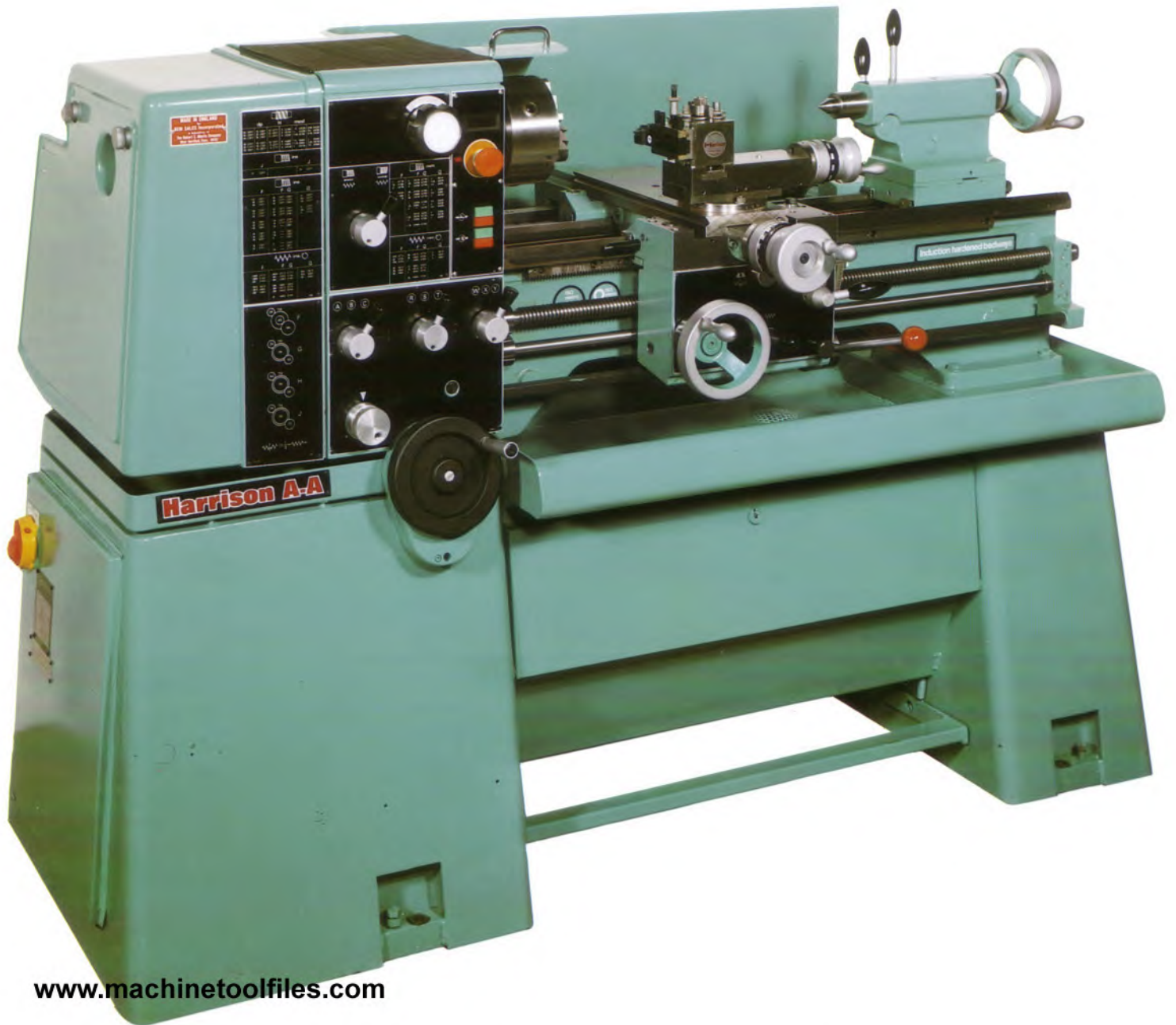


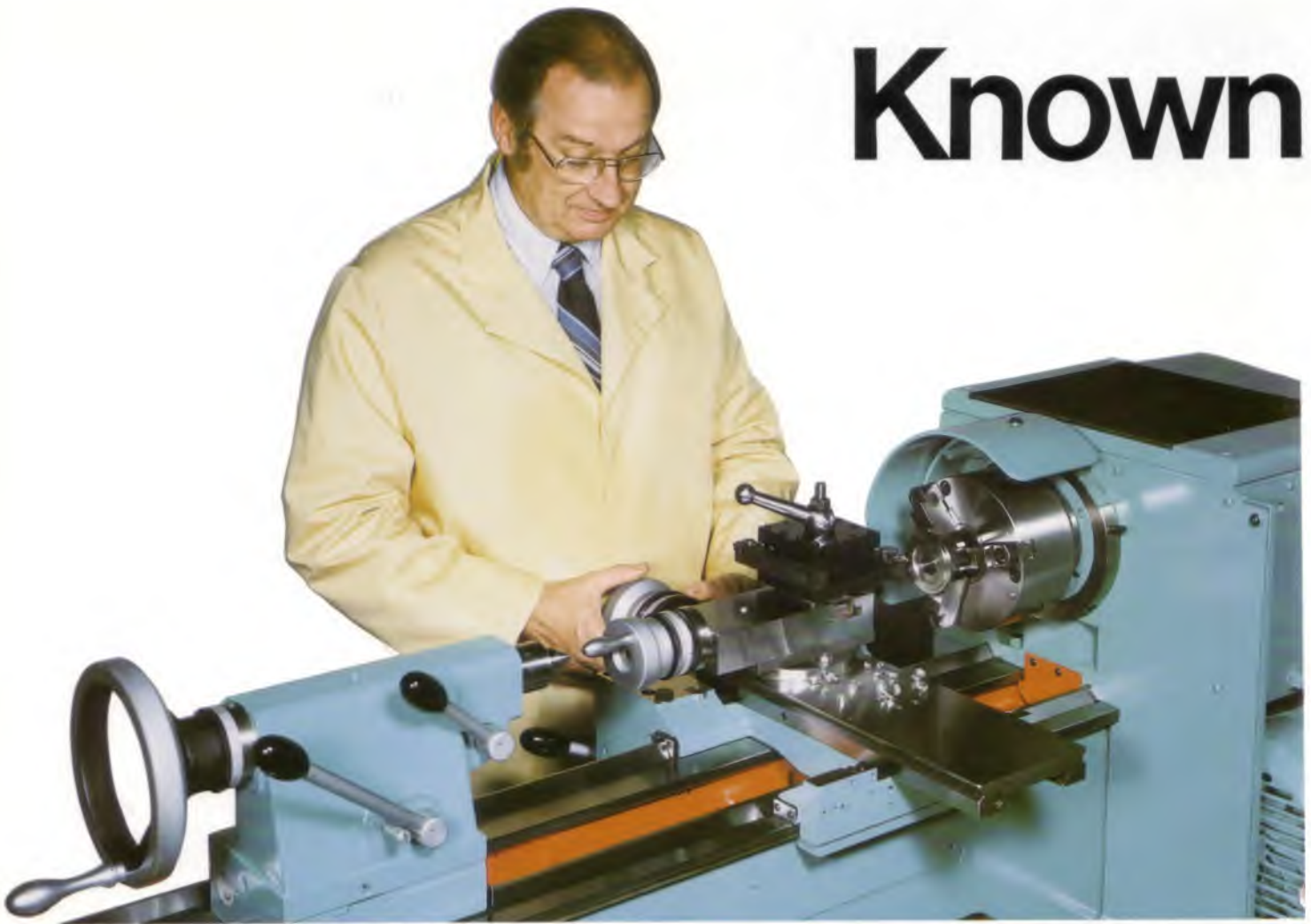
Harrison A-A



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Precision Toolmaker's Lathe

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A VERSATILE AND SENSITIVE 13" TOOLROOM LATHE

3 HP - 3000 RPM

VARIABLE SPEED - INCH/METRIC

The **HARRISON AA PRECISION TOOLMAKER'S LATHE** meets the demand for a small, dependable high speed lathe for the toolroom, laboratory, or precision production work. Exceptional versatility is built into the lathe, evidenced by its quiet, full-power variable speed drive; its Universal inch/metric gearbox; its dual reading inch/metric dials; its electronic digital spindle speed indicator; and its numerous operating and safety features. With respect to accuracy, this fine lathe conforms to all universally accepted American and International Precision Lathe Standards. It accepts all conventional lathe tools and attachments, and is recommended for the most exacting assignments.

Throughout the design, strength and rigidity are combined with speed and accuracy to handle the widest range of turning and threading applications. Generously proportioned component parts made from the best materials assure many years of dependable full capacity usage. Simplicity of operation, easy accessibility for inspection and maintenance, and clean-cut appearance are typical **Harrison** characteristics. Careful consideration is given to the safety of the operator and to compliance with prospective OSHA standards. Flow-line manufacturing techniques in a modern well-equipped machine tool plant achieve economies allowing the reasonable price levels which make **Harrison** lathes outstanding values in the world market.

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The Variable Speed Headstock is powered by a well proved variable speed unit driving directly from the motor. Three separate overlapping speed ranges are dial selected, two lower speed ranges through ground gearing, and higher speeds above 800 RPM via direct non-gear drive. Spindle speed is changed by means of a conveniently located hand-wheel while the machine is running, and RPM is registered on a lighted digital display. The drive provides full power at all speeds, an unusual capability in variable speed lathes. The headstock has a Vee and Flat fitting to the lathe bed to preserve original precise alignments, and has a self-contained lubrication system. The lathe spindle is exceptionally stiff and mounted in GAMET ultra-precision opposed thrust taper roller bearings. It invites a generous range of sensitive collet-gripped work as well as conventional chucking applications. A sturdy swiveling chuck guard is mounted around the hardened spindle nose. Spindle Forward-Stop-Reverse is controlled by a gated monolever attached to the apron, and a powerful electrically interlocked foot brake is provided.

A Low Voltage Control Center, built into the face of the headstock, contains the lighted spindle speed indicator, a twist-lock master stop button, and pushbuttons for the coolant system and hydraulic tracer when supplied. Non-glaring legend plates show end gear combinations for the wide range of inch and metric threads and feeds. As a convenience to the operator only 16 practical progressive feed selections are charted in the inch system, from .0005" to .020" per revolution, and 16 metric feed rates from .015mm through .5mm, even though end gears supplied with the lathe permit over 200 feed and thread combinations.

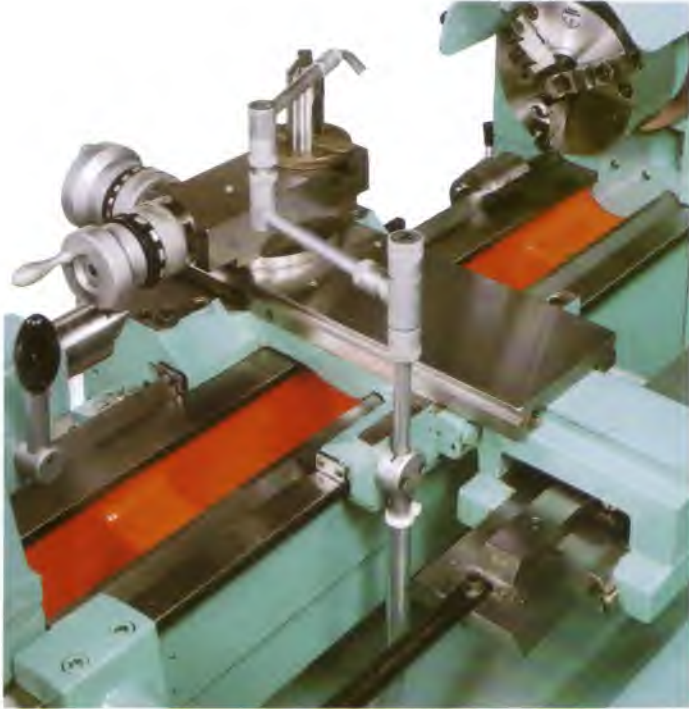


The Carriage is a sturdy compact assembly with generous bearing area on the hardened and ground bedways. Wipers are fitted front and rear. Adjustable gibs are provided to take up wear on both compound and cross slides. Dual reading inch/metric dials with adjustable slip rings are fitted to the cross and compound feed screws. To avoid reading errors, dual dials have rotating shields which expose to view either measuring system, but not both at the same time, a very desirable feature. The cross feed screw reads .001" or .02mm on work diameter, and is equipped with an anti-backlash feed nut. The compound rest may be swivelled 360°. The full length cross slide facilitates the mounting of tracing equipment and other tooling, while providing excellent protection for the feedscrew assembly and guideways.

The Apron is double-walled, with a self-contained lubrication system. A one-shot lube system serves the cross slide and carriage wings. The drop-worm feed control and screw cutting engagement lever cannot be used at the same time. The precision leadscrew is reserved strictly for thread cutting. The gated monolever for Spindle Forward-Stop-Reverse and threading dial for inch threads are attached to the apron. The handwheel has provision for nonrotation when cutting — a valuable safety feature.

The 3HP Main Drive Motor is the totally enclosed fan-cooled type, mounted on the bed behind the headstock for good ventilation and easy access. All electrical equipment conforms to national electrical and fire prevention codes.

Accuracy and durability

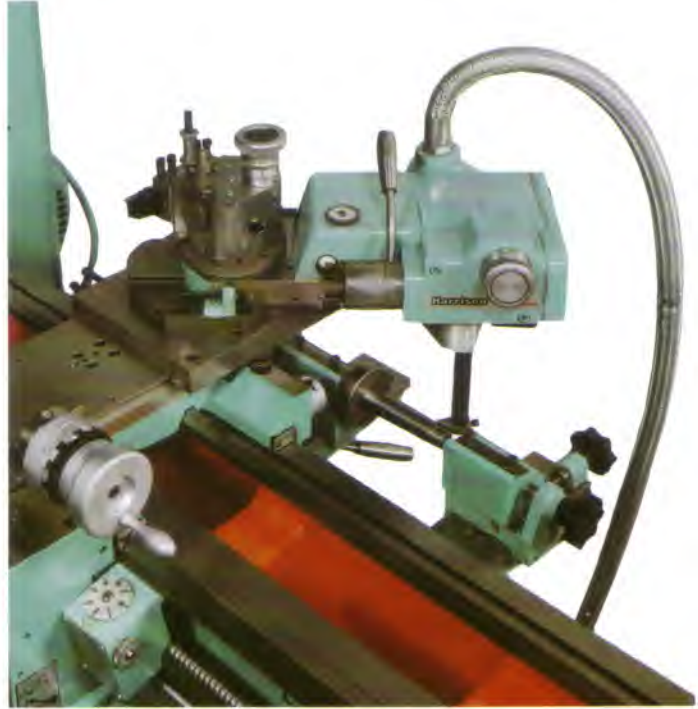


The Taper Turning Attachment is the telescopic type. The swivel slide is graduated in inches per foot and degrees, 10° each side of parallel. A maximum cut of 10" can be made at one setting.

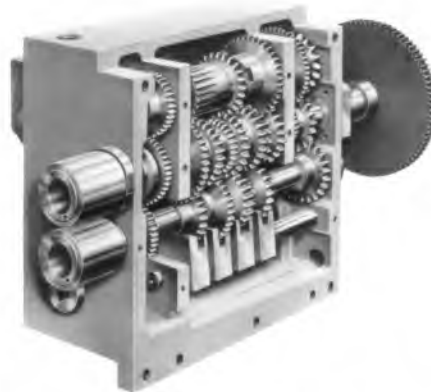
The Lathe Bed is of modern ribbed design, heavily cross-braced to withstand the heaviest cutting forces. All bearing surfaces are induction hardened and precision ground. The bed is securely bolted to a one-piece steel cabinet base, flared for great stability, which contains the electrical control enclosure, motor driven coolant system, and a spacious storage compartment.

The End Gear Train includes non-metallic intermediate gears for noise-free running without lubrication. This system assures unvarying positive drive, and is far superior to old style belt drives often employed in high speed lathe gear trains. The basic feed and threading ranges may be readily extended using the change gears supplied. A safety electrical disconnect switch is actuated when the end guard is removed.

The Tailstock is the setover type, with lever locks for the quill and bed engagement. Other features are tang drive, drift slot, tool ejection, inch/metric quill graduations, ball thrust bearing, bed wipers. The handwheel has a micrometer dial for fine adjustments.



Hydraulic Copying Equipment is a valuable extension to the usefulness and production capacity of any lathe. The extended cross slide readily accepts equipment for longitudinal and face tracer turning, copy boring, and high speed threading to tolerance of $\pm .0005"$ (.015mm). Maximum copying length is 21" (535mm) to a maximum profile depth of 2.5" (64mm).



The Universal Gearbox is a totally enclosed quick change design with self-contained lubrication system providing total threading capability. It affords selection of a comprehensive range of inch, metric, diametral pitch and module threads by means of 3 levers and a rotary dial. The central selector lever may be used to cut feed rate in half, or to double the feed rate, instantaneously. Gear teeth and clutches are induction hardened. Torque limiting devices on both leadscrew and feed rod protect against overload.

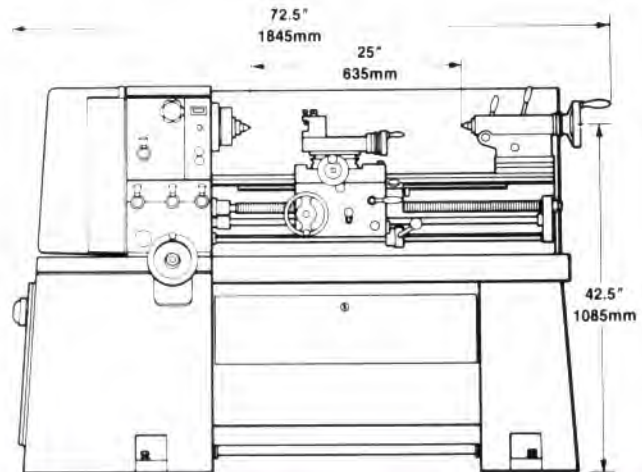
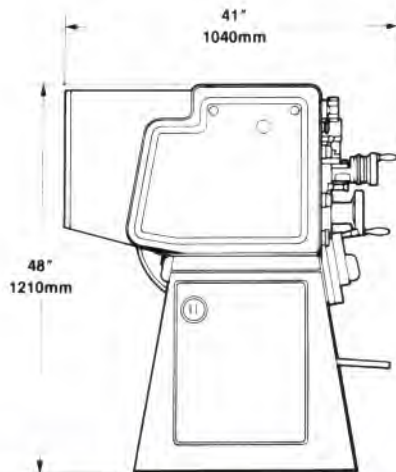


SKILLED HANDS LOVE THIS EXTRAORDINARY ARRAY OF OPERATOR CONVENIENCES AND SAFETY FEATURES

- Full Power Variable Speed Drive
- Digital Display of Spindle RPM
- Precision Leadscrew & Feed Screws
- Dual Reading Inch/Metric Dials on Cross Feed and Compound Screws
- Separate Leadscrew, Feed Rod, Control Shaft
- Inch/Metric Gearbox for Total Threading Capability
- Threading Dial for Inch Threads
- Hardened & Reischauer-ground Headstock Gears
- Ultra-Precision Spindle Bearings
- Hardened & Ground Bedways, Sturdy Bed Design
- Full Length Cross Slide
- Cross Feed Screw Reads .001" or .02mm on Diameter
- Anti-backlash Cross Feed Nut
- One-Shot Lube System for Cross Slide and Saddle
- Tailstock with Graduated Quill and Micrometer Dial
- Built-in Coolant and Chip Pan
- Motor Driven Coolant System with Splash Guard
- Rigid One-piece Cabinet Base with Electrical Control Enclosure
- Chrome Handwheels, Dials, Bed Wipers
- Built-in swiveling Chuck Guard
- Low Noise Level - 80 Decibels Maximum
- Non-rotation provision for Apron Handwheel
- Totally Enclosed Variable Speed Headstock
- Foot-operated Spindle Braking
- Totally Enclosed Gearbox with self-contained Lube System
- Totally Enclosed Apron with self-contained Lube System
- Totally Enclosed Fan-cooled Main Drive Motor
- Foolproof Gated Spindle Control Lever
- Overload Limiting Clutches on Leadscrew and Feedshaft
- Reduced Voltage [115V] Control Circuit
- Emergency Twist-Lock Stop Button
- Fail-Safe Electricals to National Electrical Code
- Control Enclosure with Interlocked Disconnect Switch on Door Latch
- Safety Disconnect Switch for End Train Gear Cover
- Lockable Storage Compartment
- All Controls within Easy Reach

*Harrison Universal Quick Change Gear Boxes provide for **EVERY STANDARD ISO Metric Thread Pitch** and **EVERY STANDARD Inch Thread Pitch** - a most unusual capability.*

HARRISON MODEL AA 13" TOOLMAKER'S LATHE



CAPACITY AND DIMENSIONS

Swing over bed & carriage wings	13" (330mm)
Swing over extended Cross Slide	8-1/4" (210mm)
Center distance	25"
Induction Hardened & Ground Bedways	
Minimum Hardness	Rockwell C-44
Bed width	8" (205mm)
Bed depth under Head & Tailstock	11 1/4" (285mm)
Steady Rest capacity	0" to 4" (100mm)
Follow Rest capacity	0" to 2" (50mm)
Working height, floor to spindle C/L	42 1/2" (1082mm)
Drive Motor TEFC Reversing	3HP (2.2KW)

Headstock

Spindle Bearings	GAMET Ultra Precision
Spindle Nose	D1-4" Camlock
Hole thru Spindle - To Pass	1 1/2" DIA. (38mm)
Infinitely Variable Speeds, (3) Overlapping Ranges:	
Low Range thru gears	35-180 RPM
Intermediate Range thru gears	150-800 RPM
High Range thru direct drive	500-3000 RPM
Speed Indicator	Lighted Digital Display
Foot operated brake	Standard Equipment

Carriage and Compound

Cross Slide width	5-1/2" (140mm)
Compound width	3-1/4" (82mm)
Cross Slide travel	7-1/2" (190mm)
Tool Slide travel	3-5/8" (92mm)
One-shot lubrication	Standard Equipment
Full length Cross Slide	Standard Equipment
Lead Screw	1-1/8" x 4 TPI (28mm)
(Metric Lead Screw Optionally Available)	
Feed Rod diameter	11/16" (18mm)
Safety Overload Clutch on Feed Rod	Yes
Safety Torque Limiting Device on Lead Screw	Yes

Threads listed on Headstock Charts:

52 Inch Pitches: 4, 4.5, 5, 5.5, 6, 6.5, 6.75, 7, 7.5, 8, 9, 10, 10.5, 11, 11.5, 12, 13, 13.5, 14, 15, 16, 16.5, 18, 20, 21, 22, 23, 24, 26, 27, 28, 30, 32, 33, 36, 38, 39, 40, 42, 44, 46, 48, 52, 56, 64, 72, 80, 88, 92, 96, 104, 112

45 Metric Pitches: .1, .15, .2, .225, .25, .3, .35, .4, .45, .5, .55, .6, .65, .7, .75, .8, .9, 1, 1.1, 1.2, 1.25, 1.3, 1.4, 1.5, 1.6, 1.75, 1.8, 2.0, 2.2, 2.25, 2.3, 2.4, 2.5, 2.6, 2.75, 3.0, 3.25, 3.5, 4.0, 4.5, 5, 5.5, 6, 6.5, 7

18 Module Pitches from .3 to 3.5 MOD.

18 Diametral Pitches from 8 to 56 D.P.

Feed Rates listed on Headstock Charts:

21 Useful Feeds in inches per revolution:* .0005, .0008, .001, .0012, .0016, .0017, .002, .0025, .003, .004, .005, .006, .008, .01, .012, .015, .02, .025, .030, .035, .040

21 Useful Feeds in millimeters per revolution:* .015, .02, .025, .03, .04, .045, .05, .06, .08, .1, .12, .15, .2, .25, .3, .4, .5, .6, .7, .9, 1

*Note 24 additional feeds are available from a listing displayed inside headstock end train guard.

Tailstock

Spindle diameter	1-21/32" (42mm)
Graduations on Spindle	1/8" & 2mm
Graduations on Micrometer Dial	.001" (.025mm)
Spindle travel	4-3/8" (111mm)
Spindle taper	No. 3 Morse
Set over	1/2" (13mm)
Tang Drive, with drift slot	Yes

Weights and Measures (Approx.)

Basic Lathe: Net Weight	1500 lbs (682KG)
Shipping Weight	1850 lbs (840KG)
Copying Lathes	Add 250 lbs (114KG)
Overall L x W x H Shipping Crate:	83" x 44" x 56" (2112mm x 1120mm x 1425mm)

Standard Equipment: Digital display of spindle RPM, Inch/Metric Dials for Top Slide & Cross Slide, Motor Driven Coolant System, Rear Splash Guard, Round Tool Post, Drive Plate, Swiveling Nose-Mounted Chuck Guard, Center Sleeve & (2) #3MT Centers, Thread Indicator, Bedway Wipers, Set of Wrenches, Machine Manual, Accuracy Test Sheet.

Electrical Equipment: 3HP TEFC Reversible Motor Drive complete with 115V control circuit; magnetic starter with unfused safety disconnect line switch, fail-safe provision in case of power interruption; EMERGENCY STOP Button. Electrical equipment and wiring conform to NFPA Electrical Standard No. 79 for Metal Working Machine Tools.

Extra Equipment: Digital Readout Systems, High Speed Threading Attachment, Hydraulic Copying equipment, rear tool post, face plates, chucks, collet equipment, taper attachment, follow and steady rests, square turret, bed turret, micrometer carriage stop, cross feed threading stops, etc.

SPECIFICATIONS ARE SUBJECT TO MODIFICATION AND IMPROVEMENT WITHOUT NOTICE.