24" REGAL LATHES

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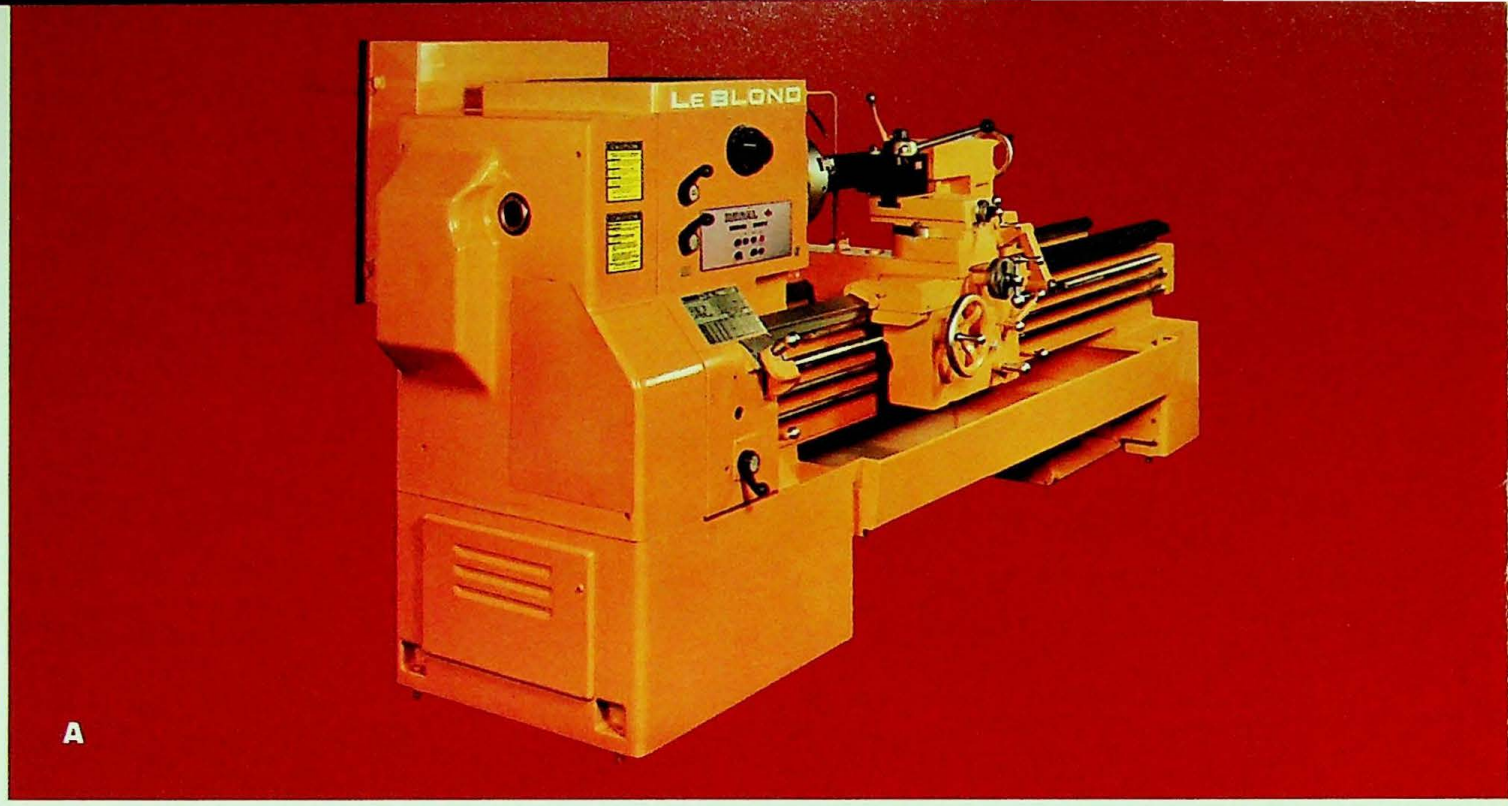
LE BLOND
MACHINE TOOL



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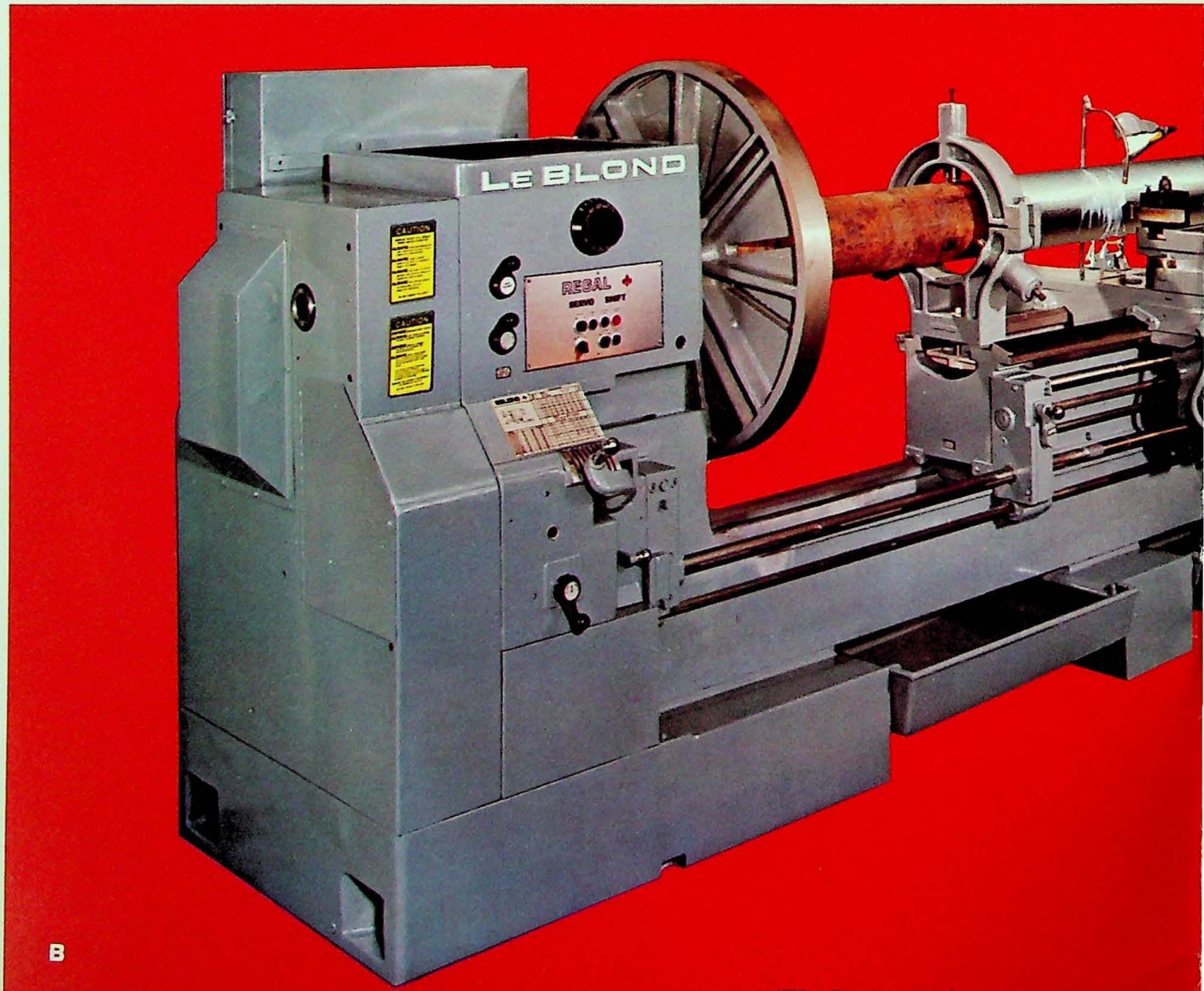

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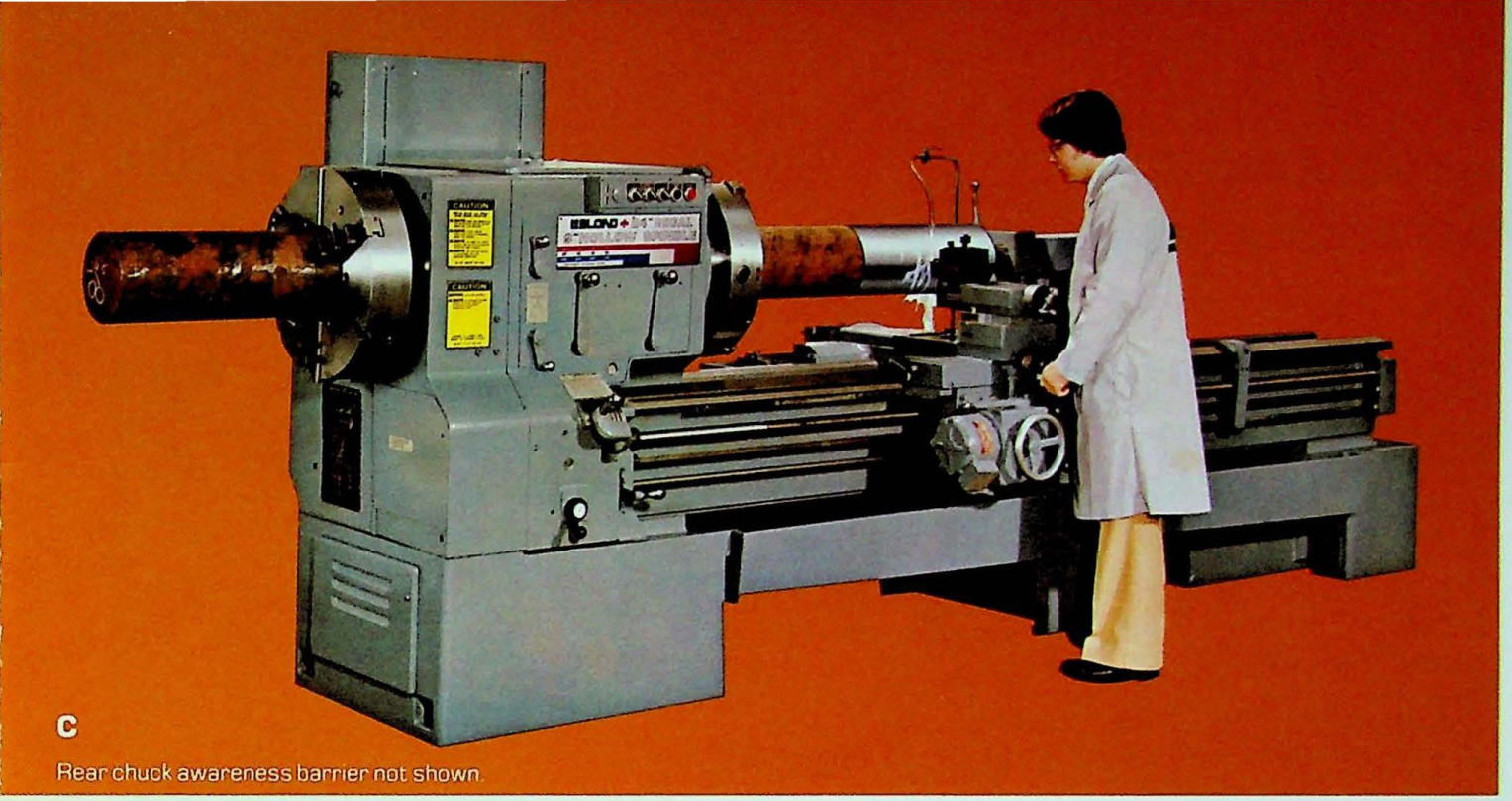
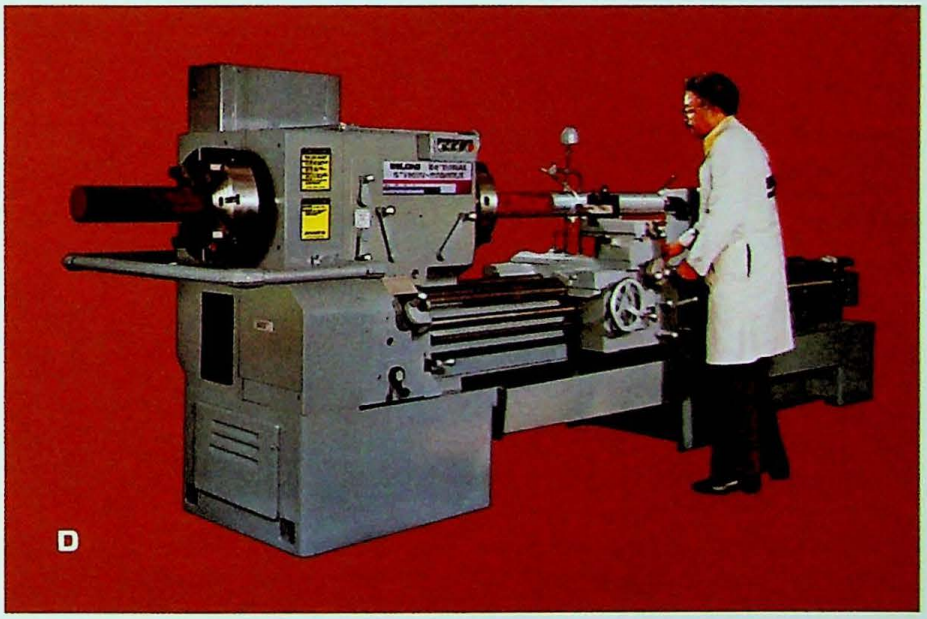


C

Rear chuck awareness barrier not shown.



D

THE VERSATILE 24" REGAL FAMILY

A 24" Regal lathe with Servo-Shift headstock
B Sliding Bed Gap model (see page 12-13).
C 9" Hollow Spindle model (see pages 10-11).
D 5¼" Thru Spindle model (see pages 10-11).

HANDLE BIG JOBS WITHOUT A BIG INVESTMENT

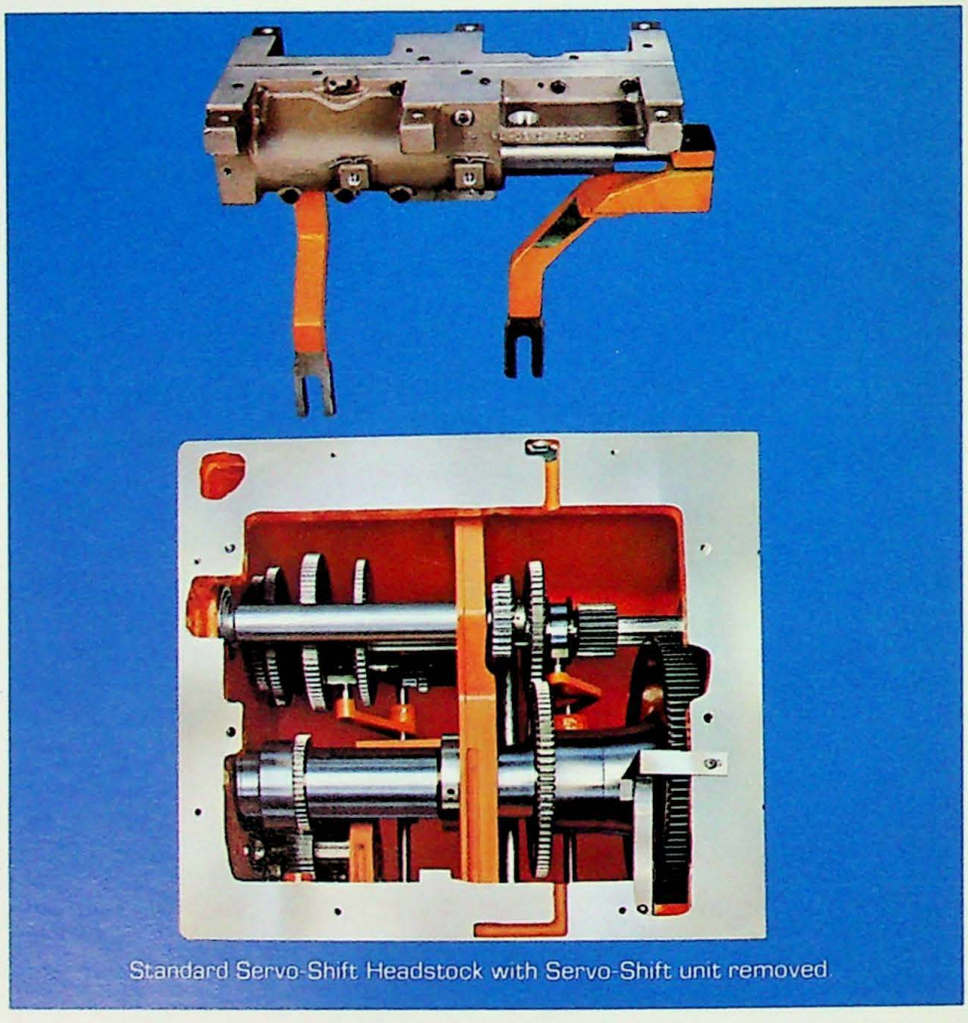
The LeBlond 24" Regal lathes are designed and built for shops that want to turn large workpieces but don't really need the excessive cast iron or horsepower of a conventional Heavy Duty lathe.

In literally hundreds of plants, 24" Regals have proven to be smart alternatives to Heavy Duty lathes for dramatically less investment.

Yet the 24" Regal is not a "stripped down" machine. It is designed and built to give dependable production, precision, and long, trouble-free life: qualities normally attributed to much higher priced machines.

As further evidence of the built in quality provided at considerable savings, check these major features of the 24" Regal:

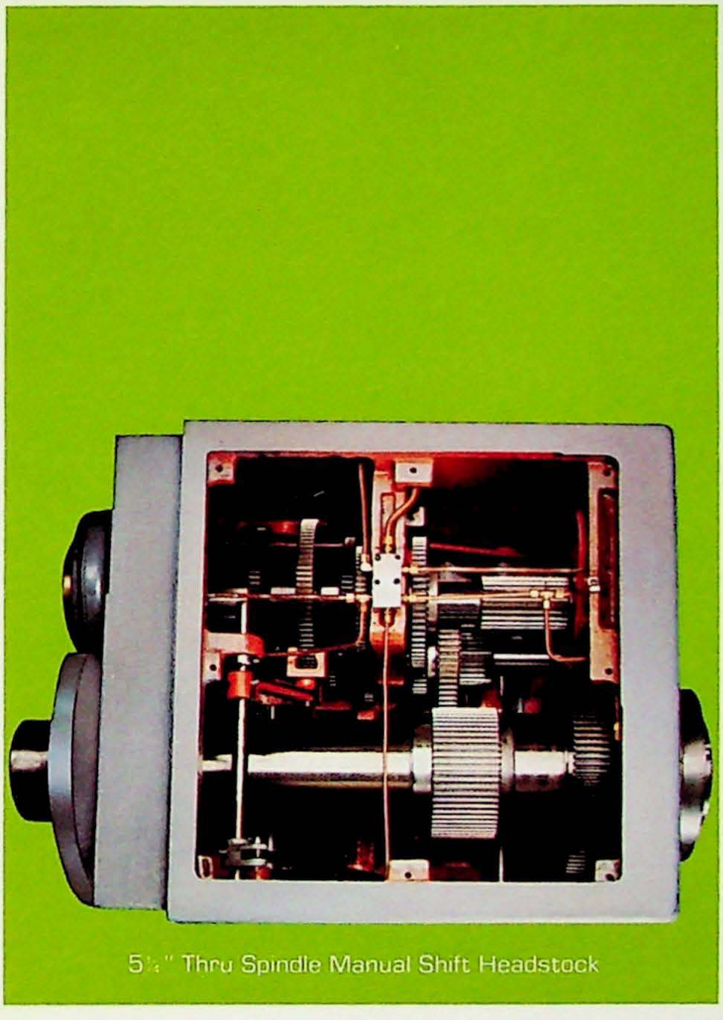
1. **Spindle bearing supports** have ample capacity for heavy loads as proven by the thrust and radial load capacities.
2. **Precision alignment** to exacting requirements.
3. **Replaceable compensating bed guideways** assure accuracy and minimum stress.
4. **Separate feed rod and leadscrew** for precise thread chasing.
5. **Rigid apron and carriage** provide rock-steady tool guidance and efficient feed.
6. **Automatically lubricated universal quick change box** with 48 inch feed and thread changes; 40 metric feed & thread changes.



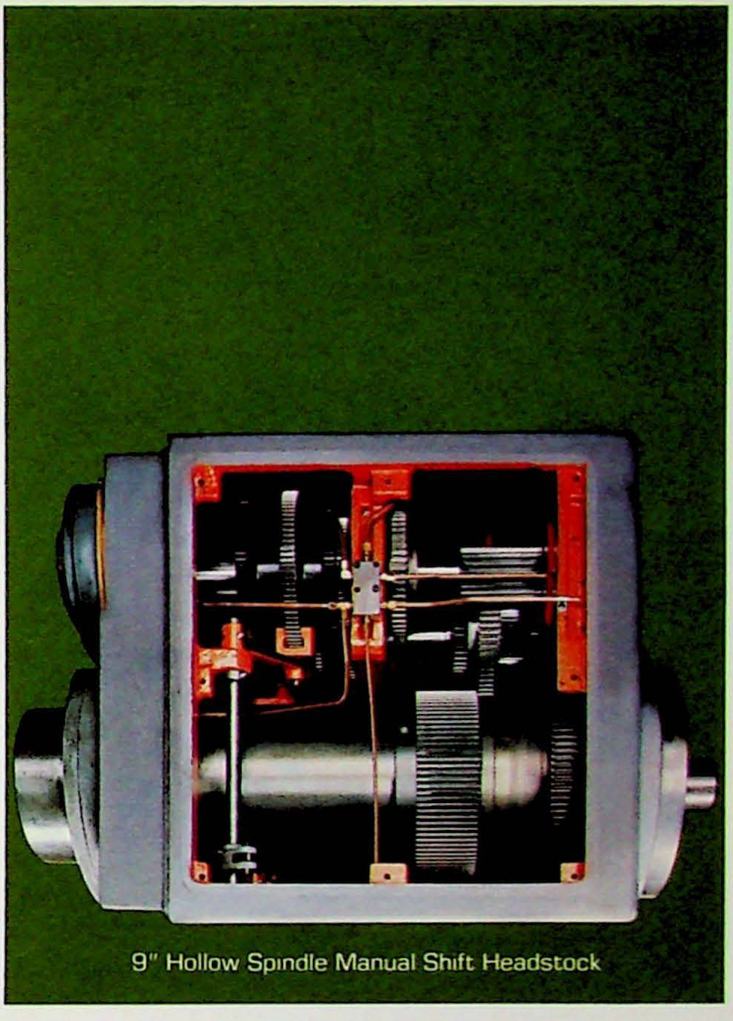
Standard Servo-Shift Headstock with Servo-Shift unit removed.

7. **Rugged tailstock** features positive spindle clamping.
8. **Big chip pan** slides out for easy chip removal.
9. **Large choice of bed lengths.**
10. **The Servo-Shift speed preselection** increases cutting/non-cutting ratio on standard 24" Regal lathes.
11. **5¼" thru spindle model.**
12. **9" hollow spindle model.**
13. **Sliding bed gap model,** a "turning department in one machine."
14. **Big selection of options** and accessories.

POWER FOR ROUGHING CUTS; SMOOTHNESS FOR FINISHING CUTS



5¼" Thru Spindle Manual Shift Headstock



9" Hollow Spindle Manual Shift Headstock

The big 24" Regal headstock **offers 12 spindle speed selections.** Low and intermediate speeds are driven by gears for positive, full power. Spur gear design minimizes horsepower loss and thrust problems. Only gears for a specific speed are engaged.

A self-adjusting electric clutch and brake provides fast starts and smooth stops, and can be adjusted to compensate for workpiece weight.

With a manual shift (provided on the 5¼" thru spindle and 9" hollow spindle models), the operator simply moves easy-shifting levers to match with color-coded, direct-reading speed plate. Details of the Servo-Shift headstock (provided on the standard 24" Regal) are explained on page 6.

The spindle is supported by precision Timken roller bearings.

These generous capacity bearings provide exceptional support for the spindle, allow it to handle heavy loads, and reflect the built-in accuracy and ruggedness of the machine.

The spindle nose (American Standard taper key drive) maximizes accurate location of work-holding devices by reference to a single ground conical surface. The L-type long taper nose key drive is positive and makes changing chucks easy and fast.

Models are available with 5¼" or 9" holes through the spindle (see pages 10-11).

SERVO-SHIFT: CONVENIENCE IN SPEED SELECTION

The reliable Servo-Shift headstock (provided on the standard 24" Regal), job-tested in hundreds of plants, makes speed changing fast and easy, and at the same time protects the built-in accuracy of the headstock gearing.

This unique design permits preselection of the next spindle speed while still cutting. The actual shifting sequence can then be initiated from either the headstock or apron by moving the spindle control lever. The result: almost instantaneous automatic shifting, **with no clashing of gears.**

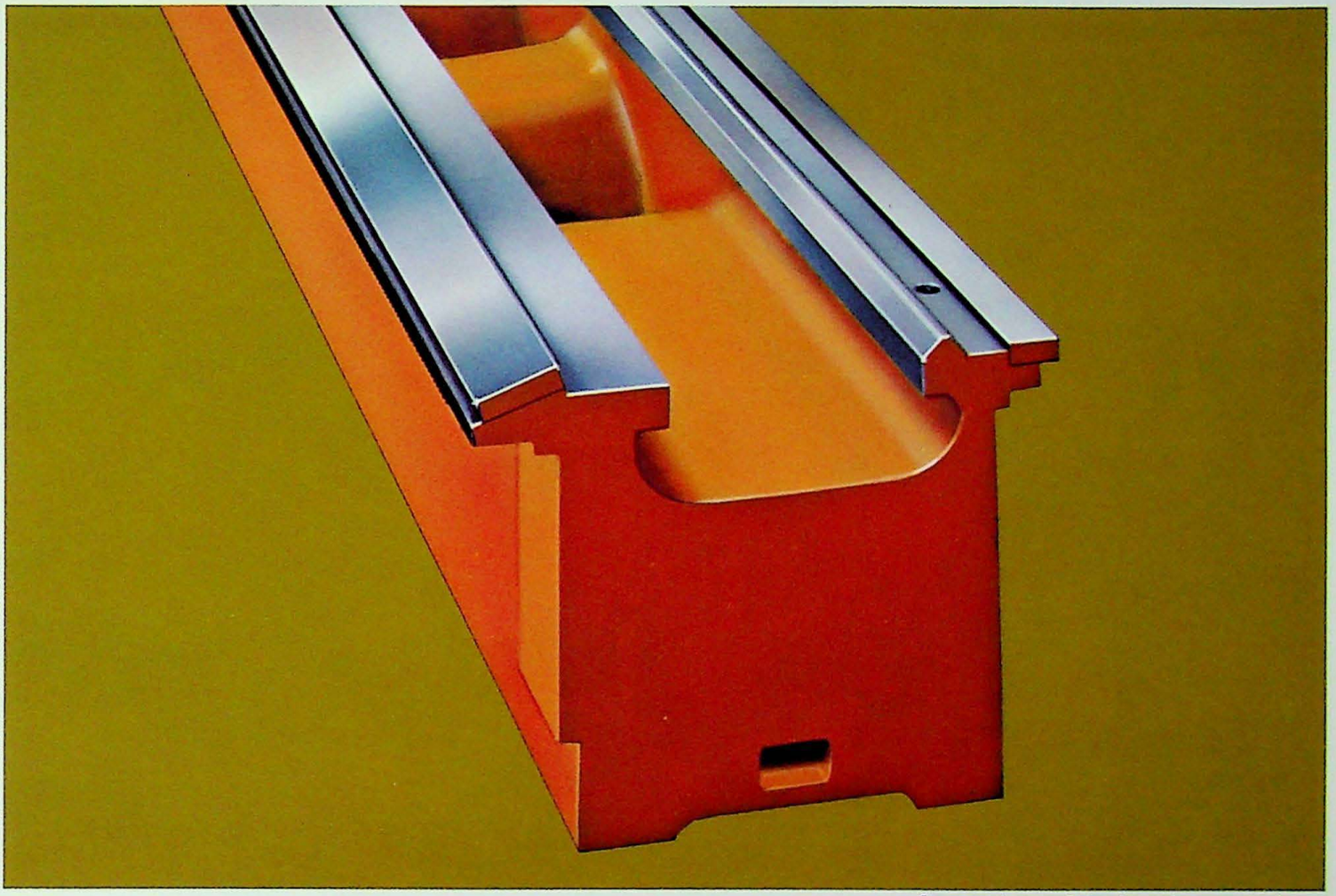
This fast and safe hydraulic shift is also remarkably simple. Dialing your next speed positions a servo valve linked directly by shifter forks to the gear train.

As soon as the spindle has stopped, a "sensor" detects zero speed of the spindle and signals the hydraulic pump to start which permits the servo to move the gears to the positions established during preselection.

Simultaneously, a "crawl speed gear train" is engaged which provides a jogging or oscillating motion to the spindle. This oscillating motion allows the gears to slide smoothly into mesh without clashing.

By engaging the spindle control lever, the machine is off and running in the new gear range... And all this action takes place **in less than 4 seconds!**

COMPENSATING BED: THE BASE FOR ACCURATE TURNING



Accuracy, finish, and long life can be no better than the bed's ability to resist the bending and torsional stresses created by cutting forces.

The Regal's bed is designed to assure maximum stability without unnecessary "fat." A major factor in preserving the long life of your Regal and the accuracy and finish of your work is the exclusive LeBlond compensating way design.

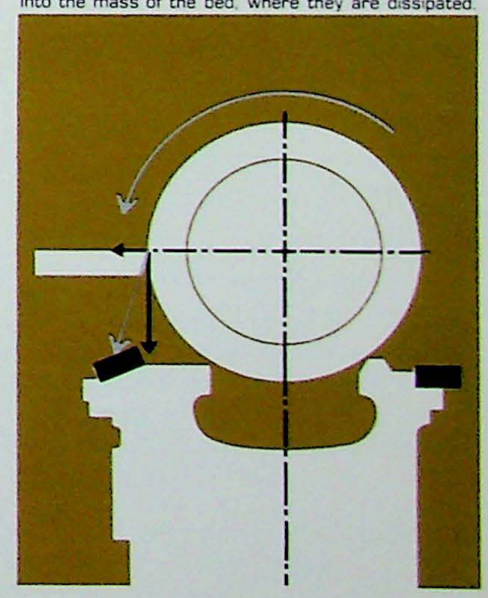
The front and rear carriage ways are LeBlond's exclusive replaceable design. The flat rear way absorbs and dissipates downward forces. The 20° compensating front guideway transmits the cutting forces efficiently into the mass of the bed. The angle of the front way assures even distribution of wear over its entire surface.

Both guideways are hardened to 58-63 Rockwell C (Scleroscope 78-87) and ground. They can be field-installed in case of accidental damage.

The bed is cast in high grade iron with 50% steel, and uses a deep closed girth construction, modified for easy chip disposal.

The big chip pan slides forward for easy clean-out.

Compensating way design directs heavy cutting forces into the mass of the bed, where they are dissipated.



PUT YOUR TOOLPOINT EXACTLY WHERE YOU WANT IT

Carriage

Accurate tool guidance and operator convenience are the objectives of the Regal carriage design.

For example, the Regal carriage has far larger bearing surface on the ways than other lathes of equal size. With minimum force per square inch, the carriage provides greater accuracy and less wear.

At the same time, the carriage transmits downward forces into the bed and resists twisting caused by feed. It is guided by the long, narrow inner way surface, which permits smooth feeding under the biggest cuts without a tendency to climb or cramp.

Drive to the carriage is from a rack mounted directly under the front way, a design which minimizes the power consumed in feeding.

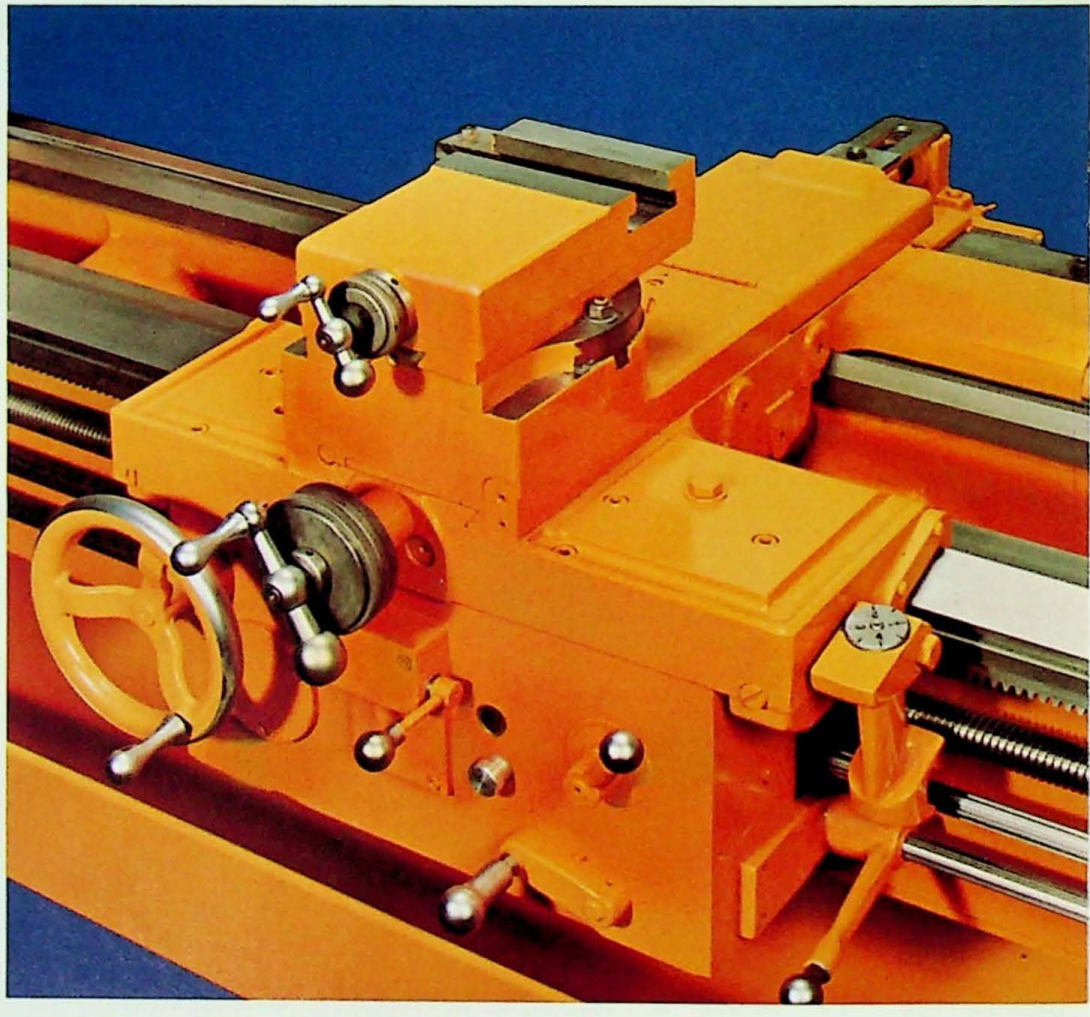
Support at the rear is provided by a flat way which guides in the horizontal plane only.

The top slide and cross slide dovetails are **gibbed on the headstock side,** where wear is most likely to occur. Cross slide screws are hardened and ground for maximum wear resistance.

Dials are graduated in diameter reduction for easy sizing calculations.

Apron

The apron transmits power from the feed rod to either the drive pinion for length feed or to the cross feed screw. A single lever engages either feed, without slippage, through a positive face clutch.



Feed reversal controls are located on both the headstock and apron for optimum operator convenience.

The leadscrew is used only for chasing threads and leads, assuring accuracy throughout the life of the lathe. The leadscrew is mounted in tension between antifriction thrust bearings.

A safety clutch on the feed rod releases in the event of a severe overload and automatically reengages when the load is removed.

A convenient spindle control lever is located on the side of the apron, allowing complete spindle control from the carriage.

Forced feed lubrication is provided for apron gearing, carriage, and cross slide ways.

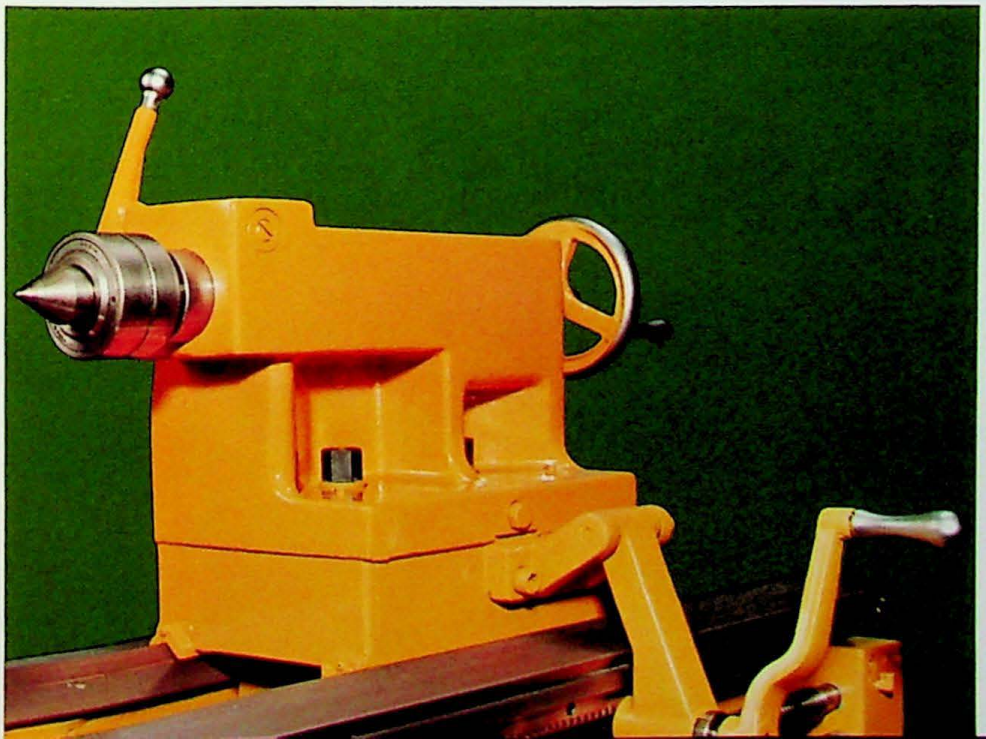
Big selection of feeds and threads

The universal quick-change gearbox provides a selection of 48 inch feeds and threads, 48 metric feeds, and 40 metric threads.

A single, easy-to-read inch/metric index plate is mounted directly above the gearbox. Optional diametral and module pitch threads are available.

With the feed reverse and compounding gears entirely within the headstock, the single gear train on the end of the lathe eliminates overhang of the bearings, and gives a powerful, quiet drive.

The gearbox is totally enclosed and automatically lubricated.



Rugged and versatile tailstock

The Regal tailstock features a positive non-influencing clamp. Dual inch/metric graduations are provided on the tailstock spindle.

A standard Morse taper spindle hole with a tang driver permits the use of drills and reamers with Morse tapered shanks.

Cross adjustment provides for easy alignment and for taper turning.

A crank-type tailstock mover is standard equipment.

A two-speed heavy duty tailstock is available as an option.

HOLLOW SPINDLE MODELS FOR EXTRA-LONG WORK

For additional versatility in the machining of long shafts or tubes, consider one of the 24" Regal hollow spindle models. One has a 5¼" hole through the spindle; the other, a 9" hole.

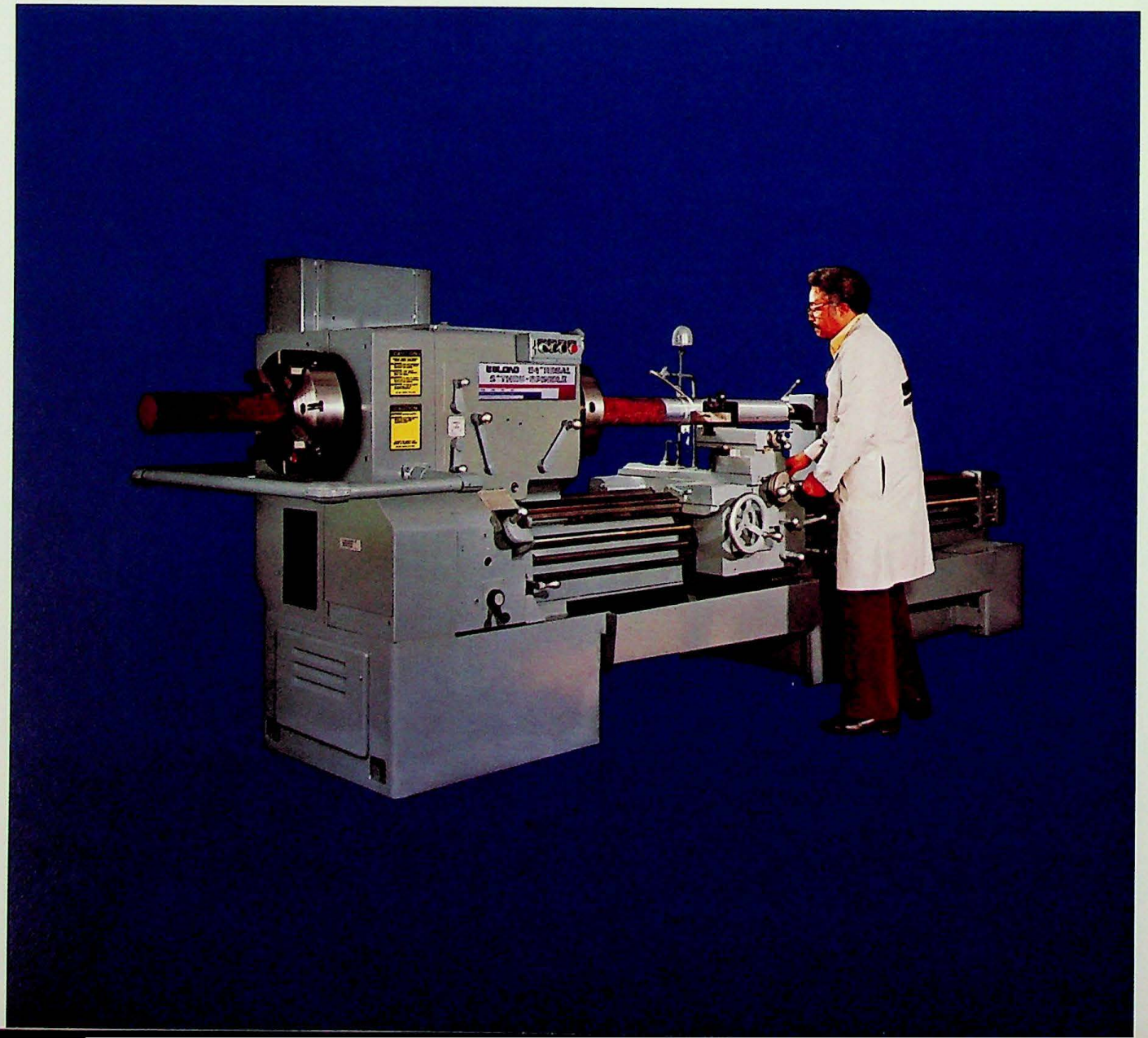
Either of these models can save you the needless cost of a long bed lathe. And they can still be used for normal between-center work by inserting the standard center adapter in the spindle nose.

To increase versatility even further, select a hollow spindle lathe with a sliding bed gap (see pages 12-13).

Interchangeable 21" or 24" 3-jaw universal or 4-jaw independent chucks may be attached at both ends of the spindle (an adapter is required for attachment at the rear end).

Specifications for the standard 24" Regal apply to the hollow spindle models except for those shown here.

Thru spindle model with 5¼" hole through spindle.



Specifications

Headstock

Size hole through spindle	**5¼"** (133 mm)	**9"** (229 mm)
Spindle speeds, forward or reverse	12	12
Spindle speed range	16 to 1200 rpm	6 to 400 rpm
Optional spindle speed range	12 to 900	9 to 600
Spindle bearings, number of	2	2
Spindle diameter at		
bearings, front	7½" (190 mm)	11¼" (286 mm)
& rear	6⅜" (168 mm)	10½" (267 mm)
Front spindle bearings,		
Timken precision, O.D.	10½" (267 mm)	15" (381 mm)
Radial load at 100 rpm,		
lbs (kg)	31,200 (14152)	63,000 (28577)
Thrust load at 100 rpm,		
lbs (kg)	25,675 (11646)	47,000 (21319)
Rear spindle bearing,		
Timken precision, O.D.	9¾" (248 mm)	14" (356 mm)
Radial load at 100 rpm,		
lbs, (kg)	29,575 (13415)	56,000 (25402)
Spindle nose	11" (279 mm) A1	15" (381 mm)
		Flange

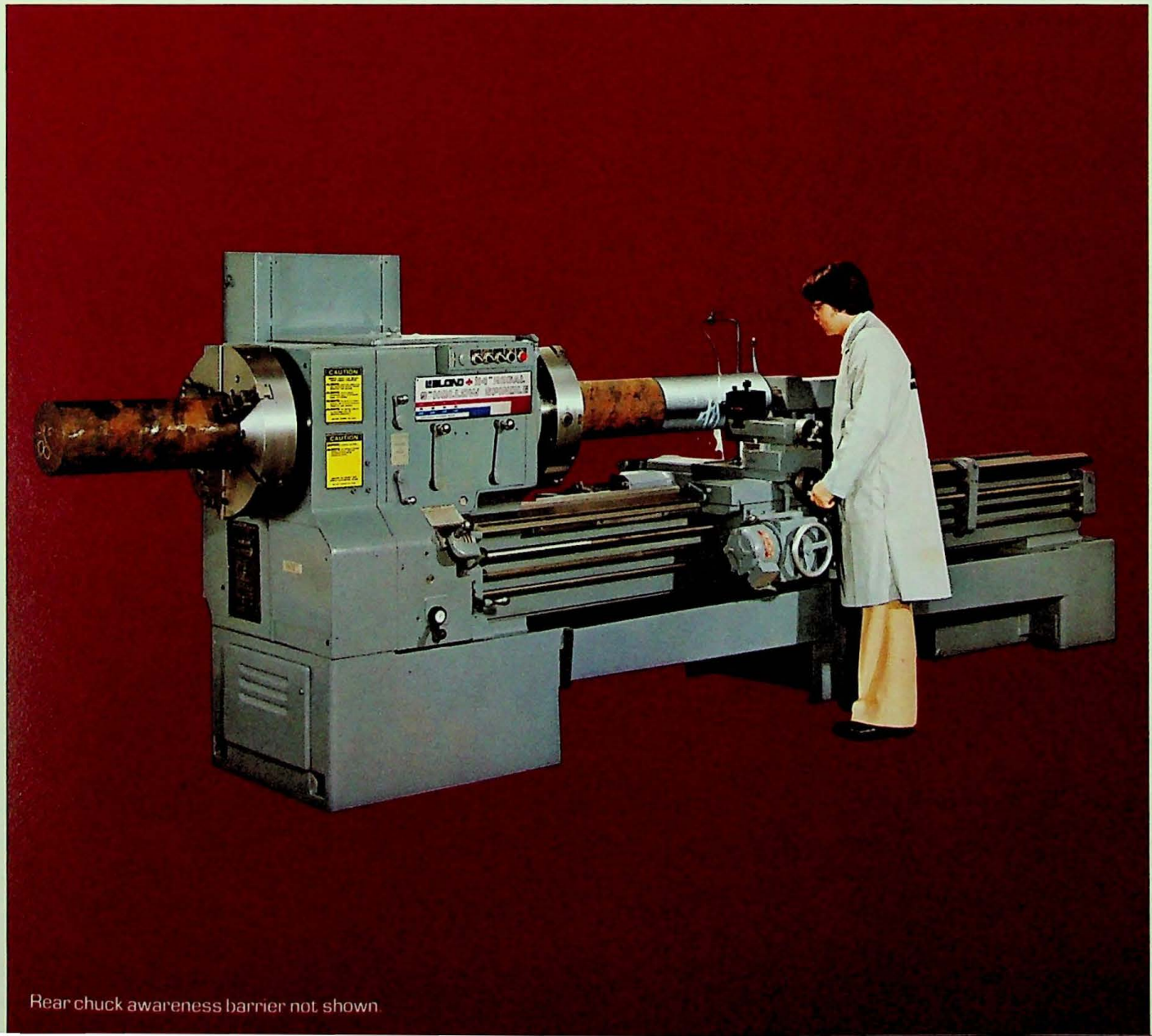
Motor Recommendation

Motor hp and rpm	20,1800	15,1800
Optional		20,1800

Shipping Data

(For Basic Machine with Average Accessories)		
Net wt., approx., lbs. (kg)	7020 (3184)	7020 (3184)
Domestic ship. wt.,		
approx., lbs. (kg)	7760 (3520)	7760 (3520)
Export ship. wt.,		
approx., lbs. (kg)	7640 (3465)	7640 (3465)
Net each additional 24"		
of bed lbs. (kg)	540 (245)	540 (245)

Hollow spindle model with 9" hole through spindle.



Rear chuck awareness barrier not shown.

THE "ONE-MACHINE TURNING DEPARTMENT"

The 24" Regal Sliding Bed Gap lathe permits turning a wide variety of parts which might require a whole fleet of lathes in another shop. This is especially true when considering the combination of 5¼" or 9" hollow spindle headstock with the sliding bed gap advantages.

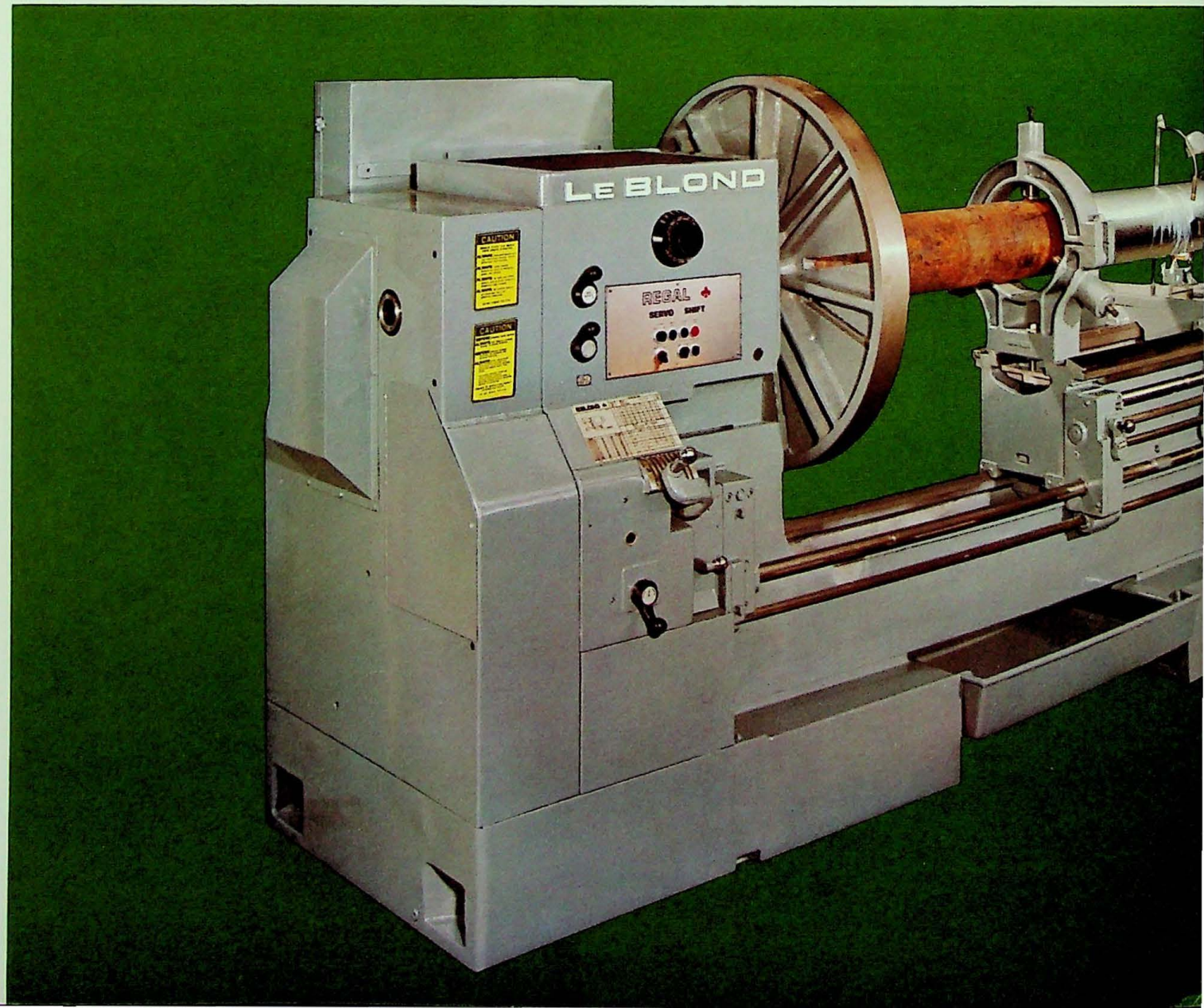
With the bed closed, it functions as a regular engine lathe.

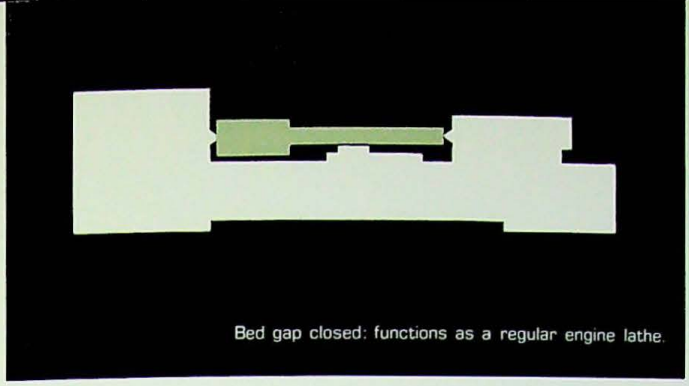
With the bed open, it forms a gap that will accept odd-shaped parts and large diameter workpieces.

At the same time, sliding the bed open provides more than 50% greater distance between centers. With this lathe, many shops can take on jobs that they previously may have had to contract outside or give to their competitors.

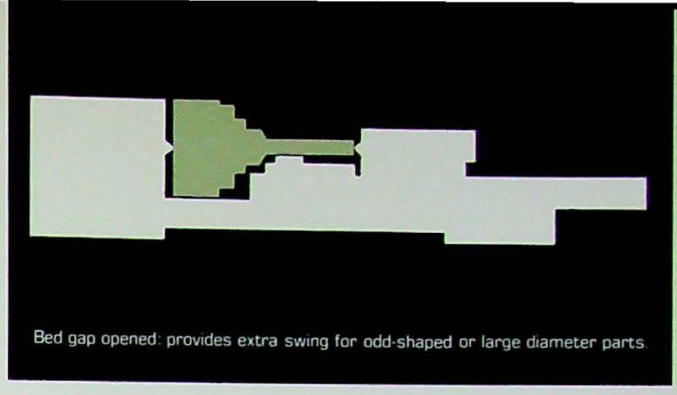
On this model, the cross slide is located on the left side of the carriage and is provided with extra cross travel to accommodate machining of larger diameters. This location of the cross slide allows the tool to be positioned to the edge of the gap, minimizing overhang. Extra-large carriage bearing surfaces distribute cutting forces for long wear. A wide carriage bridge provides stable tool support.

Specifications for the sliding bed gap model are the same as the standard 24" Regal except for those shown here.

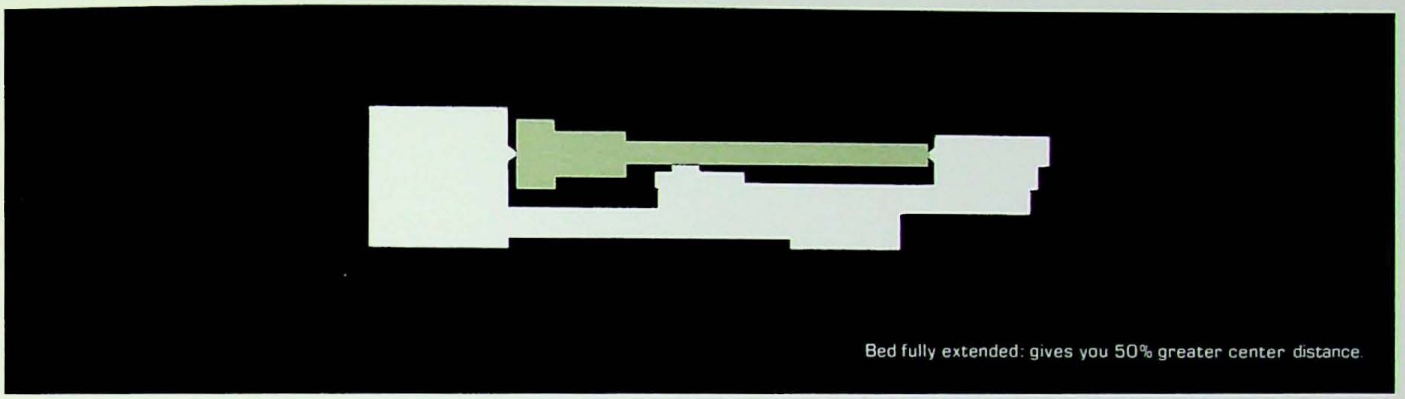




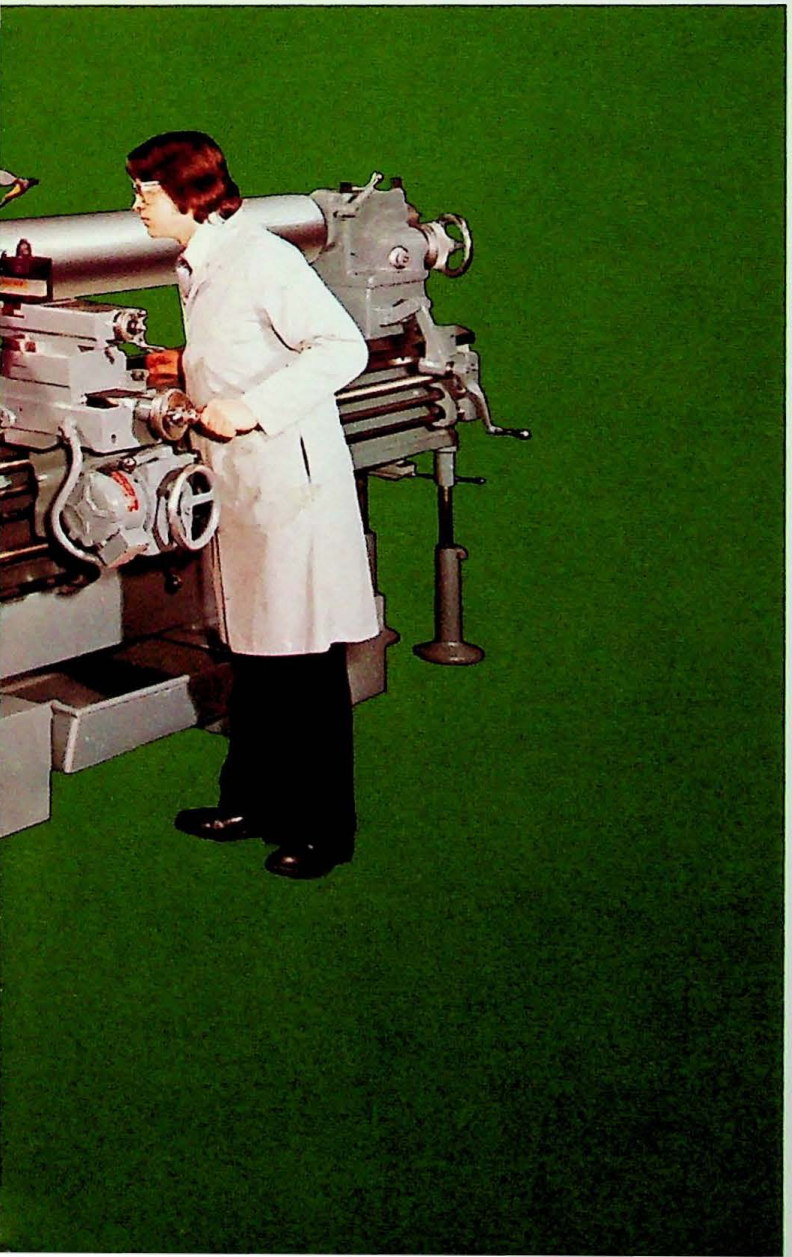
Bed gap closed: functions as a regular engine lathe.



Bed gap opened: provides extra swing for odd-shaped or large diameter parts.



Bed fully extended: gives you 50% greater center distance.



Specifications

Capacity

Swing through gap	52"	(1321 mm)
Center distance, bed closed	96"	(2438 mm)
Center distance, bed extended	156"	(3962 mm)
Maximum gap length, open	48"	(1219 mm)
Turning length, with extension rest	15½"	(394 mm)
Maximum diameter to turn with extension rest	33½"	(851 mm)
Gap face plate diameter	38"	(965 mm)
Distance, spindle center to floor	48⅞"	(1241 mm)

Bed

Length, base, centers closed	12'6"	(3823 mm)
Top bed length, base machine	9'6"	(2743 mm)
Width, top	17"	(432 mm)
Depth, top	13½"	(343 mm)
Depth, lower	11½"	(292 mm)

Carriage

Length on bed	27"	(686 mm)
Cross slide travel, with or without taper attachment	19½"	(495 mm)

Shipping Data

(For Basic Machine With Average Accessories)

Net weight, approx	11,000 lbs	(4990 kg)
Domestic shipping weight, approx	12,000 lbs	(5443 kg)
Export shipping weight, approx	12,500 lbs	(5670 kg)
Floor space, bed closed	170" x 60"	4318 mm x 1524 mm
Floor space, bed extended	230" x 60"	5842 mm x 1524 mm

STANDARD SPECIFICATIONS

Capacity	Inch Capabilities	Metric Capabilities
Swing over bed and carriage wings	26"	(660 mm)
Swing over cross slide	18¼"	(464 mm)
Distance between centers, base length	72"*	(1829 mm)
Size of tool holder	1⅛" x 1½"	(27 mm x 38 mm)
Steady rest capacity (optional equipment)	¾" to 7"	(19 mm to 178 mm)
Follow rest capacity (optional equipment)	½" to 4½"	(13 mm to 114 mm)

Headstock (Servo-Shift)		
Spindle speeds, number	12	
Spindle speed ranges:		
Standard range, rpm	27 to 1080	
Gear drive	27, 38, 53, 73, 105, 146, 204, 288	
Belt drive	390, 544, 765, 1080	
Optional high speed range, rpm	36 to 2160	
Gear drive (low speed)	36, 50, 71, 100, 140, 195, 275, 385	
Belt drive (low speed)	528, 732, 1025, 1440	
Gear drive (high speed)	54, 76, 106, 150, 210, 295, 410, 580	
Belt drive (high speed)	790, 1100, 1535, 2160	
Spindle bearings, number of	3	
Spindle bearing diameters:		
Front	4½"	(114 mm)
Center	4¼"	(108 mm)
Rear	3¹⁵⁄₁₆"	(100 mm)
Front spindle bearing, Timken precision		
Outside diameter	7"	(178 mm)
Radial load at 100 rpm	19614 lbs.	(8897 kg)
Thrust load at 100 rpm	17344 lbs.	(7867 kg)
Center spindle, Timken bearing		
Outside diameter	6½"	(165 mm)
Radial load at 100 rpm	16372 lbs.	(7426 kg)
Rear spindle, ball bearing		
Outside diameter	5²⁹⁄₃₂"	(150 mm)
Radial load at 100 rpm	7213 lbs.	(3272 kg)
Spindle, size of hole, straight	3⅛"	(78 mm)
Spindle, size of hole, taper, Amer. Std. No.	350	
Spindle, size of center, Morse taper No.	5	
Spindle nose, taper key drive, size	L-2	
Spindle nose, diameter large end of taper	5¼"	(133 mm)
Headstock length on bed	25¾"	(654 mm)

Bed	Inch Capabilities	Metric Capabilities
Length, base	10'6"	(3200 mm)
Length increases in increments of	24" & 48"*	(610 mm & 1219 mm)
Width	17"	(432 mm)
Depth	14⁷⁄₁₆"	(367 mm)

Carriage		
Length on bed	26"	(660 mm)
Bridge width	9"	(229 mm)
Cross slide travel without taper attachment	13¼"	(337 mm)
Cross slide travel with taper attachment	13"	(330 mm)
Compound rest travel	4¾"	(121 mm)

Feed-Threads		
Feed changes, gear or belt drive	48	48
Feed range	.0036 IPR to .205 IPR	(0.09 mmpr to 5.2 mmpr)
Thread changes, gear drive only	48	40
Threads	2 to 112 TPI	(.25 to 14 mm pitch)
Leadscrew diameter	1⅞"	(37 mm)

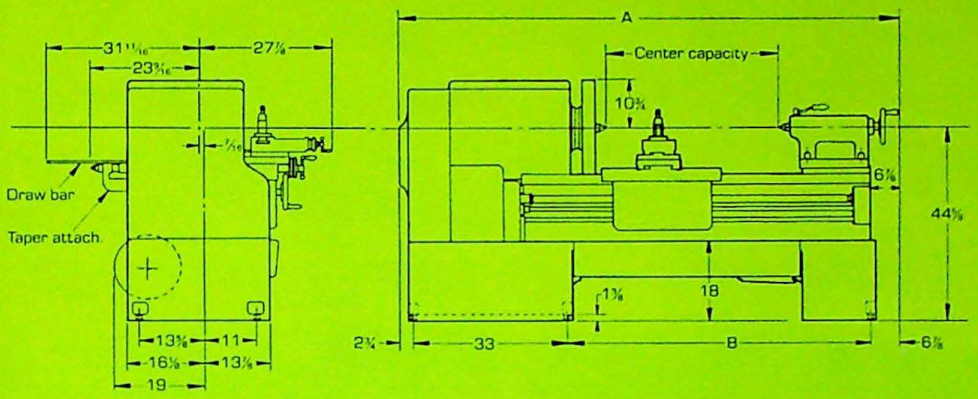
Tailstock		
Spindle diameter	3⅜"	(83 mm)
Center, Morse No.	5	
Spindle travel and set over right or left	7½", 1"	(191 mm, 25 mm)
Length on bed	14¾"	(375 mm)

Motor Recommendations	
Motor HP (Duty Rated) and RPM, low or high speed range	15,1800
Available Two speed; HP (Duty Rated) and RPM	20/15 1800/1350

Shipping Data (For Basic Machine With Average Accessories)		
Net weight, approx	6635 lbs	(3010 kg)
Domestic shipping weight, approx	7370 lbs	(3343 kg)
Export shipping weight, approx	7890 lbs	(3579 kg)
Net weight, each additional 24" of bed, approx	540 lbs	(245 kg)
Floor space required	158" x 60"	(4013 mm x 1524 mm)
Distance, spindle center to floor	44⅜"	(1133 mm)

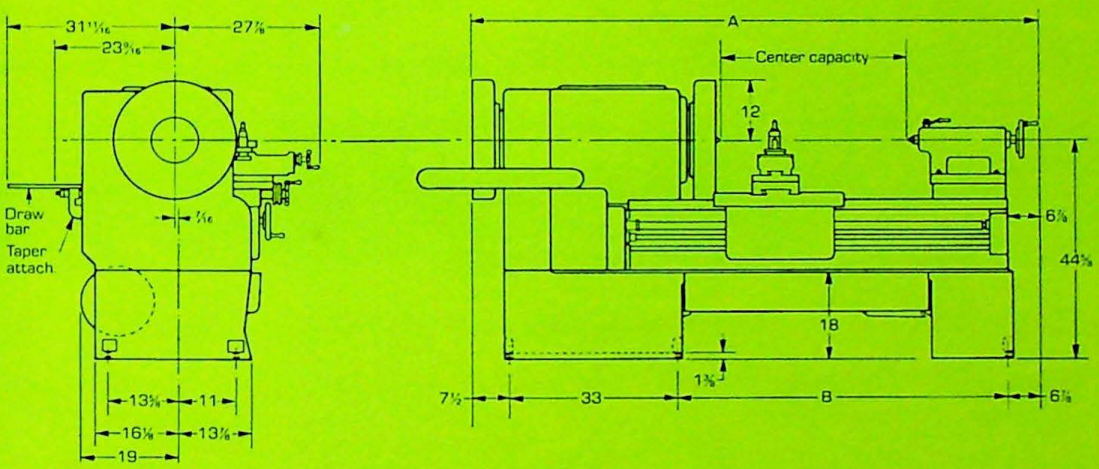
*72", 96", 144", 240" are standard center distances.

DIMENSIONS



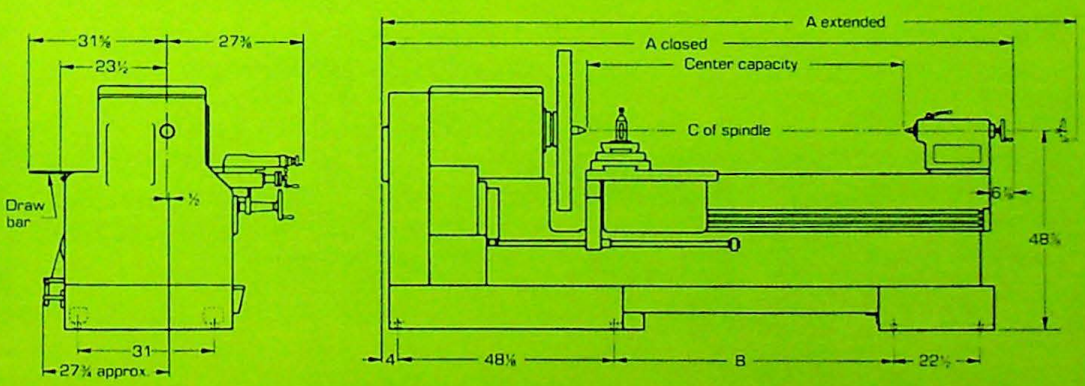
Standard models

Center capacity	Bed length	A	B
72"	10'6"	144"	101¼"
96"	12'6"	168"	125¼"
144"	16'6"	216"	173¼"
240"	24'6"	312"	269¼"



Hollow spindle models

Center capacity	Bed length	A	B
72"	10'6"	148 5/8"	101¼"
96"	12'6"	172 5/8"	125¼"
144"	16'6"	220 5/8"	173¼"
240"	24'6"	316 5/8"	269¼"



Sliding bed gap models

Center capacity	Bed length	A extended	A closed	B
96"	12'6"	18'11 1/8"	13'11 1/8"	87"

Standard equipment

12-speed headstock (Servo Shift on Standard Model,
Manual Shift on 9" and 5¼" Hollow Spindle Models).
Hardened and ground replaceable steel bed ways.
Chip pan.
Coolant system (1/10 hp motor, including Power-Trak on 144" centers and longer).
Universal inch metric quick change box.
Small face plate.
Graduated compound rest.
Hardened and ground cross feed screw.
Open type tool post.
Chasing dial.
Apron spindle control.
Feed drive safety clutch.
TEFC single speed motors standard. Electrics included.
Taper spindle sleeve.
Tang driver in tailstock spindle.
Crank-type tailstock mover.
Centers.
Electric or mechanical clutch and brake, including jog button.

Options and accessories

Additional hardened centers.
Extension rest without tool post (SBG lathes only).
23½" dia. face plate for L2 tapered spindle nose.
34" dia. face plate for L2 tapered spindle nose.
25" dia. face plate for hollow spindles.
Liqui-Lag kit with adhesive, correct number of mounting plates, studs, and nuts.
Dual inch/metric dials for compound and cross feed.
Special painting.
Power rapid traverse, two-way, longitudinal.
Follow rests, bronze or roller jaws.
Steady rests, bronze or roller jaws.
Plain and connected compound rests.
Tool posts and tool blocks.
Stops (ball chasing, carriage, length, thread cutting).
Two-speed, worm operated tailstock.
Inbuilt antifriction spindle.
Taper attachment.
Tracer attachment.
Readout systems.
Worklight.

The descriptions, specifications, and illustrations herein were correct at the time of printing. Machines built since then may differ slightly due to the LeBlond policy of continuous product improvement.

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