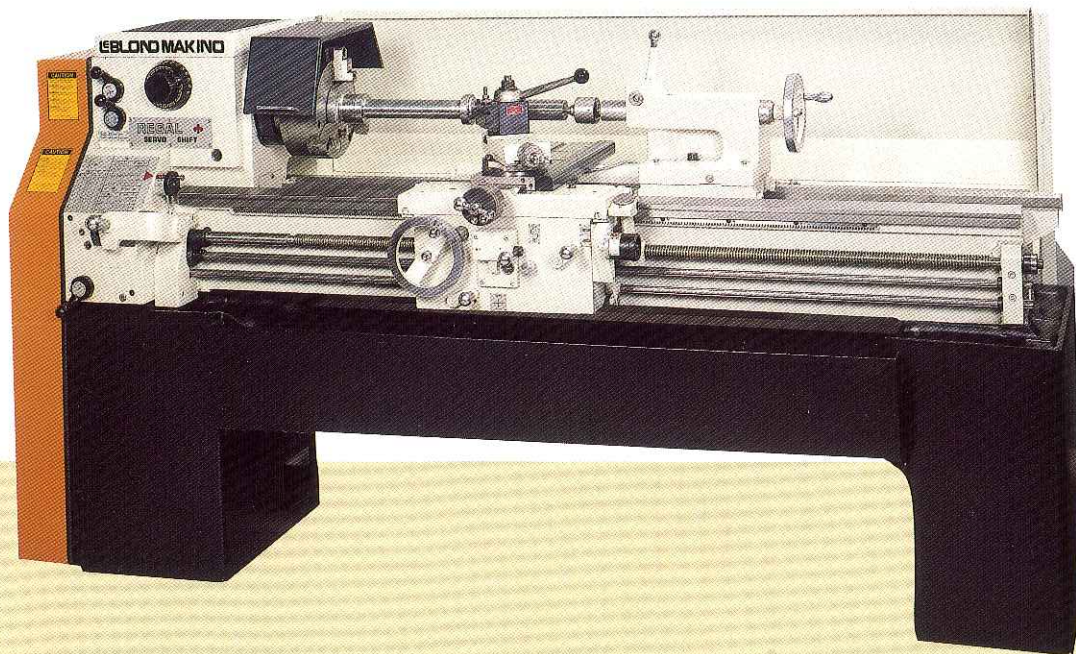




15" and 19"
REGAL LATHES


LEBLOND MAKINO
MACHINE TOOL COMPANY

15" and 19" Regal



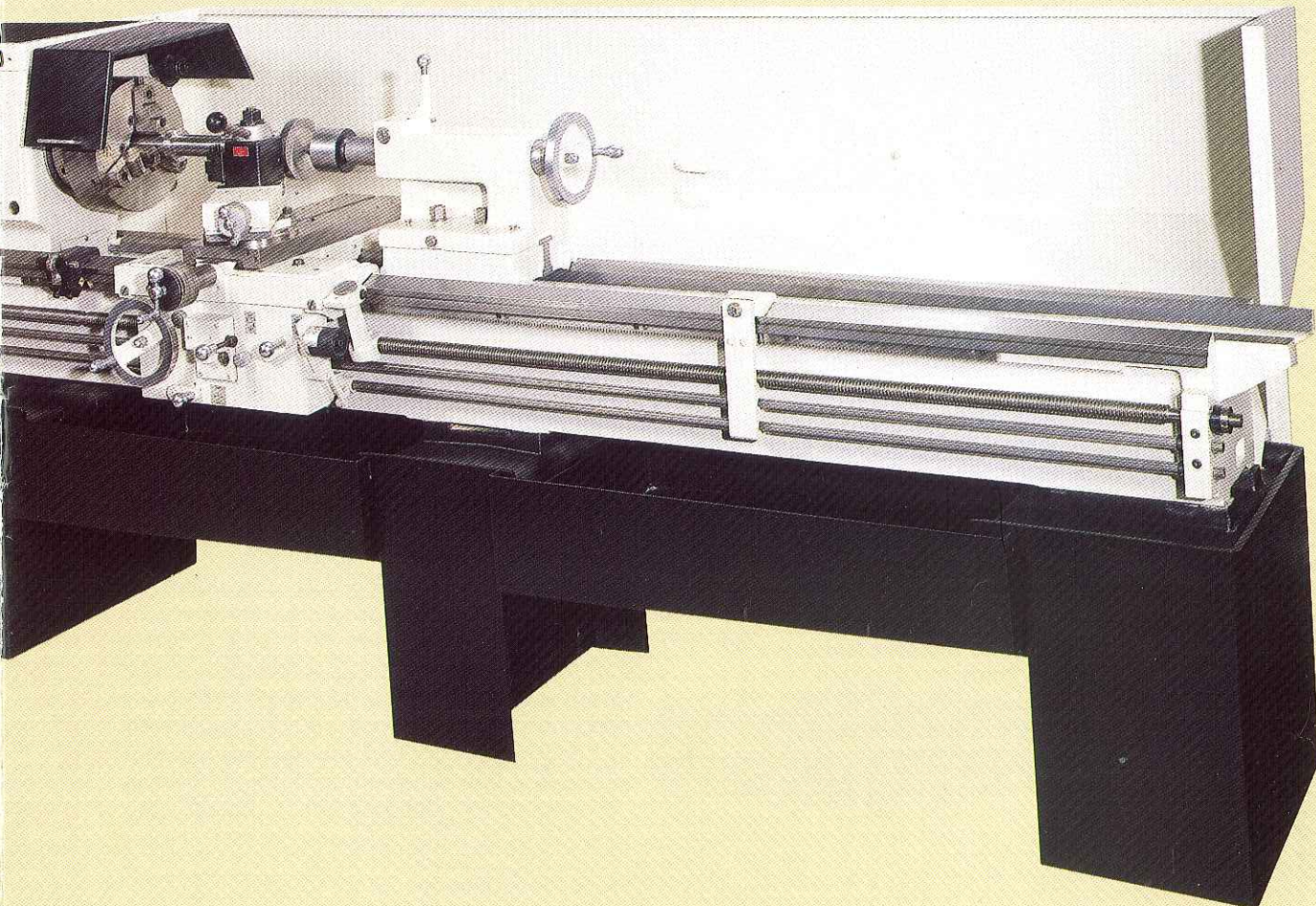
Built to Close Precision Standards

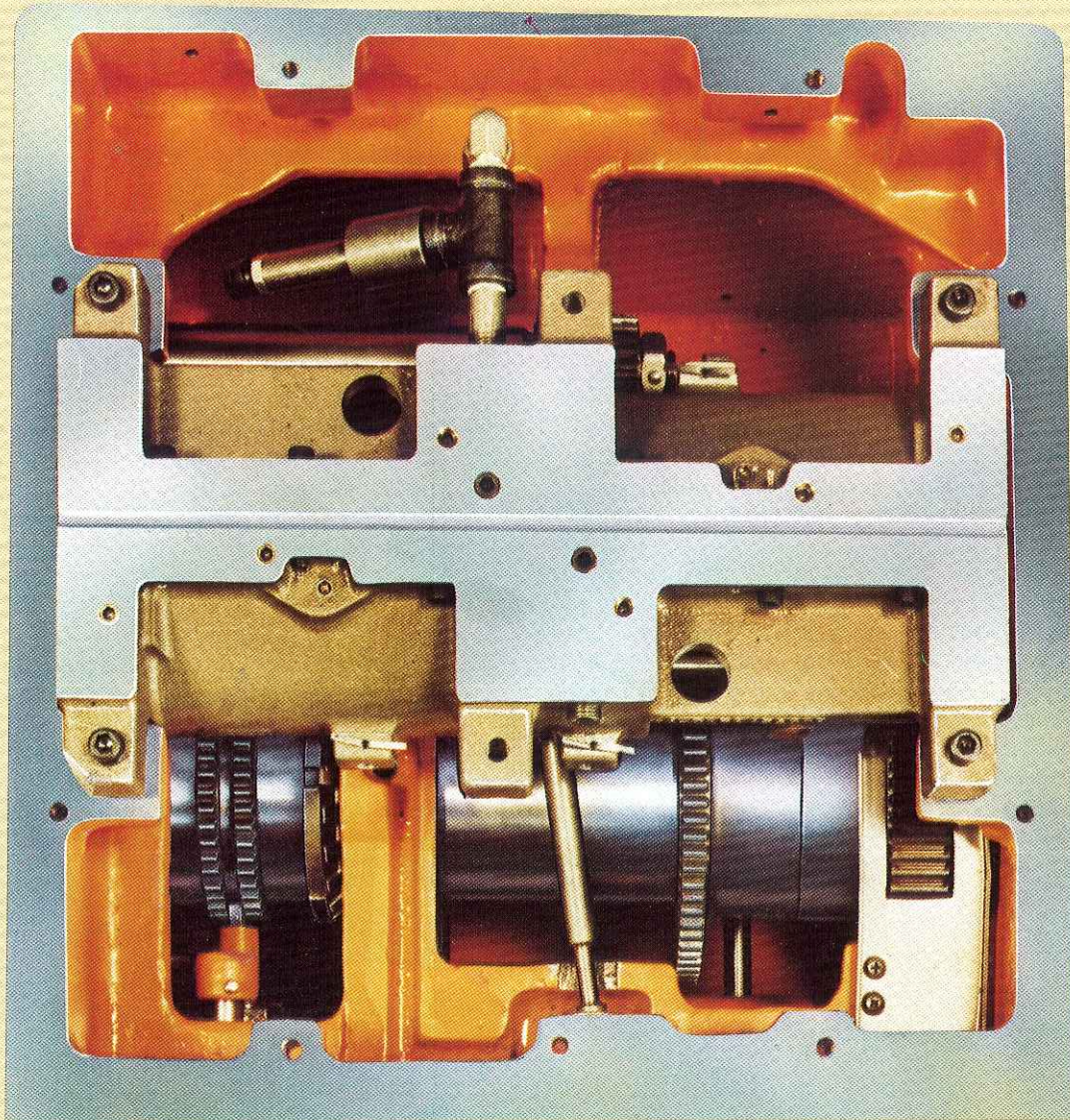
- Regal Lathes are accurately built to the close precision tolerances found in much more expensive machines. Shown below are examples of the accuracy standards, which are typical of all tolerances held in the manufacture of these outstanding machines.
- Headstock Alignment (horizontal): 0 to $\pm .0003$ " (.0076mm) at the end of a 12" (305mm) test bar.
- Headstock Alignment (vertical): 0 to .0005" (.0127mm) high at the end of a 12" (305mm) test bar.
- Cross Slide Alignment: 0 to .0005" (.0127mm) concave on 12" (305mm) diameter.
- Spindle Nose Runout: 0 to .0003" (.0076mm) total indicator reading.

Lathes

High Performance Without High Cost

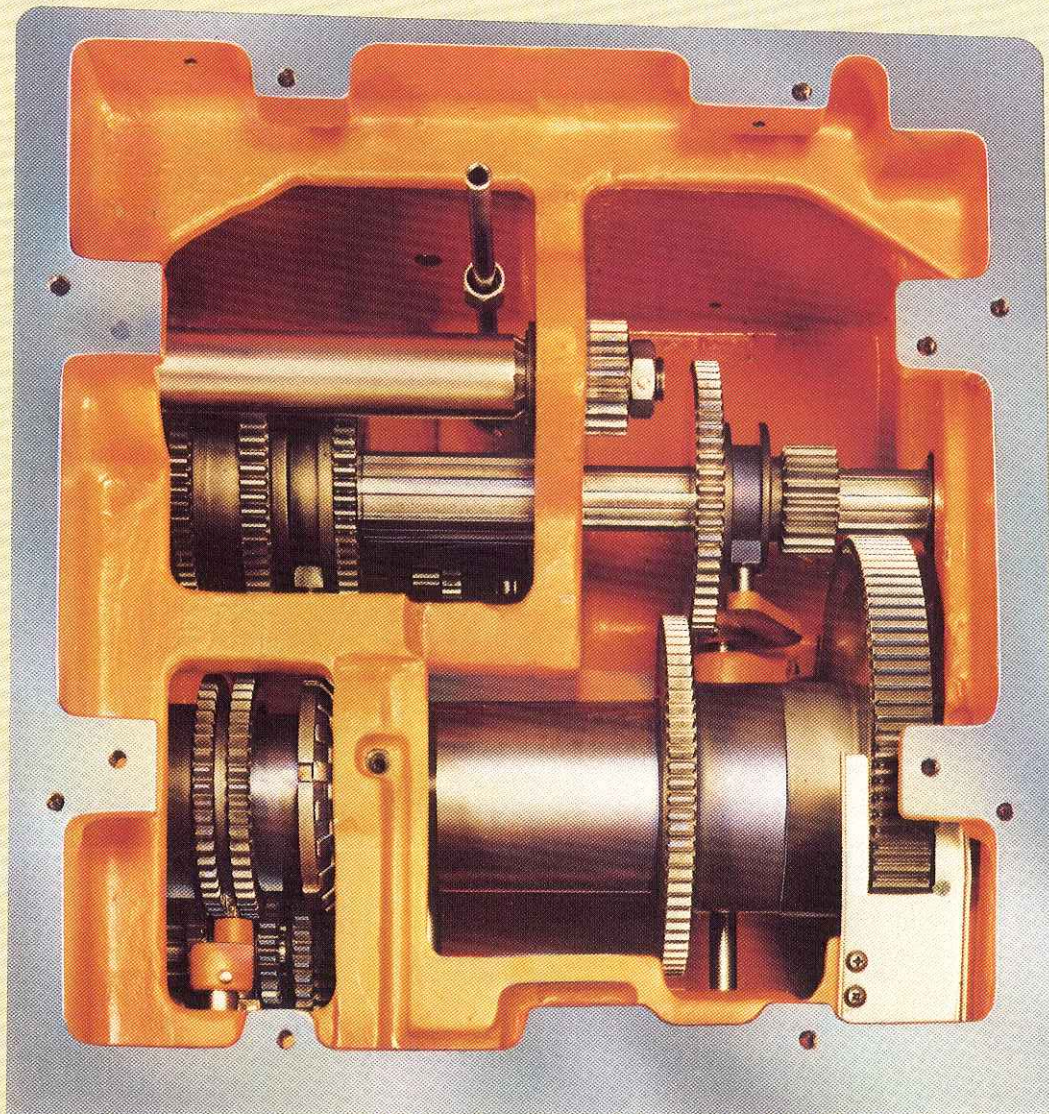
- There are sound reasons for the universal acceptance of LeBlond Makino Regal Lathes. Every Regal machine rewards its owner in high performance without unnecessary cost, versatility without gadgetry, and economy without sacrifices.
- Due to its low cost, small shops can justify a Regal Lathe instead of buying someone else's problems in a used machine. Operators in maintenance departments and toolrooms like the Regal Lathe's nimble mastery over many jobs. Many large plants equip bays with Regal Lathes to achieve profitable production and flexibility.
- Listed here are Regal machine features which you'd expect to find only in much higher priced lathes:
 1. **Servo-Shift:** important time and wear saver.
 2. **Combination Gear-Belt Drive:** 8 geared and 4 cog-type timing belt speeds.
 3. **Big 2-1/4" (55mm) hole thru the spindle** on the 15" machine, **3-1/16" (80mm)** hole on the 19" model.
 4. **Inch-metric Switchable Quick Change Gearbox.**
 5. **Safe, convenient, Spindle Control Dials on both Headstock and Apron.**
 6. **Hardened and Ground, Replaceable Bedways:** exclusive LeBlond Makino design assures long-time accuracy.
 7. **Separate Feed Rod and Leadscrew:** for sustained threading accuracy.
 8. **Hardened and Ground Cross Feed Screw**
 9. **Three-bearing Spindle:** high bearing capacity for heavy loads.
 10. **Totally enclosed, automatically lubricated, quick change gearbox.**
 11. **Rigid Carriage and Apron:** efficient feed-power transmission and dual inch/metric dials for compound and cross feed.
 12. **Rugged Tailstock:** positive spindle clamping.
 13. **Productive Accessories:** proved in hundreds of installations.





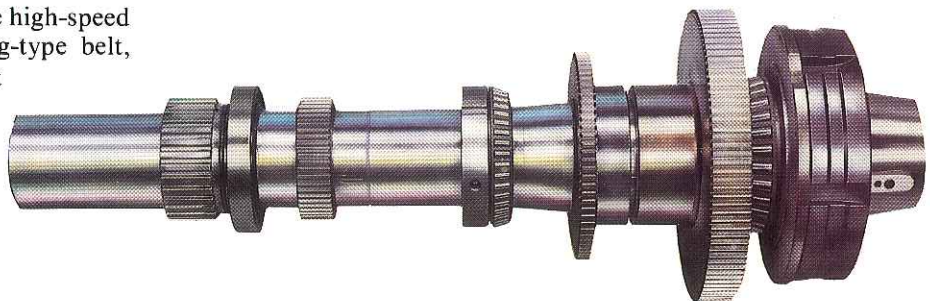
REGAL Servo-Shift – For Fast, Easy Simple Speed Selection

- The reliable REGAL Servo-Shift makes speed changing faster and easier than ever before, and at the same time protects the built-in accuracy of the headstock gearing.
- This simple, time-saving unit lets you **pre-select the next spindle speed while still cutting**; then initiate the shift (either from headstock or apron) by moving the spindle control dial. Result: almost instantaneous automatic shifting, **with no clashing of gears**.
- This fast and safe hydraulic shifting unit is remarkably simple to operate. Dialing your next speed positions a servo-unit linked directly by shifter forks to the gear train. As soon as the spindle stops, a unique “zero speed switch” takes over. This starts the hydraulic pump, and the servo moves the gears to positions which set up the new gear range.
- Simultaneously, a “crawl-speed gear train” is engaged, which imparts an oscillating motion to the gear train, allowing the gears to slide smoothly into mesh without clashing. Moving the spindle speed control dial to the desired setting is all it takes to get the machine off and running in the new gear range. And, all this action takes place **in less than 4 seconds!**



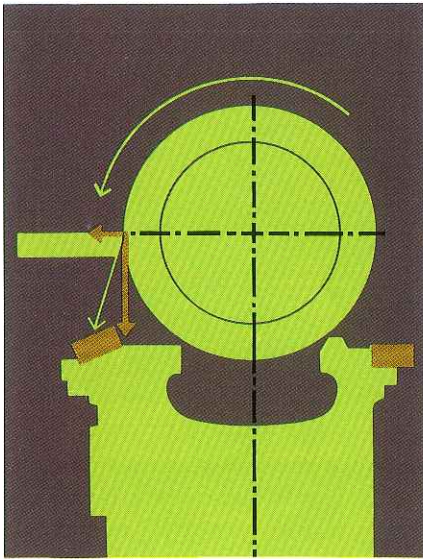
Rugged REGAL Headstock Has Muscle for Roughing . . . Quiet Smoothness for Finishing

- The rigid REGAL Headstock provides maximum power for roughing cuts, and whisper-quiet smoothness for finishing. It is scraped and aligned to a "vee" way and bolted to the bed for ultimate rigidity and accuracy.
- All REGAL Lathe models offer a choice of speed ranges. So, for example, when you wish to meet industry's demand for more exacting finish on small diameter work, you simply select the speed range best suited for your requirements.
- A combination gear-belt drive provides gear-driven low and intermediate speeds for positive, full power. The high-speed range is driven through a steel-reinforced cog-type belt, which assures fine finish and quiet operation at full power. Spur gear design minimizes horsepower loss and thrust problems. Only the gears required for a specific speed are engaged and all headstock gears are hardened and ground for quiet operation and long life.
- A self-adjusting electric brake provides smooth stops.
- The spindle is supported at three positions by two precision tapered roller bearings at front and center and a ball bearing at the rear. 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.
- For maximum versatility, the 15" REGAL Lathe has a 2-1/4" (55mm) hole thru the spindle; the 19" model has a 3-1/16" (80mm) hole thru the spindle.

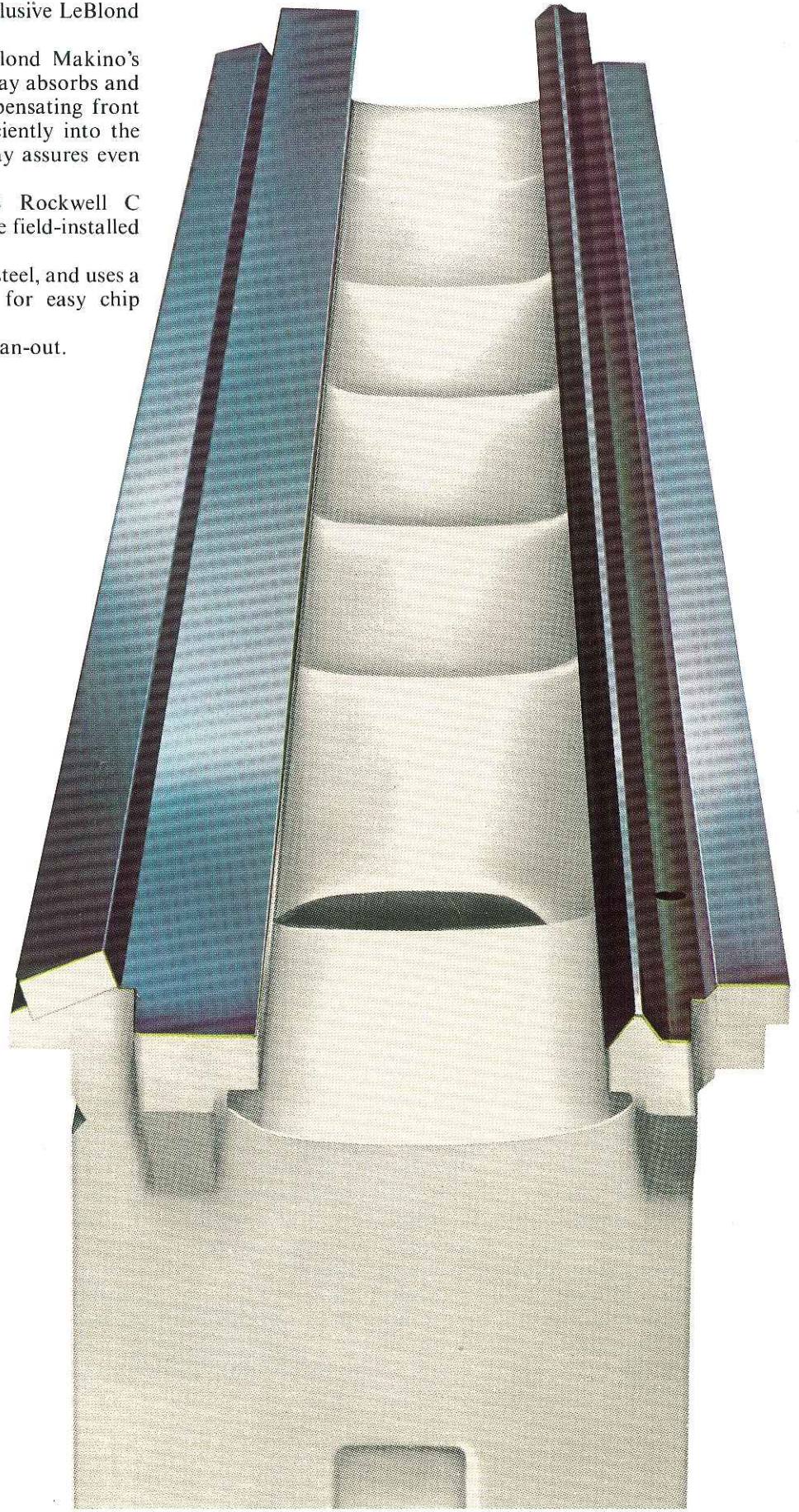


Solid Bed Structure Assures Accuracy, Finish and Long Lathe Life

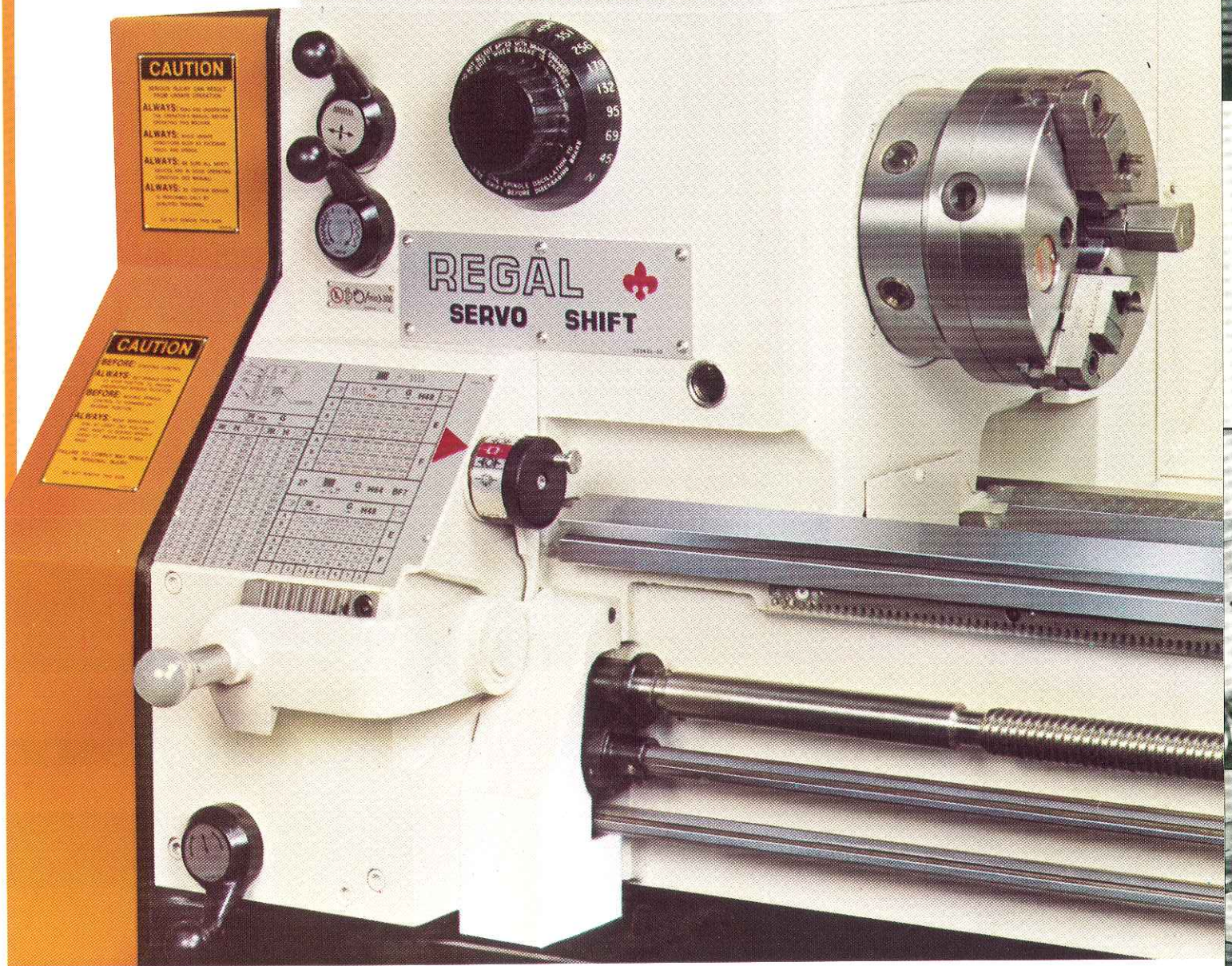
- The bed on the REGAL Lathe, with its deep closed girth design, assures maximum stability. Another major factor in preserving the long life of your REGAL Lathe, and the accuracy and finish of your work, is the exclusive LeBlond Makino compensating way design.
- The front and rear carriage ways are LeBlond Makino'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 56-58 Rockwell C (Scleroscope 75-78) 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 truss 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.

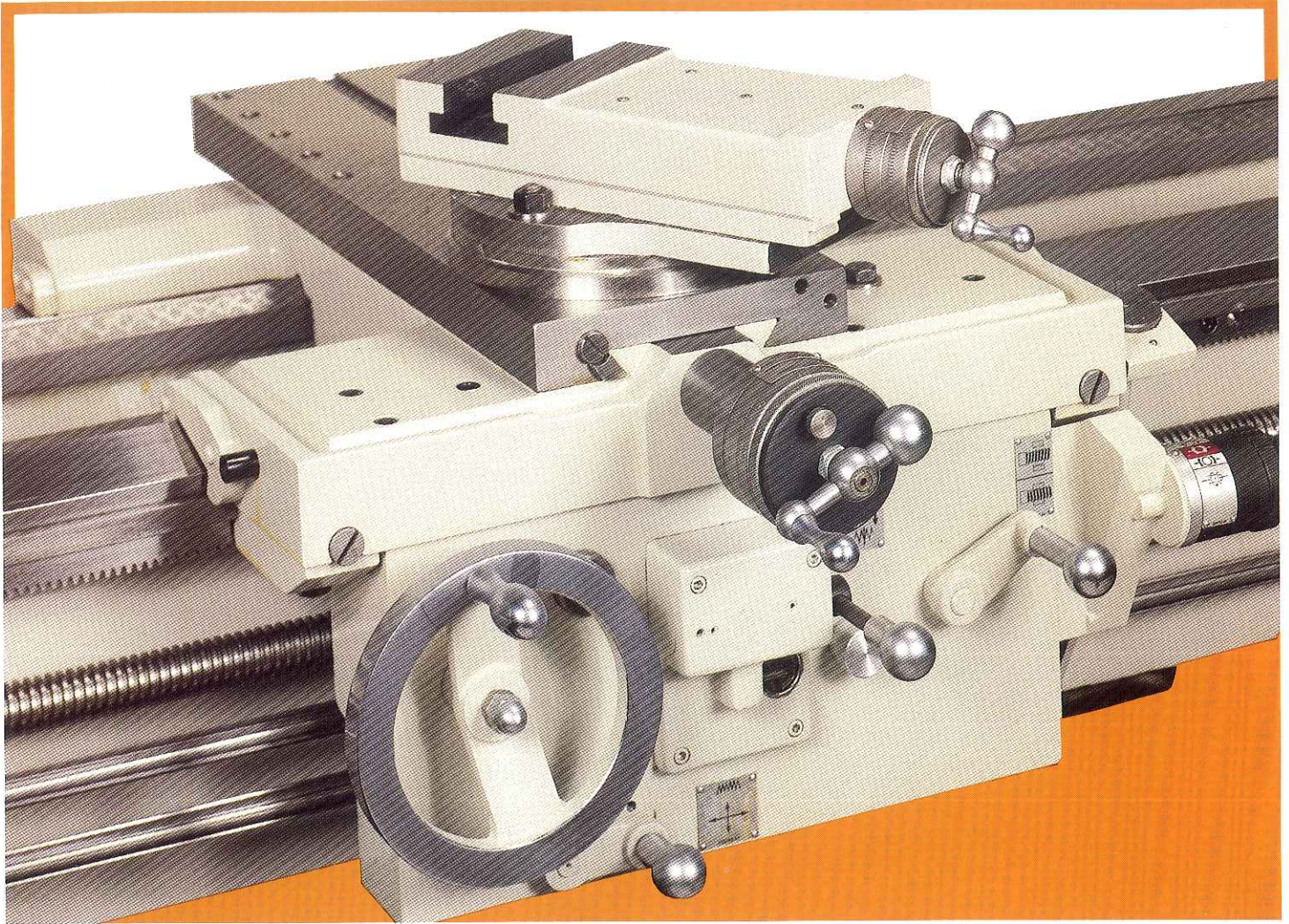


LEBLOND MAKINO



Wide Selection of Inch/Metric Feeds and Threads

- The dependability and simplicity of the REGAL quick-change gearbox has been proven in thousands of installations. It provides a wide range of inch as well as metric feeds and threads.
- A single, easy-to-read inch/metric index plate is mounted directly above the gearbox. Optional gearing for diametral and module pitch threads is 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 quick-change gearbox is totally enclosed and automatically lubricated.



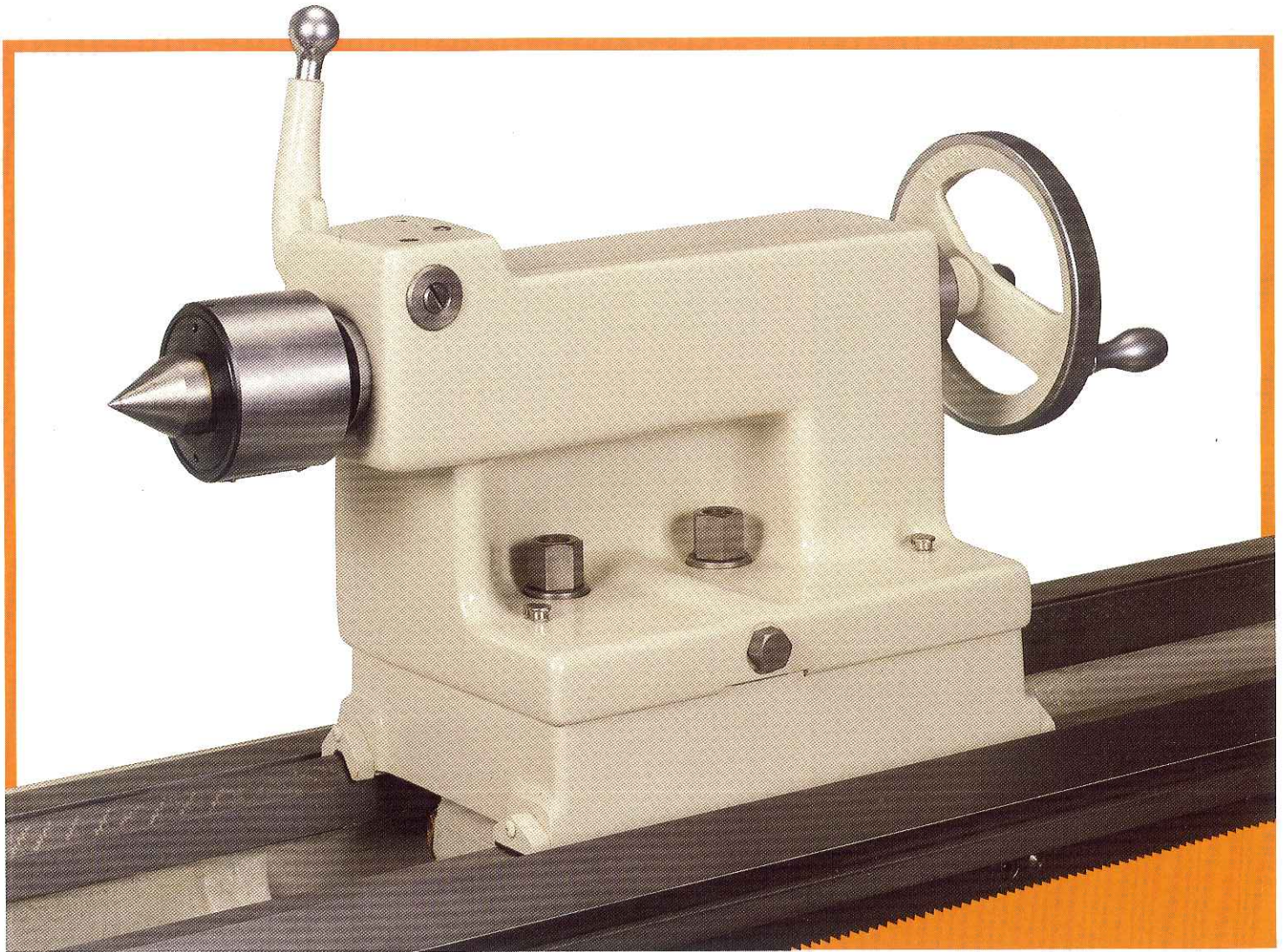
User-Oriented Design Throughout Assures

Large Carriage Bearing Surface Reduces Wear, Increases Accuracy

- Precise tool guidance and ease of operation are evident in the REGAL carriage design. For example, the REGAL carriage has a 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 heaviest 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.
- Dual inch/metric dials, providing diameter reduction readings, are supplied on the crossfeed. A direct reading,

Simple, Easy-to-Operate Apron Adds More Long Term Accuracy

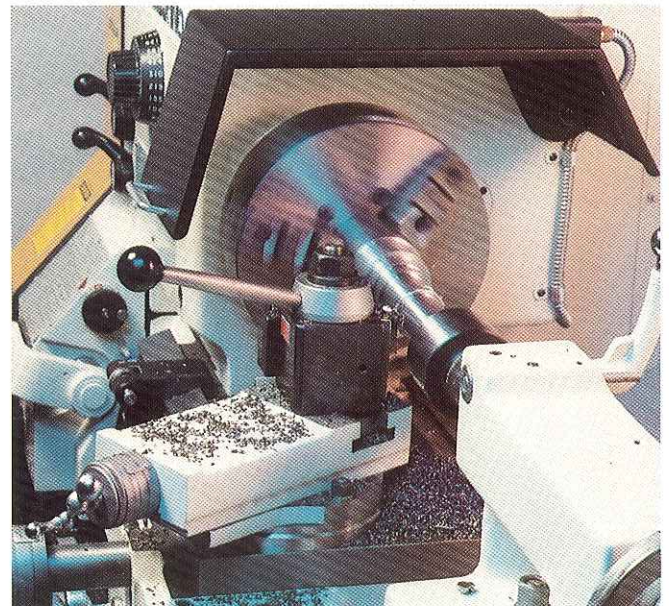
- dual graduated inch/metric dial is supplied for the compound to control depths when facing cuts are required.
- The apron transmits power from the feed rod to either the drive pinion for length feed or to the cross feed screw. A single lever engages either feed, without slippage, through a positive 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, and can be disengaged when not in use. 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 re-engages when the load is removed.
- A convenient spindle control dial 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.



Accuracy and Convenience

Rugged and Versatile Tailstock

- The REGAL tailstock features a positive, non-influencing clamp on top of the spindle. Dual inch/metric calibrations 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 taper shanks.
- Cross adjustment provides for easy alignment and for taper turning.
- A revolving tailstock center is available as an option.



Wide Variety of Cost-Effective Accessories

Taper Attachment – A taper attachment is fitted to the rear of the carriage and employs a telescoping crossfeed screw, permitting taper turning without disengaging the screw. The slide is graduated in inches per foot on one end and millimeters per meter on the other. Capacity on the 15" REGAL is 3½" (90 mm) maximum taper (diameter change) per foot and will turn 10" (255 mm) at one setting. Capacity on the 19" REGAL is 3½" (90 mm) maximum taper per foot and will turn 15" (380 mm) at one setting.

Tracers – Precision tracing attachments may be applied to all LeBlond Makino REGAL Lathes. These tracers are easy to field install.

Steady Rests – Steady rests provide support for long or slender workpieces, allowing heavy cuts to be taken and preventing chatter. All steady rests have iron bodies and bronze tip plain jaws. Anti-friction roller jaws are also available. Jaws may be interchanged for maximum convenience without affecting the capacity. They are available in three capacity ranges.

Follow Rests – Follow rests bolt to the carriage and move with it, to provide workpiece support close to the cutting tool for maximum stability. Follow rests are supplied with iron bodies and plain bronze tip jaws. Anti-friction roller jaws are also available. Both types of jaws may be interchanged without affecting capacity.

Digital Readouts — A 2-axis digital readout offers an easy-to-read, exact and true position of the carriage and cross slide resulting in faster and more accurate positioning.

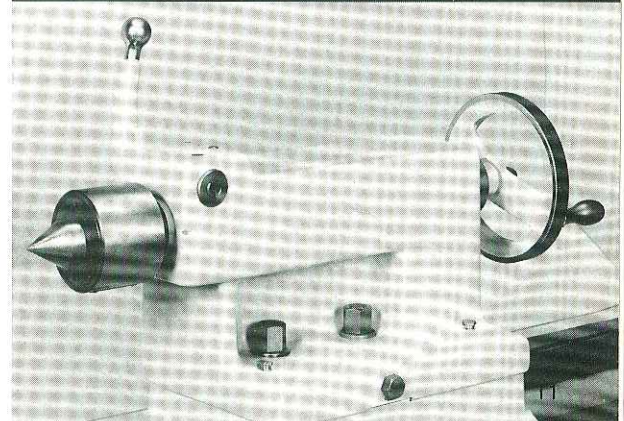
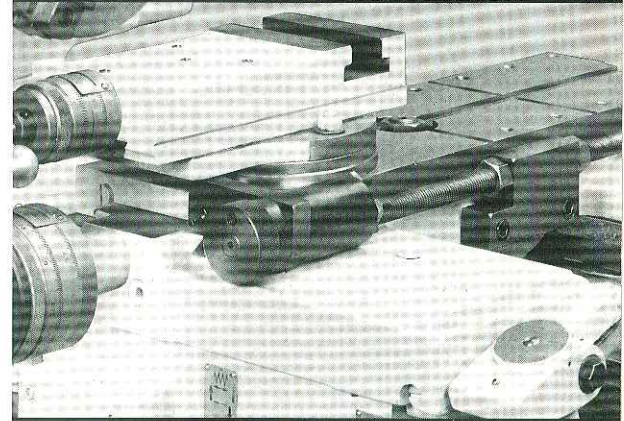
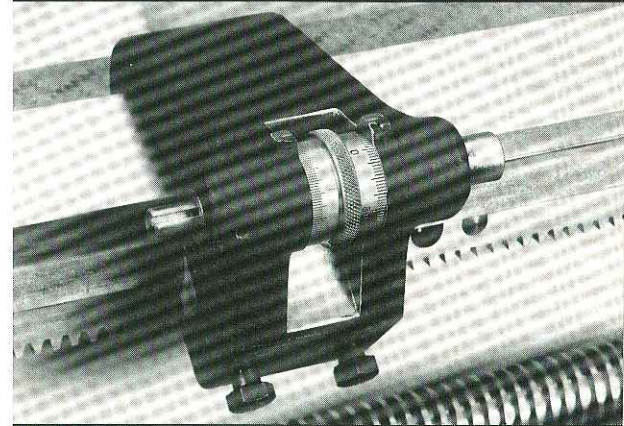
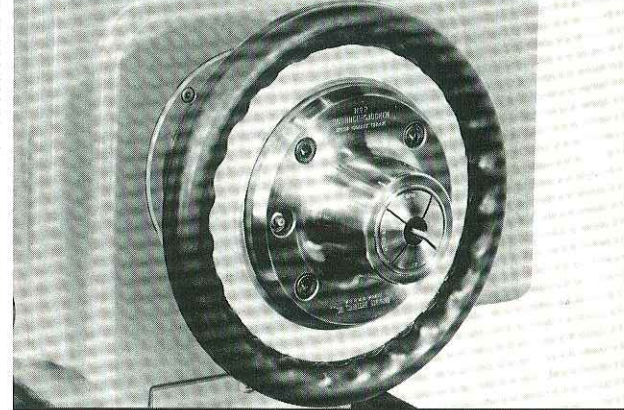
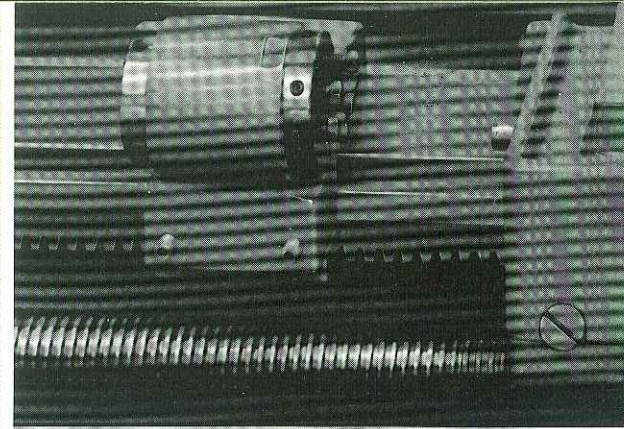
Six-Position Length Stop – This stop is particularly useful for turning work with multiple shoulders. Each of the six screws mounted in a revolving barrel may be indexed to contact the stop pin on the carriage wing, and each have an adjustment range of 3-1/4" (80mm). The barrel has built-in detents.

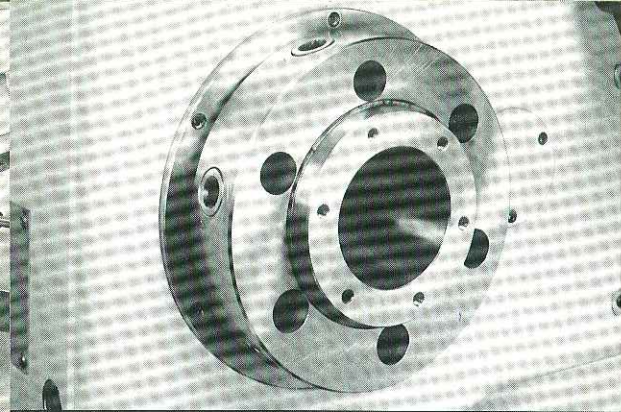
Collet Chucks – A variety of collet chucks and collets are available for holding the small diameter workpiece.

Micrometer Carriage Stop – The Micrometer carriage stop fastens to the front bedway and is equipped with a knurled micrometer barrel graduated in thousandths of an inch and two hundredths of a millimeter. It permits the operator to manually bring the carriage to precisely the same position on repetitive cuts. Total adjustment of the stop is 1" (25mm).

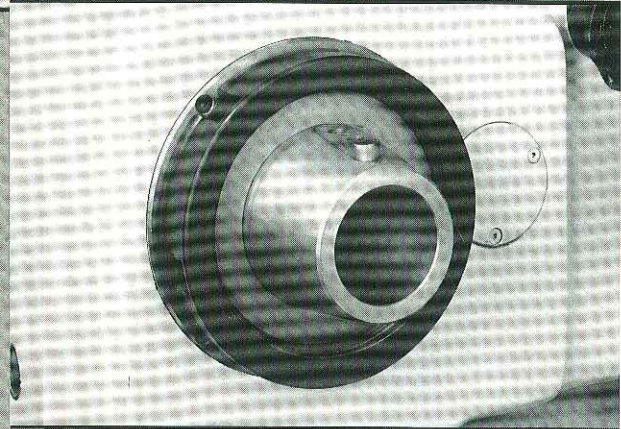
Four-Position Crossfeed Stop – This stop includes four adjustable screws mounted in a revolving barrel which may be indexed. These screws contact an adjustable stop screw mounted to the right side of the carriage. This stop is especially useful as a positive cross stop in threading applications and for turning work with multiple diameters.

Revolving Tailstock Center – This revolving center is inserted into the tailstock spindle to help maintain accurate work alignment by preventing center damage at high speeds. It is equipped with anti-friction bearings and large, permanently sealed, lubricant capacity for longer life.

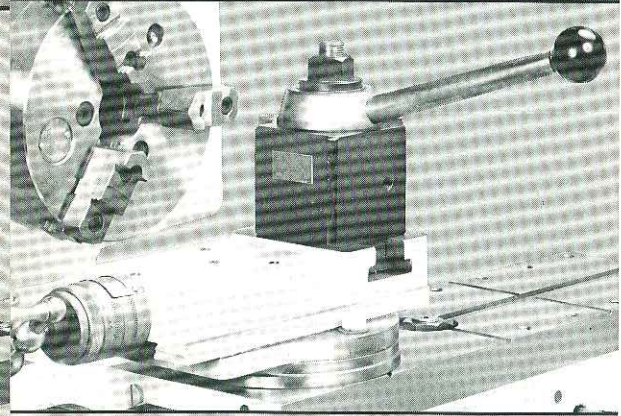




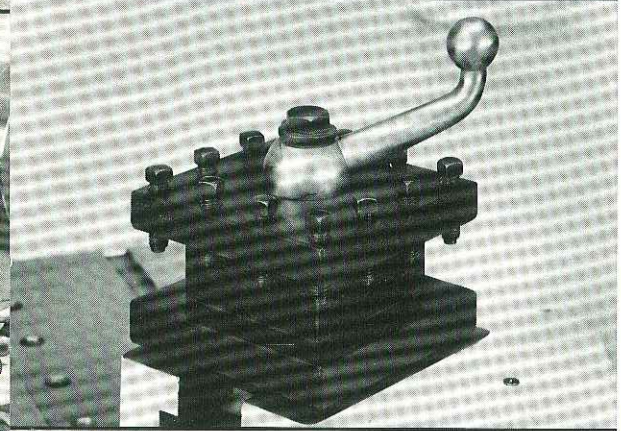
Camlock Spindle Nose — The 15" REGAL is available with a D16 camlock spindle nose. The 19" REGAL can be supplied with D18 camlock spindle nose.



Tapered Spindle Nose — An L1 tapered key drive spindle nose is available on the 15" REGAL. The 19" REGAL can be ordered with an L2 spindle nose.



Quick-Change Tool System — Accommodates pre-set tool blocks which are inserted quickly and accurately into place and locked with the clamping lever. This tool post provides rigidity for heavy cutting without chatter or vibration. Shims under tools are eliminated since each holder has separate height adjustment through a knurled knob.



Turret Tool Posts — Multiple station indexing is provided with capability of holding up to four tools. It may be indexed to any of twelve positions.



Work Light — A work light mounted on the chip and coolant shield provides illumination over the entire cutting tool work area. It is supplied with a coiled cord.

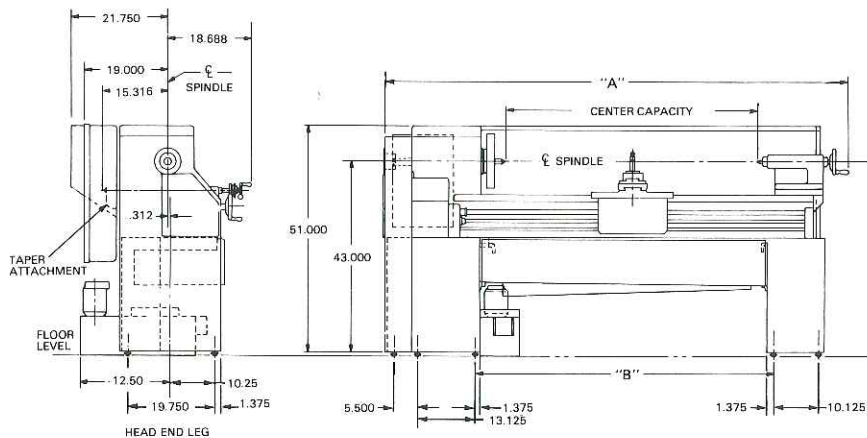
15" REGAL Lathe Standard Specifications

	Inch Capabilities	Metric Capabilities
● Capacity		
Swing over bed and carriage wings	15-1/2"	390mm
Swing over cross slide	9-1/2"	240mm
Distance between centers, base length	30"	760mm
Distance between centers, optional length	54"	1370mm
● Headstock		
Spindle speeds, number	12	
Low spindle speed range, rpm (Option)	30 to 1200	
Gear drive: 30, 46, 63, 88, 119, 171, 234 and 329		
— Belt drive: 436, 625, 855 and 1200		
Standard spindle speed range, rpm	45 to 1800	
Gear drive: 45, 69, 95, 132, 179, 256, 351 and 494		
— Belt drive: 654, 937, 1282 and 1800		
Spindle bearing diameters:		
Front	3-11/32"	85mm
Center	3"	76mm
Rear	2-3/4"	70mm
Front spindle precision bearing		
Outside diameter	5-1/8"	130mm
Radial load at 100 rpm	11509 lbs.	5225kg
Thrust load at 100 rpm	8753 lbs.	3974kg
Center spindle roller bearing		
Outside diameter	4-5/16"	110mm
Radial load at 100 rpm	5300 lbs.	2406kg
Rear spindle, ball bearing		
Outside diameter	4-5/16"	110mm
Radial load at 100 rpm	3800 lbs.	1725kg
Spindle, size of hole, straight	2-17/64"	57mm
Spindle, size of hole, taper, Amer. Std. No.	250	
Spindle, size of center, Morse taper No.	4	
Spindle nose	L-1 or DI-6	
Spindle nose, diameter large end of taper	4-1/8"	105mm
Headstock length on bed	15-7/8"	400mm
● Bed		
Length, standard	5' 6-1/4"	1.680mm
Width	12-3/16"	310mm
Depth	10-1/4"	260mm
● Carriage		
Length on bed	19-7/8"	500mm
Bearing surface	67-1/2 sq. in.	43,540 sq. mm
Bridge width	6-1/4"	160mm
Cross slide travel without taper attachment	8-7/8"	225mm
Cross slide travel with taper attachment	7-7/8"	200mm
Compound rest travel	3-7/8"	100mm
● Feeds-Threads		
Feed changes, gear or belt drive	48	48
Feed range	.0018 IPR to .104 IPR	.05mm/r to 2.6mm/r
Thread changes, gear drive only	48	40
Threads	2 to 112 TPI	.25 to .14mm pitch
Leadscrew diameter	1-3/16"	30.2mm
● Tailstock		
Spindle diameter	1-15/16"	50mm
Center, Morse No.	4	4
Spindle travel and set over right or left	5", 1"	125mm, 25mm
Length on bed	10-3/4"	275mm
● Motor		
Motor hp (Duty Rated) and rpm	7-1/2, 1800	5.6kw, 1800
● Shipping Data		
(For basic machine with average accessories)		
Net weight, approx.	3005 lbs.	1350kg
Domestic shipping weight, approx.	3260 lbs.	1480kg
Export shipping weight, approx.	3730 lbs.	1690 kg
Floor space required	78" x 40"	1980mm x 1015mm
Distance, spindle center to floor	43"	1090mm

19" REGAL Lathe Standard Specifications

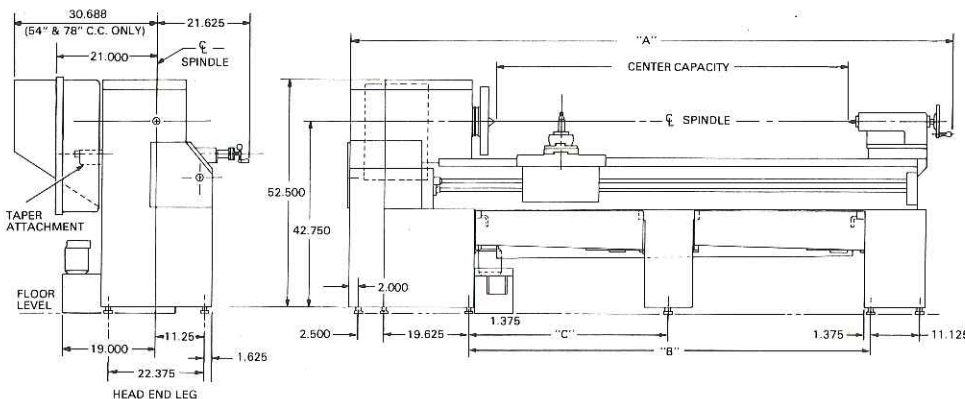
	Inch Capabilities	Metric Capabilities
● Capacity		
Swing over bed and carriage wings	19-1/4"	489mm
Swing over bed and carriage wings with 3" raise package	24-1/2"	
Swing over cross slide	12-1/4"	311mm
Swing over cross slide with 3" raise package	18-1/4"	
Distances between centers, lengths	*54", 78", 102", 150"	1372, 1981, 2591, 3810mm
● Headstock		
Spindle speeds, number	12	
Low spindle speed range, rpm (Option)	25 to 1000	
Gear drive: 25, 35, 50, 68, 97, 137, 194 and 265		
— Belt drive: 363, 513, 725 and 1000		
Standard spindle speed range, rpm	40 to 1600	
Gear drive: 40, 56, 80, 109, 155, 219, 310 and 424		
— Belt drive: 581, 821, 1160 and 1600		
Spindle bearing diameters:		
Front	4-1/4"	108mm
Center	4"	102mm
Rear	3-3/4"	95mm
Front spindle bearing, Timken precision		
Outside diameter	6-1/2"	165mm
Radial load at 100 rpm	16372 lbs.	7432kg
Thrust load at 100 rpm	13940 lbs.	6328kg
Center spindle, roller bearing		
Outside diameter	5-3/4"	146mm
Radial load at 100 rpm	7618 lbs.	3458kg
Rear spindle, ball bearing		
Outside diameter	5-11/16"	145mm
Radial load at 100 rpm	5940 lbs.	2696kg
Spindle size of hole, straight	3-1/16"	78mm
Spindle, size of hole, taper, Amer. Std. No.	350	
Spindle, size of center, Morse taper No.	5	
Spindle nose	L-2 or DI-8	
Spindle nose, diameter large end of taper	5-1/4"	133mm
Headstock length on bed	21-1/8"	537mm
● Bed		
Lengths	8'3", 10'3", 12'3", 16'3"	2515, 3124, 3734, 4953mm
Width	14-3/8"	365mm
Depth	11-1/2"	292mm
● Carriage		
Length on bed	21"	533mm
Bearing surface square inches	89	2261mm
Bridge width	7-7/8"	200mm
Cross slide travel without taper attachment	11-1/4"	286mm
Cross slide travel with taper attachment	9-5/8"	244mm
Compound rest travel	4-3/8"	111mm
● Feeds-Threads★		
Feed changes, gear or belt drive	48	48
Feed range, in. per rev.	.0018 IPR to .104 IPR	.05mm/r to 2.6mm/r
Thread changes, gear drive only	48	40
Thread	2 to 112 TPI	.25 to .14mm pitch
Leadscrew diameter	1-3/16"	30mm
● Tailstock		
Spindle diameter	2-7/16"	62mm
Center, Morse No.	5	102mm
Spindle travel and set over right or left	7", 1"	178mm, 25.4mm
Length on bed	13-1/8"	334mm
● Motor Recommendations		
Motor hp (Duty Rated) and rpm	10,1800	7.46kw, 1800
● Shipping Data		
(For basic machine with average accessories)		
Net weight, pounds, approx.	3860 lbs.	1751kg
Domestic shipping weight, approx.*	4450 lbs.	2019kg
Export shipping weight, approx.*	4950 lbs.	2245kg
Net weight, each additional 24" of bed, approx.	440 lbs.	200kg
Floor space required	113" x 50"	2870mm x 1270mm
Distance, spindle center to floor	42-3/4"	1086mm
*Base length		

Dimensions



15" REGAL STANDARD MODELS

CENTER CAPACITY	BED LENGTH	A	B
30"	66.250	80.250	42.437
54"	90.250	104.250	66.437



19" REGAL

CENTER CAPACITY	BED LENGTH	A	B	C	NO. OF CENT. LEGS
54"	99.000	117.875	67.875	N/A	0
78"	123.000	141.875	91.875	46.312	1
102"	147.000	165.875	115.875	58.312	1
150"	195.000	213.875	164.688	53.562	2

Standard Equipment

- Servo-Shift Headstock
- 12-speed Gear and Belt Drive
- Electric Brake and Power Unit
- Tapered Spindle Sleeve
- Centers
- Hardened and Ground, Replaceable Steel Bedways
- Inch/Metric Quick-Change Gearbox
- Dual Inch/Metric Dials for Crossfeed
- Dual Graduated Inch/Metric Dial for Compound
- Chasing Dial
- Hardened and Ground Crossfeed Screw
- Headstock and Apron Safety Spindle Control
- Feed Drive Safety Clutch
- Tang Driver in Tailstock Spindle
- Chip and Coolant Shield*
- Spindle Interlocked Safety Guard
- Coolant System
- Chip Pan
- Set of Leveling Plates
- NFPA Pulletin 79 Control

*Not available on 19" x 102" or 19" x 150" models.

Optional Equipment

- Large Face Plate
- LIQUI-LAG Kit
- Follow Rests
- Steady Rests
- Four-Position Cross Stop
- Dial Indicator Stop
- Micrometer Carriage Stop
- Six-Position Length Stop
- Taper Attachment
- 3-Jaw Universal Chuck
- 4-Jaw Independent Chuck
- Live Centers
- Tool Blocks
- Diametral and Module Pitch Threading
- Tracer Attachments
- Work Light

Drawings or photographs in this catalog may show guards and covers open or removed for the purpose of illustration. The equipment should never be placed under power with any guard or cover open or removed.

The descriptions, specifications, and illustrations contained herein were correct at the time of printing. Machines built since then may differ slightly as a result of the LeBlond Makino policy of continuous product improvement. In any instance involving questions as to the status and availability of the equipment described in this catalog, the current LeBlond Makino price list shall take precedence.



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