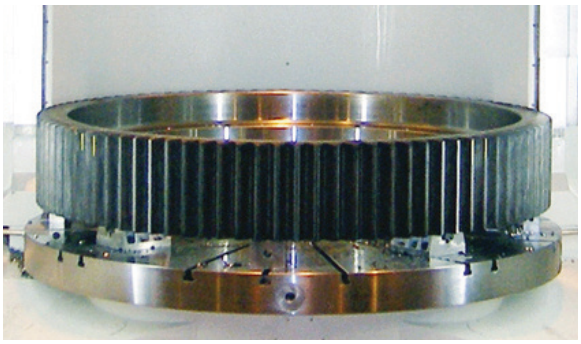
Siemens or Fanuc controls

Rigid cast iron base construction supports heavy loads and high cutting forces

Compact footprint minimizes valuable production space

Capacity and versatility to machine parts in a wide range of industries

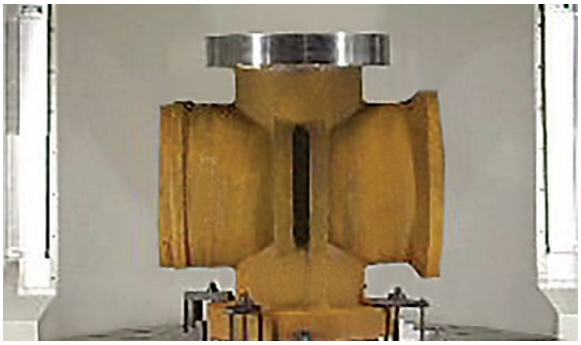
General Industrial



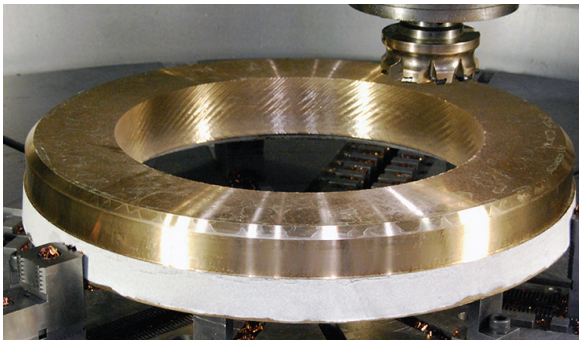
Aerospace



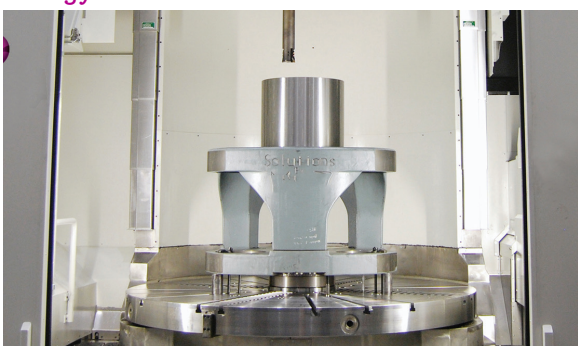
Oil and Gas



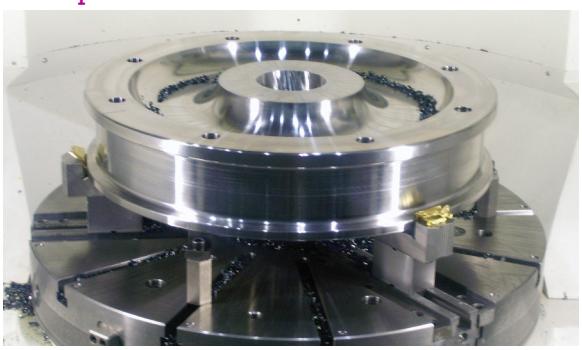
Mining



Energy



Transportation



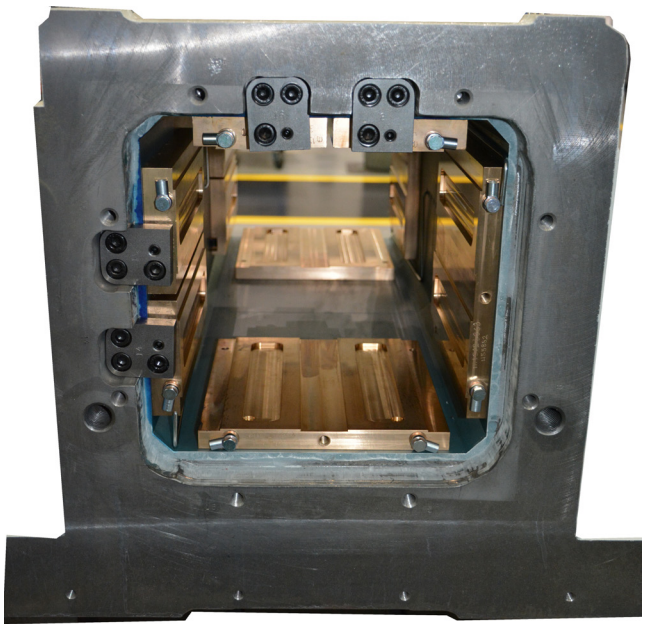
Unmatched standard features provide superior value



CROSS SLIDE ELEVATION AND CLAMPING

The infinitely-adjustable cross slide with dual linear scale feedback on the column provides a precision positioning axis, along with auto self leveling.

- Infinite number of cross slide positions accommodates parts of varying heights while minimizing ram extension
- Dual-scale feedback on the column delivers precision by ensuring parallelism between the cross slide and table
- Hydraulic cylinder rail elevation with secure mechanical clamping of 1,000 kN (225,000 lb) of force per side
- Linear scale feedback provides immediate machine referencing and eliminates need for limit switches
- Linear roller ways, with slip-stick free motion, produces truer rail positioning



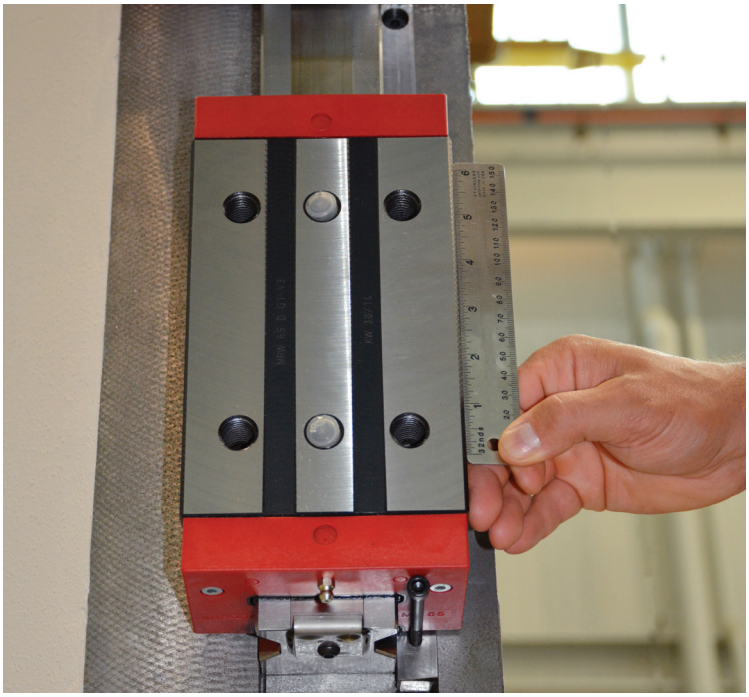
Programmable, infinitely-adjustable cross slide enables precision machining

RIGID HYDROSTATIC RAM

Heavy cuts and better surface finishes with greater accuracy are possible due to the high dynamic stiffness of the hydrostatic system.

- Headstock is a rigid and symmetrical one-piece casting which is thermally stable
- A 230 mm (9.1 in) square ram capable of up to 75 kW (100 hp) cuts and able to reach into 300 mm (11.8 in) minimum bore diameters
- Wear-free system uses preloaded hydrostatic pads. The hydrostatic design eliminates the need for gibs while maintaining alignments and accuracies
- Rapid traverse of 10 mpm (394 ipm)

Rigid machining platform



RIGID HIGH-SPEED WAY SYSTEM

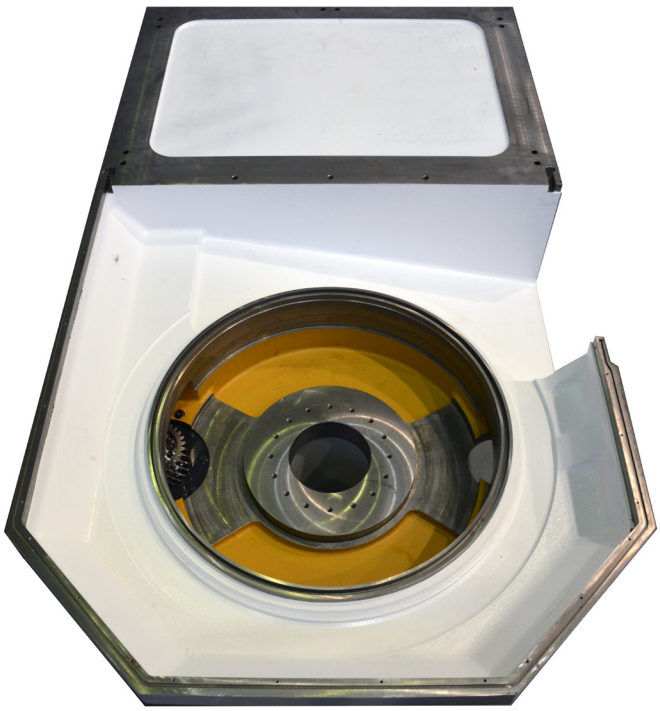
Heavy-duty, size 65, linear roller bearing carriages ride on hardened and ground guideways. This rigid low-friction system supports high loads and fast 10 to 12 mpm (394 to 472 ipm) traverse speeds. Advantages of a roller bearing system:

— Lower friction results in higher positioning accuracy, better circular/contouring accuracy and low thermal growth for consistent accuracy
— Low maintenance and ease of repair. Roller guides require less oil, reducing coolant contamination. Robust design and ease of replacement of the roller guides reduces the machine's overall life-cycle cost

High-performance way system and high-capacity, high-speed table serve to maximize productivity

TABLE, DRIVE AND TABLE BEARING ASSEMBLY

— Rigid cast iron base construction supports heavy loads and high cutting forces
— Large swings of 1050mm to 2000mm (41.3 to 78.7in) accomodate a wide range of parts and part families
— Base casting designed to aid in chip removal and coolant containment
— Cross roller bearing assembly provides superior load carrying capacity of 5,000 to 10,000 kg (11,000 to 22,000 lb)
— Helical gears reduce operation noise
— High-power, high-torque two-speed transmission for heavy metal removal

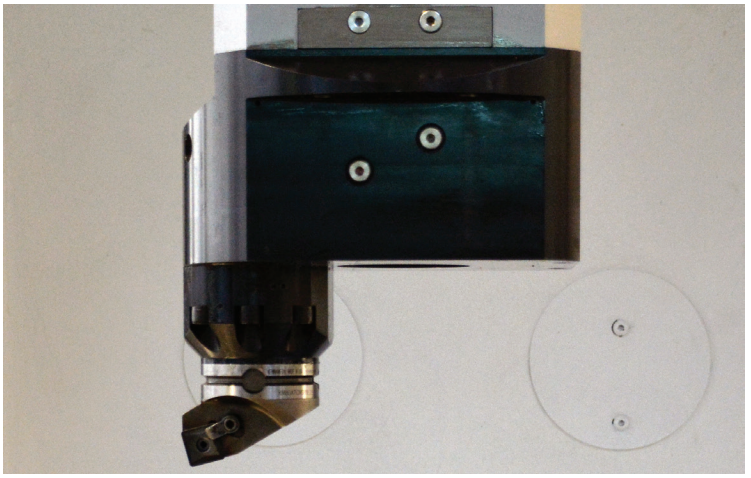


Tooling systems and magazines

COST-EFFECTIVE MODULAR TOOLING SYSTEM

The Giddings & Lewis VLock system interfaces to standard modular tools. Significant cost savings are realized with standard industry tooling compared to proprietary tooling used by most vertical turning centers. The live spindle utilizes #50 ANSI B5.50 tools.

— Large gauge diameter provides optimal taper contact and permits use of long tools - up to 500 mm (19.7 in)
— Standard modular tools includes Coromant Capto® C8 or Kennametal KM80





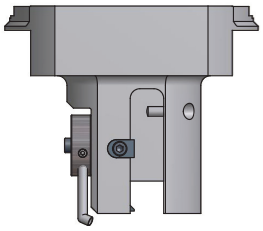
Sandvik Coromant Capto C8 Tooling



Kennametal KM80 Tooling



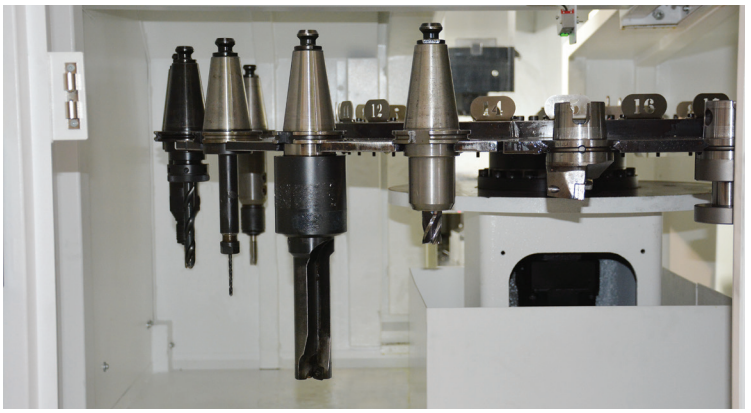
VLock Cartridge Bar



VLock Open Side Holder

CONVENIENT TOOL STORAGE

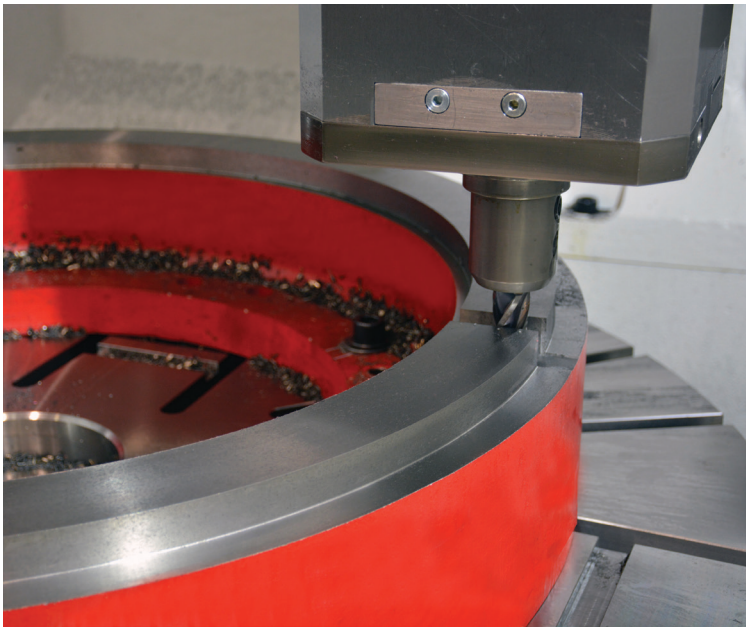
A 22-position tool storage disk that holds modular tools is standard on turning only machines. Live spindle machines are standard with a 20-position disk tool changer.



Tooling Dimensions

		VLock	CAT 50 / KM80 / Capto C8
Maximum Tool Diameter	mm	230	180
	inch	9.1	7.1
Maximum Left and Right of Center	mm	175	
	inch	6.9	
Maximum Tool Length	mm	500	500
	inch	19.7	19.7
Maximum Tool Weight	kg	60	18
	lb	132	40
Clamping Force	N	120,000	23,000 / 48,000 / 64,000
	lb	26,977	5,170 / 10,800 / 14,390

Options add machining flexibility



LIVE SPINDLE

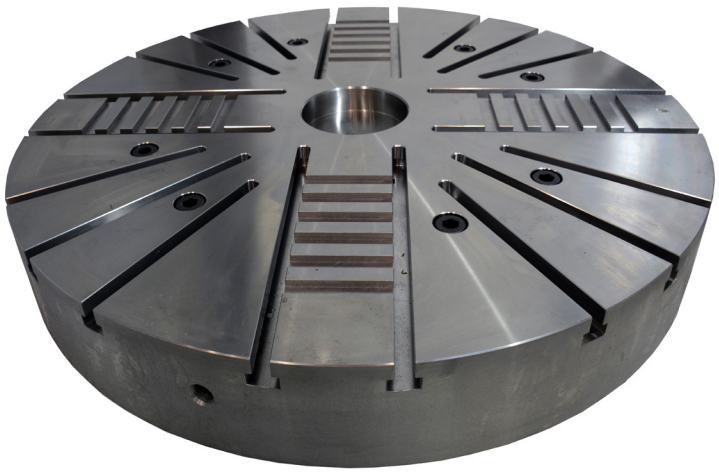
Live spindles increase machining versatility. Mill, drill and tap vertically or horizontally with the live spindle or right angle live spindle attachments.

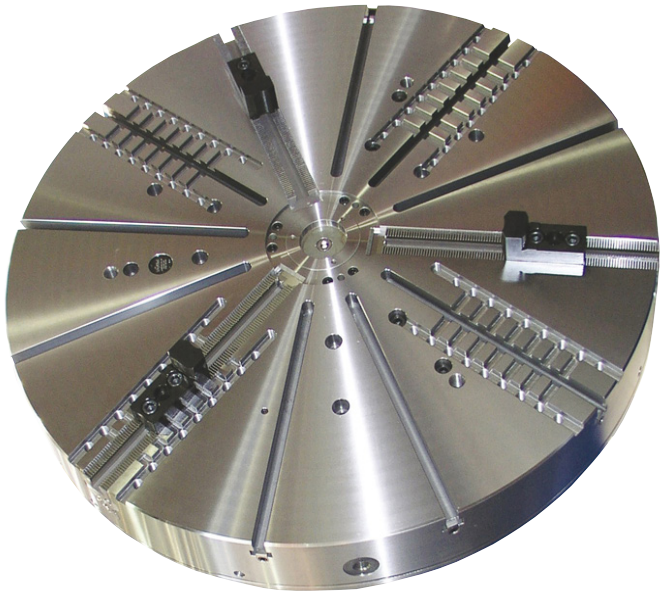
— Works with modular tooling systems
— Field-replaceable cartridge design has isolated bearings for better reliability and reduced maintenance
— Spindle bearings located at the extreme end of the housing to provide maximum cutting stiffness
— Productivity-enhancing processes such as plunge milling, high-speed milling and helical interpolation are possible with a live spindle

FULL CONTOURING WITH C-AXIS

Drill and mill turn a variety of features anywhere on a workpiece with the 360,000 position full contouring/positioning table.

Live Spindles		Direct Drive	2-Speed
Speed	rpm	3000	3000
Power	kW (hp)	15 / 18.5 (20 / 25)	15 / 18.5 (20 / 25)
Max. Torque	Nm (ft lb)	200 (147)	708 (522)





TABLE/CHUCK CHOICES

A T-slot table with 4 jaws is standard on the V Series.
Table options include manual or hydraulic 3 or 4-jaw chucks.

High-performance control



FANUC 0i-TF PLUS CONTROL

— 26.4 cm (10.4 in) color LCD Display
— Optional ŒE Dashboard with PC and Monitor



SIEMENS SINUMERIK ONE

— 54.6 cm (21.5 in) Touch Display
— Sinumerik Operate
— Windows 10 Operating System
— OEE Dashboard

GIDDINGS & LEWIS PRODUCTIVITY FEATURES

SPINDLE LOAD MONITORING SOFTWARE

Giddings & Lewis spindle load monitoring software provides a simple operator interface and application. The operator sets cutting operation acceptance values and activates or deactivates load monitoring usings M codes. Available on Siemens or Fanuc, the control retracts the tool or uses feed hold when the trip point is exceeded protecting the machine, tooling and part from damage.

SPINDLE SPEED OSCILLATION SOFTWARE

Spindle Speed Oscillation Control provides a means of varying the spindle speed override from the part program. Varying the spindle speed can reduce or eliminate tool chatter.

INDUSTRY 4.0

In today's machining environment Industry 4.0 and the digital world is predominant in our every day activities. Whether monitoring the status of the equipment, providing the throughput of parts, equipment uptime, or even daily reporting of efficiencies of energy usage. Giddings & Lewis will provide real-time data for you to monitor in order to make the best possible decisions in your manufacturing process.

Cloud Based CortX Sensor / CNC Data List

Type	Description	Level 2	Level 3
Thermo-couples	Ambient temperature		
Spindle Data	Spindle bearings temperature (front and back)		
	Spindle speed		
	Spindle load		
	Spindle overrides (speed)		
	Spindle turning in program status		
	Spindle turning in MDI		
	Vibration (motor bearing, X, Y and Z direction vibration)		
	Torque		
Axis Data	Axis motor temperatures		
	Axis motor current		
	Axis position		
	Loads on all axes		
	Feed rate %		
Hydraulic	Oil level		
	Oil pressure		
	Pneumatic filter		
	Hydraulic filter		
Coolant	Coolant pressure / flow thru spindle		
Overall Machine	Power monitoring		
	Feed rate overrride percentages		
	Machine availability		
	Alarm and operator message logging / display		
	Idle time data		

OFFER LEVELS

Base Level
Fives Giddings & Lewis OEE

Level 2
CortX Advanced Monitoring I w/ OEE

Level 3
CortX Advanced Monitoring II w/ OEE

FIVES CORTX



Options increase machining productivity

TOOL PROBE

Tool probes increase machine utilization and provide precision from the first cut. The tool probe corrects and modifies tool lengths. Tools can be qualified to 0.050 mm (0.002 in).

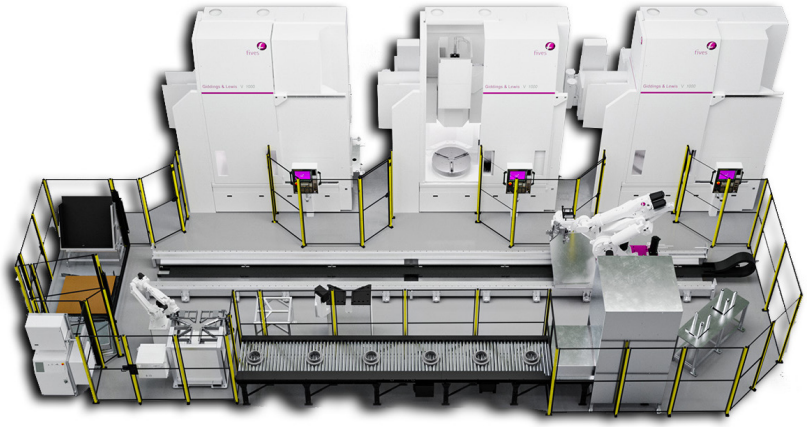


PART PROBE

The part probe updates offsets and measures surfaces, diameters, lengths and angles to insure part quality. Probing on both sides of center provides up to four times the probe accuracy compared to probing the radius. The probe is stored in the tool changer.

COOLANT SYSTEMS

— Standard through-the-tool and flood coolant 8 bar (116 psi)
— Optional high pressure coolant 83 bar (1200 psi)
— Additional options include coolant filters, oil skimmers, wash wand and mist collectors



Optional Full Enclosure with closed top

ENCLOSURE OPTIONS

— Standard enclosures
— Full enclosures with open top
— Full enclosures with close top
— Power Doors



Optional Full Enclosure with open top

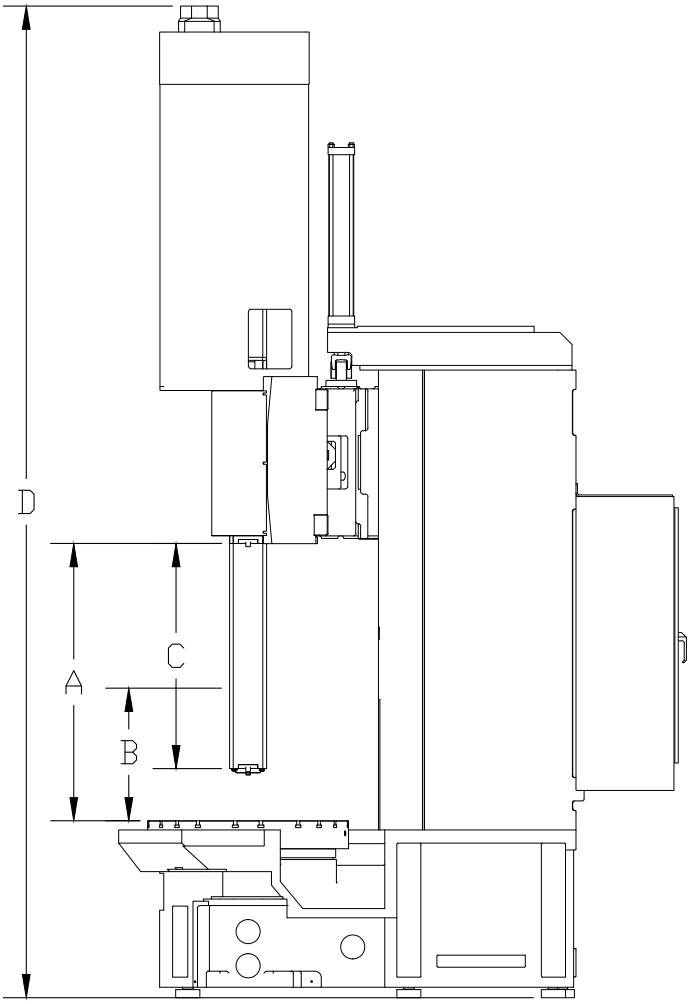
Technical data

			V 800	V 1000	V 1250	V 1600
Capacities	Table diameter	mm	800	1000	1250	1600
		inch	31.5	39.4	49.2	63
	Maximum swing and facing capacity	mm	1050	1250	1650	2000
		inch	41.3	49.2	65.0	78.7
	Max/min height under ram, standard	mm	900 fixed	900 fixed	1200 / 800	1200 / 800
		inch	35.45 fixed	35.4 fixed	47.2 / 31.5	47.2 / 31.5
	Max/min height under ram, optional	mm			1700 / 800	1700 / 800
		inch			66.9 / 31.5	66.9 / 31.5
Ram Head	Ram cross section	mm	230 x 230	230 x 230	230 x 230	230 x 230
		inch	9.1 x 9.1	9.1 x 9.1	9.1 x 9.1	9.1 x 9.1
	Z-Axis vertical travel (optional)	mm	900	900	900 (1400)	900 (1400)
		inch	35.4	35.4	35.4 (55.1)	35.4 (55.1)
	X-Axis horizontal travel, left / right of center	mm	-225 / +600	-325 / +700	-450 / +825	-625 / +1000
		inch	-8.9 / +23.6	-12.8 / +27.6	-17.7 / +32.5	-24.6 / +39.4
	Cross rail travel (optional)	mm			400 (900)	400 (900)
		inch			15.7 (35.4)	15.7 (35.4)
Feeds/Traverse	Rapid traverse X / Z	mpm	12 / 10	12 / 10	12 / 10	12 / 10
		ipm	472 / 394	472 / 394	472 / 394	472 / 394
	Downward feed thrust X and Z	N	22,000	22,000	22,000	22,000
		lb	4,946	4,946	4,946	4,946
Table	Table speed	rpm	600	600	400	313
	AC drive motor - int. / cont., standard	kW	37 / 30	37 / 30	45 / 37	45 / 37
		hp	50 / 40	50 / 40	60 / 50	60 / 50
	AC drive motor - int. / cont., optional	kW	45 / 37	45 / 37		
		hp	60 / 50	60 /50		
	Maximum table torque - int. / cont., std	Nm	7839 / 6356	7839 / 6356	14300 / 11758	18304 / 15050
		ft lb	5782 / 4688	5782 /4688	10548 / 8673	13501 / 11101
	Maximum table torque - int. / cont., opt	Nm	9533 / 7839	9533 / 7839		
		ft lb	7032 / 5782	7032 / 5782		
	Estimated table load capacity*	kg	5,000	5,000	7,000	10,000
		lb	11,000	11,000	15,400	22,000
Accuracies (ISO 230-2-97)	Bidirectional accuracy A, std (opt linear scales)	mm	0.040 (0.015)	0.040 (0.015)	0.040 (0.015)	0.040 (0.015)
		inch	0.0016 (0.0006)	0.0016 (0.0006)	0.0016 (0.0006)	0.0016 (0.0006)
	Bidirectional repeatability R, std (opt linear scales)	mm	0.025 (0.010)	0.025 (0.010)	0.025 (0.010)	0.025 (0.010)
		inch	0.001 (0.0004)	0.001 (0.0004)	0.001 (0.0004)	0.001 (0.0004)
	Reversal, std (opt linear scales)	mm	0.020 (0.005)	0.020 (0.005)	0.020 (0.005)	0.020 (0.005)
		inch	0.0008 (0.0002)	0.0008 (0.0002)	0.0008 (0.0002)	0.0008 (0.0002)
Tool Magazine	Number of positions - standard (optional)		22 (20)	22 (20)	22 (20)	22 (20)
	Maximum diameter	mm	350	350	350	350
		in	13.8	13.8	13.8	13.8
	Maximum length	mm	500	500	500	500
		in	19.7	19.7	19.7	19.7
	Taper		Capto or KM Turning, #50 ANSI B5.50 Milling			
Power Requirements			480 V, 3 ph, 60 hz (50 hz)			
Machine Dimensions	Length x width x height	m	5.3 x 3.1 x 4.9	5.5 x 3.2 x 4.9	5.7 x 3.8 x 5.0	6.1 x 4.2 x 5.0
		ft	17.4 x 10.2 x 16.1	18 x 10.5 x 16.1	18.7 x 12.5 x 16.4	20 x 13.8 x 16.4
	Weight	kg	15,900	17,250	25,850	29,500
		lb	35,000	38,000	57,000	65,000

*Table load capacity varies depending on workholding and workpiece balance conditions.

Technical data subject to change wtihout notice

Dimensions and travels



		V 800	V 1000	V 1250	V 1600
A Height under ram max [1]	mm	1070	1070	1200 (1700)	1200 (1700)
	in	42.1	42.1	47.2 (66.9)	47.2 (66.9)
B Height under ram min.	mm			800	800
	in			31.5	31.5
C Ram travel	mm	900	900	900 (1400)	900 (1400)
	in	35.4	35.4	35.4 (55.1)	35.4 (55.1)
D Overall height [2]	m	4.9	4.9	5.0	5.0
	ft	16.1	16.1	16.4	16.4

(1) Turning only machines have 170 mm (6.7 in) less height under the ram

(2) For live spindles with two-speed gearboxes, the machine height increases by 164 mm (6.5 in)

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Industry can do it

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