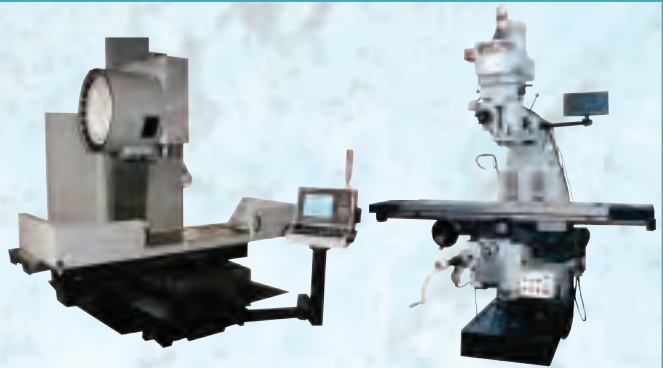


Willis

YOUR SINGLE SOURCE FOR THE WORLD'S BEST MACHINE TOOLS



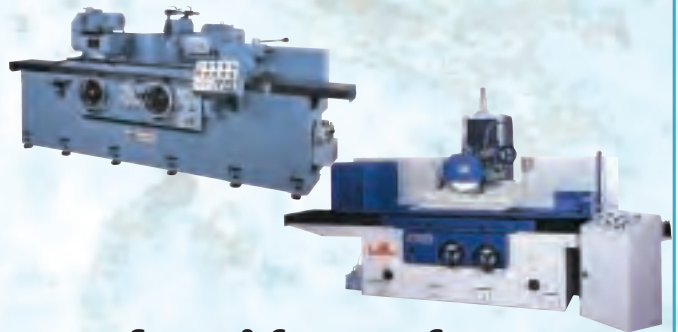
CNC & CONVENTIONAL LATHES
PAGES 3-12



CNC & CONVENTIONAL MILLS
PAGES 13-23



FLOOR MODEL & RADIAL DRILLS
PAGES 24-31



SURFACE & CYLINDRICAL GRINDERS
PAGES 32-36



WOKHOLDING



DISTRIBUTED FABRICATING PRODUCTS

100'S OF NEW MACHINES & THOUSANDS OF PARTS IN STOCK
IN BUSINESS FOR MORE THAN 40 YEARS
100% AMERICAN OWNED COMPANY
NATIONWIDE DEALER AND SUPPORT NETWORK

Volume 200

Willis

www.willismachinery.com

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MACHINERY AND TOOLS CO.

4545 South Ave • Toledo, OH 43615 • 419/537-1717 • Fax 419/537-1719



Willis

MACHINERY & TOOLS

Willis Machinery opened its doors in 1963. Since then, we've been supplying top quality metal working equipment from manufacturers in Canada, Denmark, France, Germany, Italy, Korea, The Netherlands, Poland, Sweden, Taiwan and the United States.

Our warehouse is stocked with 100's of new machine tools, including CNC and conventional lathes, CNC and conventional milling machines, floor model and radial drill presses, surface and cylindrical grinders, and various work-holding equipment. We also stock thousands of spare parts for your convenience.

Our Northern Ohio location has an extensive showroom and demonstration area. In addition, our own in-house tool-room makes machine retrofits, modifications, and repairs extremely efficient.

***Our top quality equipment, professional service, and competitive pricing can't be beat!!!
We look forward to working with you.***

THE PEOPLE OF WILLIS MACHINERY



- Steve Boice** with Willis since 1977 – Partner
- John Minns** with Willis since 1986 – Partner
- Peter Boice** with Willis since 1990 – Partner
- Judy Kurtz** with Willis since 1970 – customer service, shipping, order processing
- Jeff Donofrio** with Willis since 1998 – NW Ohio direct salesman, used machinery specialist, over 20 years in the machine tool business
- Bob Buehrer** with Willis since 1994 – service technician, conventional machine specialist, over 20 years in the machinery maintenance field
- Doug Kilpatrick** with Willis since 1999 – service technician, CNC specialist, over 30 years in the machinery maintenance and building fields
- Mike Minns** with Willis since 2006 - sales and service



Judy

Mike



Showroom and demonstration area containing dozens of machines



In-house toolroom – ideal for retrofits, machinery modification and repair



Thousands of spare parts in stock

Willis CNC LATHES

The Simplicity of a Conventional Lathe with the Precision & Quality of a Full CNC Lathe!



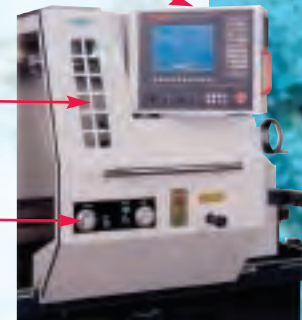
1650CNC



Control panel and screen mounted on a swivel for optimum operator comfort and performance

Full view of the work piece during machining.

MPG hand wheels – perfect location for the operator.



Willis has the most convenient control and handwheel configuration available.

- All of our lathes are designed and constructed with the latest technology, and built with the highest quality materials and components.
- The rigid construction of the bed, which is hardened to over 50Rc and precision ground, provides for heavy turning with high accuracy.
- The main spindle is supported by preloaded high precision bearings that ensure consistent and accurate turning through the entire speed range.



2060CNC



2280CNC



Clean and well organized electric cabinet.



willis CNC LATHES

2680CNC



22120CNC

Pictured with optional accessories

- The headstock spindle, shaft, and gears are made from alloy steel, hardened and then ground which allows higher speed turning at lower sound levels.
- A metered automatic lubrication system with low-level alarm provides oil to machine slide ways and X and Z axis ball screws.
- High precision ball screws are mounted in precision bearings, which ensures long life, superior cutting performance and great accuracy.
- Machines are designed with a full-length rear splashguard, and front moving chip guards with observation windows. This provides a safe, clean work area. The rear splashguard also has a removable panel for easy access and maintenance.

STANDARD FEATURES

- Spindle encoder
- Automatic lubrication pump for slide-ways & ballscrews
- Cutting fluid coolant system
- Full length rear splash guard
- Front chuck & chip safety guard
- Front moveable chip trolley
- Halogen lamp
- RS-232 port
- Centers & center sleeve
- Levelling blocks
- Service tools & toolbox
- Operation, programming & instruction manuals.

- X and Z axis are fitted with Manual Pulse Generator (MPG) hand wheel which allows easy manual movement of both axes.
- The powerful inverter motor for the machine spindles is equipped with an all-digital Yakasawa inverter for peak performance.
- Machines are equipped with a 3 speed headstock for maximum power and torque over the entire speed range.
- Constant surface speed turning, threading, and tapping are standard features.

OPTIONAL EQUIPMENT

- Steady rest or roller type
- Follow rest or roller type
- 4-jaw independent chuck
- Electrical automatic indexing 4-way toolpost
- Hydraulic turret 8-station or 6-station automatic tool changer
- Rolling center
- Hydraulic hollow chuck
- Hydraulic tailstock
- Chip conveyor w/chart
- Special functions by consult

SPECIFICATIONS/MODEL	1650	2060	22x80/120	26/30x60/80/120/160
Swing Over Bed	16	20	22	26 / 30
Center Distance	50	60	80/120	60/80/120/160
Max. Z Travel	43	55	75/114	55/75/114/156
Max. Turning Length	39	51	71/110	51/71/110/150
Swing, Crossslide	9.5	13	15	18/22
Spindle Bore	2.1	3.1	3.1	4.1
Spindle RPM, Low	13-390	20-200	20-200	10-106
Middle	196-1135	201-575	201-575	37-400
High	568-3500	576-1800	576-1800	130-1400
Tailstock Travel	5.5	8	8	12
Tailstock Taper MT	5	5	5	6
X / Z Rapid, in/mm	200	200	200	200
Spindle Motor	7.5 (10 optional)	10 (15 optional)	15	20
Overall Length	129	146	158/198	180/200/240/280
Overall Height	79	87	89	89
Overall Depth	79	79	79	86
Net Weight	5000	6200	7100/8800	9500/10600/13200/15900

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE. DIMENSIONS ARE IN INCHES AND POUNDS.



MAMMOTH 3200/4000 SERIES BIG BORE CNC LATHES



32120-12CNC Pictured

- ANILAM 4200T Control or Fanuc Oi-T with "Manual Guide i"
- 6.1 (155mm) A2-11 spindle bore
- 4way electric auto turret, 32mm sq. shank tools
- 4-1,000 RPM
- 30 HP/4P spindle motor with Yaskawa inverter
- 4-step spindle speed
- Cutting fluid coolant system
- Full length rear splash guard
- (2) T-slots on top of crossslide
- Front chuck & chip safety guards
- Working lamp
- RS-232 port
- Front & rear screw type chip conveyors
- Centers and center sleeve
- Leveling blocks
- Service tools & toolbox
- Operation, programming & instruction manuals



SPECIFICATIONS	
Swing over bed	32" / 40"
Swing over crossslide	20" / 28"
Center height	16" / 20"
Distance between centers	59" / 79" / 118" / 157"
Bed width	22"
Cross slide width	12"
Z axis ball screw dimensions	50mm dia. x 10mm pitch (60" / 80" cd) 63mm dia. x 10mm pitch (120" / 160" cd)
Z axis travel	52" / 72" / 111" / 150"
X axis ball screw dimensions	40mm dia x 5mm pitch
X axis travel	22"
Tailstock quill taper	6 MT
Tailstock quill diameter	4.1"
Tailstock quill travel	11"
Positioning accuracy	+/-0.0004" per 12" of travel
Repeatability	0.0002"
Coolant pump	0.5 HP
Net weight	15,400, 16,500, 19,800, 23,100 lbs.

AVAILABLE OPTIONS

- 10", 12" or 15" spindle bore
- 60", 80", 120" or 160" center distance
- Numerous 3 and 4 jaw manual and power chucks
- Fanuc 21iT control with "Manual Guide" and thread repair cycle
- 40 HP spindle motor
- Automatic spindle speed gear change
- Rear back plate for double chuck
- 3" capacity boring bar holder
- Hydraulic tailstock
- Steady rests
- Follow rests
- 8 position vertical turret
- Tape type chip conveyors in lieu of standard screw type

willis MAMMOTH CNC HEAVY DUTY FLAT BED LATHES



CST-42160 with 14" Spindle Bore



CHT64120

- 4-speed headstock with auto gear shifting for optimum power and torque, includes headstock oil chiller for consistent headstock temperature
- One piece Meehanite bed / base casting
- Hardened and ground alloy steel headstock gears and shafts
- Ideal machines for turning of tire molds, large pulleys, steel pipe, large steel rolls, valve bodies, graphite bars, etc.
- Available options: 9" - 21" spindle bore, vertical 8 station turret, double turret, power chucks, hydraulic tailstock, chip conveyors, double chuck

SUPPORT METHOD	SUPPORT CAPACITY	MODEL		
		CST	CHT	CMT
LOAD BETWEEN CENTERS WITHOUT STEADY REST		8000 kgs (17600 Lbs)	10000 kgs (22000 Lbs)	13000 kgs (28600 Lbs)
LOAD BETWEEN CENTERS WITH ONE STEADY REST		10000 kgs (22000 Lbs)	12000 kgs (26400 Lbs)	15000 kgs (33000 Lbs)
CLAMP CAPACITY FACE-PLATE TYPE 4-JAW CHUCK		1200 kgs (2640 Lbs)	1500 kgs (3300 Lbs)	1800 kgs (3960 Lbs)



SPECIFICATIONS / MODEL	CST			CHT			CMT		
	42"	46"	50"	56"	60"	64"	71"	75"	79"
Swing Over Bed	42"	46"	50"	56"	60"	64"	71"	75"	79"
Swing Over Crossslide	27"	31"	35"	40"	44"	48"	51"	55"	59"
Spindle Bore	6, 9, 10, 12, 14, 16			6, 9, 12, 16, 21					
Spindle Nose	A2-11, A2-15, A2-20, Special								
Distance Between Centers	40", 80", 120", 160, 200"								
Z Axis Travel	50", 90", 130", 170", 210"								
Z Axis Servo Motor	4.5 HP			6 HP			8 HP		
Bed Width	26"			33"			44"		
X Axis Travel	26"			35"			42"		
X Axis Servo Motor	2.8 HP			4 HP			5 HP		
Tailstock Quill Taper	6 MT								
Tailstock Quill Diameter	6"			8"					
Tailstock Quill Travel	10"								
Spindle HP, Continuous	30 HP			30 HP			40 HP		
Net Weight, 120" Machine, Lbs.	27,000	28,000	29,000	41,000	42,000	43,000	52,000	54,000	55,000

willis MAMMOTH CNC HEAVY DUTY FLAT BED LATHES



■ Tire Inner Mould



■ Belt Pulley



■ Steel Pipe



■ Steel Roller



■ Pipe Valve



■ Long Shaft



■ Truck Tire Mould



■ Plastic Mould



■ Graphite Bar



■ Press Roll

WORKPIECE SAMPLES



*CMT-79320 With C Axis & DRO for X, Z Axi*s



■ Double Turret



■ 21" Spindle Bore



■ H6 Turret



■ V8 Turret



■ Boring Attachment



■ Chip Conveyor



■ V8 Tool Turret



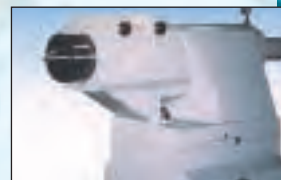
■ 3 Jaw Hydraulic Chuck



■ 3 Jaw Air Chuck



■ Double Chuck



■ Hydraulic Tailstock

OPTIONAL ACCESSORIES

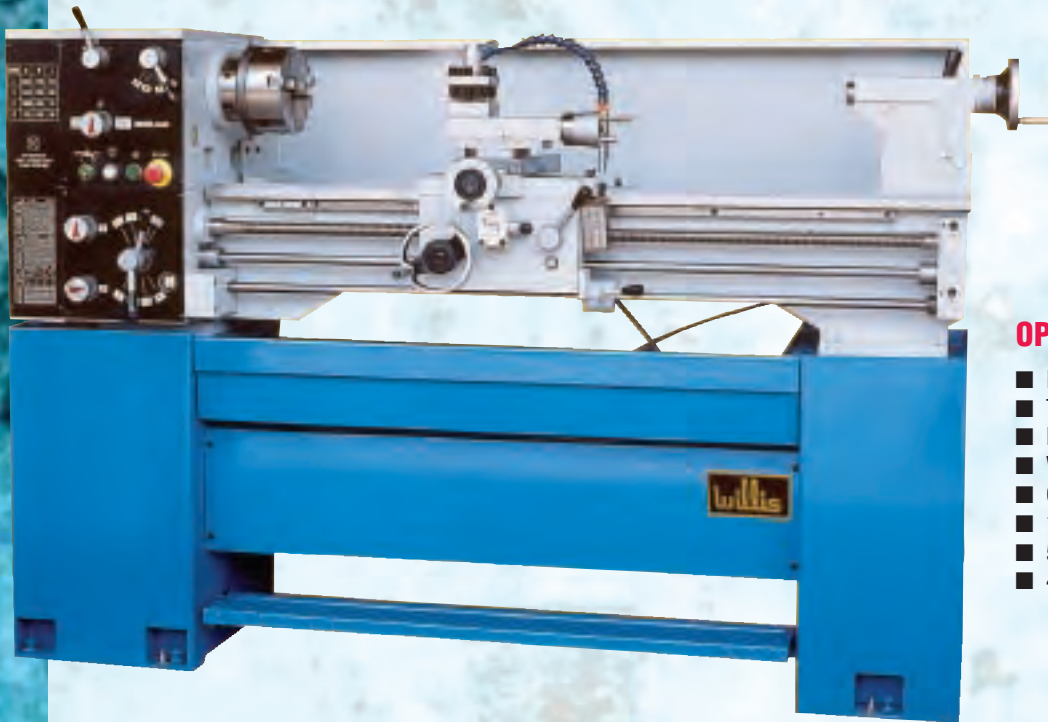
willis 1440E PRECISION ENGINE LATHE

FEATURES

- 3 HP spindle motor
- Hardened & ground headstock gears & shafts
- Hardened & ground bed ways
- All cast iron body
- Headstock runs in oil bath, Norton feed gear box and apron
- Left hand side apron wheel
- Machine comes complete with many accessories
- Foot brake
- Inch/metric thread cutting capability
- D1-4 camlock spindle
- Removable gap
- 110-volt operating controls plus overloads, transformer, contractors, emergency stop switch

STANDARD EQUIPMENT

- 3 HP main spindle motor
- Coolant system complete
- 3-jaw 6" chuck
- 4-jaw 8" chuck
- Rapid foot brake
- 4-way tool post
- Back plate for 3-jaw chuck
- Rear splash guard
- 10" face guard
- Back plate for 4-jaw chuck
- Center sleeve (5MTx3MT)
- Center (3MT)
- Tool box & tool kit
- Steady rest
- Follow rest



OPTIONAL EQUIPMENT

- Live center
- Taper turning attachment
- Milling attachment
- Work light
- Chuck guard
- 1/2" drill chuck
- 5C lever collet closer
- 4 position carriage stop

SPECIFICATIONS – 1440E

Swing over bed	.14"	Inch threads quantity/range (32)	.2-3/4-56 T.P.I.
Swing in gap	.20-1/4"	Leadscrew	.4 T.P.I.
Swing over cross slide	8-5/8"	Bed length	.66"
Center distance	.40"	Tailstock center taper	.3MT
Bed width	.7-1/2"	Tailstock spindle travel	.4-3/8"
Spindle bore	.1-1/2"	Tailstock spindle diameter	.1-5/8"
Spindle nose	D1-4	Motor HP	.3
Spindle taper	.5MT	Maximum tool size	.3/4"
Spindle speeds (9)	.80-2000 RPM	Coolant pump	.1/8 HP
Cross slide travel	.6-1/2"	Floor space	.71"x19"x46"
Compound slide travel	.3-3/8"	Center height over floor	.42"
Longitudinal feeds (16)	.0026-.064 IPR	Gross weight	.1584 lbs.
Cross feeds	.0013-.032 IPR	Net weight	.1364 lbs.
Metric threads - quantity/range (30)	.4-7.2mm		

Willis GEARED HEAD PRECISION ENGINE LATHES



1340/1340VS



1440 / 1440VS

MODELS	1330	1340	1430	1440	1540	1550	1860	1880	2060	2080	2260	2280
							18100	18120	20100	20129	2210	22120
Center Height	6-1/2"		7"		7-1/2"		9"		10"		11"	
Swing Over Bed	13"		14-1/4"		15-1/4"		18"		20"		22"	
Swing Over Cross Slide	7-1/2"		5-5/8"		9-1/2"		11-1/2"		13-1/2"		15-1/2"	
Swing in Gap	19-1/2"		22"		24"		28"		30"		32"	
Bed Length Between Centers	30"	40"	30"	40"	40"	50"	60" Bed (60") 100" Bed (100")		80" Bed (80") 120" Bed (120")			
Gap Width in Front of Faceplate	6"		6"		6"				9"			
Spindle Nose (Camlock)	D-1-4		D-1-5		D-1-6				D-1-8			
Headstock Spindle Bore	1-3/8"		1-5/8"		2-1/8"				3-1/8"			
Headstock Spindle Bore Taper	#4MT		#5MT		#6MT				#7MT			
Number of Spindles	8 (16 Opt.)		8 (16 Opt.)		16				16			
Range of Spindle Speeds (RPM)	105-2000		70-2000		25-2000				22-1700			
Optional RPM	53-2000		35-2000									
Varispeed RPM (optional)	(2) 32-2500		(2) 20-2500		(2or4) 20-2000				(2 or 4) 16-1800			
Width of Bed	7-1/2"		10"		11"				13"			
Length of Bed	54-1/2"	65"	61-1/4"	71-1/2"	76-1/2"	86-1/2"	60" Bed (105") 100" Bed (145")		80" Bed (125") 120" Bed (165")			
Cross Slide Travel	7-1/2"		8-1/4"		9-1/4"				10-1/2"			
Compound Travel	3-1/2"		3-3/4"		4-3/4"				5-1/4"			
Tailstock Spindle Travel	4-3/8"		5-3/4"		6-1/8"				7"			
Tailstock Quill Taper	#3MT		#3MT		#4MT				#5MT			
Tailstock Quill Diameter	1-9/16"		2"		2-5/16"				3"			
No. of English Threads	32(in)(36 Opt)		36		45				45			
Range of English Threads	4-56 T.P.I 4-72 T.P.I.		4-72 T.P.I.		2-72 T.P.I.				2-72 T.P.I.			
Optional												
No. of Metric Threads	14(mm) 31(opt)		27		39				39			
Range of Metric Threads	5-6mm .45-7mm Optional 0.2-7mm		0.4-7mm		0.2-14mm				0.4-14mm			
Optional												
No. of Diametral Pitch Threads	21-Optional		21		21				21			
Range of D.P. Threads	(Opt. 8-44 D.P.)		8-44 D.P.		8-44 D.P.				8-44 D.P.			
Optional												
No. of Module Pitch Threads	(Optional 18)		18		18				18			
Optional												
Range of Module Pitch Threads	(Opt. .3-3.5mm)		0.3-3.5mm		0.3-3.5mm				0.3-3.5mm			
Longitudinal Feeds	.0015-.01 in/rev Optional .02-.520 mm/rev		.0012-.016 in/rev		.0015-.04 in/rev				0.0015-0.04 in/rev			
Optional												
Cross Feeds	.0005-.0035 in/rev Optional .006-.17 in/rev		.0004-.0053 in/rev		.00075-.02 in/rev				0.0003-0.02 in/rev			
Optional												
Main Motor	3 HP		5 HP		7-1/2 HP				10 HP or 12.5 HP			
Two Speeds (Optional)	3/1.5 HP		5/3 HP									
HP-Vari-Speed	2		3		5				7.5			
Packing Sizes:												
Length	66"	76"	72"	84"	87"	99"	60" Bed (120") 100" Bed (160")		80" Bed (140") 120" Bed (180")			
Width	30"		36"		42"				44"			
Height	58"		60"		63"				70"			
Net Weight (lbs)	1364	1474	1870	1980	2530	2860	4400, 5060 6160, 7260	4840, 5550 6600, 7700	5280, 5940 7040, 8140			
Gross Weight (lbs)	1650	1800	2200	2420	2970	3300	5060, 5830 7040, 8360	5500, 6270 7480, 8800	5940, 6710 7920, 9240			



1550/1550VS

MACHINE FEATURES INCLUDE

- Hardened and ground bedways
- Hardened and ground gears and shafts
- Camlock spindle nose
- Footbrake, emergency stop, and low volt controls
- Universal gearbox (option for 1340)
- Feedrod overload clutch
- Flood coolant
- Full length rear splashguard

**VARIABLE SPEED LATHES AVAILABLE
AS AN OPTION**

**"Matrix" Multi-Disk Clutch Standard
on 18" and Larger Lathes**



2280 Pictured w/Options

Willis MAMMOTH SK & SE HEAVY DUTY LATHES

UNIVERSAL GEAR BOX

- All standard thread pitches can be obtained without changing the gears including:
 - Metric Threads
 - Inch Threads
 - Module pitches
 - Diametral pitches

HEADSTOCK

- All gears and spines are hardened and precision ground steel alloys
- Dial rotary system for quick and easy speed changes

MAIN SPINDLE

- Large diameter spindle for heavy cutting
- Big bore through spindle 4-1/8" (105mm)
- precision ground spindle supported at three points by high precision bearings

TAILSTOCK

- Reduction gearing for convenience in drilling (1/4)
- Quill with metric and inch graduations

EMERGENCY BRAKE

- The emergency brake pedal can be used for cutting the power and stopping the machine immediately and safe fast precise operation.

APRON & CARRIAGE

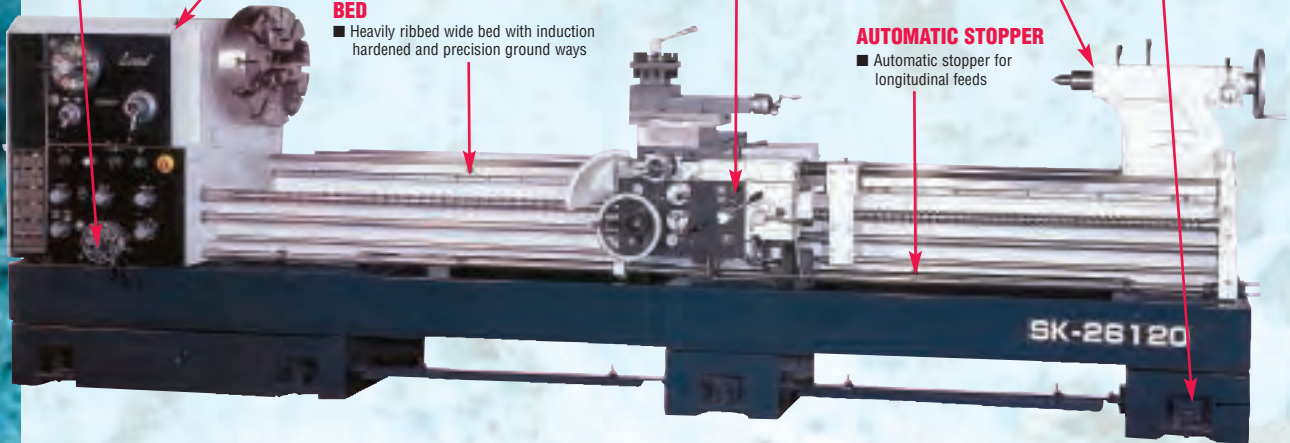
- Readily adjustable overload safety device
- Manual and automatic dual lubrication for slide surface

AUTOMATIC STOPPER

- Automatic stopper for longitudinal feeds

BED

- Heavily ribbed wide bed with induction hardened and precision ground ways



	WILLIS MAMMOTH	SK22	SK26	SE28	SE32
Capacity	Swing Over Bed	22	26	28	32
	Swing Over Crossslide	13	17	20	23
	Swing in Gap	33	37	40	44
	Distance Between Centers	40, 60, 80, 100, 120, 160, 200		60, 80, 100, 120, 160, 200	
Headstock	Spindle Bore	4			4 (6 opt)
	Spindle Nose	A2-8			A2-8 (A11 opt)
	Taper of Center	5 MT			
	Range of Spindle Speed	20-1200		15-1000	
Feeds & Thread Cutting	Number of Spindle Speeds	12			
	Longitudinal Feeds	0.002"-0.016"/rev			
	Cross Feeds	0.001"-0.008"/rev			
	Inch Threads	2-28 T.P.I. (36)			
	Metric Threads	0.8-14 mm/thread (37)			
Carriage	Cross Slide Travel	14-3/8"		16-1/2"	
	Compound Rest Travel	9		10	
Tailstock	Quill Diameter	3		3-1/8"	
	Quill Travel	7		9	
	Taper of Quill	5 MT			
	Width of Bed	15		18-1/8"	
	Main Motor	10 (15 option)	15	15 (20 option)	

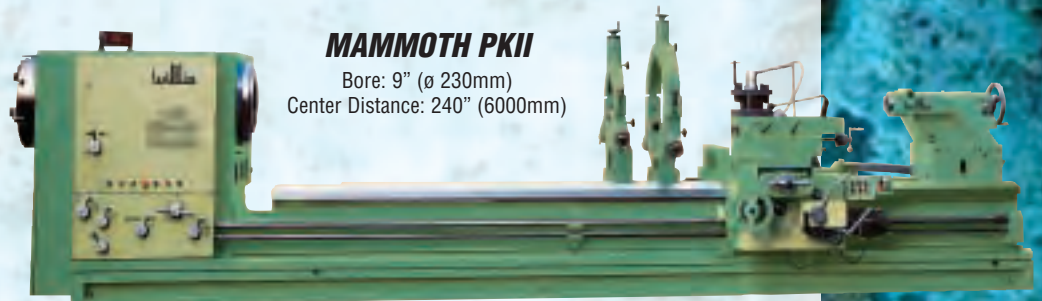
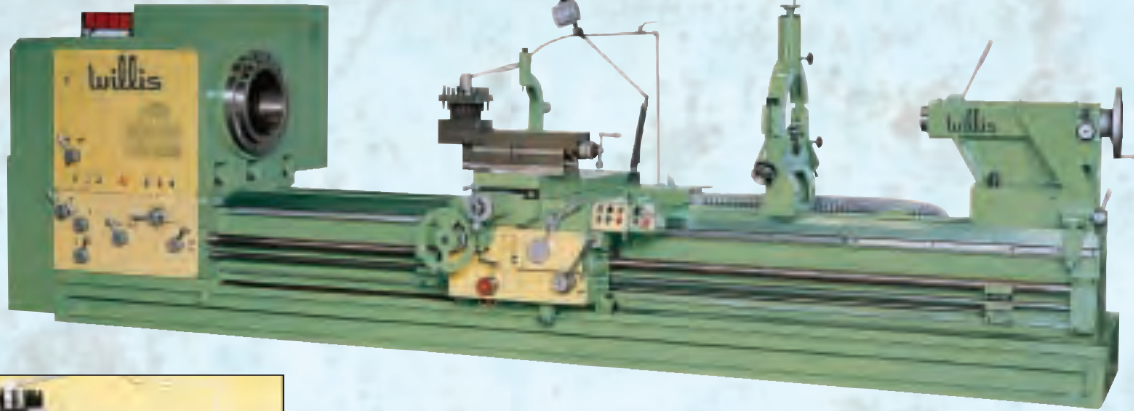
STANDARD ACCESSORIES

- A2-8 adapter plate
- Center Sleeve
- Center 5MT
- Tool post wrench
- Anchor bolt
- Toolbox and tools
- Steady rest
- Coolant pump

OPTIONAL ACCESSORIES

- 3 jaw scroll chucks
- 4 jaw scroll chucks
- Faceplate
- Taper turning attachment
- Follow rest
- Longitudinal rapid traverse

willis MAMMOTH PK HEAVY DUTY BIG BORE LATHES



MAMMOTH PKII

Bore: 9" (ø 230mm)
Center Distance: 240" (6000mm)

STANDARD FEATURES

- 6" (153mm) spindle bore, A2-11 spindle nose
- 18 speed (5-630 RPM's)
- Hardened and ground alloy steel gears and shafts in the headstock
- Electromagnetic spindle brake
- Single piece bed casting resting entirely on the floor with hardened and ground ways to a t least 450 Brinell
- 3 hardened and ground bed ways. 2 ways are located on the top of the bed and support the carriage, while the 3rd bed way is located on the front lower part of the bed and supports the apron, which reduces any cantilever effect. Also provides additional support when turning large O.D. parts.
- Hardened and ground cross slide ways.
- Automatic lubrication for the ways and lead screws.
- 6 way power feed (carriage, crossslide, and compound), compound power feed is ideal for cutting steep tapers, chamfers, etc.
- 6 way rapid traverse (carriage, crossslide, and compound)
- Natural and removable gap bed
- Universal gearbox with forced lubrication and safety clutch
- 60 standard inch and 60 standard metric threads
- Massive tailstock body ensures stability under heavy loads
- 2 speed hardened and ground tailstock quill is convenient for fast positioning or drilling
- Low volt control
- 4 way tool post
- Thread chasing dial
- Coolant system
- Halogen work light
- Toolbox and tools



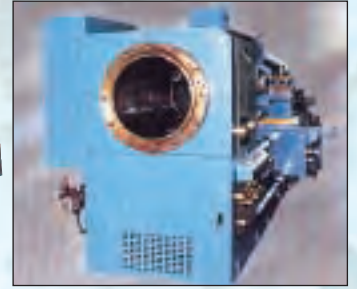
Bore: 6" (ø 153mm)
Center Distance: 480" (12000mm)

Willis MAMMOTH PKIV SERIES

MAMMOTH PKIV Series 9" Spindle Bore 240" Center Distance



Tailstock PKIV Series



Spindle Bore 21"
(ø 535mm) OPTION

ADDITIONAL FEATURES FOR PKIII & PKIV SERIES

- 9" spindle bore, A2-15 spindle nose for PKIV Series
- 4 gear range headstock with infinitely variable RPM from 18-1,000 RPM's
- 4 hardened and ground bed ways. 3 ways are located on the top of the bed and support the carriage and tailstock, while the 4th bed way is located on the from lower part of the bed and supports the apron, which reduced any cantilever effect. Also provides additional support when turning large O.D. parts.
- Hydraulic tailstock
- Rotary tailstock quill



4-Way track PKIV Series

ITEM	MODEL	PK35	PK40	PK45	PK50	PKII45	PKII50	PKII60	PKII70	PKIII50	PKIII60	PKIII70	PKIII80	PKIV70	PKIV80	PKIV90	PKIV100																								
Capacity	Center Height mm(in)	440(17.5)	505(20)	568(22.5)	638(25)	568(22.5)	638(25)	895(35)	895(35)	638(25)	764(30)	895(35)	1020(40)	895(35)	1020(40)	1145(45)	1270(50)																								
	Swing Over Bed mm(in)	880(35)	1010(40)	1135(45)	1275(50)	1135(45)	1275(50)	1527(60)	1790(70)	1275(50)	1527(60)	1790(70)	2040(80)	1790(75)	2040(80)	2290(90)	2540(100)																								
	Swing Over Cross-slide mm(in)	610(24)	740(29)	870(34)	1010(40)	810(32)	950(37)	1201(47)	1460(57)	885(35)	1137(45)	1400(55)	1650(65)	1350(53)	1590(63)	1840(73)	2090(82)																								
	Swing Over Gap mm(in)	1340(53)	1470(58)	1600(63)	1740(69)	1650(65)	1790(70)	2040(80)	2300(90)	N/A																															
	Gap Width From Headstock mm(in)	600(24)								N/A																															
Bed	Distance Between Centers mm(in)	1500(60), 2000(80), 2500(100), 3000(120), 3500(140), 4000(160), 5000(200), 6000(240), 7000(280), 8000(320), 9000(360), 10000(400), 11000(440), 12000(480)																																							
	Width(W/O Auxiliary Guide) mm(in)	560(22)				712(28)				1020(40)				1210(47.5)																											
Headstock	Width(W/Auxiliary Guide) mm(in)	650(25.5)				812(32)				1160(45.7)				1370(54)																											
	Spindle Nose	A2-11		A2-15		A2-11,		A2-15,		A2-15,		A2-20,		A2-20,		A2-28,		A2-28,		A2-32																					
Carriage	Spindle Bore mm(in)	153(6.02)				230(9.05)				536(6.02)				230(9.05)				255(10.03)				318(12.51)				360(14.17)				410(16.14)				535(21.06)				610(24.02)			
	Spindle Step	18 Steps (Manual)																																							
	Spindle Speeds 1 Range-RPM	Auto 4 Steps																																							
	2 Range-RPM	18-130				16-120				13-95				12-85				10-75				8-50				6-40				4-25											
	3 Range-RPM	35-260				30-200				25-185				23-170				20-150				15-100				12-80				8-50											
4 Range-RPM	85-550				70-420				60-400				55-300				50-250				35-200				30-180				20-140												
Tailstock	Cross Slide Travel mm(in)	670(26.4)				800(31.5)				1100(43)				1300(51)																											
	Compound Rest Travel mm(in)	450(17.7)				800(31.5)				1100(43)				1300(51)																											
Threads & Feeds Range	Longitudinal Feeds mm(in)	0.045-2.55(0.0018-0.1)																																							
	Cross Feeds (mm/rev)(in/rev)	0.023-1.28(0.0009-0.05)																																							
	Longitudinal Rapid Feeds mm/min(in/min)	2000(80)																																							
	Cross Rapid Feeds mm/min(in/min)	1000(40)																																							
	Metric Threads mm(kinds)	1-56(60)																																							
	Inch Thread TPI(kinds)	1/2-28(60)																																							
	Module Thread MOD(kinds)	0.25-14(60)																																							
	Diametral Pitch Thread DP(kinds)	2-112(60)																																							
Tailstock	Pitch of Leadscrew mm(TPI)	12(2)																																							
	Quill Diameter mm(in)	115(4.5)				145(5.75)				235(9.25)				280(11)																											
	Quill Travel mm(in)	200(7.87)				250(10)				300(11.8)				350(13.8)																											
	Inner Taper of Quill	MT #6																																							
	Bearing Surface on Bed Ways mm(in)	500(19.75)				600(23.5)				660(26)				1120(44)																											
Motor	Main Spindle Motor KW(HP)	15(20)-STD. 22.5(30)/30(40)-OPT				22.5(30)-STD. 30(40)/37(50)-OPT				30(40)-STD 37(50)/56(70)-OPT				37(50)-STD. 56(75)/75(100)-OPT																											
	Coolant Pump Motor KW(HP)	0.1(0.125)																																							
Machine Weight	2000mm Center Distance kgs(lbs)	10000(22000)	10350(22770)	10700(23540)	11050(24310)	13200(29040)	13600(29920)	14400(31680)	15200(33440)	16700(36740)	17700(38940)	18700(41140)	19700(43340)	22700(49940)	24200(53240)	25700(56540)	27200(59840)																								

DESIGN & SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

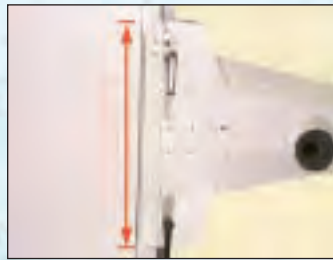
Willis CNC BED TYPE MILLING MACHINES



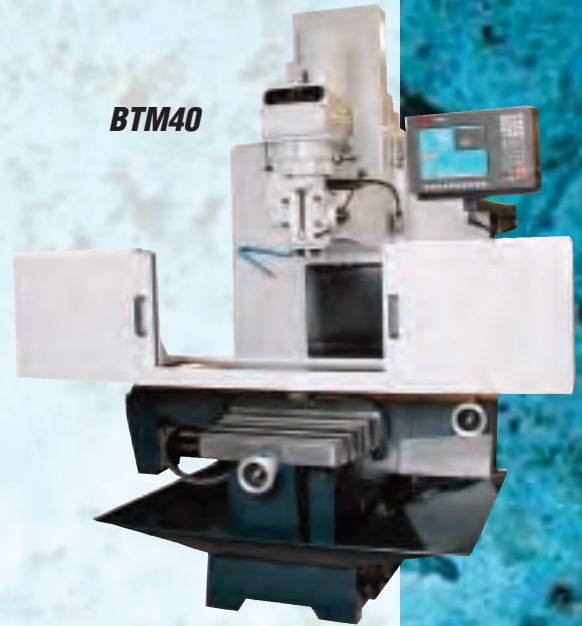
BTM50 Mill Head pictured



Precision ballscrews supported at both ends.



Extra long bolster for Z axis.

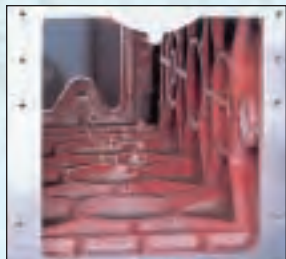


BTM40



STANDARD FEATURES AND EQUIPMENT

- High quality, heavily ribbed castings
- Hardened and ground box ways w/Turcite
- Hardened and ground table surface
- AC digital motors
- Programmable spindle speeds
- Auto lube system and flood coolant
- Oversize high precision ballscrew



Heavily ribbed, thick walled column for maximum rigidity.



Metered automatic lubrication system with low level alarm.



BTM50

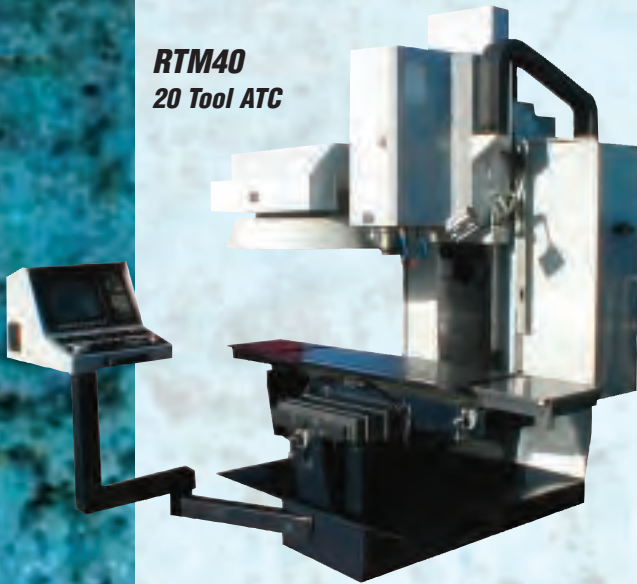
SPECIFICATIONS	BTM40	BTM50
Travels	40"x20"x27"Z	50"x25"x27"Z
Table Size	16" x 54"	20" x 63"
Table Load, Max.	2,200 Lbs.	2,600 Lbs.
Spindle – Table, Max.	28"	32"
Spindle Speed Programmable	60-4,000 2-Speed	60-4,000 2-Speed
Spindle HP	7.5	10
Manual Quill Travel	6"	6"
Spindle/Quill Diameter – 40 Taper	4-1/8"	4-1/8"
Machine Weight	5,300	8,800



Hardened and ground ways with Turcite on opposing surfaces and gibs.

Willis RIGID HEAD CNC BEDMILLS – RTM SERIES

RTM40
20 Tool ATC



RTM50
with 20 Tool ATC &
Full Enclosure

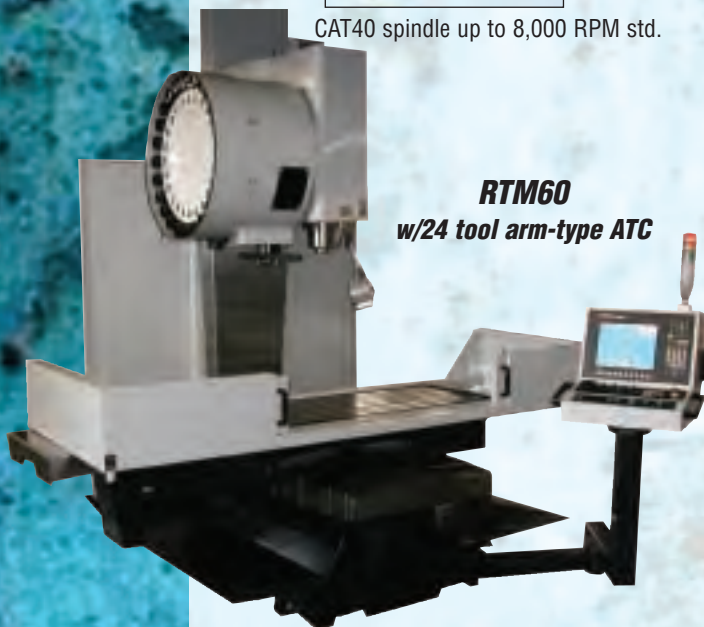


STANDARD FEATURES AND EQUIPMENT



CAT40 spindle up to 8,000 RPM std.

- High quality, heavily ribbed castings
- Hardened and ground box ways w/Turcite
- Hardened and ground table surface
- Anilam 6000 control
- Programmable spindle speeds
- Auto lube system and flood coolant
- Oversize high precision ballscrew



RTM60
w/24 tool arm-type ATC



Clean, organized electrics



32.5" maximum distance
between spindle and table

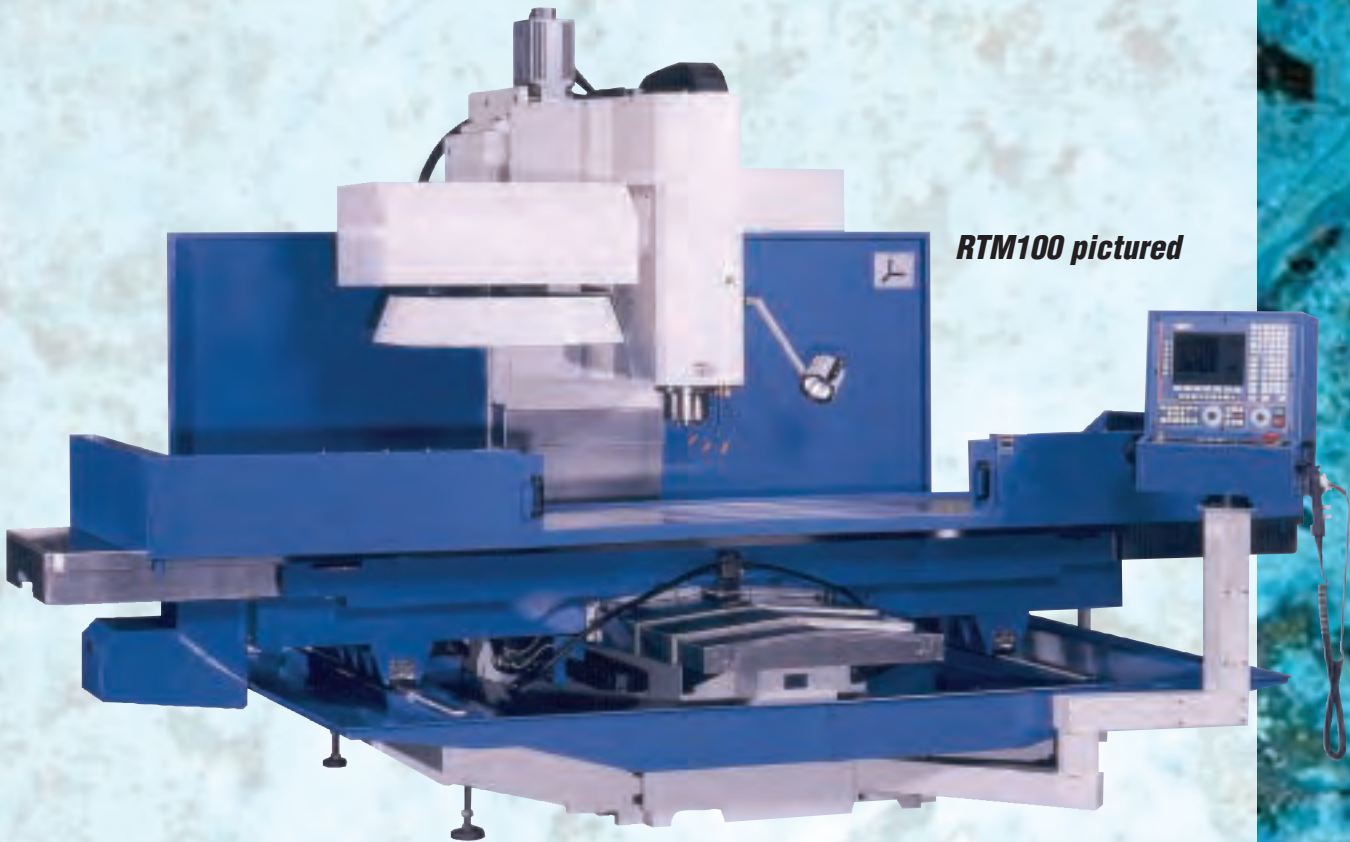
SPECIFICATIONS	RTM40	RTM50	RTM60
Travels	40"x20"x24"Z	50"x25"x28"Z	60"x30"x28"Z
Table Size	16" x 54"	20" x 63"	24" x 73"
Table Load, Max.	2,200 Lbs.	2,600 Lbs.	3,300 Lbs.
Spindle – Table, Max.	28"	31"	31"
Spindle Speed Programmable	Up to 8,000	Up to 8,000	Up to 8,000
Spindle HP	10	15	20
Manual Quill Travel	Fixed	Fixed	Fixed
Spindle/Quill Diameter – 40 Taper	6"	6"	6"
Machine Weight	5,400	8,900	10,000



30.5" from spindle center to
column surface



RIGID HEAD CNC BEDMILLS – RTM80 & RTM100 SERIES



RTM100 pictured

WILLIS RTM80 & RTM100 CNC BEDMILLS

- Amazing features, very affordable prices
- Huge 79" or 98" X axis travels, and 35" Y axis travels
- Cast iron bed / base with hardened and ground box ways
- Open architecture construction, ideal for loading large parts
- Spindle air blast system, flood coolant
- Automatic lubrication system with alarm
- Available Options: full enclosure, arm type ATC, thru spindle coolant, 2 speed ZF gearbox, 4 Axis tables, right angle milling attachments

ANILAM 6000 AC DIGITAL CONTROL

- Conversational and G code programming
- AC Brushless digital servo motors
- Full color 12" TFT display
- Massive hard drive, RS232, and floppy disk drive
- MPG handwheel for fast part set-ups
- Built in CAM system, full library of canned milling cycles, advanced geometry calculator

SPECIFICATIONS	RTM80	RTM100
Table Size	30" x 92"	30" x 112"
T-Slots	18mm x 5	18mm x 5
Travel, X Axis	78.7"	98.4"
Travel, Y Axis	35"	35"
Travel, Z Axis	28"	28"
Maximum Table Load	4,000 lbs.	4,000 lbs.
Ballscrew Diameter	2"	2"
Spindle Nose to Table, Max	32"	32"
Distance, Spindle CL-Column	35"	35"
Spindle Speed	8,000 RPM	8,000 RPM
Spindle Taper	40 CAT	40 CAT
Spindle Motor, 100% Duty	15 HP	15 HP
Weight	17,000 lbs.	18,000 lbs.



**RTM80 pictured
showing outboard supports**

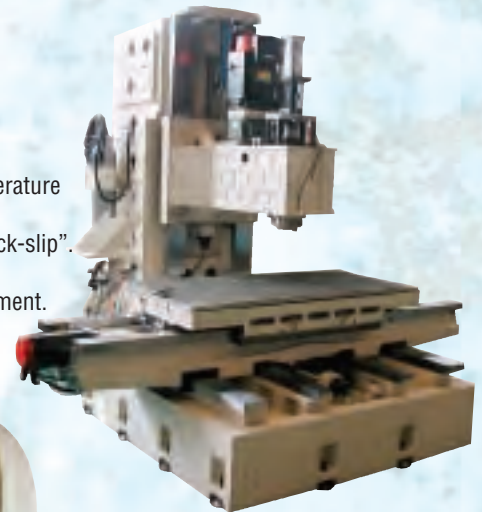
willis 40 & 50 TAPER VERTICAL MACHINING CENTERS



FEATURES

- High quality annealed and stress relieved castings.
- Over sized hardened and ground box ways on all axes.
- Pre-loaded and pre-tensioned high precision ball screws help to minimize temperature variation and improve machine accuracy.
- High-grade turcite on all axes provides superb wear resistance and minimal "stick-slip".
- Telescoping way covers on all axes.
- Fully enclosed guarding designed to provide a safe, dry and clean work environment.

	MODEL	KMV-10	KMV-13	KMV-16
Travel	Longitudinal Travel (X)	40"	53"	63"
	Cross Travel (Y)	20"	26"	32"
	Headstock Travel (Z)	25"		
	Spindle Nose to Table Top	4" - 29"		7" - 39"
Table	Length	48"	57"	67"
	Width	20"	27"	32"
	T-Slots Size x Number	18mm x 5		
	Maximum Table Load	1,760 lbs	3,300 lbs	4,400 lbs
Spindle	Spindle Speed	30-7,500 (10,000 opt)		30-4,500
	Transmission	2 Speed Gearbox		
	Taper	40	40 (50 opt)	50
Motor	Spindle	15 HP	20 HP	25 HP
	Tool Holder	CAT40	CAT40 (50 opt)	CAT50
ATC	Tool Storage Capacity	24		
	Max. Tool Dia. x Length	3.5" x 11.8"	3.5" x 11.8"	4.3" x 13.8"
	Maximum Tool Weight	13.2 lbs	13.2 lbs	33 lbs
	Tool Selection	Bi-Directional		
General	Machine Dimensions	113"x100"x117"H	131"x108"x112"H	164"x133.5"x128"H
	Net Weight	13,200 lbs	16,500 lbs	29,000 lbs
	Base Space	160" x 118"	177" x 138"	197" x 138"
	Controller	Fanuc		
Feedrate	Rapid Traverse	80 ft/min	59" ft/min	50 ft/min
	Cutting Feedrate	0.04 - 394 in/min		



A 24-tool arm type ATC allows for fast, dependable tool changes.



A massive cast iron machine base provides a strong, solid foundation with full support over the entire range of travel and excellent vibration dampening.

OPTIONS

- Coolant through the spindle.
- Screw type chip conveyor
- Chain type chip conveyor
- 32 tool ATC in lieu of standard ATC



A German built 2 speed ZF gearbox provides outstanding power and torque throughout the entire spindle speed range.



Willis 40 TAPER BRIDGE TYPE VMC's



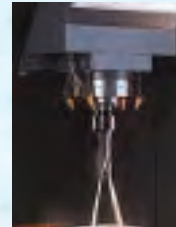
Willis BERGONZI

- KRONOS 10** – 39" x 39" x 16" travel
- KRONOS 15** – 39" x 59" x 16" travel
- STRATOS 20** – 43" x 79" x 18" travel
- STRATOS 20L** – 67" x 79" x 18" travel
- STRATOS 30** – 43" x 118" x 18" travel
- STRATOS 30L** – 67" x 118" x 18" travel

AVAILABLE OPTIONS



Right angle heads



Thru spindle coolant

- 15 HP (100% duty) CAT40 spindle
- Box ways with Turcite in all axes
- 2 speed gearbox for max torque
- Full machine enclosure



16 or 32 tool ATC



- Up to 18,000 RPM spindle
- Up to 590 "/min rapid
- Up to 7,000 lb. table loads
- 2" drilling capacity

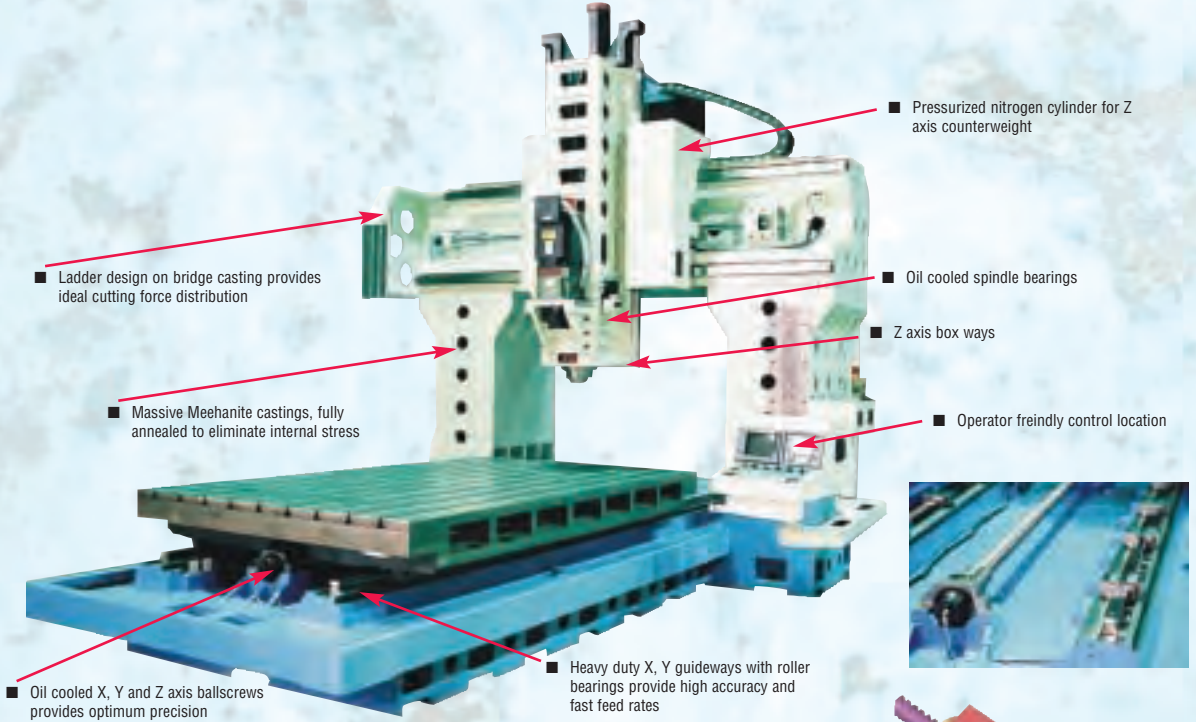


4th Axis tables

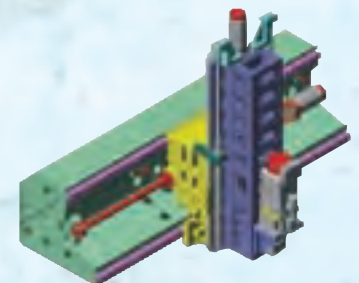
SPECIFICATIONS	K10	K15	S20	S20L	S30	S30L
X Axis Travel	39.4"	59.1"	78.7"	78.7"	118.1"	118.1"
Y Axis Travel	39.4"	39.4"	43.3"	66.9"	43.3"	66.9"
Z Axis Travel	15.8"	15.8"	17.7"	17.7"	17.7"	17.7"
Spindle Table Distance	5.9"-22.4"	5.9"-22.4"	6.5"-24.2"	6.5"-24.2"	6.5"-24.2"	6.5"-24.2"
Distance Between Columns	44.1"	44.1"	47.2"	66.9"	47.2"	66.9"
Table Dimensions	35" x 39"	37" x 59"	37" x 79"	55" x 79"	37" x 118"	55" x 118"
Maximum Table Load, Lbs.	2,500	4,000	5,300	6,200	7,100	7,100
Rapid Feed, "/Min	790	790	600	600	600	600
Spindle HP (30 Min.)	15	15	20	20	20	20
Spindle Speeds, RPM	100-3000, 250-7200		40-3000, 50-5000		40-3000, 50-5000	
Spindle Taper	CAT 40	CAT 40	CAT 40	CAT 40	CAT 40	CAT 40
Machine Weight, Net., Lbs.	10,200	13,000	15,000	16,300	19,000	20,100

willis 50 TAPER BRIDGE TYPE VMC'S

- 50 taper spindle is specially designed for heavy duty cutting and high RPM's and is fitted with an oil chiller for long running, high accuracy
- 2 speed ZF gearbox for spindle provides ideal power and torque at low RPM's and high HP for high RPM cutting
- All 3 axes servo motors are directly coupled to ballscrews providing rapid movement and no backlash
- Large diameter preloaded ballscrews have continuously chilled oil running through them for high accuracy
- Arm type ATC for fast, safe tool change
- Pressurized nitrogen cylinder provides a counterbalance for Z axis
- Standard screw type chip conveyors move chips along bed to tape type conveyor for optimal chip removal



SPECIFICATIONS	KMV-22P	KMV-32P	KMV-42P
X Axis Travel	87"	126"	165"
Y Axis Travel	78"	78"	78"
Z Axis Travel	35"	35"	35"
Spindle - Table Distance, Max.	37"	37"	37"
Distance Between Columns	70" (78" Opt)	70" (78" Opt)	70" (78" Opt)
Table Dimensions	65" x 87"	65" x 126"	65" x 165"
Maximum Table Load (Lbs)	11,000	11,000	17,600
Rapid Feed, "/Min	470	470	470
Spindle HP	30	30	30
Spindle Speeds RPM	30-4500	30-4500	30-4500
Spindle Taper	CAT 50	CAT 50	CAT 50
Machine Weight	55,000	60,500	65,000



willis CNC KNEE MILLS & ANILAM CONTROL



IRREGULAR POCKET

Answer a few basic prompts to make clearance of any shape a simple routine



GEOMETRY

Use the geometry calculator for determining points, lines, and circles, similar to a CAD/CAM system. The result automatically becomes part of the program.



USER-FRIENDLY DRAW GRAPHICS MODE

Before the first chip is cut, the user-friendly draw graphics mode provides program verification. When the image, the program text and the CNC status are all displayed on one screen, program verification becomes a simple function.

MODELS AVAILABLE

Additional features and specifications on following page

WM3VS – Fully supported travels of 31" x 12" x 5" quill

1050 – Fully supported travels of 30" x 16" x 5" quill

1050II – Fully supported travels of 30" x 16" x 5" quill

1250II – Fully supported travels of 26" x 16" x 5" quill

ANILAM CNC Controls

- 14" full color display
- Pentium processor
- 8 MB of DRAM
- Huge hard drive
- 3-1/2" floppy drive
- DSP2 dual processor design
- Complete library of milling canned cycles
- Advanced geometry calculator
- G Code converter
- Made in the USA

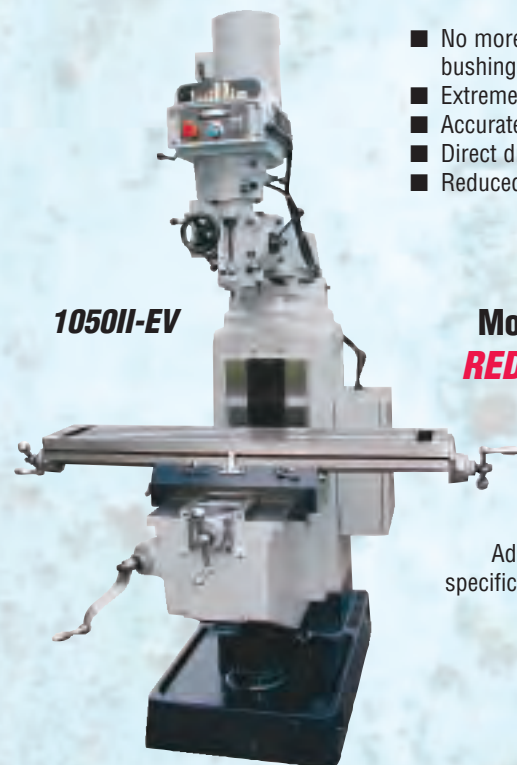
1050CNC
3 Axis



willis KNEE MILLS WITH INVERTER DRIVE

- No more changing of worn out pulley bushings and keys
- Extremely low maintenance
- Accurate RPM readings
- Direct drive belts – no belt slippage
- Reduced energy consumption

All New ELECTRONIC VARIABLE Speed – "EV"



1050II-EV

Models Available
RED HOT PRICES!!!

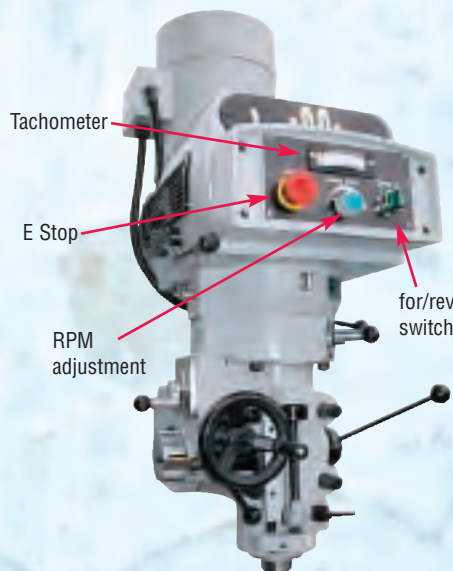
WM3VS

1050

1050II

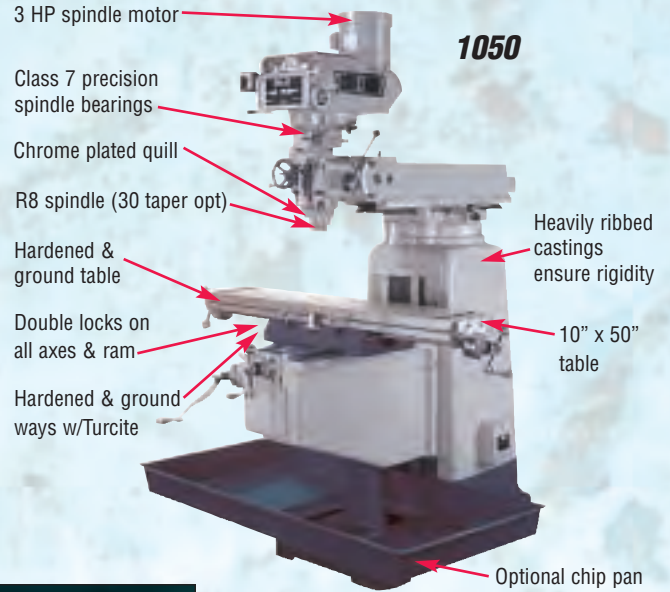
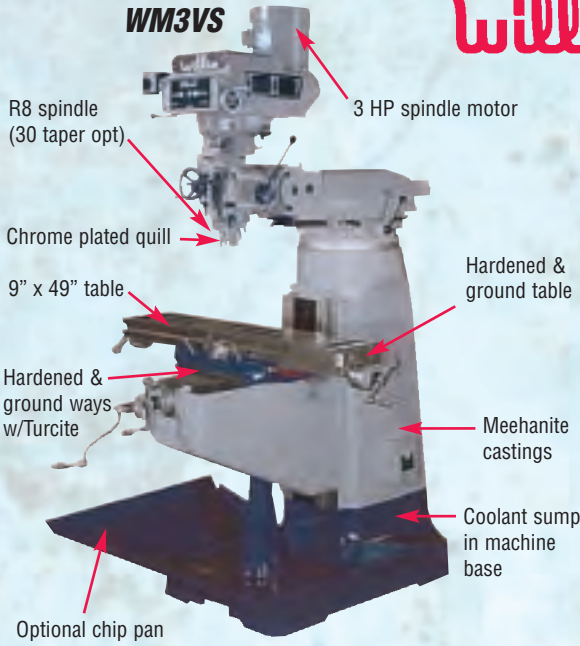
1250II

Additional features and specifications on following page.



5,000 RPM Standard!!!

Willis KNEE MILLS



Dynamically balanced pulley with special bronze key attached with 2 screws prevents premature breakage.



Our standard spring type micrometer adjusting nut provides quick and easy movement for setting spindle depth.

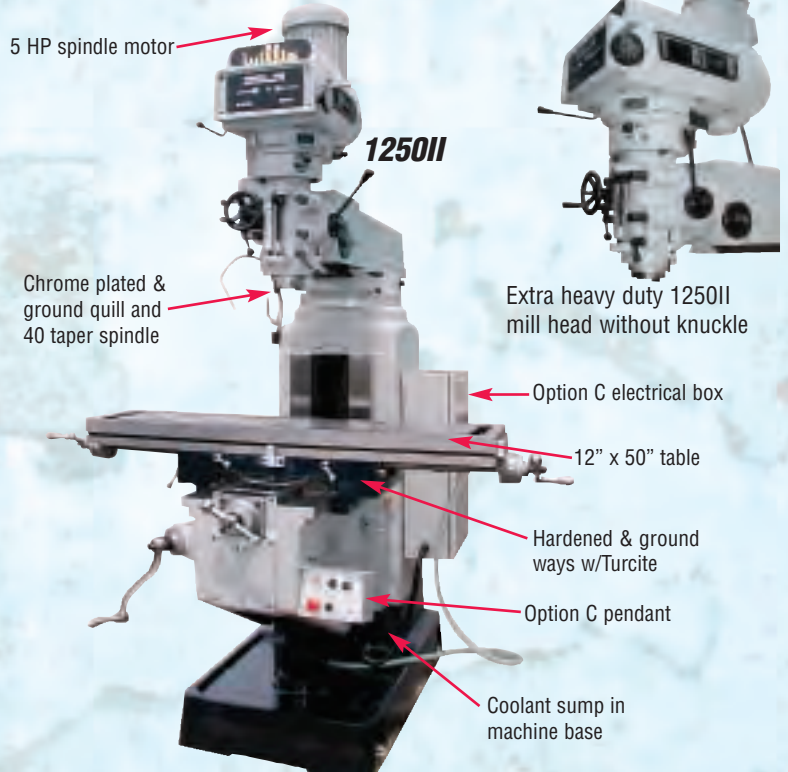
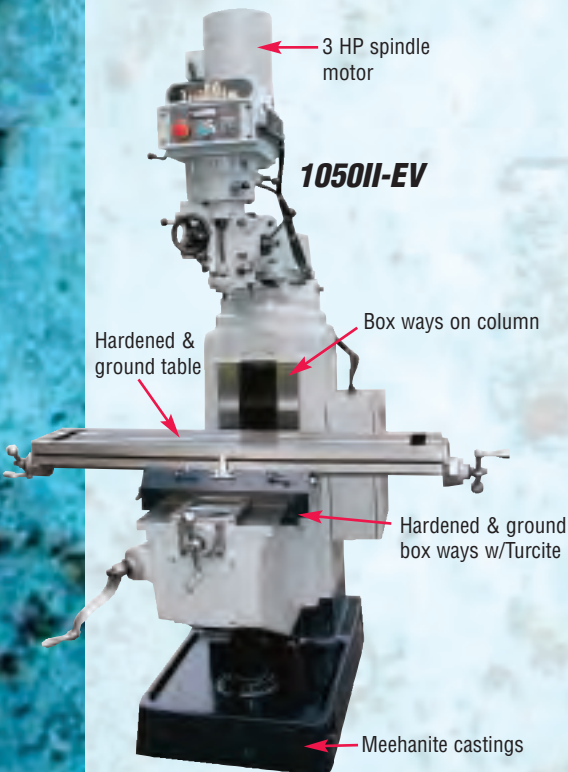


Our special power down feed parts are so strong, they can be used over 3,000 RPM spindle speeds. Our 1 piece cluster gear is superior to the much used 3 piece design.



1050II and 1250II tables are capable of supporting loads up to 1,500 lbs.

1250II top RPM of 4200 is standard



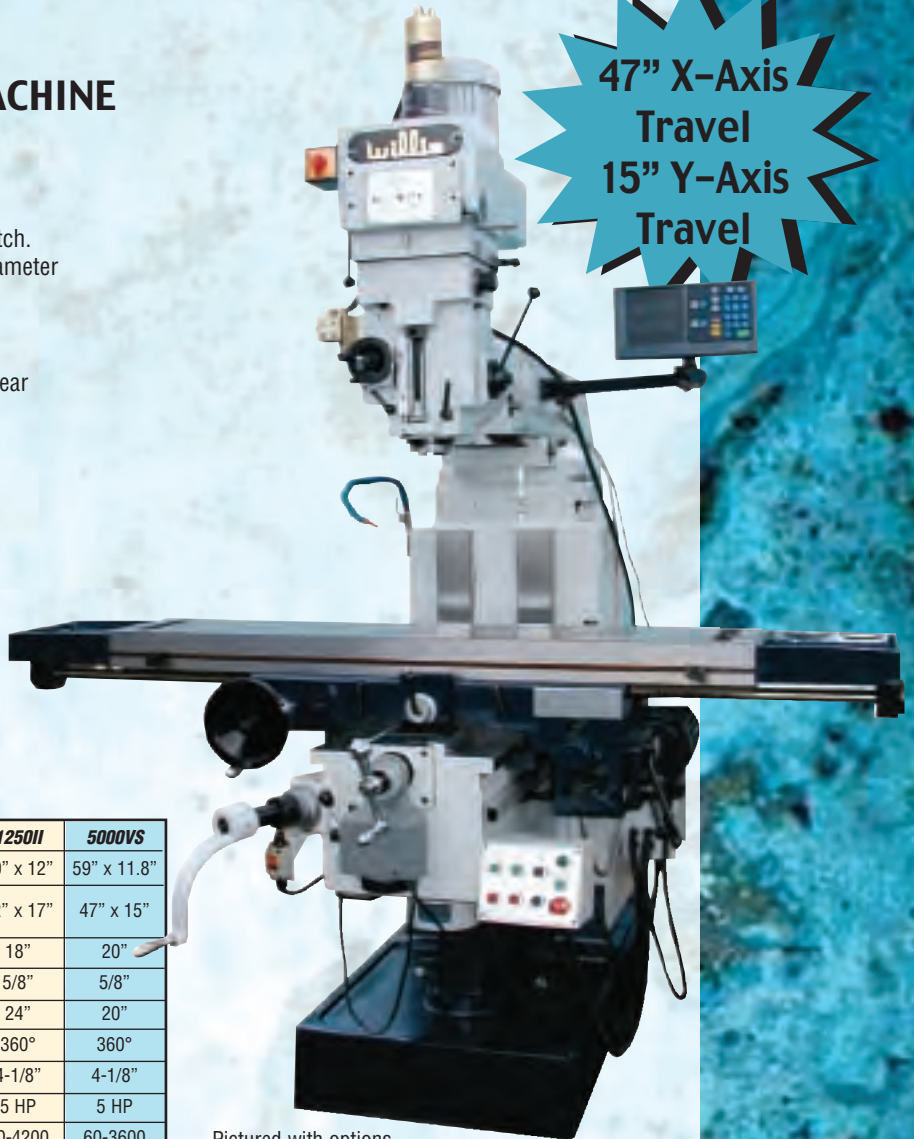
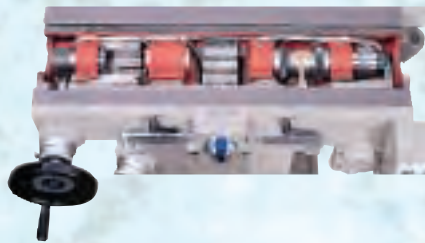
Extra heavy duty 1250II mill head without knuckle



5000VS SERIES 2 SIZE MACHINE

- 5 HP variable speed 60-3600 RPM, 40 taper spindle.
- Hardened & ground table surface
- Built in tool trays on both ends of table
- Vertical table raising by 2 HP motor with safety limit switch.
- Chrome plated precision ground quill, full 4-1/8" quill diameter
- 47" X-axis travel
- 15" Y-axis travel
- 59" x 12" table
- 12 longitudinal power feed rates operated by 12-speed gear box with 2 HP motor.
- Rapid traverse
- Machine weight 4,950 lbs.

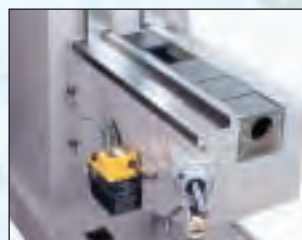
**47" X-Axis
Travel
15" Y-Axis
Travel**



Pictured with options

SPECIFICATIONS	WM3VS	1050	1050II	1250II	5000VS
Table Dimensions	49" x 9"	50" x 10"	50" x 10"	50" x 12"	59" x 11.8"
Travels – Longitudinal/ Cross (Manual)	36" x 13"	36" x 16"	34" x 17"	32" x 17"	47" x 15"
Vertical Knee Travel	16"	16"	18"	18"	20"
T-Slots (3)	5/8"	5/8"	5/8"	5/8"	5/8"
Ram Travel	17"	24"	21"	24"	20"
Ram Swivel	360°	360°	360°	360°	360°
Quill Diameter	3-3/8"	3-3/8"	3-3/8"	4-1/8"	4-1/8"
Spindle Motor	3 HP	3 HP	3 HP	5 HP	5 HP
Spindle Speeds (variable)	60-4200	60-4200	60-4200	60-4200	60-3600
Spindle Taper	R8	R8 or 30	R8 or 30	40 Taper	40 Taper
Quill Power Feed Rates (Inches Per Revolution)	0.00032" 0.0017" 0.0053"	0.00032" 0.0017" 0.0053"	0.00032" 0.0017" 0.0053"	0.00032" 0.0017" 0.0053"	0.00032" 0.0017" 0.0053"
Head Tilting Left to Right (Degrees)	90-0-90	90-0-90	90-0-90	90-0-90	90-0-90
Head Tilting Front to Back (Degrees)	45-0-45	45-0-45	45-0-45	Fixed	Fixed
Spindle Nose to Table (Min./Max.)	3"-18"	2"-18"	3"-20"	2"-20"	0"-20"
Center of Spindle to Column Face (Min./Max.)	3"-20"	3"-27"	3"-24"	6"-28"	7"-29"
Center of Spindle to Column Face (Min./Max.)	3"-20"	3"-27"	3"-24"	6"-28"	7"-29"
Ground Way Surface Width	2-1/2"	3-1/2"	4-1/8"	4-1/8"	3-15/16"
Saddle Width	18"	21"	21"	21"	33-1/4"
Knee Width	12"	14"	15-1/2"	15-1/2"	15-1/2"
Knee Height	17"	18"	20-1/4"	20-1/4"	19"
Longitudinal Power Feed	Optional	Optional	Optional	Optional	(12)1"-28" per min.
Longitudinal Rapid Traverse					94 IPM
Longitudinal Feed Motor	Optional	Optional	Optional	Optional	2 HP
Table Raising Motor	Optional	Optional	Optional	Optional	2 HP
Coolant Pump	1/8 HP (opt)	1/8 HP (opt)	1/8 HP (opt)	1/8 HP (opt)	1/8 HP
Net Weight	2,400 lbs.	2,800 lbs.	3,300 lbs.	3,700 lbs.	4,950 lbs.
Maximum Work Piece Weight	750 lbs.	750 lbs.	1100 lbs.	1100 lbs.	1650 lbs (centered)
Machine Dimensions	61"x64"x82"	68"x65"x85"	68"x65"x92"	68"x65"x92"	84"x62"x95"

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

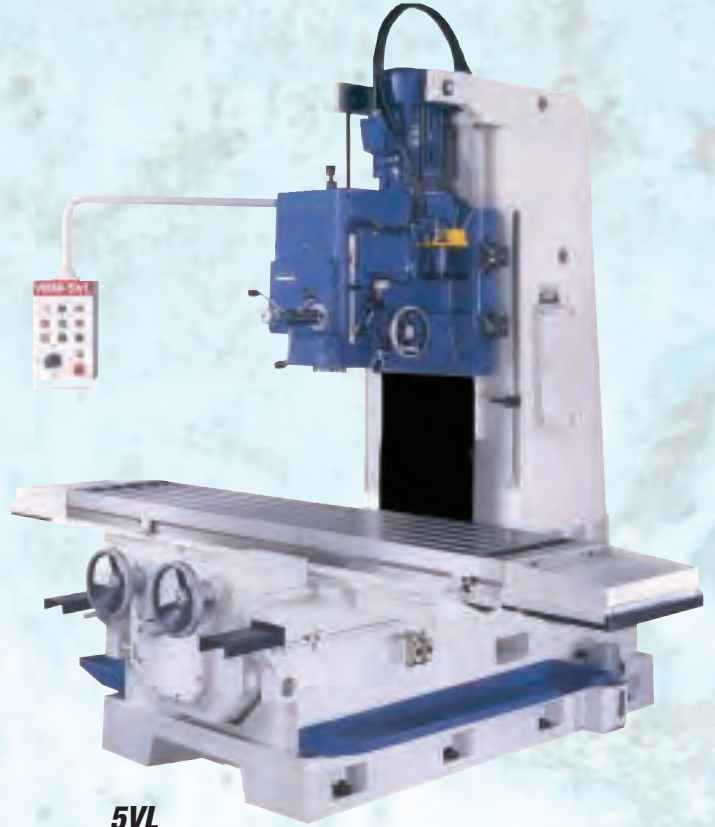


- Huge 47" x 15" X-Y travels
- Meehanite castings
- Extra wide 33-1/2" saddle for maximum support

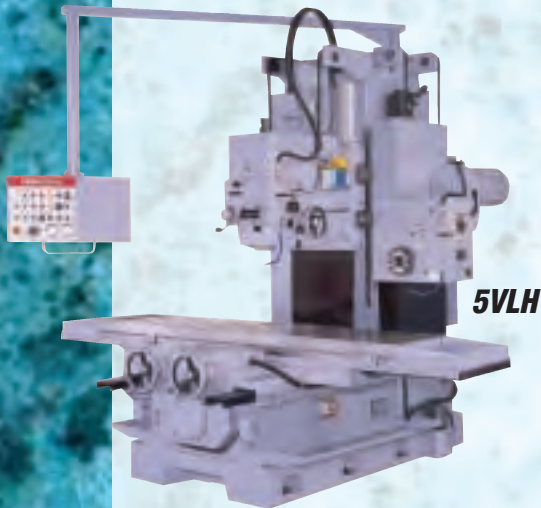
- Hardened & ground square ways with Turcite B
- Automatic lubrication system
- 2,200 lbs. work piece weight capacity when centered
- Flood coolant system standard
- 110-volt control package with thermal overload protection, and low-volt push button pendant

Willis HEAVY DUTY VERTICAL/HORIZONTAL BED MILLS

- 3 machines sizes with X, Y travels of 40" x 15" (3V), 47" x 18" (4V) and 60" x 24" (5VL and 5VHL)
- Hardened and ground box way design for extra rigidity and heavy duty cutting
- High quality castings are stress relieved
- Convenient centrally located operator controls
- Geared feeds on 3V and 4V models
- Inverter feeds on 5VL and 5VHL for infinitely variable feed rates
- Heavy duty 50 taper spindle
- A counterweight is fitted on each machine to balance the weight of the milling head and improve accuracy
- Special versions of the 5VL can be quoted for travels of up to 80" in X
- Optional accessories such as a high precision digital readout, and power drawbars can be installed for your convenience



5VL



5VLH



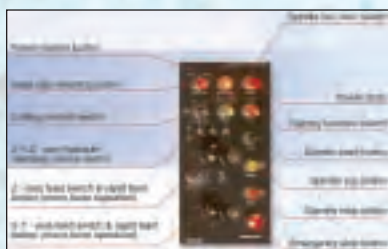
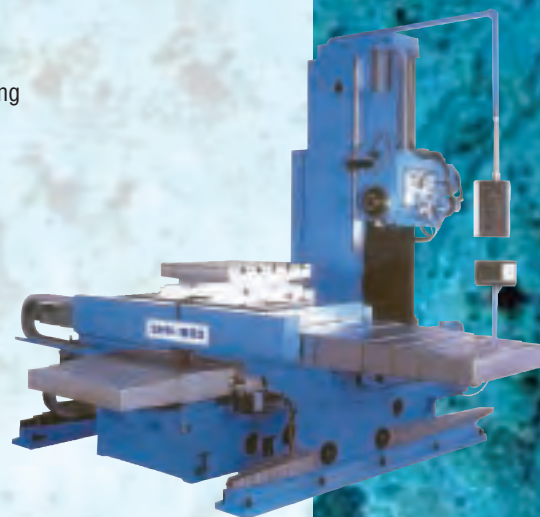
4V

SPECIFICATIONS	3V	4V	5VL	5VHL
X Axis Travel	39"	47"	59"	59"
Y Axis Travel	15"	18"	24"	24"
Z Axis Travel	20"	22"	28"	28"
Spindle - Table Distance	4"-24"	4"-26"	4"-32"	4"-32"
Table Dimensions	15" x 67"	18" x 26"	20" x 87"	20" x 87"
Rapid Feed, X, Y "/Min	113	113	130	130
Table Feed, X, Y "/Min	1-35	1-35	0-40	0-40
Number of Feed Rates	12	12	Variable	Variable
Spindle HP	7.5	10	15	15
Spindle Speeds, RPM	45-1,500	45-1,500	45-1,500	45-1,500
Horizontal Spindle HP	NA	NA	NA	7.5
Horizontal Spindle Speeds	NA	NA	NA	45-1,500
Horizontal Spindle Travel	NA	NA	NA	26"
Spindle Taper	50	50	50	50
Machine Weight, Lbs.	8,800	11,500	15,400	19,200

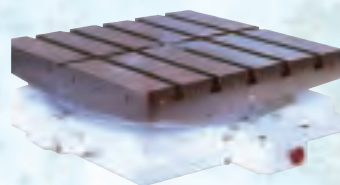
willis HORIZONTAL MILLING AND BORING MACHINES



- Tremendous value for horizontal milling and boring applications
- Hardened and ground box ways in all axes
- Friendly operator controls
- Individual clamping for all 3 axis provides excellent rigidity
- 3 axis high precision DRO
- Automatic lubrication system
- Power tool clamp device
- Optional indexing table for multi-side machining with one setup



	HM1200	HM1800
Table Size	43" x 32"	59" x 32"
X Travel	47" (55" opt.)	71" (77" opt.)
Y (Vert.)	47" (55" opt.)	55" (67" opt.)
Z Travel	32" (39" opt.)	47" (55" opt.)
Table Load	2,640 Lb.	4,400 Lb.
Taper	50	
Spindle RPM	45-1500	
Z Feed (12)	0.001 - 0.034 "/rev	
X, Y Feeds	1-34 "/min	



Indexing Table (opt.)



DRO (std.)

willis CNC HORIZONTAL MILLING AND BORING MACHINES

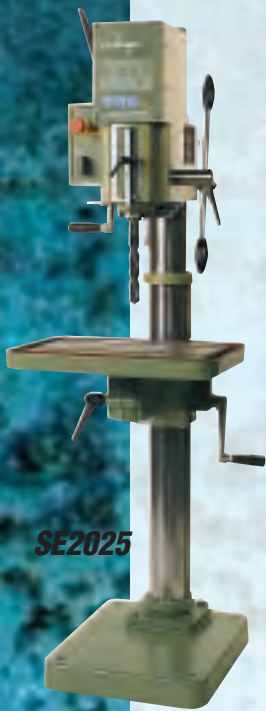


- 2 speed ZF gearbox for optimum spindle performance
- Oil chiller for spindle and gearbox provides stability and precision
- Metered lubrication system with clogged or broken pipe detection
- Flood coolant system
- Remote MPG

AVAILABLE OPTIONS

- Numerous full 4th axis or simple indexing tables available
- 40 or 60 tool ATC
- Linear scales for X, Y, and Z
- High pressure through spindle coolant
- Chip augers and conveyors
- Numerous chip guards / enclosures

	HM1200CNC	HM1800CNC
Table Size	43" x 32"	59" x 32"
Table Load	3,300 Lb.	4,400 Lb.
X Travel	47" (55" opt.)	71" (77" opt.)
Y (Vert.)	43" (51" opt.)	51" (63" opt.)
Z Travel	32" (39" opt.)	47" (55" opt.)
Taper	50	
Spindle RPM	20-4000 (30-6000 opt.)	
Spindle HP	20	



SE2025



SE2030



SE2035

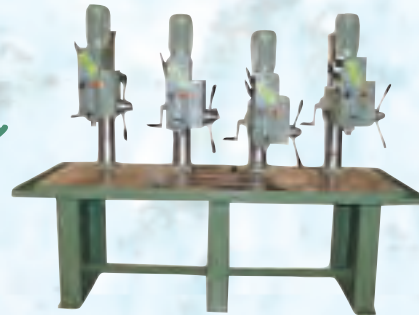


SE2040



**Bench Models Available
for SE 2025 & SE2030**

Solberga Drills



**Gang Drills
Available
in Many
Configurations**

SPECIFICATIONS	SE2025	SE2030	SE2035	SE2040
Drills to the Center of Circle	20"	25"	25"	26"
Drilling Capacity, Mild Steel	1"	1.2"	1.4"	1.6"
Spindle Travel	5.3"	6"	6"	7.5"
Quill Diameter	2-3/8"	2-7/16"	2-7/16"	2-3/4"
Spindle Taper, MT	3	3	4	4
Spindle Speeds (8)	90-3285	90-3610	90-3610	108-1800
Available Powerfeed Rates (4)	0.004-0.012	0.004-0.012	0.004-0.012	0.004-0.013
Max. Distance Spindle – Table	33"	35"	32"	33"
Column Diameter	4"	4.1"	5"	5.5"
Table Size	14"x20"	14"x20"	22"x26"	20"x24"
Vertical Travel of Drill Head	8"	10"	7"	Fixed
Vertical Travel of Table	21"	28"	27"	25"
Horsepower (Low Speed/Hi Speed)	1.1/1.5	1.5/2	2.2/3	3
Net Weight Lbs.	400	570	640	700

- Adjustable drill head heights on all models (n/a for SE2040)
- Drill heads & table arms can swivel 360° around the column (n/a for SE2040)
- Helical drive Gears with fiber to steel mesh provide virtual maintenance free, quiet & efficient operation
- Spindles and columns are made of top quality swedish steel
- Spindles are designed recessed into the quill housing providing superb rigidity
- Powerfeed units are equipped with an automatic feed overload
- Each machine is equipped with electrical thermal overload switch, no-volt release and emergency stop



ALL NEW GEARED HEAD DRILLING MACHINES

NI-25

- This European designed drill provides an excellent value for the money for smaller workshops and toolrooms
- The drill head and table are adjustable 360° around the column and can be elevated and lowered
- Helical gears combined with steel gears against reinforced fiber gears in the main gear box ensures higher operating efficiency, a more powerful drive mechanism and smooth operation. The noise level is reduced and maintenance on the gear box is reduced to a minimum
- 8 spindle speeds are easily selected by changing two handles



SPECIFICATIONS	NI-25
Drilling Capacity	1"
Tapping Capacity	M16
Spindle Travel	5.3"
Spindle to Column Distance	10"
Column Diameter	4"
Spindle Taper, MT	3
Spindle HP	1.5
Spindle Speeds (8)	130-3,480
Table Size	14" x 20"
Net Weight	375 Lbs.

AS50 / AS55

- This European designed and built, heavy duty drilling machine provides an excellent value for the money
- These machines are driven by a single speed spindle motor with 9 different geared speeds providing maximum power and torque providing a drill capacity of 2"+
- The spindle power feed is standard
- Standard equipment includes flood coolant and worklight
- The optional ELM version of the machine employs an electromagnetic clutch for the auto downfeed. Power feed is engaged through push buttons on the feed levers, and can be disengaged with these buttons or at a preset depth



SPECIFICATIONS	AS50	AS55
Drilling Capacity in Steel	2"	2.2"
Drilling Capacity in Iron	2.4"	2.6"
Tapping Capacity, Steel	M42	M42
Spindle to Column Distance	14.5"	14.5"
Column Diameter	8"	8"
Spindle Travel	9"	9"
Spindle Taper, MT	4	5
Spindle HP	4	5.2
Spindle Speeds (8)	54-1,032	54-1,032
Powerfeed Rates (4) "/rev	0.0004-0.016	0.0004-0.016
Table Size	20.5" x 24.5"	20.5" x 24.5"
Net Weight	1,840 Lbs	1,900 Lbs

willis

ALZMETALL AB SERIES

THE LATEST HEAVY DUTY DRILLING MACHINES

*German Design
German Engineering*

AB 50/SV



TYPE DATA & DIMENSIONS		AB 26	AB 34	AB 40	AB 50	AB 65
Drilling Performance In Structural Steel 600 N/mm ² Tensile Strength	mm	26	34	40	50	65
Drilling Performance in Cast Iron 200 N/mm ² Tensile Strength	mm	30	40	46	60	75
Drilling Capacity in Structural Steel 600 N/mm ² Tensile Strength	mm	30	40	46	60	80
Tapping Performance in Structural Steel 600 N/mm ² Tensile Strength Cast Iron 200 N/mm ² Tensile Strength		M 16 / M 20	M 24 / M 30	M30 / M 36	M 42 / M 60	M 72 / M80
Spindle Taper, Short Spindle		MT 3	MT 4	MT 4	MT 4	MT 5
Spindle Travel	mm	160	160	160	200	240
Column to Spindle Distance	mm	293	300	300	350	400
Column Diameter	mm	115	145	145	200	260
Machine Tube,	mm x mm	514 x 360	615 x 430	615 x 430	720 x 510	880 x 540
Clamping Surface (wxd)						
T-Slots (number x width x distance)	mm	2 x 14 x 224	2 x 14 x 224	2 x 14 x 224	2 x 14 x 224	2 x 14 x 224
Automatic Feed	mm/r	0,1-0,2-0,3-0,4	0,1-0,2-0,3-0,4	0,1-0,2-0,3-0,4	0,15-0,2-0,3-0,36	0,1-0,14-0,2-0,28-0,4
Net Weight Approx.	kg	275	430	500	720	1450
Drive		Inf. Variable	Inf. Variable	Inf. Variable	Inf. Variable	Inf. Variable
Motor	RPM	750/1500	750/1500	750/1500	750/1500	1500
	KW	1,0 / 1,6	1,4 / 2,2	1,8 / 2,9	2,3 / 3,4	7,5
Spindle Speed Ranges	RPM	120-2330	100-1800	100-1600 200-3200	30-765 25-640	63-1250 80-1600
Motor	RPM	500 / 1500	500 / 1500	750 / 1500	1500 / 3000	750 / 1500
	KW	0,5 / 1,5	0,6 / 1,8	1,8 / 2,9	3,6 / 4,3	4,0 / 5,5
Spindle Speed Ranges	RPM	80-2330	70-1800	70-4000 with gear	60-1530 50-1280	32-1250 40-1600

**3D-STRUCTURED PAINTING:
STANDARD EQUIPMENT:**

Grey RAL 7035 and Blue RAL 5003

Mains switch lockable, overload protection switch, emergency-OFF mushroom switch (self-locking), protection class IP 54, electromagnetic feed clutch, digital readout for spindle speed (not with AB 65), contactor control for clockwise spindle rotation (with AB 40 and AB 65), electrical spindle speed setting (with AB 40), built-in work light (with AB 65 only), control and light transformer (with AB 40).

AB 26/SV



AB 34/SV



AB 40/HST



AB 65/SV



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ALZMETALL ALZSTAR SERIES



Alzstar 30/S

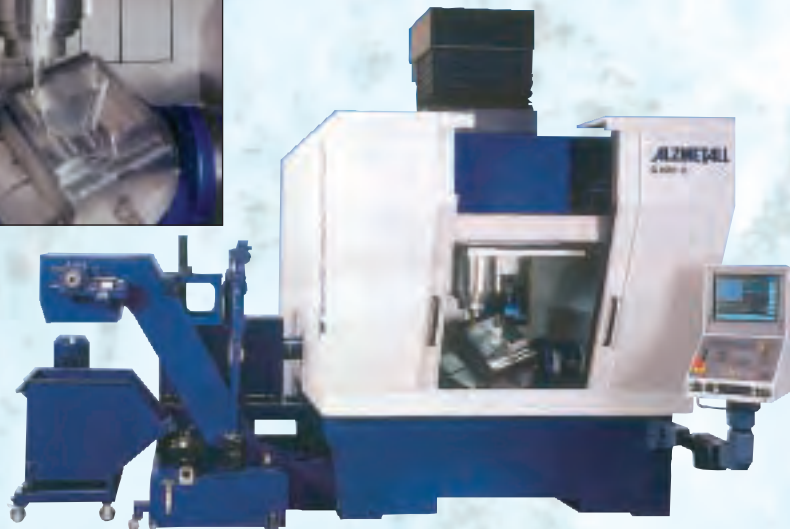
TYPE		ALZSTAR 30	ALZSTAR 40
DATA & DIMENSIONS			
Drilling Performance in Structural Steel	mm	25	32
600 N/mm ² Tensile Strength			
Drilling Performance in Cast Iron	mm	30	38
200 N/mm ² Tensile Strength			
Drilling Capacity in Structural Steel	mm	30	40
600 N/mm ² Tensile Strength			
Tapping Performance in Structural Steel		M 16 / M 20	M 20 / M 30
600 N/mm ² Tensile Strength / Cast Iron 200 N/mm ² Tensile Strength			
Spindle Taper, Short Spindle		MT 3	MT 3
Spindle Travel	mm	140	120
Column to Spindle Distance	mm	293	293
Column Diameter	mm	115	115
Machine Table, Clamping Surface (wxd)	mm x mm	515 x 360	515 x 360
T-Slots, (number x width x distance)	mm	2 x 14 x 224	2 x 14 x 224
Feed		Manual	Manual
			0,1+0,2 mm/r
Net Weight Approx.	kg	215 (260)	285
Drive		Inf. Variable	Inf. Variable
Motor	RPM	750 / 1500	1500 / 3000
	KW	1,0 / 1,6	1,45 / 1,9
Spindle Speed Range	RPM	225-4300	160-2250
Motor	RPM	750 / 1500	
	KW	1,0 / 1,6	
Spindle Speed Range	RPM	100-1800	



Alzstar 40/SV

willis

ALZMETALL SPECIAL PURPOSE MACHINES



HI SPEED 5 AXIS MILL



PRODUCTION VMC'S

SPECIAL PURPOSE DRILLS



Willis WOLVERINE

20" VARIABLE SPEED DRILL PRESS

- Variable spindle speeds 150-2000 RPM
- No. 3 MT spindle, heavy duty with 6 spline drive
- 2-speed motor, 2/1 HP, 60 cycle, 3 phase
- Emergency stop button with manual feed
- Table and head rotate 360° around column
- Heavy duty head, bearing-seats are precision bored
- Cog belt and 3 V-belts provide positive power to the spindle
- Positive depth control
- Heavy base casting with ground surface
- Table raises and lowers by worm gearing and rack

SPECIFICATIONS:

- Drills to center of circle20"
- Drilling capacity in cast iron1-3/8"
- Drilling depth, manual feed6-1/2"
- Maximum distance spindle nose to table28-3/4"
- Maximum distance spindle nose to machined base39-1/4"
- Spindle taper3 MT
- Spindle speeds, infinitely variable150-2000 RPM
- Column diameter4"
- Table size with 2 T-slots22" x 19.5"
- Floor base overall with 2 T-slots26-1/4" x 18-3/8"
- Overall height73"
- Vertical travel of table19"
- Vertical travel of drill head18-1/2"
- Quill diameter3"
- Motor 2-speed, 3 phase, 220 or 440 volts2/1 HP
- Net weight hand feed machine650 lbs.

CATALOG LISTINGS:

- #2020M Floor model, manual feed drill press.
Includes: machined base, rectangular table, two speed . . .
switch, start button, and emergency stop, two-speed motor,
table raising mechanism and variable speed drive



Model 2020M

GREAT VALUE!!
GREAT PRICE!!



**“Little Bear”
RD-750**

- 30" arm
- 1-1/2" drilling capacity
- 16" x 22" x 13" H box table
- 2 HP spindle drive motor
- 19" horizontal drill head travel
- 25" vertical arm travel
- 88-1500 RPM's
- 6 spindle speeds
- Spindle feeds: 3 steps (0.002"~0.006")/rev.



**“Big Bear”
RD-1100**

- 45" arm
- 1-3/4" drilling capacity
- 20" x 25" x 17" H box table
- 5 HP spindle drive motor
- 32" horizontal drill head travel
- 27" vertical arm travel
- 44-1500 RPM's
- 12 spindle speeds
- Spindle feeds: 3 steps (0.002"~0.006")/rev.



RD-1300H

- 51" arm
- 2" drilling capacity
- 20" x 25" x 17" H box table
- 7.5 HP spindle drive motor
- 36" horizontal drill head travel
- 27" vertical arm travel
- 44-1500 RPM's
- 12 spindle speeds
- Hydraulic clamping for drill head and arm rotation
- Spindle feeds: 6 steps (0.004"~0.024")/rev.

Willis RADIAL DRILLS

MODEL / SPECIFICATIONS		RD-750	RD-1100	RD-1300H	
Capacity	Drilling	Steel	1-1/2"	1-3/4"	2"
		Cast Iron	2"	2-1/8"	2-3/8"
	Tapping	Steel	3/4"	1"	1-1/4"
		Cast Iron	1"	1-1/4"	1-1/2"
Boring	Steel	3"	3-3/8"	3-1/2"	
	Cast Iron	4"	4-3/4"	5"	
Spindle Stroke/Spindle Taper		7-7/8"/MT4	9-7/8"/MT4	9-7/8"/MT5	
Spindle Speeds (RPM)		88-1500 (6)	44-1500 (12)	44-1500 (12)	
Spindle Feeds (inch/rev)		0.002"~0.006" 3 steps	0.002"~0.006" 3 steps	0.004"~0.024" 6 steps	
Column Diameter		8-1/4"	11-7/8"	11-7/8"	
Max. Distance, Spindle Center to Column		30-1/2"	45"	50"	
Min. Distance, Spindle Center to Column		11-3/8"	13"	13"	
Horizontal Travel of Headstock		19-1/8"	32"	37"	
Max. Distance, Base to Spindle		43-3/4"	48-1/2"	48-1/2"	
Min. Distance, Base to Spindle		11-3/32"	21-1/4"	21-1/4"	
M/C Over Height of Column (A)		72-7/8"	85"	85"	
M/C Height From Floor (Max) (E)		85-5/8"	101-3/4"	101-3/4"	
Dimension of Base (LxMxK) inch (B)x(D)		50-3/8"x25-3/16"x5-7/8"	70-27/32"x31-1/2"x6-11/16"	70-27/32"x31-1/2"x6-11/16"	
Effective Area of Table (RxSxT)		16"x22"x13"H	20"x25"x17"H	20"x25"x17"H	
Main Drive Motor		2 HP	5 HP	7.5 HP	
Arm Elevation Motor		1 HP	2 HP	2 HP	
Motor for Hydraulic Clamping Device				1 HP	
Coolant Pump		1/8 HP	1/8 HP	1/8 HP	
Weight (approx)		1200 kgs	2100 kgs	2150 kgs	
Measurement (LxWxH)		56"x32"x81"	79"x39"x88"	90"x39"x93"	

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

willis BERGONZI RADIAL DRILLING MACHINES



- Italian built superior quality radial drilling machine standard with the following features:
- Independent hydraulic clamping of the head, column and arm – arm can be raised and lowered without altering the spindle alignment
- Hardened wear strip on upper arm guide way
- Hardened and ground nickel-chrome forged steel gears in the drill head
- Forced lubrication in drill head
- Forged alloy steel spindle
- Power down feed overload device
- Multiple disk clutch for fast, smooth spindle starts and reversals
- Spindle clutch doubles the spindle speed upon reversal which is ideal for tapping
- Electromagnetic brake for spindle, stops spindle when control lever is put into neutral
- Motorized arm raising with oil bath for arm raising gearbox
- Flood Coolant
- Convenient operator controls

2 YEAR WARRANTY



WB MODEL	40/1000	40/1250	50/1250	50/1600
Drilling Cap. Steel	1.6"		2"	
Drilling Cap. Iron	2"		2.6"	
Tapping Cap.	1.6"		2"	
Max. Distance Spindle to Column	40"	50"	50"	63"
Vertical Arm Travel	24"	24"	30"	30"
Head Travel	30"	30"	37"	51"
Max. Distance Spindle to Base	48"		54"	
Spindle HP	4.5		6.5	
Spindle Speed (12)	45-1620		38-1520	
Feed Rate "/Rev.	0.004-0.016 (4)		0.004-0.022 (5)	
Quill Diameter	2.8"		3.4"	
Spindle Travel	9.1"		11.8"	
Spindle Taper	4 MT		5 MT	
Usable Base Dim.	45" x 27"	52" x 30"	52" x 30"	66" x 33"
Weight, Lbs.	4,200	4,900	6,200	7,100

willis SUPER HEAVY DUTY RADIAL DRILLS



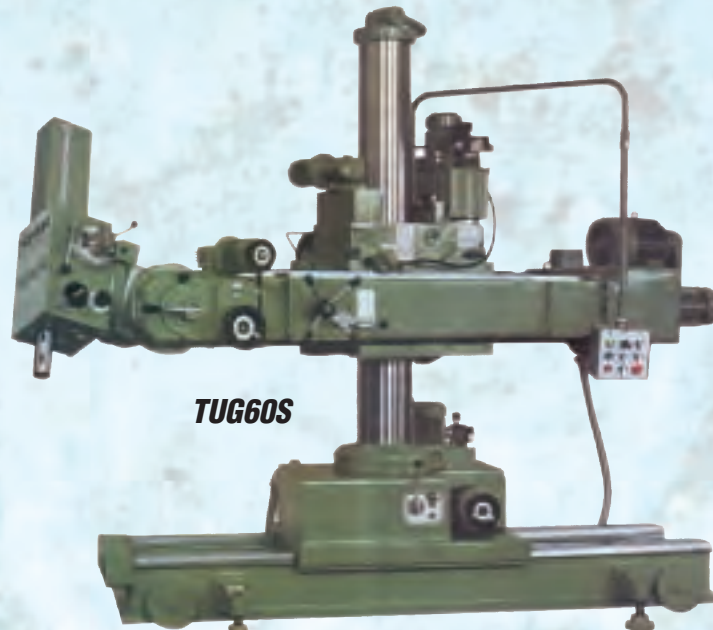
RD2500

- Electro-Mechanical Clamping
- Safety Clutch for Powerfeed
- Low Volt Controls
- Double Disk Clutch for Spindle Engaging & Travel
- Hardened & Ground Alloy Steel Gears and Shafts
- MEEHANITE Castings
- Box Table
- Coolant System

SPECIFICATIONS	RD2000	RD2500
Drilling Capacity (Steel/Cast Iron)	3 / 3.75	3 / 3.75
Column Diameter	20	20
Max Diameter Spindle Center to Column	84	103
Horizontal Head Travel	67	86
Max. Distance Spindle Nose to Base	66	74
Overhead Height (Floor to Top of Column)	117	125
Max Height w/Arm in Uppermost Position	136	145
Base Dimensions	121"x49"x10"	144"x49"x11"
Net Weight Lbs.	16,500	20,000
Spindle Stroke	16	16
Spindle Taper	5	5
Spindle Speeds (16)	20-2180	20-2180
Spindle feeds (18) "/Rev.	0.0015-0.125	0.0015-0.125
Spindle HP	15	15

willis UNIVERSAL PORTABLE DRILLING MACHINES

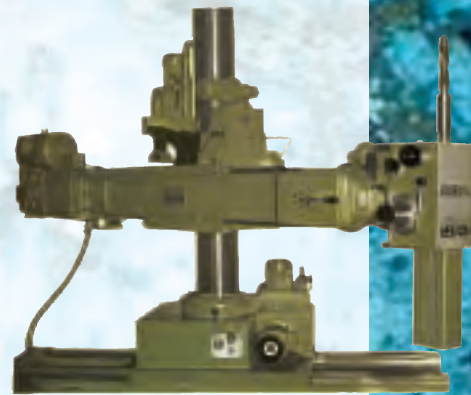
- The combination of several rotation angles allows drilling/tapping at any angle
- Horizontal drilling from 4" off the floor up to 108"
- Safety coupling in feed control prevents overload
- Hardened and ground spindle drive gears
- Vernier scales on all rotating axes
- Saddle traverse on base, and arm traverses on the column for a huge work envelope



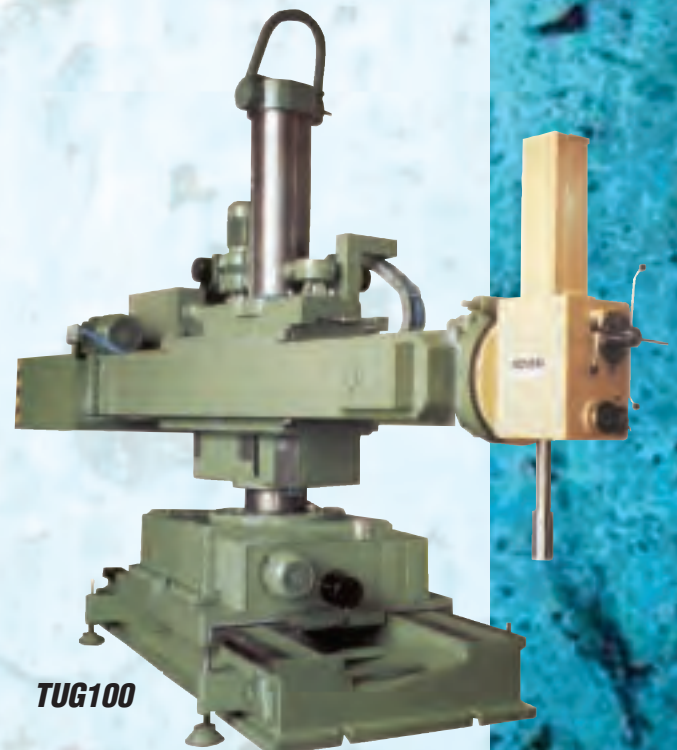
TUG60S



TUG40



SPECIFICATIONS	TUG40S	TUG60S	TUG100
Drilling Capacity, Steel	1.25"	2.3"	4"
Tapping Capacity	1.25"	2.3"	4"
Spindle Travel	7.5"	13.8"	25.6"
Spindle Taper	4MT	5MT	6MT
Spindle Speeds	24-1250	30-800	4-880
Max Distance, Column-Spindle	40"	83"	105"
Max Distance, Spindle-Floor, Vertical Spindle	62"	108"	152"
Vertical Arm Travel	41"	41"	49"
Column Travel on Bed	24"	59"	57"
Column Diameter	7.5"	9.5"	16"
Spindle HP	3	7.5	25
Machine Weight Lbs.	2,500	10,600	38,500



TUG100

Willis PRECISION SURFACE GRINDERS

HAND FEED GRINDERS



618



616S

Down Feed is equipped with a micro-feed mechanism providing 0.00004" increments (616S only)



- 6" x 18" table working area
- 2 HP spindle motor
- 7" OD x 1/2" thick grinding wheel
- 6" x 16" table working area
- 2 HP spindle motor
- 7" OD x 1/2" thick grinding wheel

618 & 616S are standard with ball ways and cable drive for table feed

WILLIS 3A AUTOMATIC SURFACE GRINDERS INCLUDE:

- Hydraulic table feed
- Electronic control crossfeed
- Automatic incremental downfeed



**818-2A
&
818-3A**

- 8" x 18" table working area
- 2 HP spindle motor
- 7" OD x 1/2" thick grinding wheel

818-3A and 1020-3A machines include a magnetic chuck, dust suction/coolant, and overhead dresser



1020-3A



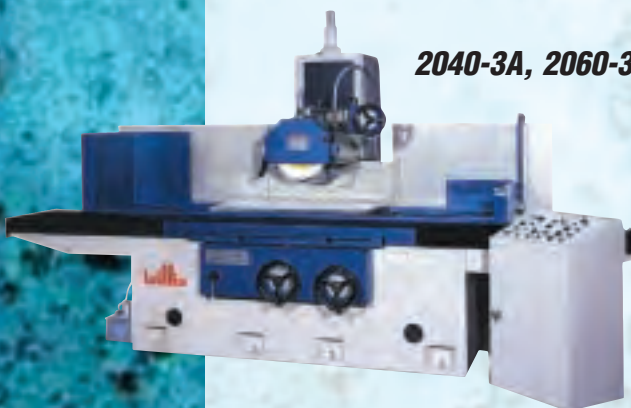
1224-3A



1632-3A

- 10" x 20" table working area
- 3 HP spindle motor
- 7" OD x 1" thick grinding wheel
- 12" x 24" table working area
- 5 HP spindle motor
- 14" OD x 1-1/2" thick grinding wheel
- 16" x 32" table working area
- 7.5 HP spindle motor
- 14" OD x 1-1/2" thick grinding wheel

All Automatic Machines are standard with 1-V and 1 flat way for table feed, and 2 V-ways for crossfeed (1632 & smaller) 1224-3A machines and larger are standard with "Walker" electromagnetic chucks with control, paper filter coolant system, overhead parallel dresser and spark out, spindle runout less than 0.0001"



2040-3A, 2060-3A

**3280-3A, 32100-3A,
32120-3A**

- 20" x 40" (60" optional) table working area
- 7.5 HP spindle motor
- 14" OD x 1-1/2" thick grinding wheel

- 32" x 80" (100" & 120" optional) table working area
- 15 HP spindle motor
- 20" OD x 2" thick grinding wheel

willis WIZARD – OPTIONAL NEW PLC CONTROL

WIZARD SERIES FEATURES

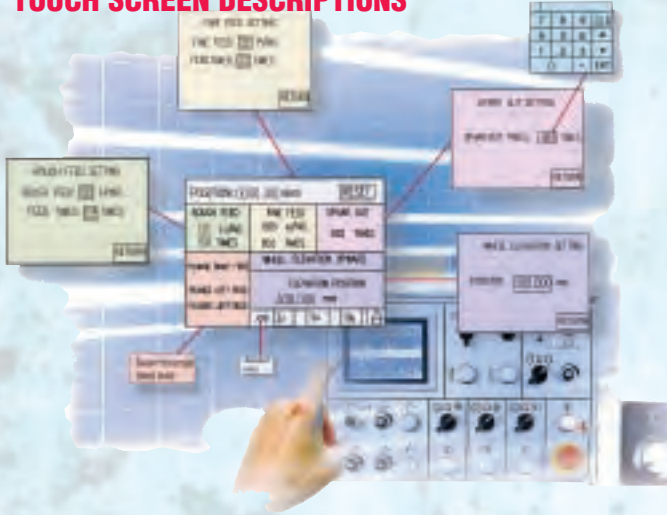
Auto Grinding Cycle
Grinding Mode



- In surface grinding mode, the cross feeds can be set independently for both rough and fine grinding by easily adjusting the feed knobs. High efficiency is achieved while good finishing quality can be guaranteed.



TOUCH SCREEN DESCRIPTIONS



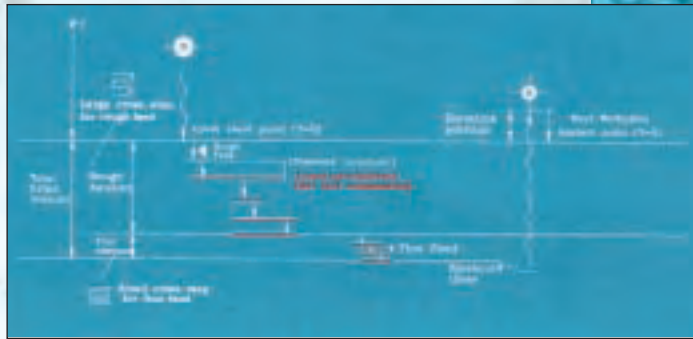
PRECISION CROSSFEED MECHANISM:

- Driven by AC servomotor and grade C5 ball screw, with minimum 0.01mm increment capability, Manual pulse generator (MPG) is also available for user's convenience (WM2/WMA2 model)
- With servo controlled cross movement, surface grinding mode can be selected to grind the slot bottom when the slot is wider than the width of grinding wheel to meet the needs of various grinding operations.

Dresser	Minimum Dress Feed	0.01mm
	Forward/Backward Stroke	60mm
	Forward/Backward Speed	0.1~1.0m/min

AUTO, WHEEL DRESSING & COMPENSATION:

- Integrated in auto, grinding cycle, dressing down feed is driven by stepping motor while forward/backward is driven by hydraulic with adjustable passing speed.



- WM1 - Down feed is driven by servomotor and ball screw
- WMA1 - Down feed is driven by servomotor and ball screw + Auto. wheel dressing and compensation
- WM2 - Down feed and cross feed are driven by servomotor and ball screw
- WMA2 - Down feed and cross feed are driven by servomotor and ball screw + Auto. wheel dressing and compensation

willis BRIDGE GRINDERS

- KGP-1524** – 60" x 95" table size
- KGP-1532** – 60" x 126" table size
- KGP-1542** – 60" x 165" table size

- 35" vertical wheel head travel
- 79" between columns
- 20" dia. x 4" wide grinding wheel
- 20 HP wheel motor

Optional Vertical Wheel Head

- 14" dia. x 2" wide grinding wheel
- 60 degree left and right swivel
- 10 HP wheel motor



Machine pictured with optional vertical spindle.

Willis UNIVERSAL CYLINDRICAL GRINDING MACHINES

**MACHINES AVAILABLE FROM
10" SWING X 14" CENTERS
UP TO
15" SWING X 80" CENTERS**

G30-100AGC
12" swing x 40" centers

- 7.5 HP wheelhead motor
- grinding wheels up to 16" x 3"
- 30 degree wheelhead swivel
- 120 degree workhead swivel
- 10" wheelhead stroke



AVAILABLE MACHINE CONFIGURATIONS

- **M:** Table traverse and wheelhead cross feed are all manual
- **A:** Table traverse is hydraulically driving. wheelhead cross feed is manual
- **H:** "A" with wheelhead rapid approach and retraction. Wheelhead cross feed by manual.
- **AGC:** "H" with wheelhead rapid approach and retraction. Wheelhead cross feed by auto.
- **DAS:** "AGC" with automatic sizing device
- **NC:** PLC controlled machine with ballscrew and servo motor for wheelhead and fully automatic work cycles

- Handscraped ways with forced lubrication
- Wheelhead repeatability of ± 0.0001
- AGC models equipped with plunge feed and traverse feed grinding cycles



■ NC control panel



- Use of hydrodynamic bearings in the wheel spindle insure steady grinding and greater accuracy.

FULLY AUTOMATIC RUBBER ROLLER GRINDERS ALSO AVAILABLE

OPTIONAL ACCESSORIES

- | | | |
|---|--|--|
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|  |  |  |
| | | |
- A101 Internal grinding attachment
 - A102 Double-shoe steady rest
 - A103 Triple-shoe steady rest
 - A104 Scroll chuck & plate (#5 or #6)
 - A105 Magnetic chuck & plate (#6)
 - A106 Magnetic coolant separator
 - A107 Dust collector
 - A108 Angle dresser
 - A109 Radius dresser
 - A110 Wheel balancing stand
 - A111 Spare wheel flange
 - A112 Tungsten carbide half center
 - A113 Automatic dog set (6 pcs/Set)
 - A114 Grinding gauge for manual sizing
 - A115 Hydraulic wheel dresser
 - A116 Microfeeder for wheelhead
 - A117 Work rest (two-piece set)
 - A118 Tailstock with hydraulic operation
 - A119 5C collet chuck mounted on workhead
 - A120 Auto loader
 - A121 Paper filter



G27-50H
10" swing x 20" centers



A121

Willis HEAVY DUTY UNIVERSAL CYLINDRICAL GRINDERS

FEATURES

- Ideal for straight faced rolls, large machinery columns, automobile axles, printing rolls, large motor armatures, etc.
- Heavily ribbed, rigid bed with great stiffness and Sufficient length to support the table over full travels
- Automatic wheelhead control with rapid approach and retract
- Forced lubrication for wheelhead spindle with electrical interlock with wheelhead motor for safety
- Variable speed workhead spindle
- Swiveling table equipped with dial indicator for maximum precision
- "Air Bearing" for workhead and tailstock for easy adjustment
- Telescoping covers for bedway protection
- 16" maximum diameter workpiece
- CD of 63", 71", 79"
- Up to 770 lbs between centers
- 20" wheel
- 10 HP wheel motor

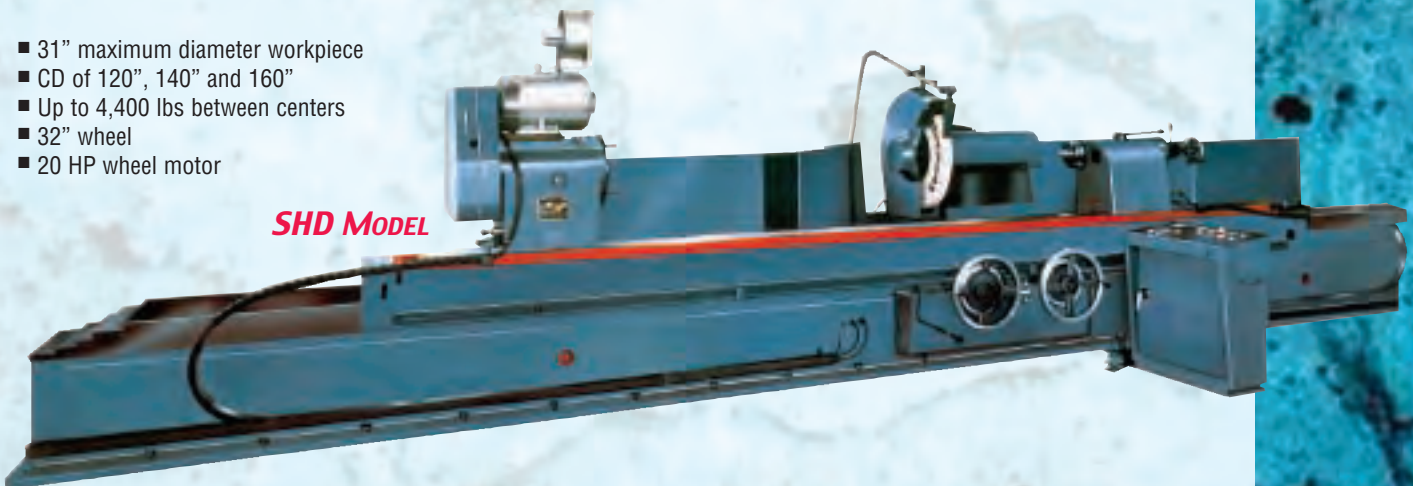


MD MODEL



**HD MODEL
HEAVY DUTY**

- 20" maximum diameter workpiece
- CD of 80", 100", 120", 160"
- Up to 3,300 lbs between centers
- 26" wheel
- 15 HP wheel motor
- 31" maximum diameter workpiece
- CD of 120", 140" and 160"
- Up to 4,400 lbs between centers
- 32" wheel
- 20 HP wheel motor



SHD MODEL

willis DELTA GRINDING MACHINES

AUTO

- The structure is made of oversized, properly ribbed Meehanite cast iron
 - The hydrostatic lubrication, on all axes, eliminates sliding friction and stick slip
 - Ground Class C3 ball screws assure great precision in movement
 - The spindle runs in a hydrodynamic bearing of the Mackensen type
 - The spindle motor is dynamically balanced to virtually eliminate possible vibration causes
- Standard equipment includes: proportional system for the movement of the longitudinal table, hydraulic linear profiling device of the wheel, quick vertical and transversal feed devices, heat exchanger air/oil, lexan, and aluminum safety guard with interlocking switch



DIATEST



Operator friendly control with programmable rough feed, fine feed, spark out, and automatic wheel dressing cycle with vertical compensation

COMPACT PLUS NC



NC control includes all of the DIASTEP functions plus menu on video for an easy quick introduction of grinding cycle parameters, memory of data for 10 different work pieces, additional dressing cycles, additional spark out cycles, work with increments by electronic hand-wheel

DIATRONIC CNC



The vertical and cross axes can be interpolated in order to profile the wheel and to execute special grinding cycles. The number of axes can be increased, for using rotary and/or tilting tables. The graphic display makes the insertion of the grinding cycle parameters quick and easy, and additional pages / screens and functions can be created at the customers' request.

SYNTHESIS - Saddle Type	65/40	80/50	110/60	130/60
Surface of Table	12" x 24"	16" x 28"	20" x 40"	20" x 47"
Downfeed per Handwheel Revolution	0.04"	0.04"	0.04"	0.04"
Min. Programmable Vertical Feed	0.00005"	0.00005"	0.00005"	0.00005"
Crossfeed per Handwheel Revolution	0.04"	0.04"	0.04"	0.04"
Min. Programmable Transverse Feed	0.00005"	0.00005"	0.00005"	0.00005"
Power of Wheel Motor, HP	7.5	12	12	12
Approximate Mass of the Machine, Lbs.	5,500	8,800	9,500	10,000
Approximate Mass on the Table, Lbs.	1,200	1,800	2,200	2,600

MINI - Column Type	12	15
Surface of Table	20" x 47"	20" x 59"
Min. Programmable Down Feed	.000005"	.000005"
Power of Wheel Motor, HP	15	15
Machine Weight, Lbs.	13,200	14,300
Admissible Mass on the Table, Lbs.	2,640	3,300



MAXI CNC COLUMN TYPE

- Models available in 9 sizes from 24" x 48" up to 32" x 120"
- 20" x 4" grinding wheel
- 20 HP wheel motor
- 0.00005" minimum programmable down feed
- Hydrostatic lubrication for all sliding surfaces
- Hydrodynamic spindle bearings



HIGH PERFORMANCE BAND SAWS AND COLD SAWS

••ALL NEW••



- Manual, semi-automatic and fully automatic double miter cutting band saws
- 13" to 18" round stock, straight cut capacity
- 12"w x 18"h to 18"w x 32"h straight cut capacity
- + 45 degree, - 60 degree miter
- 3 HP - 7.5 HP blade driver

■ High Production Automatic Band Saws

- 10" to 18" round stock capacity
- 11"w x 10"h to 18"w x 18"h capacity
- Split front vise
- Out of stock sensor
- Automatic work height center
- Hydraulic blade tension
- 3 HP - 7.5 HP blade drive



■ Fully Automatic Column Type Band Saw

- 14" to 28" round stock capacity
- 14"w x 14"h to 32"w x 28"h capacity
- 5 HP - 10 HP blade drive
- Split front vise
- Hydraulic blade tension
- Hydraulic positioned blade guide arm for minimum blade deviation



Plate Saws and Billet Saws with Enormous Capacities



■ Fully Automatic Cold Saws with User Friendly Touch Screen Control

- 2-1/2", 4" and 6" bar stock models available
- Auto loading table with servo driven stock feed system
- 10, 15, or 20 HP blade motor with geared transmission provides efficient and powerful cutting
- Hydraulic floating vise



LATHE CHUCKS & SPECIALTY WORKHOLDING



4 Jaw Independent Chucks Up To 14.5" Thru Hole



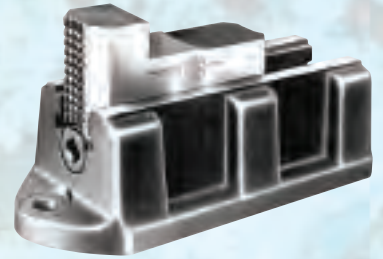
2, 3, 4 & 6 Jaw Scroll Chucks SUPERIOR GRIPPING

FACE PLATE JAWS

Semi Steel Body

For Face Plates With Radial Slots

- To meet the great demands on the production machines of today, we manufacture this type of face plate jaws
- Heavy, improved bodies give the jaws wide contact surfaces, guaranteeing a firm grip and minimum wear
- The bodies can be made of steel upon request



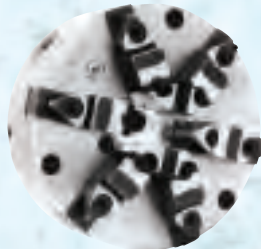
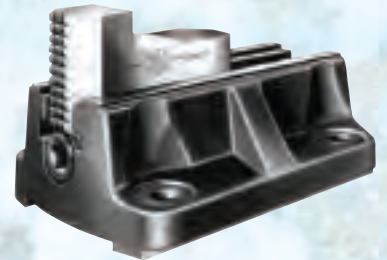
Made in Sweden

BORING MILL JAWS

Semi Steel Body

For Face Plates With Parallel Jaws

- Extra heavy design, intended for vertical turning lathes
- Each boring mill jaw is held by four bolts
- Ribs are cast integral with the body
- The bodies can be made of steel upon request



3 & 6 Jaw "Set Tru" 0.0005" T.I.R.



3 Jaw Self-Centering Scroll Chucks



4 Jaw Independent Lathe Chucks

BILSING

Made In Germany



Independent 4 Jaw Chuck



Face Plates



NORTHERN OHIO AND SOUTHEASTERN MICHIGAN DIRECT DISTRIBUTION PRODUCT LINES



HYD-MECH
Bandsaws



SCOTCHMAN
Ironworkers & Cold Saws



EAGLE
Plate & Angle Bending Rolls



BETENBENDER
Shears & Press Brakes



DAKE
Presses
& Saws



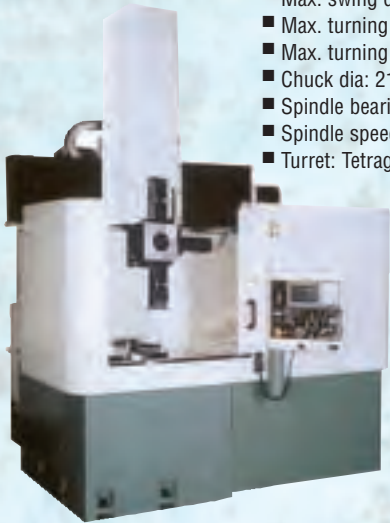
AKS
CNC Plasma Cutting



TENNSMITH
Sheet Metal Machinery

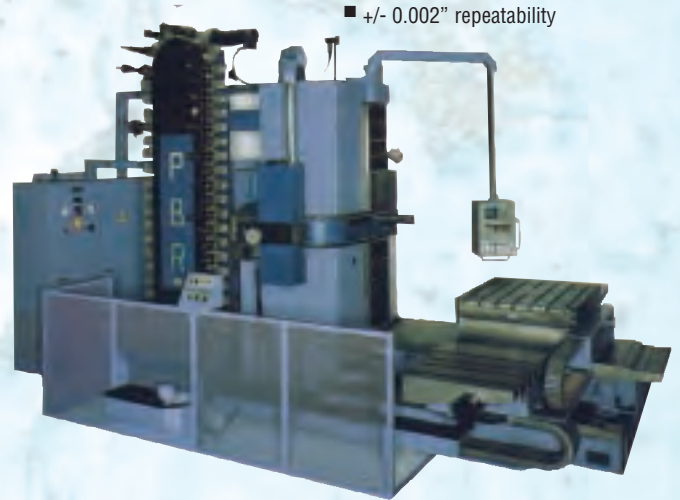
MACHINES "IN THE WORKS"

- Max. swing dia: 850mm
- Max. turning dia: 650mm
- Max. turning height: 650mm
- Chuck dia: 21"
- Spindle bearing dia: 330mm
- Spindle speed: 5-600 RPM
- Turret: Tetragon, 4 positions



- 4.3", 50 taper spindle
- 2,500 RPM
- 20 HP
- 20" spindle travel, Z
- 60" cross travel, W
- Up to 60" of vertical travel, Y
- Up to 100" of longitudinal table travel, X
- 9,000 lb. table load capacity
- 40" x 50" table work surface
- Up to 60 tool magazine
- +/- 0.0004" positioning accuracy
- +/- 0.002" repeatability

- Max. swing dia: 2000mm
- Max. turning dia: 2000mm
- Max. turning height: 1250mm
- Table dia: 1600mm
- Spindle bearing dia: 685mm
- Spindle speed: 3-250 RPM
- ATC 12 positions



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