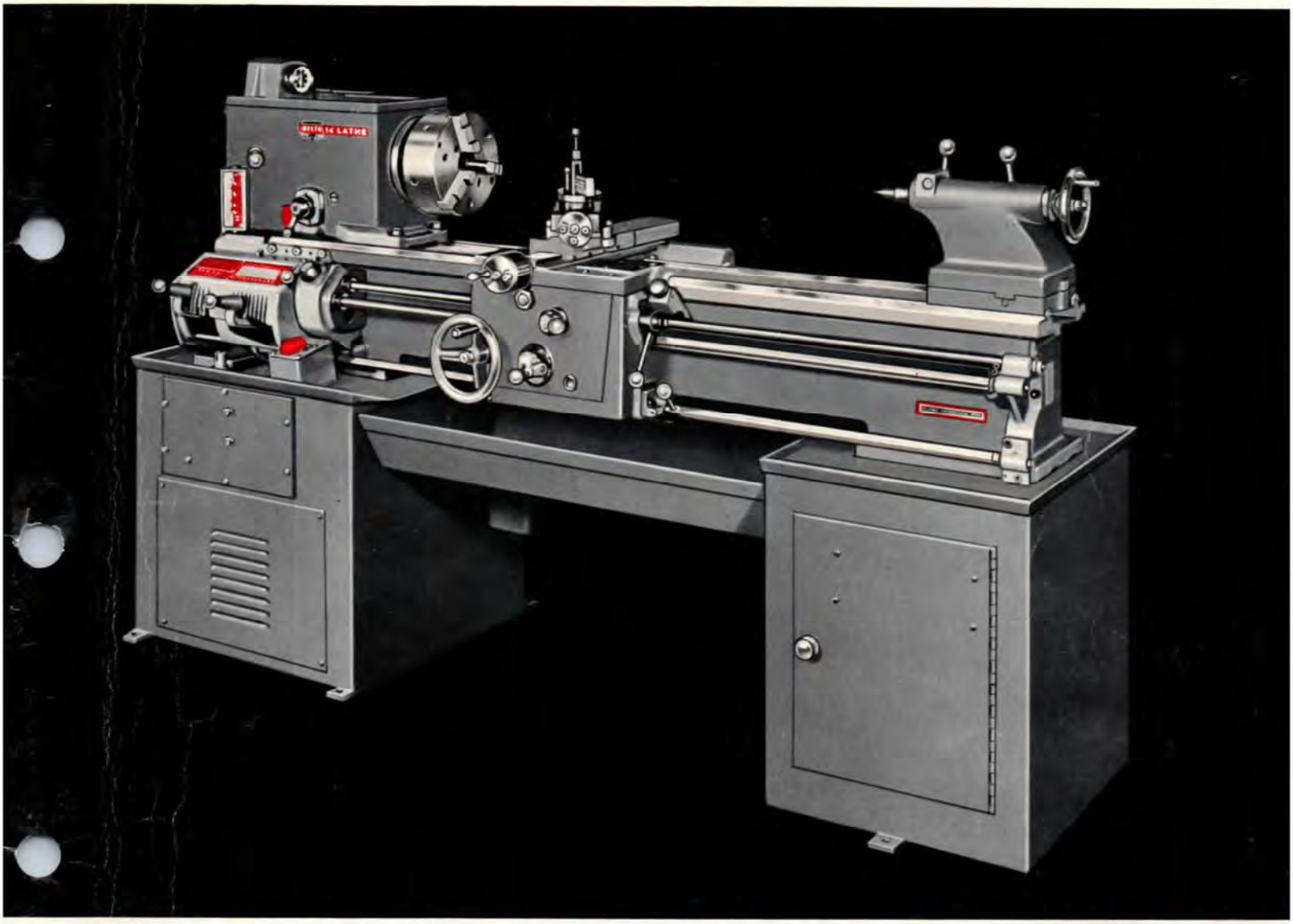
ROCKWELL
MACHINE TOOLS



Metal Lathes • Milling Machines

ROCKWELL MANUFACTURING COMPANY

Delta Metal Lathes Are Quality Controlled At Every Stage!

• RAW MATERIALS • FINISHED PARTS • ASSEMBLED COMPONENTS • COMPLETED PRODUCT

QUALITY CONTROL CERTIFICATE

Rockwell MANUFACTURING COMPANY
POWER TOOL DIVISION

DELTA 14" METAL CUTTING LATHE

CATALOG NUMBER INSPECTED BY

SERIAL NUMBER DATE

This Delta 14" Metal Cutting Lathe is a precision machine tool, modern in design and built to higher quality standards. Before it left our factory it had to pass more than 50 tests for dynamic balance, accuracy and ease of operation. Some of these test results are reported here to show you the quality built into your particular lathe.

The Delta 14" Metal Lathe is built to give you many years of good service. PLEASE STUDY THE INSTRUCTION MANUAL CAREFULLY BEFORE OPERATING THE LATHE. Keep the lathe [illegible] well lubricated and in proper adjustment. The accuracy of the work it produces depends on you.

Dial Indicator Inspection*

	TEST	Limit Allowed	[illegible]
1	Spindle Nose Runout (Indicator on O.D. of Taper)	.0004 T.I.R.	
2	Spindle Taper Hole Runout—Test Bar in Spindle Hole—Indicator at End of Spindle Nose	.0004 T.I.R.	
3	Spindle Taper Runout—Test Bar in Spindle Hole—Indicate 12" from Spindle Nose	.0008 T.I.R.	
4	Spindle Alignment with Bed Ways—Vertical—Along 12" of Test Bar—High at End of Bar	0 to .001	
5	Spindle Alignment with Bed Ways—Horizontal—Along 12" of Test Bar	± .0005	
6	Vertical Alignment of Head and Tail Centers (High at Tailstock)	0 to .001	
7	Cross Slide Alignment—to Face Hollow or Concave only on 12" Diameter (6" R.)	.001	
8	Lead Screw Cam Action	.0004	
9	Cross Feed Screw Backlash (4 Marks on Micrometer Collar)	.004	
10	Compound Feed Screw Backlash	.004	
11	Tailstock Feed Screw Backlash	.010	
12	Bed Level—using Spirit Level in Transverse Direction	.0005 in 12"	
13	Lead Screw Alignment—Horizontal—End to End	.004	
14	Lead Screw Alignment—Vertical—End to End	.004	
15	Cam Action of Spindle	.0005 T.I.R.	

*Meet ASA Accuracy Standards. Printed in U.S.A.

Additional Inspection

	TEST	[illegible]
1	Travel of Carriage Full Length of Bed, using Handwheel	
2	Lead Screw—Lead per Foot ± .0015 and Lead in any 4" ± .0005	
3	Lead Screw Control Lever (Forward, Neutral, Reverse)	
4	Positioning of Half Nuts (Lathe Running)	
5	Lock-out Device for Half Nuts	
6	Quick Change Gear Box—Check for Noise or Vibration with Lathe Running	
7	Graduations on Three Micrometer Collars and Compound Swivel Saddle. Witness Marks for Tailstock Set-over, Swivel Saddle (3), and Three Micrometer Collars	
8	Check Maximum and Minimum Spindle Speeds in Direct Drive (1600 and 210 RPM) using Stroboscopic Tachometer	
9	Vibration from 210 to 1600 RPM not to Exceed .0005" Amplitude on Bed and .0005" at Spindle using Electronic Vibration [illegible]	
10	Turn and Face Drive Plate and Pack with Same Lathe	
11	Make Light Cut 8" Long on Stock Held in a Chuck and Check for Taper—not to exceed [illegible]	
12	Make Heavy Cut at Least 3" in Length @ 450 RPM, 1¾ Dia. C1115 Stock with .0124 Feed, .100 Depth of Cut with HSS Bit Nose Tool	
13	Cut a ⅝ 11 Thread	
14	Tailstock Extra Center	
15	Check Witness Mark on Tailstock Ram—Shows Correct Center Height	

414-05-153-5001

Every Delta Metal Lathe is a precision machine tool, modern in design and built to the highest quality standards. Before it leaves the factory, it must pass more than 50 tests for dynamic balance, accuracy and ease of operation.

Because some of these tests are of special interest to the prospective customer, Delta provides a Quality Control Certificate with each Delta Lathe or Hand Screw Machine.

This certificate shows the *standard of accuracy* established by Delta's engineers for lathes in a given class. It also shows the *accuracy of performance* of each individual lathe. This performance is attested to by the signature of the inspector, who writes in the serial number of the lathe, the date of inspection and the results of each test.

You are invited to see for yourself how much any given Delta lathe exceeds the established standards, *before you buy!*

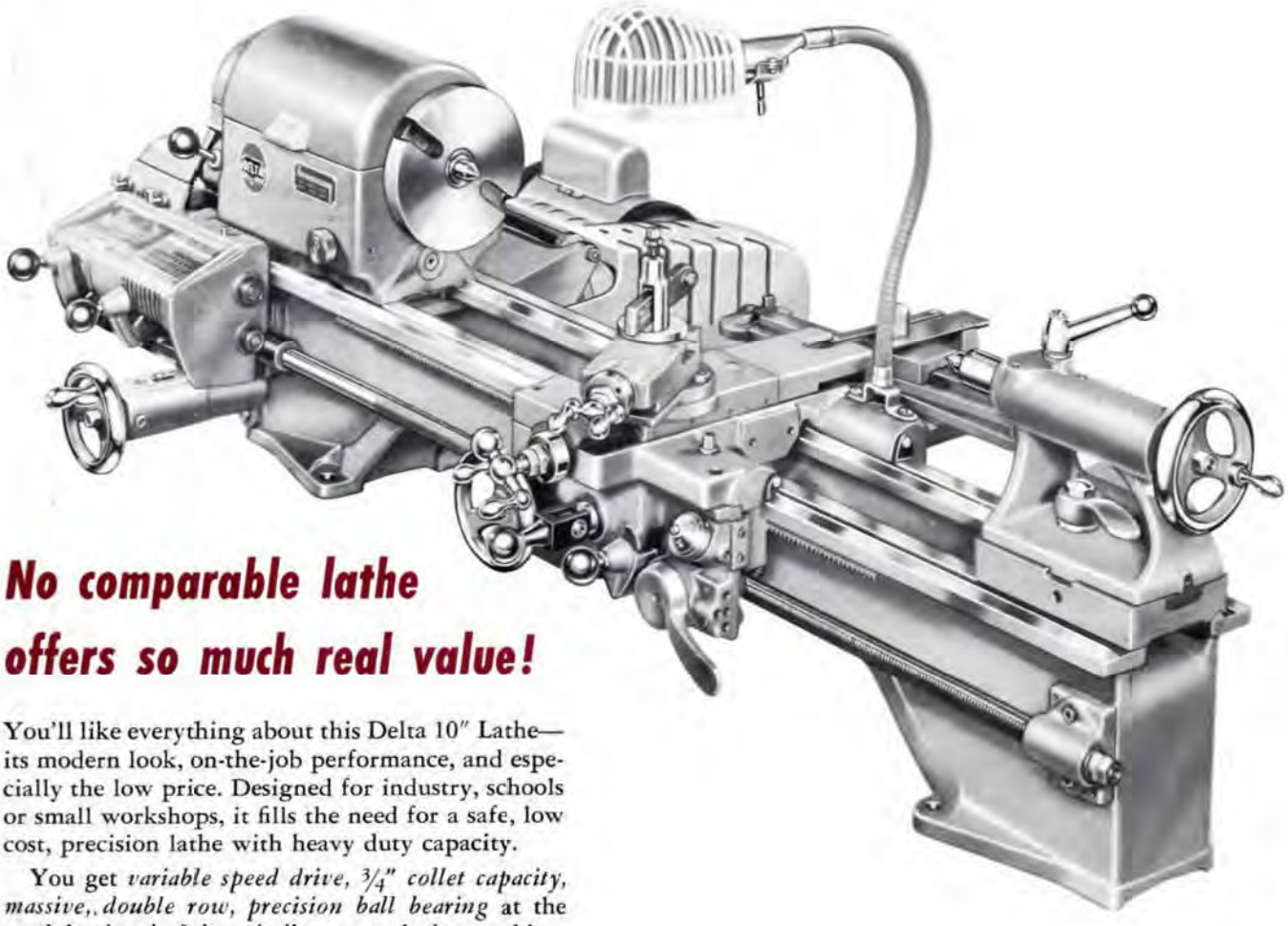
▲ Before a lathe bed leaves the way grinding machine, the operator checks the ways with a precision level for surface relationship and parallelism. The ways must be accurate to within .001" over the entire length of the bed.

This Optical Comparator in the Quality Control Department is used for precision measurement of a wide variety of lathe parts, assuring high quality levels. ▼

INDEX

DELTA

10″ METAL LATHES



No comparable lathe offers so much real value!

You'll like everything about this Delta 10″ Lathe—its modern look, on-the-job performance, and especially the low price. Designed for industry, schools or small workshops, it fills the need for a safe, low cost, precision lathe with heavy duty capacity.

You get *variable speed drive, 3/4″ collet capacity, massive, double row, precision ball bearing* at the work load end of the spindle—an exclusive combination of features never before available on a lathe this size at comparable cost.

Underneath Drive 10″ Metal Lathe, standard bed model, shown mounted on cabinet with enclosed tailstock pedestal having three 12 x 17¼″ shelves for convenient tool storage.

Rear Drive 10″ Metal Lathe, long bed model, shown mounted on No. 25-811 Cabinet with No. 25-805 Motor Mounting Kit.

THESE FEATURES MAKE THE MODERN DELTA 10" METAL LATHE AN UNEQUALLED VALUE!

EXCLUSIVE PERFECTED VARIABLE SPEED DRIVE

Gives you all the advantages of a variable speed drive, with an infinite choice of speeds from 50 to 1500 rpm—PLUS the high torque transmitting power of matched V-belts. Delta's variable speed drive incorporates an *extra shaft* between the variable speed drive pulleys and the spindle. This makes possible high speed power transmission through the variable speed drive belts while twin V-belts transmit steady power to the spindle. Rear drive (not shown) has same features as underneath drive, illustrated.

LARGEST COLLET CAPACITY

No other lathe offers you so much capacity at anywhere near the price! You get a full ¾" collet capacity. This means you can use 4-C collets to handle large jobs which you could not ordinarily handle on other lathes of this size. Taper for collets is ground directly into spindle for extreme accuracy.

RUGGED HEADSTOCK

Features heavy duty construction throughout. Over-sized spindle is made from heat-treated alloy steel, hardened and ground to a super finish. Spindle nose threads, hardened and then ground, resist damage and maintain original accuracy. Massive, double row, precision ball bearing at spindle nose end features angular contact and internal preloading to prevent all play and assure rigid, accurate work support. Large ball bearing at outboard end "floats" to compensate for expansion as spindle warms up.

EXTRA WIDE BED

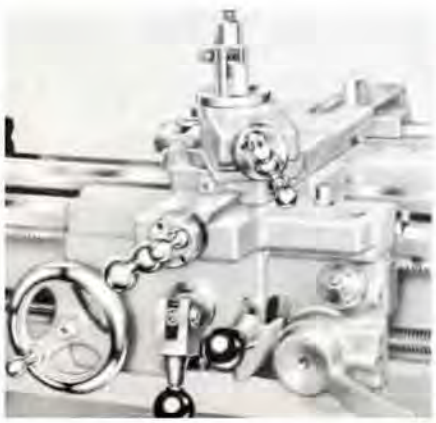
You get an exceptionally wide bed (6 7/16") to assure greatest accuracy possible. Outstanding features include: one-piece construction, with integral riser blocks, plus heavy U-section cross braces for added strength. There are no traps or obstructions to catch chips or coolant. The bed is made of close grained, hi-tensile iron, fully normalized before machining. Precision ground ways provide extremely accurate parallelism with the headstock spindle over the entire length of bed.

QUICK CHANGE GEAR BOX

Gear box provides a choice of 54 feed rates and 54 thread pitches (including 27 threads per inch) by means of two selector levers with rugged, needle bearing equipped tumbler gears. A large, easy-to-read thread and feed chart, conveniently mounted to the top of the box, makes it easy to set selector levers. A lubrication chart, located where it cannot be overlooked, graphically provides all necessary lubrication information.

FLEXIBLE SPEED CONTROL

Speeds can be changed quickly and without effort by turning the large, conveniently located hand wheel. With the easy-to-read pointer and dial, the operator can tell at a glance the spindle speed he is getting through the full range from 50 to 1500 rpm. *A special bonus feature lets him pre-set the high and low speed limits*—a real advantage on repetitive, multiple diameter work — a safety feature for students and inexperienced operators.



ADVANCED CARRIAGE ENGINEERING

Compound slide rest, even in its most forward position, does not overhang the swivel bearing pad. Micrometer collars are direct reading type. Apron has a thread dial as standard equipment. Half-nuts have a special, crisp-action design, appreciated especially by experienced operators. Powerful clutch has infinite choice of settings—can be pre-set to slip when overloaded (to protect the lathe) or can be instantly adjusted, even while lathe is running, for very heavy power transmission.

MODERN TAILSTOCK

Rugged, compact, very easy to move and adjust. Can be accurately offset for taper turning by means of adjusting screws. Index marks show exact amount of offset. Ram is marked in 1/16"; adjustable micrometer collar is calibrated in .001" for drilling and similar operations. When fully retracted, ram automatically ejects centers. Large ram lock handle can be set at whatever angle the operator finds most convenient.

DELTA 10" METAL LATHE LINE

STANDARD EQUIPMENT

- Quick change gear box
- Matched V-belts for spindle
- Variable speed drive complete, including belts
- Motor pulley
- 6" diameter drive plate
- Centers for headstock and tailstock
- Tool post, ring and rocker
- Spindle adapter, No. 2 Morse taper i.d.
- Thread chasing dial
- Combination wrench for tool post, etc.
- Box wrench for tailstock
- Extra shear pins

CATALOG LISTING

Standard Bed Model—24" Between Centers
Long Bed Model—36" Between Centers

BASIC 10" METAL LATHE: Bench model, quick change type, variable speed drive, 1½—8 threaded spindle nose, with clutch driven worm drive power longitudinal and cross feeds. (Specify ½, ⅝, ¾ or ⅞" bore for motor pulley. Without cabinet, motor and switch.

Standard Bed Model—345 lbs. **NO. 25-700**
Long Bed Model—388 lbs. **NO. 25-710**

BASIC 10" METAL LATHE: Cabinet Model with Plain Tailstock Leg, quick change type, variable speed drive, 1½—8 threaded spindle nose, with clutch driven worm drive power longitudinal and cross feeds. (Specify ½, ⅝, ¾ or ⅞" bore for motor pulley.) Without motor and switch.

Standard Bed Model—500 lbs. **NO. 25-722**
Long Bed Model—545 lbs. **NO. 25-723**

BASIC 10" METAL LATHE: Cabinet Model with Enclosed Tailstock Pedestal, Shelves and Door, quick change type, variable speed drive, 1½—8 threaded spindle nose, with clutch driven worm drive power longitudinal and cross feeds. (Specify ½, ⅝, ¾ or ⅞" bore for motor pulley.) Without motor and switch.

Standard Bed Model—510 lbs. **NO. 25-720**
Long Bed Model—555 lbs. **NO. 25-721**

For Single Phase Operation

(Includes Basic Lathe, Cabinet as indicated, 62-710 Motor and 25-806 Switch Kit.)

With Rear Motor Drive—Not Assembled:

10" METAL LATHE, standard bed model, complete with 25-811 Cabinet and 25-805 Motor Mounting Kit. 561 lbs. **NO. 25-701**

10" METAL LATHE, long bed model, complete with 25-811 Cabinet and 28-805 Motor Mounting Kit. 616 lbs. **NO. 25-711**

With Underneath Motor Drive—Assembled:

10" METAL LATHE, standard bed model, complete with cabinet having plain tailstock leg, wired for 115V, 60 cycle operation. 550 lbs. **NO. 25-726**

10" METAL LATHE, long bed model, complete with cabinet having plain tailstock leg, wired for 115V, 60 cycle operation. 595 lbs. **NO. 25-727**

10" METAL LATHE, standard bed model, complete with cabinet having tailstock pedestal, shelves and door, wired for 115V, 60 cycle operation. 560 lbs. **NO. 25-724**

10" METAL LATHE, long bed model, complete with cabinet having tailstock pedestal, shelves and door, wired for 115V, 60 cycle operation. 605 lbs. **NO. 25-725**

For Three Phase Operation

(With Manual On-and-Off Control. Includes Basic Lathe, Cabinet as indicated, 66-710 Motor, 25-806 Switch Kit, assembled, and 49-365 Overload Switch, not assembled.)

With Rear Motor Drive—Not Assembled:

***10" METAL LATHE,** standard bed model, complete with 25-811 Cabinet and 25-805 Motor Mounting Kit. 564 lbs. **NO. 25-702**

***10" METAL LATHE,** long bed model, complete with 25-811 Cabinet and 25-805 Motor Mounting Kit. 619 lbs. **NO. 25-712**

With Underneath Motor Drive—Assembled:

***10" METAL LATHE,** standard bed model, complete with cabinet having plain tailstock leg. 543 lbs. **NO. 25-730**

***10 METAL LATHE,** long bed model, complete with cabinet having plain tailstock leg. 588 lbs. **NO. 25-731**

***10" METAL LATHE,** standard bed model, complete with cabinet having enclosed tailstock pedestal, shelves and door. 553 lbs. **NO. 25-728**

***10" METAL LATHE,** long bed model, complete with cabinet having enclosed tailstock pedestal, shelves and door. 598 lbs. **NO. 25-729**

For Three Phase Operation

(With Magnetic On-and-Off Control. Includes Basic Lathe, Cabinet as indicated, 66-710 Motor and 49-392 Switch Kit. Also includes 49-396 or 49-397 Magnetic Starter, not assembled.)

With Rear Motor Drive—Not Assembled:

10" METAL LATHE, standard bed model, for 208-220V, complete with 25-811 Cabinet and 25-805 Motor Mounting Kit. 567 lbs. **NO. 25-704**

10" METAL LATHE, long bed model, for 208-220V, complete with 25-811 Cabinet and 25-805 Motor Mounting Kit. 622 lbs. **NO. 25-714**

10" METAL LATHE, standard bed model, for 440V, complete with 25-811 Cabinet and 25-805 Motor Mounting Kit. 567 lbs. **NO. 25-705**

10" METAL LATHE, long bed model, for 440V, complete with 25-811 Cabinet and 25-805 Motor Mounting Kit. 622 lbs. **NO. 25-715**

With Underneath Motor Drive—Assembled:

***10" METAL LATHE,** standard bed model, complete with cabinet having plain tailstock leg. 541 lbs. **NO. 25-734**

***10" METAL LATHE,** long bed model, complete with cabinet having plain tailstock leg. 586 lbs. **NO. 25-735**

***10" METAL LATHE,** standard bed model, complete with cabinet having enclosed tailstock pedestal, shelves and door. 551 lbs. **NO. 25-732**

***10" METAL LATHE,** long bed model, complete with cabinet having enclosed tailstock pedestal, shelves and door. 596 lbs. **NO. 25-733**

***Specify whether 208-220V or 440V.**

MACHINE DATA

CAPACITY

Swing over bed and saddle wings . . . . . 10⅛"
Swing over cross slide . . . . . 6"
Between centers (tailstock completely on bed)
Standard bed . . . . . 24½"; Long bed . . . . . 36½"
Hole through spindle . . . . . 15/16"
Maximum capacity with 4-C style collet . . . . . ¾"

THREADS AND FEEDS

Quick change gear box has 54 thread and feed changes L.H. or R.H.
Threads, 4, 4½, 5, 5½, 5¾, 6, 6½, 6¾, 7, 8, 9, 10, 11, 11½, 12, 13, 13½, 14, 16, 18, 20, 22, 23, 24, 26, 27, 28, 32, 36, 40, 44, 46, 48, 52, 54, 56, 64, 72, 80, 88, 92, 96, 104, 108, 112, 128, 144, 160, 176, 184, 192, 208, 216, 224.
Range of feed rates per spindle revolution
Longitudinal . . . . . .0810-.0014; Cross 0413-.0007
Lead Screw . . . . . ¾" dia. Acme 8 t.p.i.

SPINDLE AND HEADSTOCK

Infinite choice of speeds in direct drive . . . . . 250-1500 rpm
Infinite choice of speeds in gear drive . . . . . 50-300 rpm
Spindle **(Hardened and ground alloy steel)**
Diameter at inboard bearing . . . . . 1 31/32"
Center used . . . . . No. 2 M.T.
Nose . . . . . **(Has ground threads)** 1½"-8
Hole . . . . . modified (shortened) No. 9 B. & S.

BED (heavy U-section cross braces)

Has two V-ways and two flat ways
Length:
Standard bed . . . . . 44⅜"; Long bed . . . . . 56⅜"
Width . . . . . 6 1/16"; Depth (in center) . . . . . 4¼"
Width of V's . . . . . 9/16"

CARRIAGE

Length of saddle V-way . . . . . 10"; width of saddle bridge . . . . 3¼"
Cross slide travel . . . . . 6"; compound slide travel . . . . . 2"

TOOL POST

5/16 x 1 1/16" opening (takes standard tool holders for ¼" bits)

TAILSTOCK (has automatic center ejection)

Ram diameter . . . . . 1⅛"; Ram travel . . . . . 2½"
Length of graduations marked on arm, by 1/16ths . . . . . 2½"
Center used . . . . . No. 2 M.T.
Handwheel adjustable micrometer collar graduated in .001"
Set-over adjustment (either way) for taper turning . . . . . 11/16"

OVERALL DIMENSIONS BENCH MODEL

Standard Bed . . 53" left to right x 23½" front to rear x 16¼" high
Long Bed . . . . . 65" left to right x 23½" front to rear x 16¼" high

MOTORS

Accommodates NEMA FRAME MOTOR 56
Horsepower recommended . . . . . ¾
Speed recommended . . . . . 1725 rpm

THESE ACCESSORIES MAKE THE DELTA

CABINET . . . with Coolant Pan for 10" Metal Lathe. Brings center of spindle 42" from floor. Special design and use of heavy gage metal makes it an ideal mounting for smooth operation. Headstock pedestal has three 12 x 17" shelves and tight-closing door with rattle-proof latch. Flange in drain hole is tapped for standard ½" pipe. Shipped not assembled. (Order No. 25-805 Kit for mounting motor.) 143 lbs.
NO. 25-811

MOTOR MOUNTING KIT . . . for motors No. 62-710, 62-770, 66-710 or 66-770 and most NEMA Frame 56 Motors. For use with Delta Cabinet No. 25-811. Consists of Mounting Brackets, Motor Mounting Plate and Guard for Motor Pulley and Variable Speed Drive Belt. 34 lbs.
NO. 25-805

BELT AND PULLEY GUARD . . . Aluminum, with ⅜" Slots. Recommended when motor is mounted at rear on wooden bench. 7 lbs. **NO. 25-859**

CHIP PAN . . . 22 x 54", 1⅛" deep. Same as coolant pan provided with the No. 25-811 Cabinet except it does not have the drain hole nor the eight holes for mounting on cabinet. For use on wooden bench. 45 lbs. **NO. 25-809**

METRIC TRANSPOSING GEAR KIT . . . Includes 127-tooth transposing gear, six stud gears, front and rear guards, miscellaneous parts, instructions for field mounting and chart showing 33 standard metric thread pitches from .20 to 6.0 MM. **NO. 25-875**

TAPER ATTACHMENT . . . Turns or bores tapers up to 8¼" long, with 1¼" maximum cross travel of tool at one setting. One end of swivel slide is calibrated for tapers up to 3½" per foot on dia. and other end of swivel slide is calibrated up to 16° included angle. Telescopic design of cross feed screw permits hand feed to be used to bring tool to required work dia., even when set for taper operations. It is not necessary to disconnect cross feed screw to change from straight to taper turning. Includes telescopic cross feed screw and shaft and complete instructions for mounting in customer's shop. 40 lbs.
NO. 25-856

STEADY REST . . . With 3" diameter of work capacity. Top half is hinged for easy loading. 12 lbs. **NO. 25-852**

FOLLOWER REST . . . With 3" diameter of work capacity. Includes bolts for mounting to saddle. 10 lbs. **NO. 25-850**

6" DRIVE PLATE . . . Has two ¾" opposed slots for driving lathe dogs. 4 lbs. **NO. 25-840**

9" FACE PLATE . . . Has eight ⅜" x 2¼" slots for clamping work. 14 lbs. **NO. 25-839**

PLAIN CARRIAGE STOP . . . Used on either side of carriage to provide a positive longitudinal feed stop for cutting shoulders, etc. Includes parts for mounting on front V-way of bed. 2 lbs.
NO. 25-853

MICROMETER CARRIAGE STOP . . . Used on either side of carriage to provide a positive longitudinal feed stop for cutting shoulders, etc. Micrometer collar is graduated in .001", provides accurate setting, is self locking by means of a unique spring lock feature. Includes parts for mounting on front V-way of bed. 2½ lbs.
NO. 25-854

THREAD STOP . . . Makes thread cutting faster, easier; limits the forward travel of cross slide against a positive, adjustable stop. Clamps on dovetail of saddle in front of cross slide. 1½ lbs.
NO. 25-830

LATHE CHUCK, 5" . . . 3-Jaw Type, back threaded 1½"—8. For internal or external holding up to approx. 4" in dia. Runs in good balance and has a minimum of overhang. Includes three internal and three external jaws and wrench. 8 lbs.
NO. 25-870

LATHE CHUCK, 6" . . . 4-Jaw Type, back threaded 1½"—8. For internal or external holding up to approx. 5" in dia. Runs in good balance and has a minimum of overhang. Jaws are hardened and jaw screws are heat treated to provide long life. Includes wrench and one set of reversible jaws. 9 lbs. **NO. 25-873**

LATHE CHUCK, 6" . . . 4-Jaw Type for internal or external holding up to approx. 5" in dia. Runs in good balance and has a minimum of overhang. Jaws are hardened; jaw screws and thrust bearings are heat treated to provide long life. Includes one set of jaws reversible for internal or external work, fitted chuck plate threaded 1½"—8 and wrench. 18 lbs. **NO. 25-874**

DRILL CHUCK . . . 3-Jaw, Key Type, 0-½" capacity, with No. 2 Morse taper shank. Includes chuck key. 2½ lbs. **NO. 968**

DRAW BAR FOR COLLETS . . . Has hardened threads. Ball thrust bearing transmits tremendous gripping power to collet, yet the bar is easy to tighten or release. Includes 4½" hand wheel, spindle nose cap and spanner wrench. 8 lbs. **NO. 25-825**

COLLETS . . . Self-releasing type for holding round stock. Heat treated and hardened.

STEEL COLLETS . . . Set of six collets, 1/16" to ⅜" by 16ths. 4 lbs. **NO. 25-800**

STEEL COLLETS . . . Set of six collets, 7/16" to ¾" by 16ths. 4 lbs. **NO. 25-810**

STEEL COLLET . . . One only collet. Available from 1/16" to ¾" by 64ths. (Specify Cat. No. 25-812 and size desired.) ½ lb. **NO. 25-812**

RACK FOR COLLETS . . . Holds 19 collets, 2 centers, spindle nose cap, spanner wrench and draw bar. Mounts on lathe bed. 12 lbs. **NO. 25-828**

SAFETY TYPE LATHE DOGS . . . Made of forged, selected steel. Include socket screw and wrench.

⅜" Bent Tail. ½ lb.	**NO. 25-861**
½" Bent Tail. ½ lb.	**NO. 25-862**
¾" Bent Tail. ½ lb.	**NO. 25-863**
1" Bent Tail. ¾ lb.	**NO. 25-864**
1¼" Bent Tail. ¾ lb.	**NO. 25-865**
1½" Bent Tail. ¾ lb.	**NO. 25-866**

FOR BED TURRET AND COOLANT EQUIPMENT, SEE PAGE 13.

10" METAL LATHE EVEN MORE VERSATILE

TURRET TOOL POST FOR COMPOUND . . . For facing, turning, thread cutting, boring, etc. 2½" square head takes four ⅜" tool bits. Indexing feature provides 12 positions—3 for each tool. 30° position can be used for threading. 10 lbs. **NO. 25-851**

TOOL HOLDERS . . . DROP FORGED FROM SPECIAL STEEL, HEAT TREATED AND HARDENED, WITH SET SCREW AND WRENCH
SIZE ⅜ x ⅞", INCLUDES ¼" SQUARE HSS BIT
STRAIGHT ¾ lb. **NO. 25-680**

RIGHT HAND OFF-SET ¾ lb. **NO. 25-681**

LEFT HAND OFF-SET ¾ lb. **NO. 25-682**

SIZE ⅜ x 15/16" FOR ¼" SQUARE BITS
STRAIGHT CARBIDE TOOL HOLDER ⅞ lb. **NO. 25-689**

RIGHT HAND OFF-SET CARBIDE TOOL HOLDER ¾ lb. **NO. 25-690**

LEFT HAND OFF-SET CARBIDE TOOL HOLDER ⅞ lb. **NO. 25-691**

SIZE ⅜ x 31/32", INCLUDES 3/32 x ⅝"
HSS CUTTING-OFF BLADE GROUND ON BOTH ENDS

STRAIGHT CUTTING-OFF AND SIDE TOOL HOLDER ¾ lb. **NO. 25-683**

RIGHT HAND OFF-SET CUTTING-OFF AND SIDE-TOOL HOLDER ⅝ lb. **NO. 25-684**

LEFT HAND OFF-SET CUTTING-OFF AND SIDE-TOOL HOLDER ⅞ lb. **NO. 25-685**

THREADING TOOL . . . ⅜ x ⅞", includes formed cutter for pitches 6 to 20. ¾ lb. **NO. 25-686**

KNURLING TOOL . . . ⅜ x ⅞", self-centering head, with one pair of medium diamond knurls 3/16" face by ⅝" diameter. ¾ lb. **NO. 25-687**

KNURLING TOOL . . . ⅜ x ⅞", revolving head, with three pairs of fine, medium, coarse diamond knurls 3/16" face by ⅝" dia. 1 lb. **NO. 25-688**

BORING TOOL . . . Takes bars of various diameters. The sleeve-bar clamping feature is exceptionally strong and provides for rapid adjustment of either straight or angular cutters without the need for extra parts.

BORING TOOL . . . ⅜ x ⅞", for bars ¼" to ⅝" in diameter, includes one 45° and one 90° cutter, two wrenches and one ⅝" diameter sleeve-bar. 2⅜ lbs. **NO. 25-692**

CUTTING-OFF BLADE . . . 3/32 x ⅝", made of HSS, ground and ready for use in tool holders Nos. 25-683, 25-684 and 25-685. 2 lbs. **NO. 25-695**

FORMED THREADING CUTTER . . . Sharp 60° V-thread, for pitches 6 to 20 inclusive, fits No. 25-686 Threading Tool. 2 lbs. **NO. 25-696**

60° CENTER . . . For Headstock, No. 2 M.T. shank. Center is soft and ground. ½ lb. **NO. 25-542**

60° CENTER . . . For Tailstock, No. 2 M.T. shank. Center is hardened and ground, has an annular groove for easy identification. ½ lb. **NO. 25-841**

60° HALF CENTER . . . For Tailstock, No. 2 M.T. shank. Center is hardened and ground. ½ lb. **NO. 25-843**

60° LIVE CENTER . . . Pointed, for tailstock with No. 2 M.T. shank. The heat treated, hardened and ground point is accurate, with very little overhang, and can be re-ground by belting to the revolving head. Head is carried on an angular contact preloaded ball bearing. 1½ lbs. **NO. 25-844**

60° LIVE CENTER . . . Hollow, for tailstock, with No. 2 M.T. shank. The heat treated, hardened and ground cup is accurate, with very little overhang, and can be re-ground by belting to the revolving head. Head is carried on an angular contact preloading ball bearing. 1½ lbs. **NO. 25-845**

For description and illustration of No. 933 Spur Drive Center, No. 940 Screw Drive Center and No. 934 Cup Dead Center for wood turning, see P. 14.

ARBOR . . . No. 2 M.T. shank. Has ½ x 1⅛" end, with flat. ⅜ lb. **NO. 935**

LAMP ATTACHMENT . . . With 15" flexible gooseneck. Includes nylon shield, mounting bracket, switch and 8-ft. cord with 2-prong plug. Uses standard bulb (not included) up to 100 watts. 2 lbs. **NO. 25-857**

MAGNETIC STARTER ELECTRICAL DISCONNECT SWITCH KIT. This kit, when used with a three phase magnetic starter, automatically shuts off the motor when headstock cover is swung open. Motor remains off, even when cover is closed, until switch is turned on again. Includes directions and wiring diagram for field mounting. 2 lbs. **NO. 25-813**

MAGNETIC STARTER ELECTRICAL DISCONNECT SWITCH KIT. Same as No. 25-813 but price includes charge for mounting at factory when ordered as original equipment on new lathes. 2 lbs. **NO. 25-814**

MECHANICAL BACK GEAR LOCK-OUT KIT. This kit protects the gears of the headstock because it forces the operator to raise the headstock cover before the back gears can be engaged. Shipped complete with instructions for field mounting, or will be mounted at the factory without charge if so specified on the order, *when ordered with a new lathe only.* (The No. 25-813 or 25-814 Kit should be used with Lock-out for protection of operator.) 2 lbs. **NO. 25-831**

MOTORS AND CONTROLS . . . See inside back cover for complete description.

MOTOR PULLEYS AND BELTS . . . 2" Motor Pulley for variable speed drive, with set screw. (Specify ½", ⅝", ¾" or ⅞" bore). 1¾ lbs. **NO. 49-216**

Belt, variable speed drive type, 27¾" O.C. ⅝ lb. **NO. 49-120**

V-Belts (matched pair), 30⅛" O.C., for spindle drive. These are special, quality belts for long life and vibration-free operation. 1 lb. **NO. 49-121**

FOR BED TURRET AND COOLANT EQUIPMENT, SEE PAGE 13.

DELTA

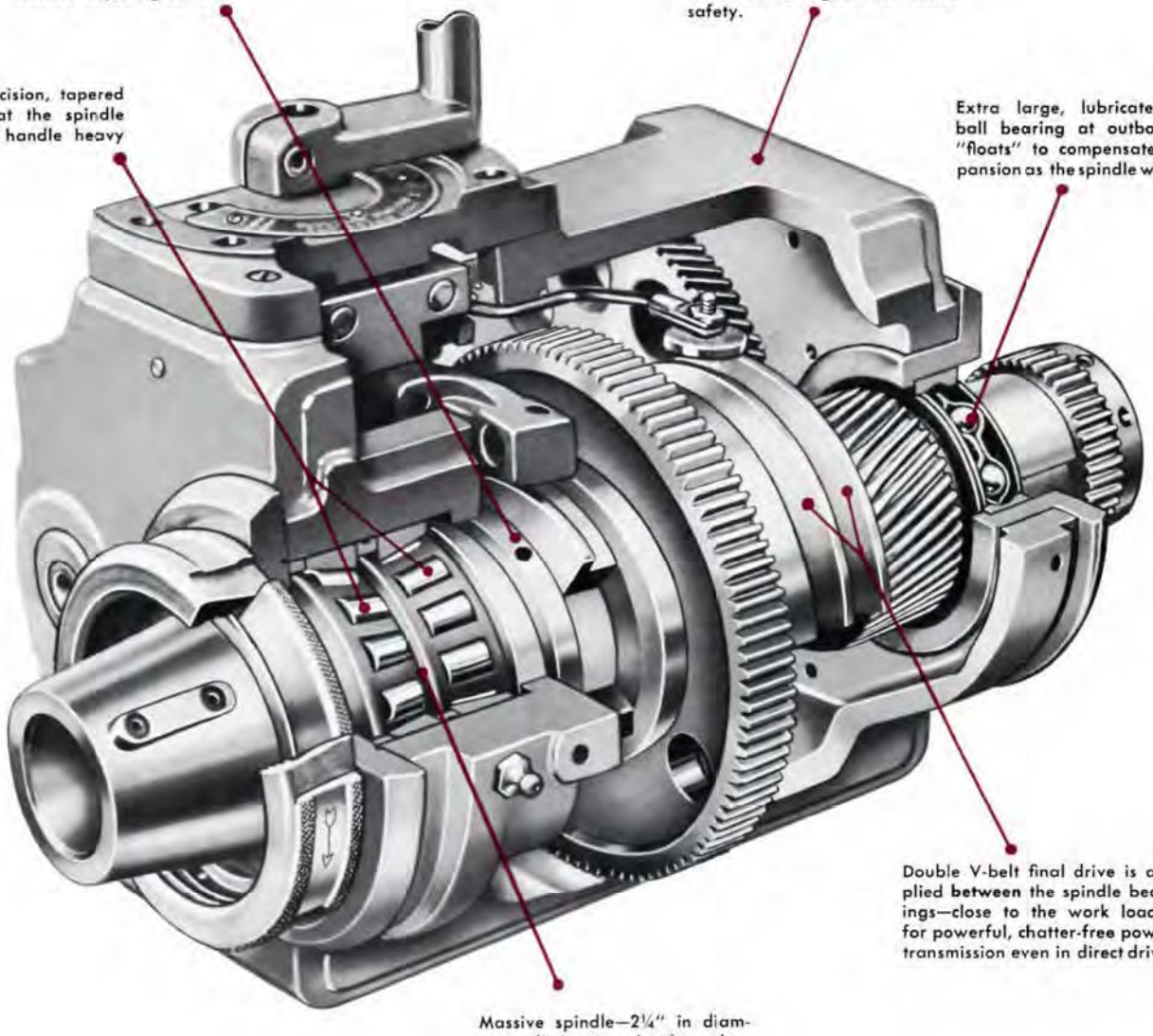
11" METAL LATHES

5' bed model gives you extra capacity for extra long turning jobs.

Give you big machine performance without big machine cost

No matter what your requirements—production capacity, toolroom precision, or school shop safety—you'll get all the machine you need when you choose a Delta 11" Metal Lathe. You can make heavier cuts, faster, because these lathes give you the "beef" you'd normally expect only from machines costing much more. And safe, close tolerance operations on *every* job are assured by the many built-in features exclusive with Delta. Available in 4' bed (shown above) and 5' bed models with a complete range of accessories to help you match the tool to your job.

You can't match this MUSCLE!



Only DELTA METAL LATHES Give you this POWERFUL HEADSTOCK!

ONLY DELTA 11" METAL LATHES OFFER YOU THIS

EXCLUSIVE COMBINATION OF FEATURES!

A CHOICE OF L-00 TAPERED KEY DRIVE OR 2¼"—8 THREADED SPINDLE NOSE AT NO EXTRA COST

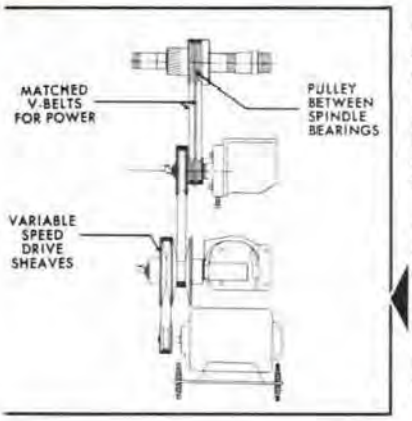
It costs you nothing extra to take advantage of the safety, convenience and accuracy of the modern tapered spindle nose. However, if you prefer the conventional threaded nose design, a 2¼"—8 threaded spindle nose is also available. *Only Delta gives you this choice at no extra cost.*

BED . . . Massive, scientifically braced bed has deep box-section cross members. It is made of close grained alloy cast iron, normalized to relieve stresses. Flat and prismatic ways, cast integrally with bed, are made absolutely straight and parallel by modern grinding methods.

A UNIQUE DRIVE SELECTOR

You can shift to loose spindle, locked spindle, back gear drive or direct drive simply by moving the selector lever. *Safe* because there is no need to open up the guard . . . *Foolproof* because mechanical interlock makes it impossible to shift drive while spindle is rotating . . . *Convenient* because there are no pins to pull . . . *Fast* because any position is immediately available. *Only the Delta Lathe gives you all four selections with one shift lever.*

CARRIAGE . . . Saddle is machined for *field mounting* of taper attachment, follower rest and lamp. Cross slide and compound feed screws are fully protected from dust and chips. Large, direct reading micrometer collars indicate stock removed from work directly in .001" on the diameter. Positive, convenient lock features are provided for micrometer collars on both cross slide and compound. Tool post never overhangs compound swivel bearing, giving maximum support at all times.

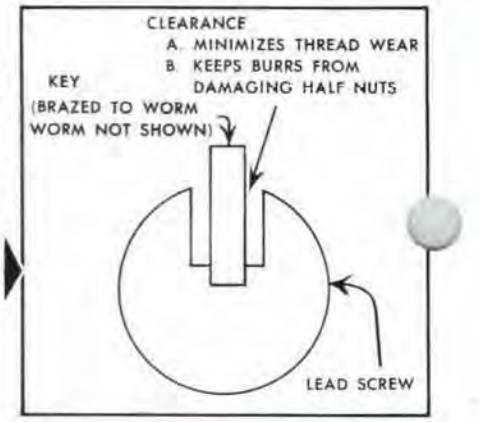


A PERFECTED VARIABLE SPEED DRIVE

You get all the advantages of a variable speed drive, with an infinite choice of speeds from 45 to 1550 rpm—PLUS the high torque transmitting power of matched V-belts. The Delta variable speed drive incorporates an extra shaft between the variable speed drive sheaves and the spindle. This makes possible high speed power transmission through the variable speed drive belts while twin V-belts transmit steady power to the spindle. *Only the Delta Lathe offers you a perfected variable speed drive.*

Placing the spindle pulley between the bearings gives you these advantages: (1) widely spaced bearings, (2) proper belt load distribution, (3) drive close to nose eliminates spindle whip. NO LATHE WITH OUTBOARD DRIVE can claim these advantages.

LEAD SCREW . . . Precision cut lead screw has a hidden, easily accessible shear pin and features a unique T-section key way that prevents wear on the thread and damage to half-nuts.



TAILSTOCK . . . Ram is graduated in 1/16 inches. Easily read micrometer collar, graduated in .001" with a zero start, makes precision feeding easy. Complete retraction of ram automatically ejects center. Ram has witness mark at center height for easy positioning of cutting tool.

APRON . . . Double wall construction provides extra support for power feed clutch shaft and power feed worm gear shaft. It also forms an oil reservoir. Automatic, foolproof lock out feature makes it impossible to engage the power cross feed or power longitudinal feed simultaneously with the half-nut feed for threading . . . stop on half-nut feed lever prevents binding, is adjustable to compensate for wear.

DELTA

11" METAL LATHE LINE

STANDARD EQUIPMENT

(Included on all models)

- Cabinet with coolant pan, doors and shelves
- Quick change gear box
- Variable speed drive complete with belts
- Extra shear pins
- Thread chasing dial
- Thread cutting stop
- Motor pulley for ¾" shaft
- Tool post, ring and rocker
- 7" dia. drive plate
- Two 60° centers. No. 2 MT for headstock—No. 3 MT for tailstock
- Combination wrench for tool post, etc.
- Spindle adapter, No. 2 MT i.d.
- Box wrench for tailstock
- Spanner wrench for draw nut (included on tapered nose models only)

CATALOG LISTING

4 Foot Bed—24" Between Centers
5 Foot Bed—36" Between Centers

BASIC 11" METAL LATHE

With 2¼"-8 threaded spindle nose.

4 Ft. Bed—Shipping wt. approx. 800 lbs.	**NO. 25-100**
5 Ft. Bed—Shipping wt. approx. 845 lbs.	**NO. 25-110**

With L-00 tapered key drive spindle nose.

4 Ft. Bed—Shipping wt. approx. 800 lbs.	**NO. 25-130**
5 Ft. Bed—Shipping wt. approx. 845 lbs.	**NO. 25-140**

For Single Phase Operation

11" METAL LATHE UNIT, with single phase motor and reversing push button switch for manual on and off control, assembled. Consists of: Basic Lathe, 83-210 115/230V Motor and 25-505 Switch, mounted and wired to motor for 230V operation.

With 2¼"-8 threaded spindle nose.

4 Ft. Bed—Shipping wt. approx. 880 lbs.	**NO. 25-105**
5 Ft. Bed—Shipping wt. approx. 925 lbs.	**NO. 25-115**

With L-00 tapered key drive spindle nose.

4 Ft. Bed—Shipping wt. approx. 880 lbs.	**NO. 25-135**
5 Ft. Bed—Shipping wt. approx. 925 lbs.	**NO. 25-145**

For Three Phase Operation

11" METAL LATHE UNIT, with three phase motor and reversing push button switch for manual on and off control, assembled. Includes overload switch, not assembled. Consists of: Basic Lathe, 86-920 Motor, 25-505 Switch, mounted and wired to motor and 49-365 Overload Switch. Specify whether 208-220 or 440 volts.

With 2¼"-8 threaded spindle nose.

4 Ft. Bed—Shipping wt. approx. 880 lbs.	**NO. 25-305**
5 Ft. Bed—Shipping wt. approx. 925 lbs.	**NO. 25-315**

With L-00 tapered key drive spindle nose.

4 Ft. Bed—Shipping wt. approx. 880 lbs.	**NO. 25-335**
5 Ft. Bed—Shipping wt. approx. 925 lbs.	**NO. 25-345**

11" METAL LATHE UNIT, with three phase motor and reversing push button switch for magnetic on and off control, assembled. Includes magnetic reversing starter for overload, low voltage and no voltage protection, not assembled. Consists of: Basic Lathe, 86-920 Motor and either 25-504 or 25-507 Control with switch mounted and wired to motor and separate starter. Specify whether 208-220 or 440 volts.

With 2¼"-8 threaded spindle nose.

4 Ft. Bed—Shipping wt. approx. 880 lbs.	**NO. 25-307**
5 Ft. Bed—Shipping wt. approx. 925 lbs.	**NO. 25-317**

With L-00 tapered key drive spindle nose.

4 Ft. Bed—Shipping wt. approx. 880 lbs.	**NO. 25-337**
5 Ft. Bed—Shipping wt. approx. 925 lbs.	**NO. 25-347**

When ordering FLAME-HARDENED BED, add "H" to catalog number.

MACHINE DATA

CAPACITY
Swing over bed and saddle wings . . . . . 11 1/16"
Swing over cross slide . . . . . 6 7/16"
Between centers with L-00 tapered key drive nose:
4 foot bed . . . . . 24"; 5 foot bed . . . . . 36"
Between centers with 2¼"—8 threaded nose:
4 foot bed . . . . . 25"; 5 foot bed . . . . . 37"

THREADS AND FEEDS
Quick change gear box with 54 thread and feed changes R.H. or L.H.
Threads . . . 4, 4½, 5, 5½, 5¾, 6, 6½, 6¾, 7, 8, 9, 10, 11, 11½, 12, 13, 13½, 14, 16, 18, 20, 22, 23, 24, 26, 27, 28, 32, 36, 40, 44, 46, 48, 52, 54, 56, 64, 72, 80, 88, 92, 96, 104, 108, 112, 128, 144, 160, 176, 184, 192, 208, 216, 224.
Range of feed rates per revolution:
Longitudinal . . . . . .0902—.0016; Cross . . . . . .0301—.0005
Lead Screw . . . . . ¾" dia. Acme x 8 T. P. I.

SPINDLE AND HEADSTOCK
Infinite stepless speeds in direct drive . . . . . 220-1550 rpm
Infinite stepless speeds in back gear . . . . . 45-250 rpm
Spindle dia. at roller bearings . . . . . 2¼"
Spindle center . . . . . takes No. 2 M.T.
Hole through spindle . . . . . 1⅜"
Maximum collet capacity (5-C type collet) . . . . . 1 1/16"

BED (furnished with leveling screws)
Length:
4 foot bed . . . . . 49¼"; 5 foot bed . . . . . 61¼"
Width . . . . . 8¼"; Depth . . . . . 5⅞"
Width of V's . . . . . ¾"

CROSS SLIDE AND COMPOUND REST
Length of saddle V-way . . . . . 12⅜"
Width of bridge . . . . . 4¼"
Cross slide travel . . . . . 6¾"
Compound travel . . . . . 2¼"
Travel of cross slide with taper attachment locked . . . . . 6 3/16"
Travel of carriage with taper attachment locked . . . . . 9 1/16"
Maximum cross travel of tool by taper attachment . . . . . 1⅜"
Powered cross feed . . . . Wipers for saddle

TOOL POST
9/16" x 1 7/16" opening takes standard tool holders for 5/16" bits.

TAILSTOCK
Ram diameter . . . . . 1⅜"; Ram travel . . . . . 2¾"
Length of graduations marked on spindle by 1/16ths . . . . . 3"
Center . . . . . No. 3 M.T.
Handwheel adjustable micrometer collar graduated in .001
Set-over . . . . . ¾"

OVERALL DIMENSIONS
Cabinet and Machine:
4 foot bed . . 57¾" left to right x 25½" front to rear x 49½" high
5 foot bed . . 69¾" left to right x 25½" front to rear x 49½" high
Coolant pan:
4 foot bed . . . . . 1 1/16 x 22½ x 56" outside dimensions
5 foot bed . . . . . 1 1/16 x 22½ x 68" outside dimensions
Drain hole at rear has ½" pipe tap

MOTORS
Accommodates NEMA frame motors 182-184-203-204-224

FLAME HARDENED BED

All Delta 11" Metal Lathes are available with flame hardened bed ways (optional extra) that assure longer wearing qualities and added protection against denting and scoring. Ways are flame hardened, then precision ground with diamond-dressed wheel on special, precision, way-grinding equipment.

Flame hardened bed ways are highly recommended wherever Delta 11" Lathes are to be used for machining materials that produce chips or dust that may have an abrasive action on the ways. Flame hardening assures continued original accuracy of the bed ways, even under the stress of repetitive production operations.

THESE ACCESSORIES CONVERT STANDARD DELTA 11" LATHES FOR PRODUCTION WORK

Delta's Bed Turret, Double Tool Post Cross Slides and Lever Type Collet Closer are engineered to fit all Standard Delta 11" Lathes. To convert your Standard Delta 11" Lathe for screw machine or turret lathe work, you simply install the above accessories and remove the carriage and tailstock assemblies. You also should add other accessories as required, such as coolant equipment, guards, etc.

DOUBLE TOOL POST CROSS SLIDES

These deluxe, heavy-duty Double Tool Post Cross Slides, especially when used with the Bed Turret, convert your Delta 11" Engine Lathe to do much of the work usually accomplished on a turret lathe or hand screw machine. They are ideal for repetitive, high-production manufacturing of a wide variety of parts ranging from simple pieces such as washers and shafts to the most intricate parts as used in the electronics and aircraft industries.

T-slots in tool post pads and in slide provide transverse and longitudinal adjustment for accurate positioning of tool bits. The hardened steel tool posts have left and right tool positions, sliding wedge height adjustment, and set screws to permit slight rotation of tool bits in a horizontal plane so that either angular or straight tool settings can be perfectly maintained.

Bed Mounted Double Tool Post Cross Slide with Pilot Wheel Feed. The extra long (8") travel of this slide permits the tool posts to be positioned far apart so that even large tooling in the bed turret can be fed in between the tool posts of the cross slide. Has the speed and convenience of a lever type slide but is much safer because the operator's hands never need approach the work while feeding the tool bits. Slide traverses 4" for each revolution of the pilot wheel.

This cross slide is supplied as standard equipment with the Hand Screw Machine. 80 lbs.
NO. 25-555

Saddle Mounted Double Tool Post Cross Slide. This slide replaces the compound slide rest and regular cross slide of the 11" engine lathe. It mounts on the saddle dovetail of the regular lathe carriage and utilizes the cross feed lead screw regularly supplied with the lathe. It may be operated by power through the friction clutch in the apron or manually with the regular handwheel.

The taper attachment may be left on the lathe, if desired, when this cross slide is mounted. Includes complete instructions for easy field mounting by the user. 40 lbs. **NO. 25-556**

MACHINE DATA

	No. 25-555	No. 25-556
Slide:		
Travel	8"	5⅝"
Length	17½"	15¼"
Width	3½"	4¼"
Maximum Swing		
Over Slide	5⅛"	5⅛"
Tool Posts:		
Size of Bit	⅝" sq.	⅝" sq.
Tool Bit Slot:		
Depth	½"	½"
Height	13/16"	13/16"
Tool Height Adjustment	¼"	¼"
Distance Between Tool Posts:		
Maximum	11"	8¾"
Minimum	2"	2"
Adjustment of Tool Posts:		
Longitudinal	1¾"	2½"
Transverse	9"	6¾"

BED TURRET

(furnished as standard equipment with Hand Screw Machine)

This heavy duty, self-indexing, precision bed turret with six-station head, converts your Delta engine lathe into a ram-type turret lathe for production work requiring multiple machining operations. It will also simplify many single operations normally done on an engine lathe. The turret can be used to advantage on bar stock fed through the spindle or for primary or secondary operations on individually chucked parts.

Tool holes are blank so that they can be machined by user for perfect alignment with spindle hole. Complete instructions for machining holes and mounting turret are furnished. 120 lbs. **For machine data, see Page 13.** **NO. 25-567**

NO. 25-567

NO. 25-555

NO. 25-556

NO. 25-552

NO. 25-561

NO. 25-551

NO. 25-554

NO. 25-558

NO. 25-559

LEVER TYPE BALL BEARING COLLET CLOSER

(furnished as standard equipment with Hand Screw Machine)

Used with all 5-C collets—round, square, hex, step, soft, internal, external, etc. Takes bar stock up to 1⅛" diameter. Includes mounting bracket with bolts, collet sleeve and spindle nose cap. Spanner wrench is supplied for threaded nose models. 14 lbs.

For 2¼"—8 threaded nose lathes. **NO. 25-553**

For L-00 tapered nose lathes. . . . . **NO. 25-554**

TURRET TOOL POST FOR COMPOUND OR DOUBLE TOOL POST CROSS SLIDES

For facing, turning, thread cutting, drilling, boring and other operations. 3½" square head takes four ½" or smaller cutter bits. Indexing feature provides 12 positions—3 for each tool. 30° position can be used for threading. 9 lbs.
NO. 25-551

(Note: When used on Double Tool Post Cross Slides, No. 25-552 Adapter is required and must be ordered separately.)

ADAPTER: For mounting No. 25-551 Turret Tool Post on No. 25-555 or No. 25-556 Double Tool Post Cross Slide. Mounts on either front or rear post of cross slide. Complete with base, alignment keys, stud with clamp plate, nut and washer. **NO. 25-552**

GUARD FOR OUTBOARD GEAR TRAIN

Two-Piece Guard for Outboard Gear Train. Recommended when Lever Type Collet Closer is used on lathes with lead screw. Lower portion swings open to give access to gears, without disturbing collet closer. Complete with hinge, mounting bracket for upper portion, and lathe lubrication chart. 6 lbs. **NO. 25-561**

SPINDLE NOSE SPLASH GUARD

Protects lathe operator from chips or coolant. Does not interfere with lever type collet closers or draw bars. Cannot be used with three or four-jaw chucks, etc. Especially recommended when coolant is used for production work held in collets. 2 lbs.

For L-00 tapered nose lathes. . . . **NO. 25-559**

For 2¼"-8 threaded nose lathes. **NO. 25-560**

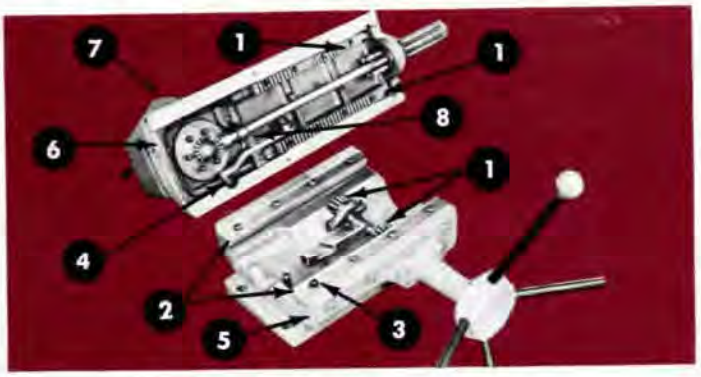
COOLANT PAN SPLASH GUARD

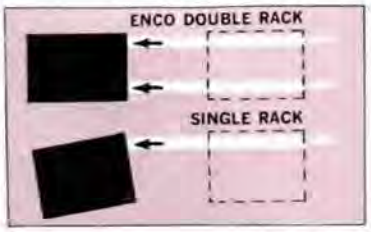
Splash Guard, 15"x30", with clamps for mounting on lip of coolant pan. For all Delta 11" Lathes and Hand Screw Machines. Especially recommended when coolant is used. 12 lbs.
NO. 25-562

COOLANT GROUP

Consists of nozzle, flexible hose, valve mounting bracket (for mounting coolant line and lamp attachment without interference), "L" shaped length of ¼" pipe and compound for sealing between the headstock and bed. A "Y" type filter for the drain line and a screen for the drain hole of the coolant pan are provided (coolant piping not furnished). Mounts on either No. 25-555 Double Tool Post Cross Slide or on saddle of carriage. 8 lbs. **NO. 25-558**

ENCO SELF-INDEXING BED TURRETS





Enco's Bed Turrets are designed and built for heavy duty, high production work. The exclusive double rack and pinion drive provides equalized feed and ensures accuracy, even under heavy feed pressures.

MACHINE DATA

	Bed Turret No. 25-564*	Bed Turret No. 25-567*	Bed Turret No. 25-566*
Size of Lathe	10"	11"	14"
Shipping weight	113 lbs.	120 lbs.	166 lbs.
Tool hole range	5/8" to 1"	5/8" to 1"	1" to 1 1/2"
Turret head across flats	5 5/8"	5 5/8"	7"
Turret face dimensions			
Wide	3"	3"	3 7/8"
High	2 7/8"	2 7/8"	3 3/8"
Maximum diameter tool clearance over ram	3 1/8"	3 1/4"	5"
Total ram travel	7 1/2"	7 1/2"	7 1/2"
Ram travel, max. (self indexing)	6 1/2"	6 1/2"	6 1/2"
Ram travel, min. (self indexing)	2"	2"	2"
Length of ram	16 1/2"	16 1/2"	16 1/2"
Base length	11 1/2"	11 1/2"	11 1/2"

*When a Bed Turret is ordered and shipped with a new lathe, it will be bedded and bored for an additional net charge of $40.00.

Convert Delta 10", 11" and 14" Lathes to Hand Turret Lathes at Low Cost!

When you add an Enco Bed Turret to your lathe, you get turret lathe performance and production at modest cost. You can perform all operations normally done on a turret lathe or hand screw machine including drilling, counterboring, countersinking, spot facing, reaming, turning, etc. Check these *exclusive* features (see illustrations at left) that guarantee equalized feed and precision performance.

1. Double rack and gear drive equalizes tool feed pressure, gives smooth, parallel slide travel and minimizes torsional strain as load is equally divided, even under heavy cuts.
2. Two-piece adjustable gibs, front and rear, provide lateral adjustment for slide travel.
3. Gib lock provided for work on center or for recessing, necking, or grooving operations from turret.
4. Indexing precision is assured by hardened and ground tapered seat bushings in the turret head.
5. The turret base is constructed to clear the wings of the lathe carriage. This permits the turret to be moved close to the headstock for collet work or to perform facing operations from the compound or cross-slide when necessary.
6. Safety stop screw prevents over-ride of head positioning. Also keeps slide from returning too far on back stroke.
7. The hexagon head revolves in an aluminum bronze bearing in the slide having a tensile strength of 90,000 p.s.i.
8. Lever action spring which locates index pin into index bushings thru trip lever, is so designed that constant pressure is exerted in holding hex head in proper position.

CUT COSTS WITH DELTA COOLANT EQUIPMENT

CATALOG LISTING

For Single Phase Operation

COOLANT PUMP complete with 1/4 HP, 115 V, 60 cy, AC, 1725 rpm motor. 65 lbs. Order 49-618, 49-312 separately. **NO. 49-610**

COOLANT PUMP complete with 1/4 HP, 230 V, 60 cy, AC, 1725 rpm motor. 65 lbs. Order 49-618, 49-313 separately. **NO. 49-611**

For 3 Phase Operation

COOLANT PUMP complete with 1/4 HP, 208-220/240 V, 50/60 cy, AC, 1425/1725 rpm motor. 65 lbs. Order 49-618, 1320 separately. **NO. 49-614**

Accessories

TANK, 16-gal. capacity, 15 7/8 x 25 7/8 x 11" high, required with any of above pumps. 38 lbs. **NO. 49-618**

ON-AND-OFF TOGGLE SWITCH, 2-pole, 1 1/2 HP, AC-DC, 125-250 V. Includes 115 V 8-foot cord, 3-prong grounding type plug and clamp. 3/4 lb. **NO. 49-312**

ON-AND-OFF TOGGLE SWITCH, 2-pole, 1 1/2 HP, AC-DC, 125-250 V. Includes 230 V 8-foot cord, 3-prong grounding type tandem plug and clamp. 3/4 lb. **NO. 49-313**

STARTER, manual, 3-phase. Provides overload protection. Specify coolant pump number and voltage. 6 lbs. **NO. 1320**

SPINDLE NOSE SPLASH GUARD . . . Recommended when coolant is used for production work held in collets. 2 lbs. For L-00 tapered nose 14" lathes. **NO. 25-241**

COOLANT PAN SPLASH GUARD . . . 24" high by 42" wide, for 14" Metal Lathes. **NO. 25-243**

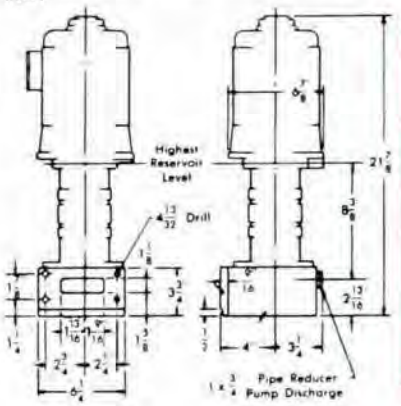
COOLANT CHUTE . . . 8 x 12". Fits on tailstock end of coolant pan. Recommended when Long Bed 10" Metal Lathe is mounted on Delta Cabinet. 3 lbs. **NO. 25-815**

COOLANT GROUP FOR 14" METAL LATHES . . . Consists of coolant line (1/4" pipe) with nozzle, hose, valve, mounting bracket, screen and "Y" type filter. Coolant piping not furnished. Mounts on saddle of carriage. **NO. 25-244**

Coolant Flow in Gal. Per Min. with a 1725 R.P.M. Motor at 70° F. (1425 R.P.M. Motor About 1/6 Less)

Head in feet	Pipe Dia.	COOLANT: Water and Sal-Soda Solution	COOLANT: Lard Oil	COOLANT: SAE 20 Machine Oil
		Flow in Gal. Per Min.		
0	3/4"	20	12	10
	1"	32	20	20
5	3/4"	14	8	6
	1"	27	15	15
10	3/4"	7	—	—
	1"	17	—	—

14 ft. Maximum Lift with water. Discharge for water and Sal-Soda solution applies to all solutions of similar viscosity and density. Higher viscosity and density, less flow.



Coolant Pump with Cord, Switch and Tank

A COMPLETE LINE OF ENGINEERED

TAPER ATTACHMENT . . . Used for boring and turning tapers up to 9½" long at one setting, with adjustment up to 3½" per foot on diameter or 17° included angle. Both calibrations conveniently located at same end of swivel bar and read through magnifying lens. Telescopic design of cross feed screw permits regular hand feed to be used to bring tool to required work diameter, even when set for taper operations. Not necessary to disconnect cross feed screw to change from straight to taper turning. Includes complete instructions for mounting in customer's shop by using standard wrenches and indicator.
NO. 25-656

MILLING ATTACHMENT . . . A universal work-holding fixture for milling, keyway cutting, boring, etc. Vise opens to 1¾" with 1½" x 3½" jaws, each provided with two V grooves for round stock. Vertical travel is 4½" by means of ball crank handle. Zero start micrometer collar is calibrated in .001. Angle plate and vise swivel 360° in horizontal and vertical planes, with degree calibrations. Unique feature of swiveling vise permits milling at all angles without removing and reclamping work. Includes No. 3 MT spindle adapter. **NO. 25-651**

STEADY REST . . . Deluxe type with telescoping brass jaws, 3/16" to 3½" capacity, top half hinged for easy loading. With mounting parts.
NO. 25-652

FOLLOWER REST . . . Deluxe type with telescoping brass jaws, 3/16" to 2¾" capacity. With mounting bolts. **NO. 25-650**

PLAIN CARRIAGE STOP . . . Used on either side of carriage to provide a positive longitudinal feed stop for cutting shoulders, etc. Includes parts for mounting to front V-way of bed. 2 lbs.
NO. 25-653

MICROMETER CARRIAGE STOP . . . Used on either side of carriage to provide a positive longitudinal feed stop for cutting shoulders, for accurate facing, boring, etc. Micrometer collar is graduated in .001, provides very easy and accurate setting, and is self-locking by means of a unique spring lock feature. Includes parts for mounting to front V-way of bed. **NO. 25-654**

FOUR POSITION CARRIAGE STOP . . . Used to provide up to four positive longitudinal feed stops for repetitive operations like spacing shoulders on shafts, etc. Range is 4" from long to short stop. Stop fingers are knurled for easy setting and locked by set screws. Body is knurled for quick indexing and is self-locating. Includes parts for mounting to front V-way of bed.
NO. 25-655

CHUCKS . . . COMPLETE WITH FITTED CHUCK PLATE AND WRENCH

6", 3-Jaw Adjust-Tru Universal type. Has three internal and three external jaws.
For 2¼" -8 threaded nose. **NO. 25-570**
For L-00 tapered nose. **NO. 25-572**

8", 4-Jaw Independent type. Has one set of jaws reversible for internal or external work.
For 2¼" -8 threaded nose. **NO. 25-574**
For L-00 tapered nose. **NO. 25-576**

6", 6-Jaw Adjust-Tru Universal type. Has six internal and six external jaws.
For 2¼" -8 threaded nose. **NO. 25-578**
For L-00 tapered nose. **NO. 25-580**

DRILL CHUCK . . . 3-Jaw key type, 0-½" capacity. Includes chuck key.
No. 2 MT Shank **NO. 968**
No. 3 MT Shank **NO. 17-820**

ROUGH CHUCK PLATES . . . Machined to fit 2¼" -8 or L-00 tapered nose. These are high quality cast iron plates with enough stock left to be fitted to chucks requiring 6" or 8" diameter chuck plate. Without holes for mounting chuck.
6" for 2¼" -8 threaded nose. 9¼ lbs. **NO. 25-590**
6" for L-00 tapered nose. **NO. 25-591**
8" for 2¼" -8 threaded nose. 17 lbs. **NO. 25-592**
8" for L-00 tapered nose. **NO. 25-593**

COLLET CHUCK . . . For Woodruff keyseat cutters with ½" shank, No. 3 Morse Taper shank, tapped 5/16"-18 for draw bolt, with nut.
NO. 25-527

STEEL COLLETS . . . Set of eight collets for holding round stock, 1/16" to ½" by 16ths. These accurate collets are self-releasing type, made of selected steel, heat treated and properly hardened. 5 lbs. **NO. 25-600**

STEEL COLLETS . . . Set of eight collets for holding round stock, 9/16" to 1" by 16ths. These accurate collets are self-releasing type, made of selected steel, heat treated and properly hardened. 5 lbs. **NO. 25-610**

STEEL COLLET . . . One only, for holding round stock. Available from 1/16" to 1-1/16" by 64ths. (Specify No. 25-612 and size desired.) Collet is self-releasing type, made of selected steel, heat treated and properly hardened. 10 ounces. **NO. 25-612**

RACK FOR COLLETS . . . Holds 17 collets, wrench, headstock adapter sleeve and draw bar for collets. Rack can be set for swivel or rigid mounting. Includes bracket for mounting to lathe bed. 14 lbs. **NO. 25-628**

DRAW BAR FOR COLLETS . . . Has hardened threads for long life. Ball thrust bearing design transmits tremendous gripping power to the collet, yet the bar is easy to tighten or release. Includes 6" hand wheel, collet sleeve, spindle nose cap and spanner wrench.
For 2¼" -8 threaded spindle nose. **NO. 25-625**
For L-00 tapered spindle nose. **NO. 25-626**

60° LATHE CENTER . . . For tailstock, hardened and ground all over, No. 3 Morse Taper shank. 1 lb. **NO. 25-541**

60° LATHE CENTER . . . For headstock, soft, ground all over, No. 2 Morse Taper shank.
NO. 25-542

60° HALF CENTER . . . For tailstock, hardened and ground all over, No. 3 Morse Taper shank. 1 lb. **NO. 25-543**

60° LIVE CENTER . . . Pointed, for tailstock, with heavy duty bearing. No. 3 Morse Taper shank.
NO. 25-544

60° LIVE CENTER . . . Hollow, for tailstock, with heavy duty bearing, No. 3 Morse Taper shank.
NO. 25-545

60° LATHE CENTER . . . Hollow, hardened and ground, No. 3 Morse Taper shank. **NO. 25-546**

90° CROTCH CENTER . . . Used in tailstock for drilling, 1-3/16" dia. head has 9/16" relief hole, No. 3 Morse Taper shank. **NO. 25-548**

SCREW CENTER . . . For wood turning, 1½" diameter head, No. 2 Morse Taper shank tapped ¼"-20 for draw bolt. Includes one No. 8 and one No. 14 replaceable wood screw center point.
NO. 940

SPUR DRIVE CENTER . . . For wood turning, 1⅛" diameter head, No. 2 Morse Taper shank tapped ¼"-20 for draw bolt. Includes 3/16" x 1½" replaceable center point. **NO. 933**

CUP DEAD CENTER . . . For wood turning, No. 2 Morse Taper shank. Includes 3/16" x 1½" replaceable center point. **NO. 934**

FOR BED TURRET AND OTHER PRODUCTION ACCESSORIES, SEE PAGES 12 AND 13.

ACCESSORIES FOR DELTA 11" METAL LATHES

7" DRIVE PLATES . . . With slot for driving dogs and three work clamping slots.
For 2¼" -8 threaded nose. **NO. 25-640**
For L-00 tapered nose. **NO. 25-642**

10" FACE PLATES . . . With eight ⅜" x 2½" work clamping slots.
For 2¼" -8 threaded nose. **NO. 25-644**
For L-00 tapered nose. **NO. 25-646**

SAFETY TYPE LATHE DOGS . . . Made of forged, selected steel with hubs large enough to permit re-tapping. Include hexagon socket safety screw and wrench.

⅛" Belt tail. ½ lb. **NO. 25-661**
½" Bent tail. ½ lb. **NO. 25-662**
¾" Bent tail. 1 lb. **NO. 25-663**
1" Bent tail. 1¼ lbs. **NO. 25-664**
1¼" Bent tail. 2 lbs. **NO. 25-665**
1½" Bent tail. 2¼ lbs. **NO. 25-666**

ARBOR . . . For shell end mills with ½" hole, No. 3 Morse Taper shank, tapped 5/16" -18 for draw bolt, with mounting screw. **NO. 25-521**

ARBOR . . . For plain milling cutters with 1" hole up to 1½" wide, No. 3 Morse Taper shank, tapped 5/16" -18 for draw bolt, includes spacing collars, key, and nut. **NO. 25-526**

SCREW ARBOR . . . For single angle (dovetail) milling cutters, threaded ⅜" -24 R. H., No. 3 Morse Taper shank, tapped 5/16" -18 for draw bolt. **NO. 25-522**

SCREW ARBOR . . . Same as No. 25-522 except, threaded ½" -20 R. H. **NO. 25-524**

SPINDLE ADAPTER . . . No. 3 M.T., i.d. For mounting milling arbors Nos. 25-521, 25-522, 25-524 and 25-526, collet chuck No. 25-527, or drill chuck No. 17-820. Also may be used for grinding a new point on the 25-541 60° center for tailstock. **NO. 25-520**

DRAW BOLT . . . For arbors and collet chucks, threaded 5/16" -18, with bushing, washer and nut. **NO. 25-528**

TOOL HOLDERS . . . DROP FORGED FROM SPECIAL STEEL, HEAT TREATED AND HARDENED WITH SET SCREW AND WRENCH

STRAIGHT . . . ½ x 1⅛", includes 5/16" square HSS bit. **NO. 25-671**

RIGHT HAND OFF-SET . . . ½ x 1⅛", includes 5/16" square HSS bit. **NO. 25-672**

LEFT HAND OFF-SET . . . ½ x 1⅛", includes 5/16" square HSS bit. **NO. 25-673**

STRAIGHT CARBIDE TOOL HOLDER . . . ½ x 1¼", for 5/16" square bits. **NO. 25-677**

RIGHT HAND OFF-SET CARBIDE TOOL HOLDER . . . ½ x 1¼", for 5/16" square bits. **NO. 25-678**

LEFT HAND OFF-SET CARBIDE TOOL HOLDER . . . ½ x 1¼", for 5/16" square bits. **NO. 25-626**

STRAIGHT CUTTING-OFF AND SIDE TOOL HOLDER . . . ½ x 1-3/16", includes ⅛ x ¾" HSS cutting-off blade ground on both ends. **NO. 25-674**

RIGHT HAND OFF-SET CUTTING-OFF AND SIDE-TOOL HOLDER . . . ½ x 1-3/16", includes ⅛ x ¾" HSS cutting-off blade ground on both ends. **NO. 25-675**

LEFT HAND OFF-SET CUTTING-OFF AND SIDE-TOOL HOLDER . . . ½ x 1-3/16", includes ⅛ x ¾" HSS cutting-off blade ground on both ends. **NO. 25-676**

THREADING TOOLS . . . The tool holders are drop forged from special steel, heat treated and hardened. The HSS cutter is ground to an included angle of 60°, and backed off for proper clearance. Cutter is sharpened by grinding top edge only; therefore true form and correct angle are maintained. A hardened stop screw provides for positive, easy adjustment of cutter after sharpening.

THREADING TOOL . . . ½ x 1⅛", includes formed cutter for pitches 5 to 20 inclusive. **NO. 25-667**

KNURLING TOOLS . . . Knurls and pins are carefully made from high grade tool steel, hardened and tempered. Teeth of knurls are accurately cut concentric to hole, to assure quality knurling of work piece. Holders are hardened.

KNURLING TOOL . . . ½ x 1⅛", self-centering head, with one pair of medium diamond knurls ¼" face by ¾" diameter. **NO. 25-668**

KNURLING TOOL . . . ½ x 1⅛", revolving head, with three pairs of fine, medium and coarse diamond knurls ¼" face by ¾" diameter. **NO. 25-669**

BORING TOOLS . . . Unique design of holder takes bars of various diameters without sleeves or bushings. The sleeve-bar clamping feature is exceptionally strong and provides for rapid adjustment of either straight or angular cutters without the need for extra parts.

BORING TOOL . . . ½ x 1⅛", for bars ¼" to ¾" in diameter, includes one 45° and one 90° cutter, two wrenches, and one ¾" diameter sleeve-bar. **NO. 25-693**

REPLACEMENT BLADE AND CUTTER

CUTTING-OFF BLADE . . . ⅛ x ¾", made of high speed steel, ground and ready for use in tool holders Nos. 25-674, 25-675 and 25-676. **NO. 25-694**

FORMED THREADING CUTTER . . . sharp 60° V-thread, for pitches 5 to 20 inclusive, fits No. 25-667 Threading Tool. **NO. 25-698**

LAMP ATTACHMENT . . . 8 watt, 115V, 60 cy., fluorescent type. Provides brilliant, cool, directed (head rotates 330°) light without glare. Includes chip shield, on and off switch, two 4-watt bulbs, 18" gooseneck, bracket for mounting to carriage and 6' power cord with 2-prong plug. 4 lbs. **NO. 25-657**

MOTORS . . . BALL BEARING

For complete description of Motors Nos. 83-210, 86-920 and 87-120, see inside back cover.

MOTOR CONTROLS

For complete description of Wiring Kits Nos. 25-504, 25-505, 25-506, 25-507, 25-508, 25-513 and 25-514 and Overload Switch No. 49-365, for use on 11" Metal Cutting Lathe, see inside back cover.

MOTOR PULLEY and BELTS

3" motor pulley for variable speed drive. Fully machined steel pulley runs free of vibration. Pitch diameter is concentric with bore. (Specify ⅝", ¾", ⅞" or 1" bore.) **NO. 25-670**

Belt, variable speed drive, 34½" O.C. **NO. 25-500**

V-Belts (matched pair), 50¾" O.C., for spindle drive. **NO. 25-502**

FOR BED TURRET AND COOLANT EQUIPMENT, SEE PAGE 13.

DELTA HAND SCREW MACHINE

Engineered to save time and money on multiple-operation jobs

Here is a precision machine engineered to fill the gap between standard engine lathes and expensive automatic screw machines —and at lower cost than *any* comparable machine. Ideal for repetitive manufacturing of a wide variety of parts, it delivers the close tolerance work of machines costing three or four times as much!

Only Delta gives you 8″ cross slide travel plus 1 1/16″ collet capacity and turning capacity up to 6″ in length. *Only* Delta gives you this massive, powerful headstock plus perfected variable speed drive. *Only* Delta combines all these features with the advantages of pilot wheel cross slide feed.

You save money through lower initial cost and reduce costly set-up time between your short run production jobs when you choose the Delta Hand Screw Machine.

PAYS FOR ITSELF

Because it cuts production costs on dozens of operations like these:

82.7 PIECES PER HOUR.

STUD (From SAE 1144 Carbon Steel) Operation consists of stopping to length, box turning and threading with the bed turret, chamfering and cutting off to length with the double tool post cross slide.

96 PIECES PER HOUR.

SPECIAL SHAFT (From B-1113 Screw Stock) Steps in this operation are stopping to length with the bed turret and forming and cutting off to length with the cross slide.

35 PIECES PER HOUR.

INDEX PIN (From B-1113 Screw Stock) Operational sequence involves stopping to length with the bed turret, forming with the cross slide, spotting and drilling with the bed turret and cutting off with the cross slide.

32.5 PIECES PER HOUR.

SPECIAL KNURLED HEAD SCREW (From B-1113 Screw Stock) Consists of stopping to length, box turning, threading and knurling with the bed turret, then forming, making a shoulder and cutting off with the cross slide.

37 PIECES PER HOUR.

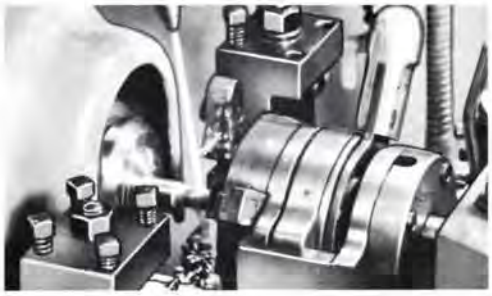
KNURLED ADJUSTING NUT (From B-1113 Screw Stock) Phases of this operation are stopping to length, spotting, drilling twice, knurling and reaming with the bed turret, then forming and cutting off with the cross slide.

55 PIECES PER HOUR.

SHAFT COLLAR (From B-1113 Screw Stock) Sequence involves stopping to length, spotting, drilling and reaming with the bed turret, then chamfering and cutting off with the cross slide.

28.5 PIECES PER HOUR.

ADED BUSHING (From B-1113 Screw) Procedure involves stopping to gth, spotting, drilling, reaming, turning and threading with the bed turret, then forming and cutting off to length with the cross slide.



31 PIECES PER HOUR.

IDLER STUD (From B-1113 Screw Stock) Operation consists of stopping to length, centering, turning twice and threading with the bed turret, then forming and cutting off with the cross slide.

100 PIECES PER HOUR.

HAND KNOB (From B-1113 Screw Stock) Steps in this operation are stopping to length with the bed turret, then forming and cutting off with the cross slide.

STANDARD EQUIPMENT
(Included on all models)

***Double Tool Post Cross Slide No. 25-555**

***Lever Type Collet Closer No. 25-553 or No. 25-554**

†Bed Turret No. 25-567

For complete description of above items, see Accessory Listings on Pages 12 and 13

Cabinet with coolant pan, doors and shelves

Variable speed drive complete with belts

Motor pulley for ¾" shaft

Combination wrench, ⅜" square and 9/16" open end

Spanner wrench for draw nut (included on tapered nose models only)

Guard for outboard end of spindle

*** Mounted**

†Bedded and turret faces left blank, or provided with either ⅜, ¾ or 1" holes. Unless otherwise specified, ¾" holes will be provided.

CATALOG LISTING

BASIC HAND SCREW MACHINE

With 2¼"—8 threaded spindle nose. Shipping wt. approx. 900 lbs. **NO. 25-150**

With L-00 tapered key drive spindle nose. Shipping wt. approx. 900 lbs. **NO. 25-160**

For Single Phase Operation

HAND SCREW MACHINE, with single phase motor and reversing push button switch for manual on and off control, assembled. Consists of: Basic Screw Machine, 83-210 115/230V Motor and 25-505 Switch, mounted and wired to motor for 230V operation.

With 2¼"—8 threaded spindle nose. Shipping wt. approx. 960 lbs. **NO. 25-155**

With L-00 tapered key drive spindle nose. Shipping wt. approx. 960 lbs. **NO. 25-165**

For Three Phase Operation

HAND SCREW MACHINE, with three phase motor and reversing push button switch for manual on and off control, assembled. Includes overload switch, not assembled. Consists of: Basic Screw Machine, 86-920 Motor, 25-505 Switch, mounted and wired to motor and 49-365 Overload Switch. Specify whether 208-220 or 440 volts.

With 2¼"—8 threaded spindle nose. Shipping wt. approx. 960 lbs. **NO. 25-355**

With L-00 tapered key drive spindle nose. Shipping wt. approx. 960 lbs. **NO. 25-365**

HAND SCREW MACHINE, with three phase motor and reversing push button switch for magnetic on and off control, assembled. Includes magnetic reversing starter for overload, low voltage and no voltage protection, not assembled. Consists of: Basic Screw Machine, 86-920 Motor and either 25-507 or 25-504 Control with switch mounted and wired to motor and separate starter. Specify whether 208-220 or 440 volts.

With 2¼"—8 threaded spindle nose. Shipping wt. approx. 960 lbs. **NO. 25-357**

With L-00 tapered key drive spindle nose. Shipping wt. approx. 960 lbs. **NO. 25-367**

MACHINE DATA

CAPACITY

Maximum collet capacity	1 1/16"
Turns any length up to (Self-Indexing)	6½"
Swing over cross slide	5¼"
Swing over bed	11 5/16"
Max. dia. tool clearance over ram	3¼"
Total ram travel (Manual Indexing)	7½"

SPINDLE AND HEADSTOCK

Infinite stepless speeds in direct drive	220-1550 rpm
Infinite stepless speeds in back gear	45-250 rpm
Spindle dia. at roller bearings	2¼"
Hole through spindle	1⅜"

BED (furnished with leveling screws)

Length	49¼"
Width	8¼"
Depth	5⅞"
Width of V's	¾"

BED TURRET (for specifications, see CAT. NO. 25-567)

DOUBLE TOOL POST CROSS SLIDE (for specifications, see CAT. NO. 25-555)

COLLET CLOSER—Uses 5-C collets

OVERALL DIMENSIONS

Cabinet and machine . . 57¾" left to right x 25½" front to rear x 49½" high

Coolant pan . . 1 3/16 x 22½ x 56" outside dimensions

Drain hole at rear has ½" pipe tap

MOTORS

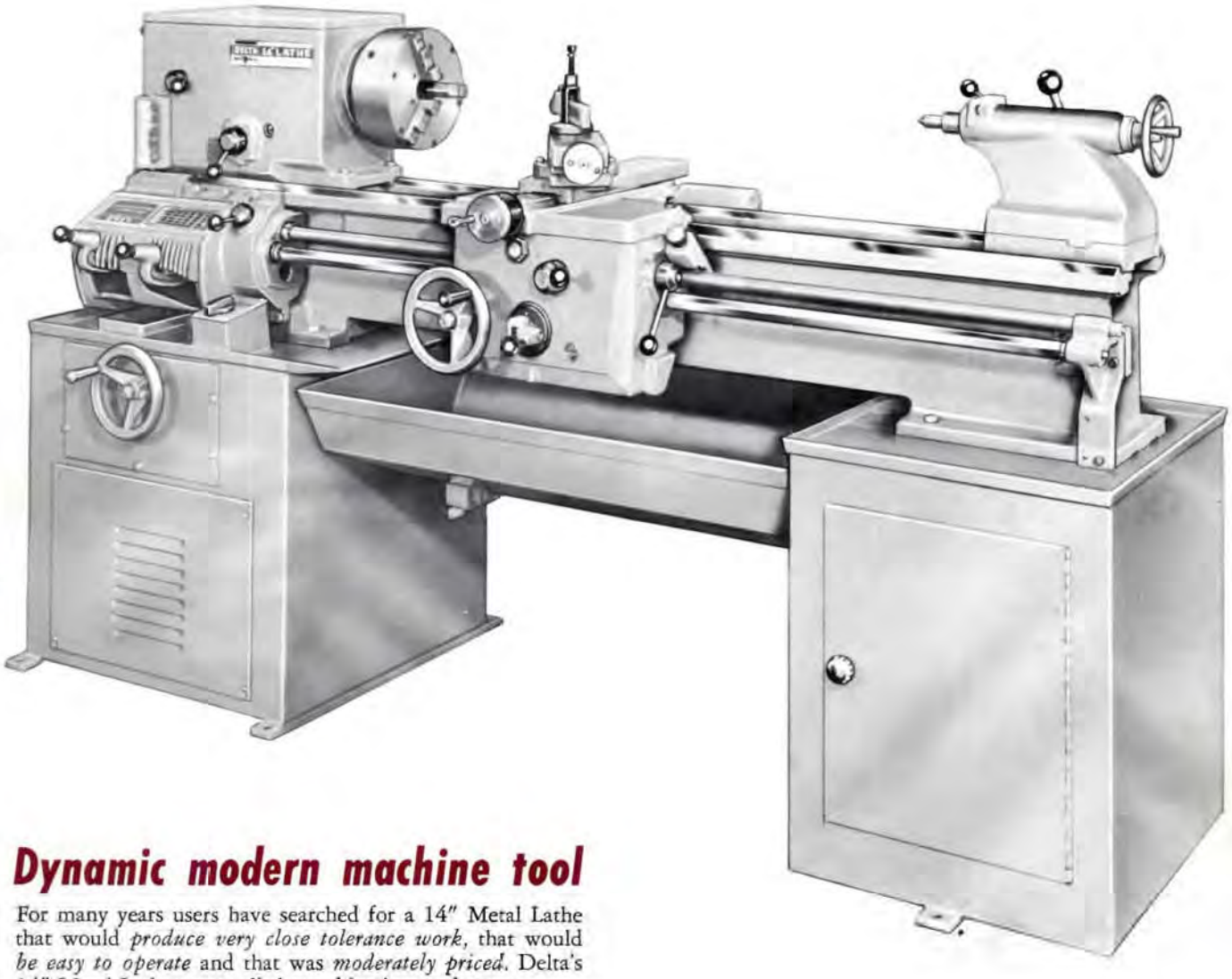
Accommodates NEMA frame motors 182-184-203-204-224

With the Delta Hand Screw Machine, set-up time is reduced to a minimum. This makes it especially ideal for short production runs of either simple pieces or intricate parts.

DELTA

14″ METAL LATHES

THE LATHE LINE THAT OBSOLETES ALL OTHER 14″ METAL LATHES



Dynamic modern machine tool

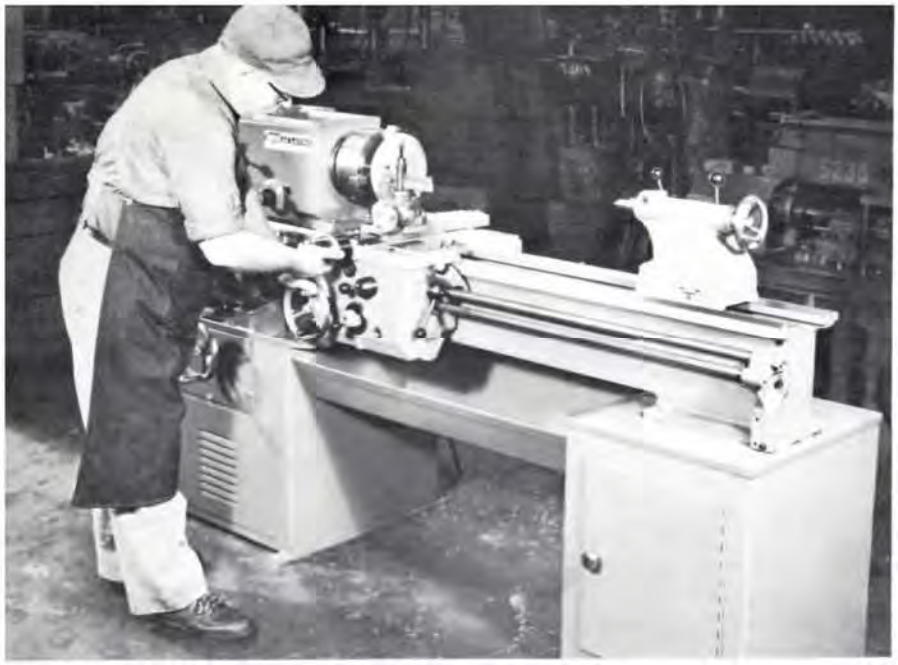
For many years users have searched for a 14″ Metal Lathe that would *produce very close tolerance work,* that would *be easy to operate* and that was *moderately priced.* Delta's 14″ Metal Lathe meets all these objectives and more.

It's precision made, yet ruggedly built to produce superior work. It's safety designed to protect the veteran operator or the student trainee. Its operating controls are conveniently located to save the operator's time and make them easy to use.

Whatever your requirements—production capacity, toolroom precision or school shop safety — you'll get all the machine you need with the Delta 14″ Metal Lathe. It's the lathe that's in step with modern technology.

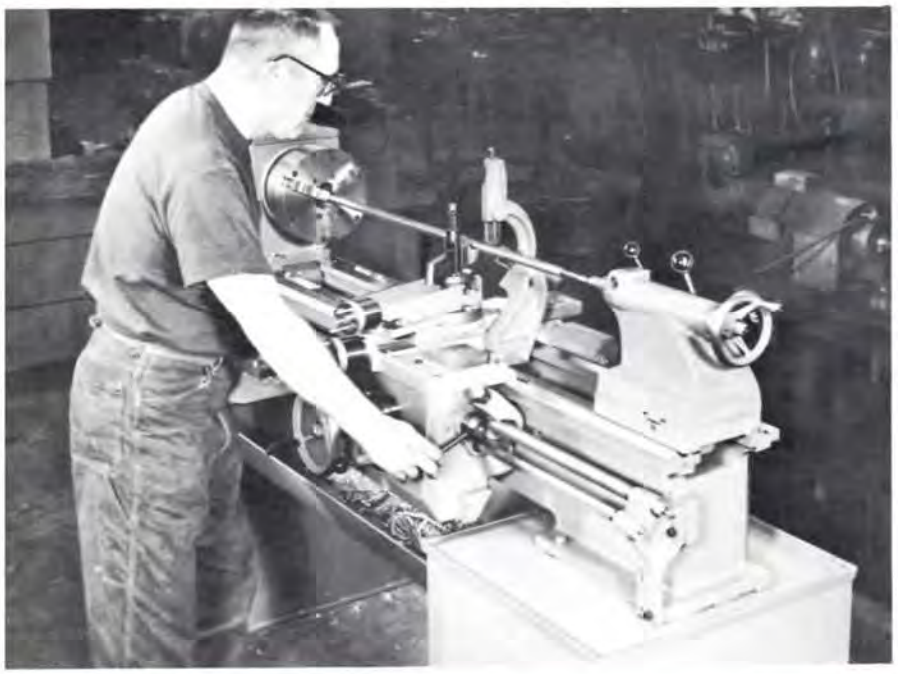
Most advanced lathe design in 25 years

The Delta 14″ Metal Lathe is *completely new from headstock to tailstock.* EXCLUSIVE FEED REVERSE LEVER, built into the Quick Change Gear Box, can be shifted FORWARD, NEUTRAL OR REVERSE, **while the lathe is running.** UNIQUE CARRIAGE FEED SELECTOR LEVER can be shifted from longitudinal to cross feed **while a cut is being made.** DUAL DRIVE FOR CARRIAGE provides a **separate** rod for all power feeding. PERFECTED VARIABLE SPEED DRIVE incorporates an **extra** shaft for full power at the spindle and an infinite choice of speeds from 40 to 1600 rpm. See a demonstration of these outstanding features that—up to now—cost you *twice as much!*

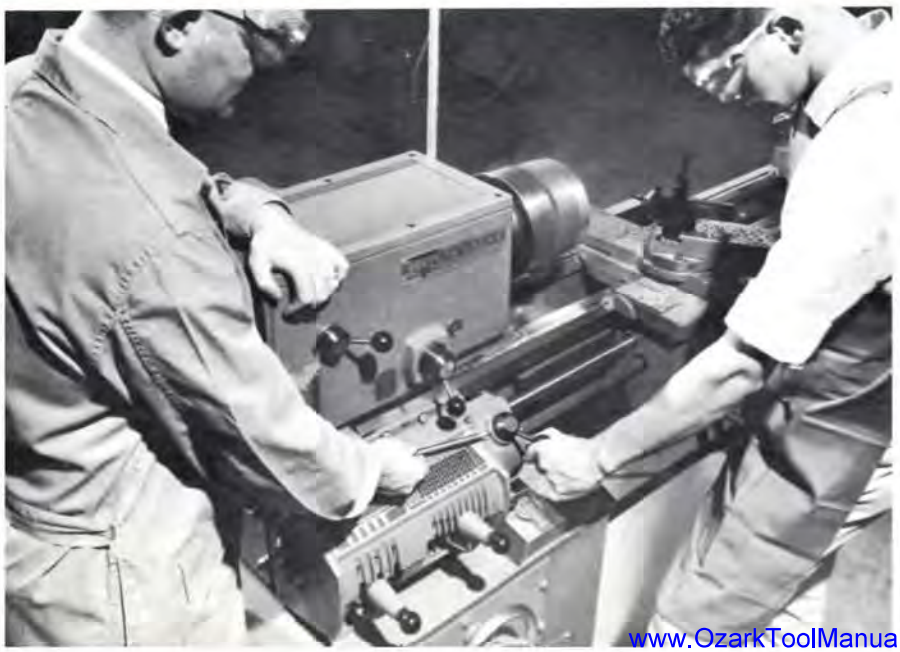


DELTA 14" METAL LATHES ON THE JOB . . .

BIG SWING WITH AMPLE POWER — on the production line or in the toolroom, you can handle more jobs easily because this great lathe offers a big 14¼" swing over the bed and saddle wings. For heavy cutting, twin V-belt final drive and husky back gears provide power usually found only in larger lathes.



EXTRA CAPACITY—work that you would normally expect to do on a much larger-sized lathe can be handled with ease on this big capacity Delta 14" Lathe. It accommodates stock up to 41" between centers.



EXCLUSIVE SAFETY FEATURES — Feed Reverse Lever, built into the Quick Change Gear Box, protects gears because it can be shifted FORWARD, NEUTRAL OR REVERSE *while the lathe is running!* Carriage Feed Selector can be shifted from longitudinal feed to cross feed *while a cut is in progress! With the lathe running,* you can change speeds *without* touching belts or pulleys!

DELTA 14" METAL LATHE LINE

STANDARD EQUIPMENT

(Included with all lathes)

- Cabinet with Chip and Coolant Pan
- Two Shelves in Tailstock Pedestal
- Quick Change Gear Box
- Variable Speed Drive Complete with All Belts
- Thread Chasing Dial
- Motor Pulley for ¾", ⅞" or 1⅛" Shaft
- Tool Post, Ring and Rocker
- 9" Drive Plate
- Two 60° Centers (one hard, one soft)
- Combination Wrench for Tool Post, Compound Swivel, Carriage Lock, etc.
- Spindle Adapter, No. 3 M.T. I.D.
- Spanner Wrench for Spindle Nose Draw Nut (with L-00 Taper Nose)
- Lubrication Chart
- Instruction and Parts Manual

CATALOG LISTING

Basic Lathes (less electricals)

14" METAL LATHE, standard bed, 41" between centers, L-00 spindle nose. 1894 lbs. **NO. 25-200**

14" METAL LATHE, standard bed, 30" between centers, L-00 spindle nose. 1794 lbs. **NO. 25-201**

14" METAL LATHE, hardened bed, 41" between centers, L-00 spindle nose. 1894 lbs. **NO. 25-210**

14" METAL LATHE, hardened bed, 30" between centers, L-00 spindle nose. 1794 lbs. **NO. 25-211**

MOTORS AND MOTOR CONTROLS

Single Speed Single Phase Motor

Motor, 2 HP, capacitor start, guarded drip-proof enclosure, ¾" shaft, 1725 RPM, 115/230 V, 60 cy. Without switch or power cord. 79 lbs. **NO. 93-610**

Single Speed Three Phase Motors

Motor, 2 HP, guarded drip-proof enclosure, ¾" shaft, 1425/1725 RPM, 208-220/440 V, 50/60 cy. Without switch or power cord. 60 lbs. **NO. 96-320**

Motor, 2 HP, TEFC enclosure, ⅞" shaft, 1425/1725 RPM, 208-220/440 V, 50/60 cy. Without switch or power cord. 70 lbs. **NO. 96-342**

Motor, 3 HP, guarded drip-proof enclosure, 1⅛" shaft, 1425/1725 RPM, 208-220/440 V, 50/60 cy. Without switch or power cord. 101 lbs. **NO. 96-620**

Motor, 3 HP, TEFC enclosure, 1⅛" shaft, 1425/1725 RPM, 208-220/440 V, 50/60 cy. Without switch or power cord. 120 lbs. **NO. 96-640**

Single Speed Single and Three Phase Motor Controls

Drum Switch Kit for 2 HP motors. 6 lbs. **NO. 49-420**

*Drum Switch Kit No. 49-420, with No. 49-365 Overload Switch, for 2 HP motors. 9 lbs. **NO. 49-421**

*Drum Switch Kit No. 49-420 with No. 49-396 Magnetic Starter, 208 to 230 V, for 2 HP motors. 12 lbs. **NO. 49-422**

*Drum Switch, with reversing magnetic starter including 110 V transformer, for 2 and 3 HP motors. 17 lbs. **NO. 49-423**

*Push Button Switch, with reversing magnetic starter including 110 V transformer, for 2 HP and 3 HP motors. 16 lbs. **NO. 49-424**

Drum Switch Kit for 2 and 3 HP motors. 7 lbs. **NO. 49-432**

*Drum Switch Kit No. 49-432 with No. 49-365 Overload Switch for 2 and 3 HP motors. 10 lbs. **NO. 49-433**

*Drum Switch Kit No. 49-432 with No. 49-396 Magnetic Starter for 208 to 230 V, for 2 and 3 HP motors. 13 lbs. **NO. 49-434**

Two Speed Three Phase Motor

Motor, 2/1 HP, guarded drip-proof enclosure, 1⅛" shaft, 1725/850 RPM, 208-220 V only, 60 cy. Without switch or power cord. 100 lbs. **NO. 96-350**

Motor, 2/1 HP, guarded drip-proof enclosure, 1⅛" shaft, 1725/850 RPM, 440 V only, 60 cy. Without switch or power cord. 100 lbs. **NO. 96-351**

Two Speed Three Phase Motor Controls

Drum Switch Kit for 2 speed motors. 10 lbs. **NO. 49-427**

*Drum Switch, with two No. 49-365 Overload Switches, for 2 speed motors. 13 lbs. **NO. 49-428**

*Drum Switch Kit, with magnetic starter for 208-220/440 V, for 2 speed motors. 16 lbs. **NO. 49-429**

*Drum Switch, with two reversing magnetic starters and one 110 V transformer, for 2 speed motors. 31 lbs. **NO. 49-430**

***Specify motor number and voltage when ordering.**

MACHINE DATA

CAPACITY

Swing over bed and saddle wings	14¼"
Swing over cross slide	9⅛"
Between centers (tailstock completely on bed)	30" or 41"
Hole through spindle	1⅜"
Maximum capacity with 5-C style collet	1 1/16"

SPINDLE SPEEDS (with 1725 rpm motor)

Infinite choice of speeds in direct drive	210-1600 rpm
Infinite choice of speeds in gear drive	40-265 rpm

THREADS AND FEEDS

Quick change gear box has 54 thread changes L.H. or R.H. . . 4, 4½, 5, 5½, 5¾, 6, 6½, 6¾, 7, 8, 9, 10, 11, 11½, 12, 13, 13½, 14, 16, 18, 20, 22, 23, 24, 26, 27, 28, 32, 36, 40, 44, 46, 48, 52, 54, 56, 64, 72, 80, 88, 92, 96, 104, 108, 112, 128, 144, 160, 176, 184, 192, 208, 216, 224.

Lead Screw (no keyway)	1" dia. Acme x 8 t.p.i.
Feed Rod	¾" hex.
Longitudinal Feeds	54 feeds from .0017" to .099"
Cross Feeds	54 feeds from .00089" to .052"

HEADSTOCK

Back Gears (Run in oil)	6 to 1 ratio
Spindle (Heat treated and ground alloy steel)	
Has three precision ball bearings.	
Two outboard bearings are single row	3 15/16" O.D.
Inboard bearing is double row	5⅛" O.D.
Center used	No. 3 M.T.
Taper Hole in Nose	Mod. No. 5 M.T.
Spindle Nose: Standard—Long Taper Key Drive, size	L-00
Drive	Variable Speed, plus outboard twin V-belts

CARRIAGE

Length of saddle V-way	16"
Width of saddle bridge	4¾"
Cross slide travel	8"
Compound slide travel	4¾"
Tool Post Opening (takes standard tool holders for ⅜" bits)	11/16 x 1⅞"
Compound Slide	graduated 90° in both directions, with three witness marks
Apron	double wall, oil bath type

TAILSTOCK (has automatic center ejection)

Ram diameter	1 15/32"
Ram travel	5½"
Length of graduations marked on ram by 1/16ths	5½"
Center used	No. 3 M.T.
Handwheel	adjustable micrometer collar graduated in .001"
Method of clamping	Lever and Cam
Set-over (either direction)	¾"

BED (choice of standard or hardened)

Length	63" or 74"
Width	9⅝"
Depth	9½"
Width of V's	1"

Has two prismatic V-ways and two flat ways (precision ground).

OVERALL DIMENSIONS

Cabinet and Machine	75 or 86" left to right x 25" front to rear x 48" high
Chip and Coolant Pan (detachable)	has ½" pipe tap

MOTORS

Accommodates NEMA frame motors	184, 213, 215
Horsepower recommended	2
Speed recommended	1725 rpm

THESE FEATURES MAKE THE DELTA 14" LATHE THE MOST MODERN . . .

QUICK CHANGE GEAR BOX WITH EXCLUSIVE FEED REVERSE LEVER

Gear box provides a choice of 54 thread pitches (including 27 threads per inch) by means of two selector levers, with rugged, needle bearing equipped tumbler gears. A unique feature is that the Feed Reverse Lever, built into the Quick Change Gear Box, convenient to the operator's hand, can be shifted (forward — neutral — reverse) *while the lathe is running.*

DUAL DRIVE FOR CARRIAGE

A *separate* rod is used for all power feeding. The *solid* lead screw (used for threading only) has *no keyway* to cause wear on the half-nuts . . . new machine threading accuracy is maintained. Furthermore, production time is saved because the feed rod and the lead screw are quickly and simultaneously reversed, WHILE THE LATHE IS RUNNING.

NOW! New Ball Bearing Drive Feature Gives You These *PLUS* Advantages . . .

1. **Longer machine life.**
2. **More efficient power transmission.**
3. **No lubrication required.**
4. **Easy speed changes.**

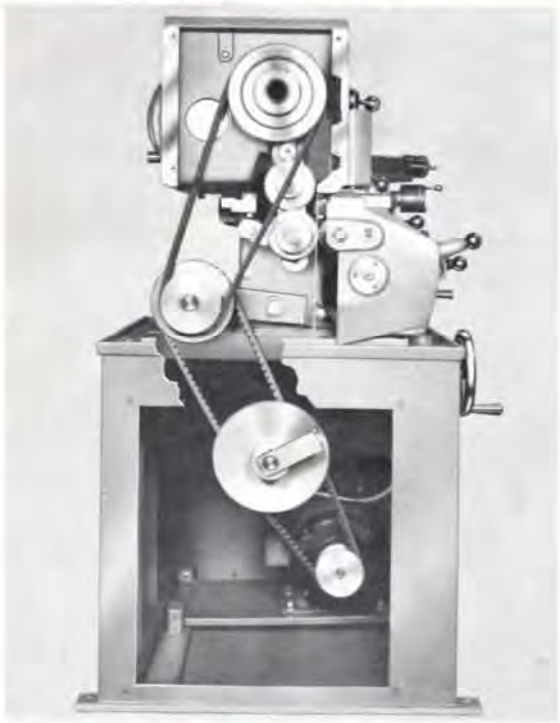
All Delta 14" Metal Lathes now have lubricated-for-life ball bearings in the spindle pulley, upper jackshaft pulley and variable speed drive pulley.

MODERN CARRIAGE HAS CONVENIENT CONTROLS

The large apron handwheel with its "loose" handle, the fast-action clutch lever, the unique feed selector lever, and the lever for half-nuts, all have been designed with the operator in mind.

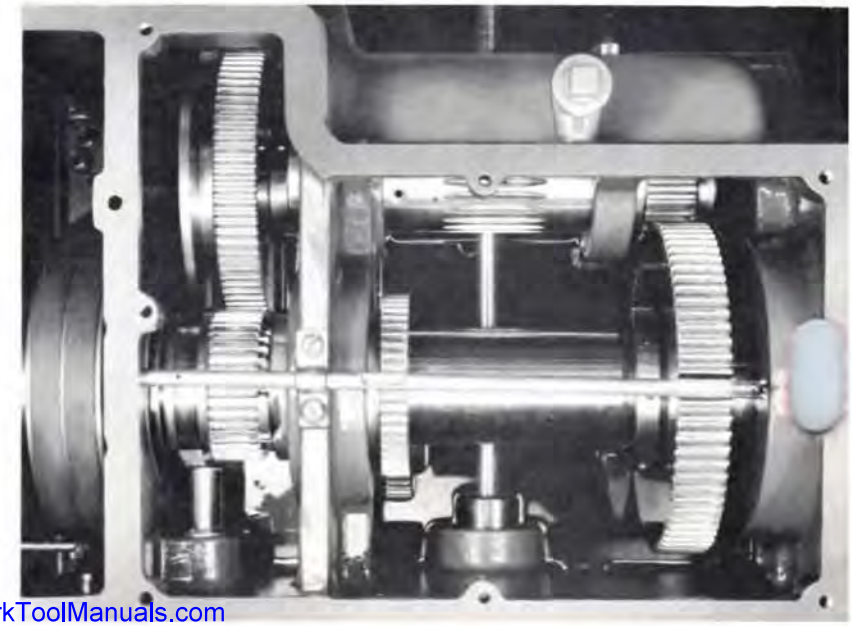
A unique feature of the feed selector is that it can be shifted from longitudinal feed to cross feed while a cut is in progress, facilitating the turning, then facing of multiple diameter work with shoulders.

A lock-out feature prevents the simultaneous setting for power feeding and threading.



PERFECTED VARIABLE SPEED DRIVE

You get all the advantages of a variable speed drive, with an infinite choice of speeds from 40 to 1600 rpm—PLUS the high torque transmitting power of matched V-belts. The Delta variable speed drive incorporates an *extra shaft* between the variable speed drive pulley and spindle. This makes possible high speed power transmission through the variable speed drive belts while twin V-belts transmit steady power to the spindle. *You get all this with no unobtainable speeds in the mid range.*



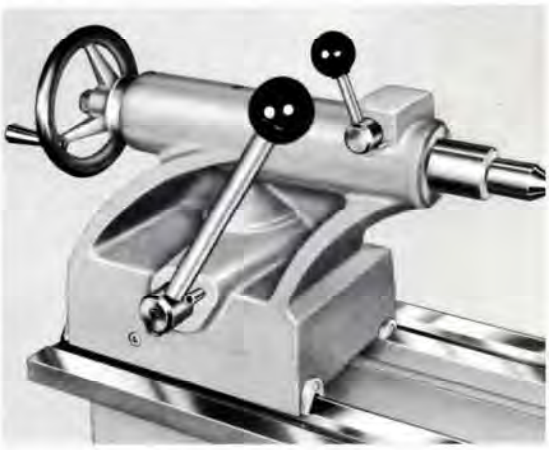
MOST PRODUCTIVE LATHE IN ITS CLASS

LARGE, DIRECT READING MICROMETER COLLARS

The large size of the micrometer collars for the compound and the cross slide makes them easy to read. Both are of the modern, direct reading type and have a "zero start" feature which makes mental calculations unnecessary. Both are provided with lock knobs to avoid accidental slippage of the collars. Adjusting the sleeves enables the witness marks to be set at whichever viewing angle the operator finds most convenient.

RUGGED TAILSTOCK LOCKS BY PREFERRED CAM-ACTION CONTROL

Lathe operators appreciate the quick-acting cam lock that clamps the tailstock to the bed, also the easy accessibility of the ram clamp lever. A large micrometer collar with .001" decimal graduations is provided for the handwheel in addition to the 1/16" graduations on the ram. The tailstock has an off-set feature for taper turning, an ejection feature for centers and wipers for both V and flat ways.



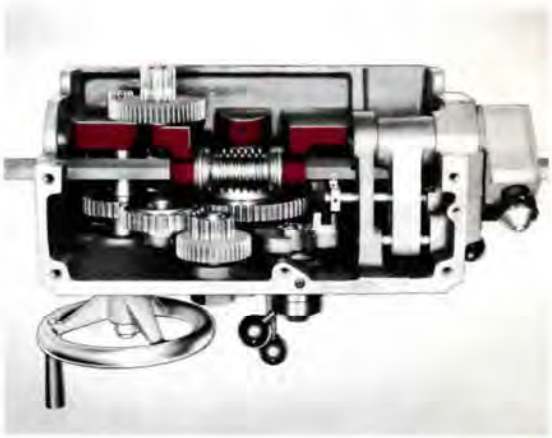
EXTRA DEEP, SOLID WALL BED GUARANTEES MAXIMUM ACCURACY

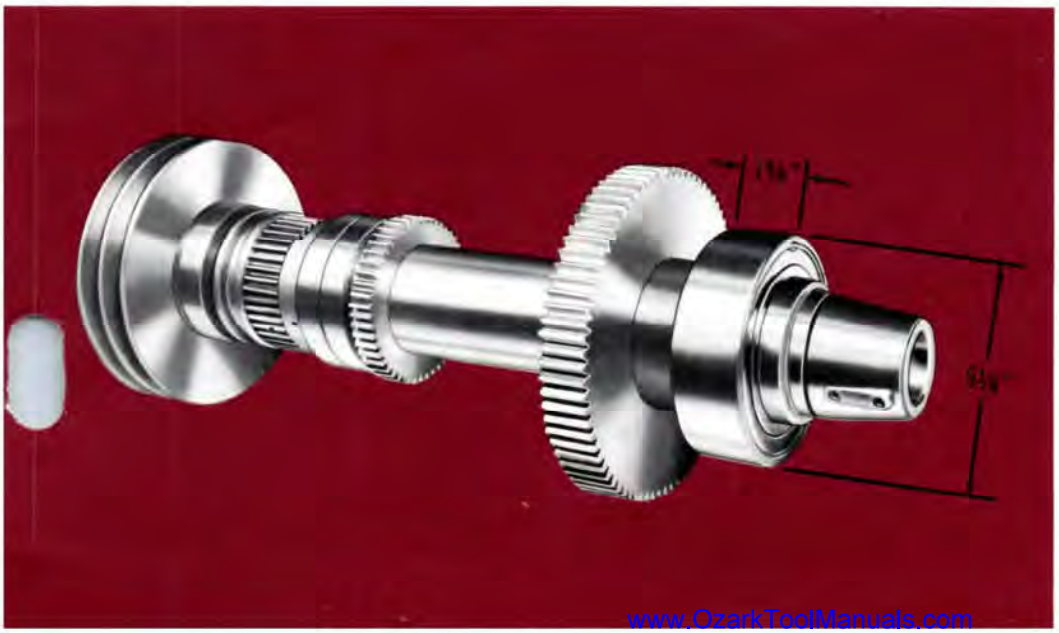
The strongest "backbone" of any lathe in its class is provided by this heavy, massive bed. It is 9⅝" wide and more than 9" deep. The bracing is stress engineered to guarantee permanent accuracy. V and flat ways are precision ground with the most modern way grinding equipment.

DOUBLE WALL, OIL BATH TYPE APRON ASSURES PROPER LUBRICATION

The steel gears are always well lubricated by dipping into the reservoir of oil. Proper oil level is indicated by the sight gage provided.

Notice the close-coupled rear wall support for rigid alignment of the gears. Notice also the separate rod for power feeding. Thread chasing dial is standard equipment.





MASSIVE HEADSTOCK HAS GEARS AUTOMATICALLY PROTECTED

A positive lock-out makes it impossible to engage the back gears while in direct drive or to engage direct drive while in back gears.

All gears are bathed and showered with circulating oil.

Outboard twin V-belts are quickly accessible for easy tensioning or changing.

Chatter-free cutting is assured by the over-sized spindle and the massive, double row, internally preloaded spindle nose bearing.

THESE ACCESSORIES EXPAND THE PRODUCTIVE

DRILL CHUCK . . . 3-jaw key type, 0-½", with chuck key, No. 3 M.T. shank. **NO. 17-820**

†POWER DRIVEN SPINDLE SPEED CHANGERS . . . Provide operator with the full range of speeds *quickly* and *effortlessly*. The single lever control is always convenient to the operator's hand because it travels with the carriage. Almost no physical exertion is required for spindle speed changing and it is a much quicker operation than with the conventional variable speed drive hand wheel. (The No. 25-221 Tachometer is recommended as a companion accessory to these Power Driven Spindle Speed Changers.)
For lathes 41" between centers. **NO. 25-220**
For lathes 30" between centers. **NO. 25-264**

†TACHOMETER . . . Complete with drive belt and special headstock cover with integral nacelle. Tachometer is directly belted to spindle pulley for accuracy; 2½" diameter dial is calibrated for direct reading in both direct drive and back gear. **NO. 25-221**

†TAPER ATTACHMENT . . . Telescoping type. Used for boring and turning tapers up to 9¾" long at one setting with adjustment by means of a micrometer screw up to 3½" per foot on diameter or 18° included angle. Not necessary to disconnect cross feed screw to change from straight to taper turning. Binding lever can be left loose while cutting tapers to permit rapid approach to work by means of cross slide handwheel, or binding lever can be tightened so that cross slide is directly traversed by means of the cross slide pull bar. **NO. 25-222**

STEADY REST . . . ⅜" to 4¾" capacity. Top half hinged for easy loading. With mounting parts. **NO. 25-223**

FOLLOWER REST . . . ⅜" to 4¾" capacity. With mounting bolts. **NO. 25-224**

DRIVE PLATE . . . 9", for L-00 tapered nose. **NO. 25-225**

FACE PLATE . . . 13½", for L-00 tapered nose. **NO. 25-226**

PLAIN CARRIAGE STOP . . . Used on either side of carriage to provide a positive longitudinal feed stop for cutting shoulders, etc. Includes parts for mounting to front V-way of bed. **NO. 25-227**

MICROMETER CARRIAGE STOP . . . Used on either side of carriage to provide a positive longitudinal feed stop for cutting shoulders, for accurate facing, boring, etc. Collar is graduated in .001" and is self-locking by means of a unique spring lock feature. Includes parts for mounting to front V-way of bed. **NO. 25-228**

THREAD STOP . . . Makes thread cutting faster, easier; limits the forward travel of cross slide against a positive, adjustable stop. Clamps on dovetail of saddle in front of cross slide. 1½ lbs. **NO. 25-229**

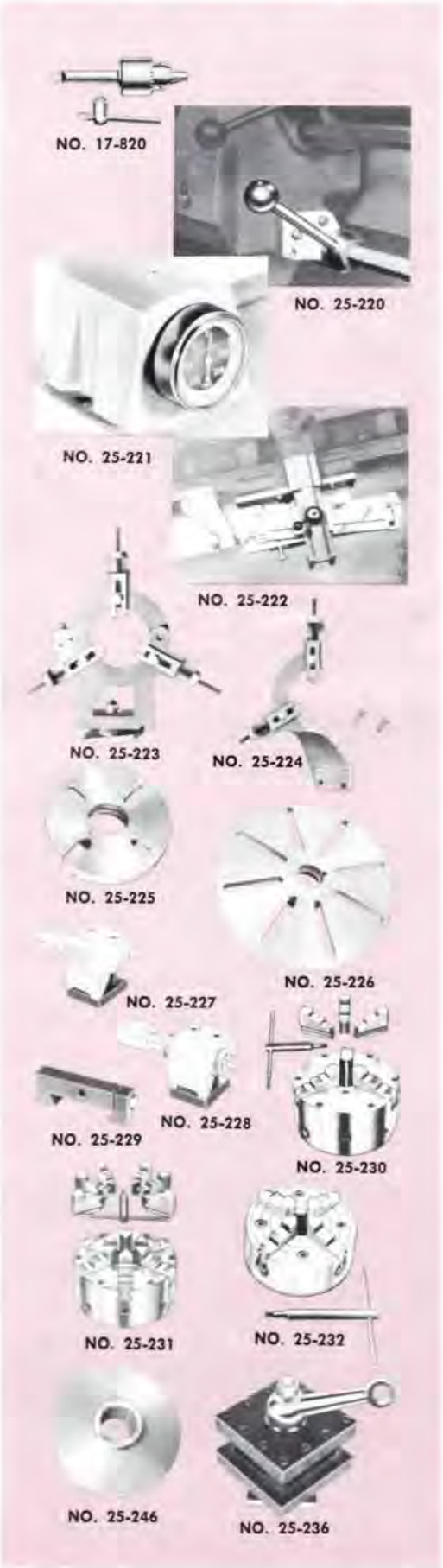
CHUCKS . . . FOR L-00 TAPERED NOSE. COMPLETE WITH FITTED CHUCK PLATE AND WRENCH.

9", 3-JAW ADJUST-TRU UNIVERSAL TYPE . . . Has three internal and three external jaws. **NO. 25-230**

9", 6-JAW ADJUST-TRU UNIVERSAL TYPE . . . Has six internal and six external jaws. **NO. 25-231**

10", 4-JAW INDEPENDENT TYPE . . . Has one set of jaws reversible for internal or external work. **NO. 25-232**

ROUGH CHUCK PLATE . . . 10". Machined to fit L-00 tapered nose. This is a high quality, cast iron plate with enough stock left to be fitted to chucks requiring 9" or 10" diameter chuck plate. Without holes for mounting chuck. **NO. 25-246**



TURRET TOOL POST FOR COMPOUND . . . For facing, turning, thread cutting, drilling, boring and other operations. Speeds up production by eliminating tool changing. 3½" square head takes four ⅞" or smaller cutter bits and #0 tool holders. Indexing feature provides 12 positions —3 for each tool. 30° position can be used for threading. **NO. 25-236**

METRIC TRANSPOSING GEAR KIT . . . With transposing gear, stud gears and everything needed to convert lathe for cutting standard metric thread pitches. Includes instructions for field mounting. Price and delivery quoted on request. **NO. 25-245**

TOOL HOLDERS . . . DROP FORGED FROM SPECIAL STEEL, HEAT TREATED AND HARDENED, WITH SET SCREW WRENCH.

STRAIGHT . . . ⅝ x 1⅜", includes ⅜" square HSS bit. **NO. 25-247**

RIGHT-HAND . . . ⅝ x 1⅜", includes ⅜" square HSS bit. **NO. 25-248**

LEFT-HAND . . . ⅝" x 1⅜", includes ⅜" square HSS bit. **NO. 25-249**

STRAIGHT CARBIDE . . . ⅝ x 1½", for ⅜ square bits. **NO. 25-250**

RIGHT-HAND OFFSET CARBIDE . . . ⅝ x 1½", for ⅜" square bits. **NO. 25-251**

LEFT-HAND OFFSET CARBIDE . . . ⅝ x 1½", for ⅜" square bits. **NO. 25-252**

STRAIGHT CUTTING-OFF AND SIDE TOOL HOLDER . . . ⅝ x 1⅜", includes ⅛ x ⅞" HSS cutting-off blade ground on both ends. **NO. 25-253**

RIGHT-HAND OFF-SET CUTTING-OFF AND SIDE-TOOL HOLDER . . . ⅝ x 1⅜", includes ⅛ x ⅞" HSS cutting-off blade ground on both ends. **NO. 25-254**

LEFT-HAND OFFSET CUTTING-OFF AND SIDE-TOOL HOLDER . . . ⅝ x 1⅜", includes ⅛ x ⅞" HSS cutting-off blade ground on both ends **NO. 25-255**

CUTTING-OFF BLADE . . . ⅛ x ⅞", made of HSS, ground and ready for use in Tool Holders Nos. 25-253, 25-254 and 25-255. **NO. 25-261**

THREADING TOOL
Tool holder is drop forged from special steel, heat treated and hardened. The HSS cutter is ground to an included angle of 60° and backed off for proper clearance. Cutter is sharpened by grinding top edge only; therefore, true form and correct angle are maintained. A hardened stop screw provides for positive, easy adjustment of cutter after sharpening.
⅝ x 1⅜", includes HSS 60° formed cutter. **NO. 25-256**

FORMED THREADING CUTTER . . . sharp 60° V-thread, fits No. 25-256 threading tool. **NO. 25-257**

KNURLING TOOLS
Knurls and pins are carefully made from high grade tool steel, hardened and tempered. Teeth of knurls are accurately cut concentric to hole to assure quality knurling of work piece. Holders are hardened.

SELF-CENTERING HEAD . . . ⅝ x 1⅜", with one pair of ¼ x ¾" medium diamond knurls. **NO. 25-258**

REVOLVING HEAD . . . ⅝ x 1⅜", with three pairs of fine, medium and coarse ¼ x ¾" diamond knurls. **NO. 25-259**

FOR BED TURRET AND COOLANT EQUIPMENT, SEE PAGE 13.

CAPACITY OF DELTA 14" METAL LATHES

BORING TOOL
Unique design of holder takes bars of various diameters without sleeves or bushings. The sleeve-bar clamping feature is exceptionally strong and provides for rapid adjustment of either straight or angular cutters without need for extra parts.

⅝ x 1⅜", for bars ⅜ to 15/16" in diameter, includes one 45° and one 90° cutter, two wrenches and one 15/16" diameter sleeve-bar. **NO. 25-260**

60° LATHE CENTER . . . For headstock, soft, ground all over, No. 3 M.T. shank. **NO. 25-238**

60° LATHE CENTER . . . For tailstock, hardened and ground all over, for No. 3 M.T. shank. 1 lb. **NO. 25-541**

60° HALF CENTER . . . For tailstock, hardened and ground all over, No. 3 M.T. shank. 1 lb. **NO. 25-543**

60° LIVE CENTER . . . Pointed, for tailstock, with heavy duty bearing, No. 3 M.T. shank. 1 lb. **NO. 25-544**

60° LIVE CENTER . . . Hollow, for tailstock, with heavy duty bearing, No. 3 M.T. shank. 1 lb. **NO. 25-545**

60° LATHE CENTER . . . Hollow, hardened and ground, No. 3 M.T. shank. **NO. 25-546**

90° CROTCH CENTER . . . Used in tailstock for drilling, 1-3/16" dia. head has 9/16" relief hole, No. 3 M.T. shank. **NO. 25-548**

COLLET EQUIPMENT
Set of eight collets for holding round stock, 1/16" to ½" by 16ths. These accurate collets are self-releasing type, made of selected steel, heat treated and properly hardened. 5 lbs. **NO. 25-600**

Set of eight collets for holding round stock, 9/16" to 1" by 16ths. These accurate collets are self-releasing type, made of selected steel, heat treated and properly hardened. 5 lbs. **NO. 25-610**

One collet only, for holding round stock. Available from 1/16" to 1-1/16" by 64ths. (Specify Cat. No. 25-612 and size desired.) Collet is self-releasing type, made of selected steel, heat treated and properly hardened. 10 ounces. **NO. 25-612**

COLLET RACK . . . Accommodates 32 collets and the collet sleeve. Includes instructions for mounting on inside of tailstock pedestal door. **NO. 25-235**

DRAW BAR . . . For collets. Has hardened threads for long life. Ball thrust bearing transmits tremendous gripping power to collet, yet the bar is easy to tighten or release. Includes 6" hand wheel collet sleeve and spindle nose cap. **NO. 25-233**

LEVER TYPE BALL BEARING COLLET CLOSERS . . . Include sleeve for 5-C collets, spindle nose cap and linkage between handle and headstock body. The collet sleeve and back plate are hardened and ground for accuracy and long life. Has lightweight aluminum handle.

For lathes with Serial No. 133-4207 and lower. **NO. 25-234**

For lathes with Serial No. 133-4208 and higher. **NO. 25-268**

SAFETY TYPE LATHE DOGS . . . Made of forged, selected steel with hubs large enough to permit re-tapping. Include hexagon socket safety screw and wrench.

⅜", bent tail. ½ lb.	**NO. 25-661**
½", bent tail. ½ lb.	**NO. 25-662**
¾", bent tail. 1 lb.	**NO. 25-663**
1", bent tail. 1¼ lbs.	**NO. 25-664**
1¼", bent tail. 2 lbs.	**NO. 25-665**
1½", bent tail. 2½ lbs.	**NO. 25-666**
1¾", bent tail. 3½ lbs.	**NO. 25-262**
2", bent tail, 4 lbs.	**NO. 25-263**

LAMP ATTACHMENT . . . With 15" flexible gooseneck. Includes nylon shield, mounting bracket, switch and 8-foot cord with 2-prong plug. Uses std. bulb (not included) up to 100 watts. 2 lbs. **NO. 25-857**

MOTOR PULLEYS AND BELTS
3⅝" motor pulley for variable speed drive and No. 25-220 or No. 25-264 Power Driven spindle Speed Changer.

PULLEY . . . ¾" bore.	**NO. 41-524**
PULLEY . . . ⅞" bore.	**NO. 41-525**
PULLEY . . . 1⅛" bore.	**NO. 41-527**

O-BELT . . . Stretch type, ¼" diameter x 29¾" OC, for 25-220 and 25-264 Spindle Speed Changers. **NO. 49-097**

BELT . . . Variable speed, 33-13/16" OC, lower belt for NEMA 213 frame motors. **NO. 49-095**

BELT . . . Variable speed, 35-5/16" OC, lower belt for Delta No. 8½ frame and NEMA 184 frame motors. **NO. 49-098**

BELT . . . Variable speed, 42-15/32" OC, upper belt for all motors. **NO. 49-099**

V-BELTS . . . Matched pair, 51" OC. **NO. 49-129**

†SAFETY SPINDLE BRAKE WITH ELECTRICAL DISCONNECT AND START SWITCHES . . . used on magnetically controlled Delta 14" Lathes, it provides:

1. **Quick Electrical Disconnect**—when operator pushes brake lever to left, a limit switch cuts power to the motor.
2. **Quick Manual Breaking of Spindle** — after limit switch cuts off motor power, brake shoe is applied against spindle pulley for quick stopping of spindle.

This modern accessory offers the user these benefits: Speeds production — no waiting for lathe to coast to a stop. Promotes safety—eliminates stopping lathe with hand on chuck. Avoids broken tool bits—lathe always re-starts in same direction. Adds convenience — start button is placed next to brake lever; brake lever automatically returns to running position. Offers foolproof operation—power is automatically shut off before brake is applied; power cannot be turned on while brake is applied; power stays off until green colored start button is pushed. Maintains flexibility—brake and switches work equally well in forward or reverse rotation. **NO. 25-265**

†Mounted without charge only when ordered with new lathe. Includes instructions for field mounting.

FOR BED TURRET AND COOLANT EQUIPMENT, SEE PAGE 13.

DELTA

VERTICAL MILLING MACHINE

Will Capably Meet Your Needs On Every Job!

Here's Why . . .

GREATER ACCURACY

All operating parts are manufactured to very close tolerances, then *quality control* tested to assure the highest machine tool standards of accuracy.

DESIGNED FOR DURABILITY

One-piece head and ram . . . five ball bearing supported spindle in 3" diameter quill . . . large ¾" ways typify the heavy duty construction that guarantees long life and trouble-free performance.

ADDED CONVENIENCE

Every operating lever, crank and control is conveniently positioned for operational ease and to speed up production.

PROVEN RELIABILITY

More than 35 years' experience in designing and building the finest metalworking machines for industry everywhere stands behind the all-new Detal Milling Machine. It's your guarantee that, when you buy a DELTA, *you have bought the best!*

STANDARD EQUIPMENT

Basic Milling Machine includes storage type cabinet base with door, combination spindle brake and lock, draw bolt for collets, V-belt and motor pulley with 5/8" bore. When ordered with a new machine, the electricals are mounted without charge but are not included in the price of the basic machine.

CATALOG LISTING

BASIC MACHINE (less electricals)
VERTICAL MILLING MACHINE with cabinet base, V-belt and motor pulley, 5/8" bore. 750 lbs. **NO. 21-100**

MOTORS AND MOTOR CONTROLS

MOTOR, 1/2 HP, single phase, capacitor start, guarded drip-proof enclosure, 5/8" shaft, 1725 rpm, 115/230V, 60 cy. Without switch or power cord. 28 lbs. **NO. 62-510**

MOTOR, 1/2 HP, single phase, capacitor start, guarded drip-proof enclosure, 5/8" shaft, 1140 rpm, 115/230V, 60 cy. Without switch or power cord. 45 lbs. **NO. 62-530**

MOTOR, 3/4 HP, single phase, capacity start, guarded drip-proof enclosure, 5/8" shaft, 1725 rpm, 115/230V, 60 cy. Without switch or power cord. 38 lbs. **NO. 62-550**

MOTOR, 1/2 HP, three phase, guarded drip-proof enclosure, 5/8" shaft, 1425/1725 rpm, 208-220/440V, 50/60 cy. Without switch or power cord. 25 lbs. **NO. 66-510**

MOTOR, 1/2 HP, three phase, guarded drip-proof enclosure, 5/8" shaft, 960/1140 rpm, 208-220/440V, 50/60 cy. Without switch or power cord. 32 lbs. **NO. 66-530**

MOTOR, 3/4 HP, three phase, guarded drip-proof enclosure, 5/8" shaft, 1425/1725 rpm, 208-220/440V, 50/60 cy. Without switch or power cord. 32 lbs. **NO. 66-550**

8-FOOT POWER CORD with 3-prong 115V grounding type plug. 2 lbs. **NO. 49-357**

MANUAL CONTROL REVERSING DRUM SWITCH KIT. Includes junction box with mounting bracket and wiring to connect to motor. 3 lbs. **NO. 25-806**

REVERSING DRUM SWITCH for Magnetic Starters. 2 lbs. **NO. 49-392**

OVERLOAD SWITCH. Used with 25-806 Switch. Specify motor number and voltage when ordering. 3 lbs. **NO. 49-365**

MAGNETIC STARTER. For 60 cy, 208-220V only. Used with 49-392 Switch. Specify motor number when ordering. 6 lbs. **NO. 49-396**

MAGNETIC STARTER. For 60 cy, 440V only. Used with 49-392 Switch. Specify motor number when ordering. 6 lbs. **NO. 49-397**

SWITCH RECOMMENDATIONS

1. **Without Overload and Low-voltage Protection:** Order 25-806. (Add 49-357 for 115V single phase installation.)
2. **With Overload Protection:** Order 25-806 and 49-365. (Add 49-357 for 115V single phase installation.)
3. **With Overload and Low-voltage Protection:** Order 49-392 and either 49-396 or 49-397.

MACHINE DATA

TABLE

Working Surface	6½ x 24"
No. of T-Slots	on Front—1; on Top—3
Size of T-Slots	on Front—5/16"; on Top—7/16"
Spacing of T-Slots (Center to Center)	2"
Height from Floor (Lowest Position)	35"

RANGE

Table Longitudinal Travel	16"
Table Cross Travel	6¾"
Table Vertical Travel	16½"
Spindle Nose to Table	0 to 16½"
Spindle ℄ to Column V-ways	2⅝" to 11¼"

SPINDLE

Spindle Taper	R8
Hole Through Spindle	7/16"
Number of Bearings	5
Number of Splines	6

SPEEDS

With 1725 RPM Motor	370, 700, 1170, 2440, 4420 and 6300 rpm
With 1140 RPM Motor	245, 470, 780, 1620, 2940 and 4200 rpm

QUILL

Diameter	3"
Stroke	2½"
Feed	Choice of Rapid or Fine Feed

MOTORS

NEMA C Face Frame (Special)	56
Horsepower Recommended	½ or ¾
Speeds Recommended (RPM)	1725 or 1140
Special Shaft Length (from Face of Flange)	4-3/32"

OVERALL DIMENSIONS

Height (Including ½ HP Motor)	73½"
Width	37¾"; Front to Rear 33¾"

CABINET BASE DIMENSIONS

Width	17½"
Front to Rear	26½"

LUGS (FOUR) FOR LAGGING TO FLOOR

Centers, Left to Right	18¾"
Centers, Front to Rear	19⅞"
Size of Hole in Lugs	7/16"

SHIPPING WEIGHT WITH ELECTRICALS
(Approx.) 780 lbs.

DO MORE JOBS WITH THESE DELTA MILLING MACHINE ACCESSORIES

HEAD FOR MILLING MACHINE, complete. Includes head with ram, spindle and quill, spindle brake and lock, feed parts, belt guard, pulleys, V-belt, motor mounting plate and draw-bolt for collets. Less electricals. 128 lbs. **NO. 21-815**

GUARDS (two) for side openings of belt guard. 2 lbs. **NO. 21-813**

MACHINE VISE, "Low Boy" design, 4" maximum opening. Includes 360° swivel base, 1¼" x 4½" steel jaws, crank type wrench and two removable 7/16" keys for table slot. 23 lbs. **NO. 21-811**

UNIVISE, with 1½" jaw opening. Holds work piece at any angle by means of four rotating joints. Includes two removable 7/16" keys for table slot. 16 lbs. **NO. 24-902**

COLLETS, set of six, from 1/8" to 7/16" by 16ths, style R8. 9 lbs. **NO. 21-800**

COLLETS, set of five, from 1/2" to 3/4" by 16ths, style R8. 7 lbs. **NO. 21-810**

COLLET, one only, available from 1/8" to 3/4" by 16ths, style R8. (Specify No. 21-812 and size desired.) 2 lbs. **NO. 21-812**

3/16" END MILL HOLDER, style R8. 2 lbs. **NO. 21-803**


NO. 21-815


NO. 21-812

NO. 21-802


NO. 21-806


NO. 21-813


NO. 24-902


NO. 21-811


NO. 25-857

3/8" END MILL HOLDER, style R8. 2¼ lbs. **NO. 21-804**

1/2" END MILL HOLDER, style R8. 2½ lbs. **NO. 21-805**

5/8" END MILL HOLDER, style R8. 2¾ lbs. **NO. 21-806**

***3/4" END MILL HOLDER,** style R8. 3 lbs. **NO. 21-807**

***7/8" END MILL HOLDER,** style R8. 3¼ lbs. **NO. 21-808**

***1" END MILL HOLDER,** style R8. 3½ lbs. **NO. 21-809**

ARBOR, for drill chucks with No. 3 Jacobs female taper, style R8. 3 lbs. **NO. 21-801**

ARBOR, for drill chucks with No. 33 Jacobs female taper, style R8. 3 lbs. **NO. 21-802**

LAMP ATTACHMENT with 15" flexible gooseneck. Includes nylon shield, mounting bracket, switch and 8-foot cord with 2-prong 115V plug. Uses standard bulb (not included) up to 100 watts. 2 lbs. **NO. 25-857**

V-BELT, 28⅛" O. C. 1 lb. **NO. 272**

MOTOR PULLEY, 6-step, 5/8" bore. 4 lbs. **NO. 41-893**

***NOTE: For single end mills only.**

FOR COOLANT EQUIPMENT, SEE PAGE 13.

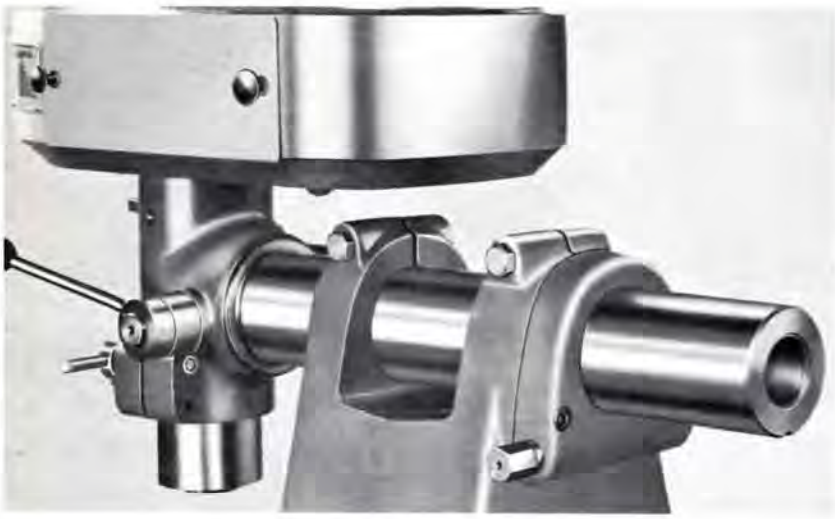
ADVANCED FEATURES THAT MAKE THE ACCURATE . . .

UNIQUE WORM AND GEAR TILTING MECHANISM

Tramming the table for perfect 90° positioning of the spindle can be accomplished easily with the worm and gear tilting mechanism. Fine adjustment for tilting the spindle to any angle is easily achieved without danger of the head falling. Motor and belt guard can be swivelled around a circle, eliminating interference when the spindle is tilted beyond a horizontal position.

CLOSE-COUPLED DRIVE

Smooth operation with full power at the spindle results from the close belt centers. Dynamically balanced pulleys are made from cast iron for long life. The extra weight of cast iron provides a fly-wheel type action for very smooth cutting. Motor swivels to release tension on the belt for easy speed changing. Handy speed chart shows correct belt settings.



HEAD AND RAM CAST IN ONE PIECE, QUILL PRECISION FIT INTO HEAD

Notice the widely spaced clamps which rigidly hold the heavy 3⅛" diameter ram. The ram, with its 13/16" wall, is integrally cast with the head, virtually eliminating all deflection of the head.

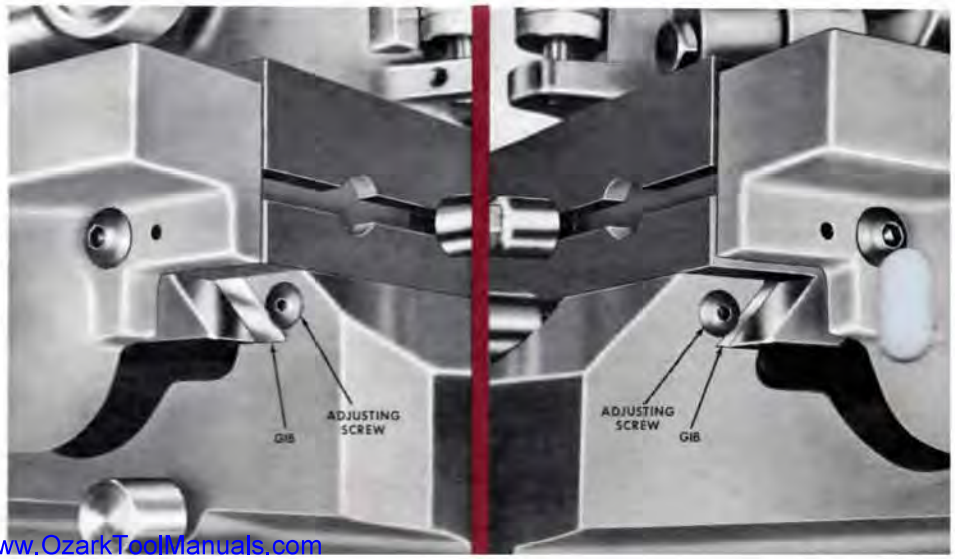
Quill slides snugly in precision bored lands inside head. Head design permits adjustment to compensate for quill wear after long use. New machine accuracy is maintained without need for replacing head and quill.

BIG TABLE, MASSIVE SADDLE, EASY-TO-READ MICROMETER COLLARS

Large 2¼" x 6½" x 24" table has 156 square inches of working surface. Table travels on large, precision ground, ¾" dove-tail ways, supported by a massive saddle. Handy table end trays gather chips, provide convenient storage for tools and collect coolant. The single handle lock feature and the ease of adjusting the rugged stops add convenience in operation. Micrometer collars have deep cut .001" calibrations; screw feeds table .200" for each rotation of hand wheel.

LARGE, PRECISION GROUND ¾" DOVE-TAIL WAY CONSTRUCTION THROUGHOUT

Table, saddle and knee slide on precision ground ¾" ways with accurately fitted, tapered gibs. Photos of tapered gib for table clearly shows the **dual adjustment** feature using two adjusting screws, one at each end of the gib. Accurate adjustment of all gibs is possible, with absolutely no end play as found with the conventional adjustment feature using a single screw working in a slot-type, tapered gib.



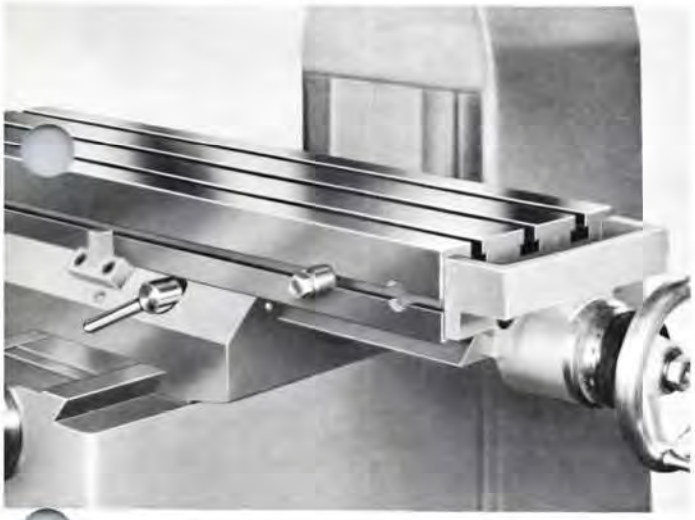
NEW DELTA VERTICAL MILLING MACHINE
CONVENIENT . . . DURABLE

MASSIVE BOX TYPE KNEE

Enclosed, box type knee, with its internal ribbing and cross bracing, provides a solid support for the saddle and table. Knee has full length engagement with the column dove-tail slide throughout its entire vertical travel. The heavy ball bearing elevating screw operates easily, even when supporting heavy work pieces. Seven ball bearings in all support the elevating screw, the elevating crank shaft and the two table feed screws.

CONVENIENT CONTROLS

All controls are located "up front," readily accessible to the operator. The optional lever type rapid feed or the wheel type fine feed adds convenience plus the extra accuracy needed for operations like boring to a specified depth. Heavy stop allows repeated machining to same depth. Lever at upper left actuates combination spindle lock and brake.



LARGE SPINDLE AND MASSIVE QUILL

The heavy, six-spline spindle is supported on five ball bearings in a large 3" diameter quill. Quill is **hard chrome plated,** guaranteeing long machine life with consistent, new machine accuracy. Spindle takes R8 collets with up to ¾" capacity.

SPACIOUS STORAGE CABINET

Large 17½" wide by 26½" deep cabinet, with thick plywood shelf, serves as an excellent storage space. It is ideal for holding cutting tools, jigs, fixtures, gauges, collets, etc. Hinged door on left of cabinet base offers added safety when used by the operator. Lugs are drilled for lagging machine to floor, if desired.

DELTA MOTORS

DESIGNED SPECIFICALLY FOR DELTA LATHES AND MILLING MACHINES — PROVIDE MAXIMUM EFFICIENCY IN OPERATION

These dependable motors are comparatively low in cost—but they are NOT built down to a price. Quality has been maintained throughout. They are the finest motors obtainable at anywhere near their price!

Here's Why Delta Motors Give Long Life and Dependable, Trouble-Free Service

- All ball bearings are sealed and lubricated for life. Bearing designs permit Delta Motors to be mounted either vertically or horizontally.
- Motor enclosures are designed to offer the maximum safety possible under all operating conditions.
- All Delta Motors comply with or exceed the maximum motor manufacturing power standards (breakdown torque) as established by the National Electrical Manufacturers Association (NEMA).
- All double-shaft motors are supplied with one shaft guard for maximum safety to the operator.
- Motor windings have high grade insulation and are carefully wound and tested.
- Accurately balanced rotors insure smoothness of operation and prevent destructive vibration.
- Well designed ventilating systems assure cool operating motors, thus providing adequate overload capacity and longer motor life.

SPECIFICATIONS FOR DELTA SINGLE-PHASE CAPACITOR START MOTORS

(115V cord and plug set supplied with motor is grounding type with 3-prong plug.)

Number	H.P.	R.P.M.	Volts	Cycles	Shaft	Frame Size	Switch	Cord & Plug	Temp. Rise	Enclosure	Usage	Wt.
62-510	½	1725	115/230	60	⅝" Single	NEMA 56C Spl	None	No	40°C	Guarded Drip-proof	Milling Machine	28
62-530	½	1140	115/230	60	⅝" Single	NEMA 56C Spl	None	No	70°C	Guarded Drip-proof	Milling Machine	45
62-550	¾	1725	115/230	60	⅝" Single	NEMA 56C Spl	None	No	40°C	Guarded Drip-proof	Milling Machine	38
62-710	¾	1725	115/230	60	⅝" Single	No. 6	None	Yes	40°C	Guarded Drip-proof	10" Metal Lathe	45
62-770	¾	1725	115/230	60	⅝" Single	No. 6	None	Yes	55°C	TEFC	10" Metal Lathe	45
83-210	1	1725	115/230	60	¾" Single	No. 8½	None	No	40°C	Guarded Drip-proof	11" Metal Lathe	55
*83-212	1	1140	115/230	60	¾" Single	No. 8½	None	No	40°C	Guarded Drip-proof	11" Metal Lathe	55
*83-220	1	1425	115/230	50	¾" Single	No. 8½	None	No	40°C	Guarded Drip-proof	11" Metal Lathe	55
*83-249	1	1725	208	60	¾" Single	No. 8½	None	No	40°C	Guarded Drip-proof	11" Metal Lathe	55
93-610	2	1725	115/230	60	¾" Single	No. 8½	None	No	60°C	Guarded Drip-proof	14" Metal Lathe	79

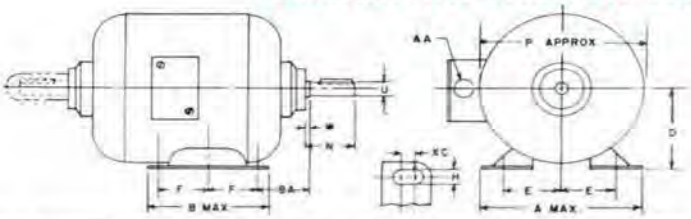
SPECIFICATIONS FOR DELTA 3-PHASE MOTORS

66-510	½	1425/1725	208-220/440	50/60	⅝" Single	NEMA 56C Spl	None	No	40°C	Guarded Drip-proof	Milling Machine	25
66-530	½	960/1140	208-220/440	50/60	⅝" Single	NEMA 56C Spl	None	No	60°C	Guarded Drip-proof	Milling Machine	32
66-550	¾	1425/1725	208-220/440	50/60	⅝" Single	NEMA 56C Spl	None	No	40°C	Guarded Drip-proof	Milling Machine	32
66-710	¾	1425/1725	208-220/440	50/60	⅝" Single	No. 6	None	No	40°C	Guarded Drip-proof	10" Metal Lathe	35
66-770	¾	1425/1725	208-220/440	50/60	⅝" Single	No. 6	None	No	55°C	TENV	10" Metal Lathe	45
86-920	1	1425/1725	208-220/440	50/60	¾" Double	No. 8½	None	No	40°C	Guarded Drip-proof	11" Metal Lathe	56
86-922	1	1140	208-220/440	60	¾" Double	No. 8½	None	No	40°C	Guarded Drip-proof	11" Metal Lathe	55
87-120	1½	1425/1725	208-220/440	50/60	¾" Double	No. 8½	None	No	40°C	Guarded Drip-proof	11" Metal Lathe	80
96-320	2	1425/1725	208-220/440	50/60	¾" Single	No. 8½	None	No	40°C	Guarded Drip-proof	14" Metal Lathe	60
96-342	2	1425/1725	208-220/440	50/60	⅞" Single	NEMA 184	None	No	55°C	TEFC	14" Metal Lathe	70
96-350	2/1	1725/850	208-220	60	1⅛" Single	NEMA 213	None	No	40°C	Guarded Drip-proof	14" Metal Lathe	100
96-351	2/1	1725/850	440	60	1⅛" Single	NEMA 213	None	No	40°C	Guarded Drip-proof	14" Metal Lathe	100
96-620	3	1425/1725	208-220/440	50/60	1⅛" Single	NEMA 213	None	No	40°C	Guarded Drip-proof	14" Metal Lathe	101
96-640	3	1425/1725	208-220/440	50/60	1⅛" Single	NEMA 213	None	No	55°C	TEFC	14" Metal Lathe	120

Write for information on available motors not listed. Such motors, when ordered special, are not subject to cancellation.

*Not warehoused, available on special order only.
TENV—totally enclosed, non-ventilated.
TEFC—totally enclosed, fan cooled.

DIMENSIONAL DATA ON DELTA MOTORS



Motor Frame	A Max	AA*	B Max	BA	D	E	F	H	N-W	P	U	XC
Delta No. 6	6 5/16	½	4¾	2	3¼	2½	1 15/16	⅜	1⅞	6	⅝**	17/32
Delta No. 8½	8⅜	½	5	3 17/32	4½	3 3/16	1⅞	7/16	2¼	8½	¾†	⅜
NEMA 56 C Spl.	—	½	—	—	—	—	—	—	3⅞	6½	⅝**	—
NEMA 184	9	¾	7½	2¾	4½	3¾	2¾	11/32	2¼	8½	⅞†	—
NEMA 213	10½	¾	7½	3½	5¼	4¼	2¾	11/32	3	10⅛	1⅛‡	—

*All motors listed are supplied with external junction boxes.

**Supplied with 3/16 x 3/16 x 1¼" key.

†Supplied with 3/16 x 3/16 x 1⅜" key.

‡Supplied with ¼ x ¼ x 2" key.

DELTA CONTROLS & WIRING KITS

For application of controls and wiring kits, refer to controls and wiring kits listed on product pages.

Write to factory for information on available motor controls and wiring kits not listed. Such items, when ordered special, are not subject to cancellation.

Manual—Single and 3-Phase—Single Speed

Manual Control Reversing Push Button Switch Kit. For use with single-phase motors up to 1 HP, AC, 125-250V. Kit includes switch, wiring, mounting parts, wiring diagram and everything needed for connecting between No. 83-210, 86-920 or 87-120 Motor and switch on 11" Metal Lathe. **NO. 25-505**

Manual Control Reversing Drum Switch Kit. For use with single-phase or DC motors up to 1 HP, AC-DC, 125-250V. Kit includes switch, wiring, mounting parts, wiring diagram and everything needed for connecting between No. 83-210, 86-920 or 87-120 Motor and switch on 11" Metal Lathe. **NO. 25-506**

Manual Control Reversing Drum Switch Kit. For use with No. 62-710 or No. 66-710 Lathe Motor, all Milling Machine Motors and when overload protection is required No. 49-365 Overload Switch. Kit includes drum switch, junction box with mounting bracket, wiring, wiring diagram and everything needed for connecting between switch and motor on 10" Metal Lathe and Milling Machine. **NO. 25-806**

Manual Control Reversing Drum Switch Kit. For use with No. 93-610, No. 96-320 or No. 96-342 Motor. Kit includes drum switch, wiring, mounting parts, wiring diagram and everything needed for connecting between switch and motor on 14" Metal Lathe. **NO. 49-420**

*Manual Control Reversing Drum Switch Kit with overload protection. For use with No. 93-610, No. 96-320 or No. 96-342 Motor. Kit consists of the No. 49-420 Kit and No. 49-365 Overload Switch for 14" Metal Lathe. **NO. 49-421**

Manual Control Reversing Drum Switch Kit. For use with No. 93-610, No. 93-620, No. 96-342, No. 96-620 or No. 96-640 Motor. Kit includes drum switch, wiring, mounting parts, wiring diagram and everything needed for connecting between switch and motor on 14" Metal Lathe. **NO. 49-432**

*Manual Control Reversing Drum Switch Kit with overload protection. For use with No. 93-610, No. 96-320, No. 96-342, No. 96-620 or No. 96-640 Motor on 14" Metal Lathe. Kit consists of the No. 49-432 Kit and No. 49-365 Overload Switch. **NO. 49-433**

Manual—3-Phase—2-Speed

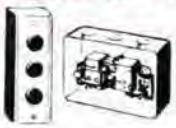
Manual Control Reversing Drum Switch Kit. For use with No. 96-350 or No. 96-351 two-speed motor. Kit includes drum switch, wiring, mounting parts, wiring diagram and everything needed for connecting between switch and motor on 14" Metal Lathe. **NO. 49-427**

*Manual Control Reversing Drum Switch Kit. For use with No. 96-350 or No. 96-351 Motor. Kit includes drum switch and two No. 49-365 Overload Switches and wiring diagram for use with two-speed motors on 14" Metal Lathe. **No. 49-428**

Overload Switch—Single and 3-Phase

Overload Switch. Two-pole type, rated single-phase, 1½ HP, 115 V; 3 HP, 230 V; rated 3 phase, 5 HP, 208 to 550 V. To insure that correct heater coils are supplied, specify motor number, RPM, phase and voltage when ordering. **NO. 49-365**

Magnetic—3-Phase—Single Speed



Magnetic Control Push Button Switch and Reversing Magnetic Starter Kit for 11" Metal Lathe. For use with 440V, 60 cy, 3-phase motors up to 1 HP. Kit includes switch, wiring, mounting parts, wiring diagram and everything needed for connecting between No. 86-920 Motor and switch. Starter provides motor with overload, low voltage and no voltage protection. **NO. 25-504**

Magnetic Control Push Button Switch and Reversing Magnetic Starter Kit for 11" Metal Lathe. Same as 25-504 except 208-220 V. **NO. 25-507**

Magnetic Starter, 3 phase, size 0, NEMA type 1 enclosure, rated 3 HP, 208-220 V, 60 cy, AC. Supplied with reset button only. Separate start-stop control station must be used. Starter provides motor with overload, low voltage and no voltage protection. Specify motor number when ordering. **NO. 49-396**

Magnetic Starter, 3 phase, size 0, NEMA type 1 enclosure, rated 5 HP, 440 V, 60 cy, AC. Supplied with reset button only. Separate start-stop control station must be used. Starter provides motor with overload, low voltage and no voltage protection. Specify motor number when ordering. **NO. 49-397**

Magnetic—Single and 3-Phase—Single Speed

*Magnetic Control Drum Switch Kit, 208-230 volt only, for 14" Metal Lathe. For use with Nos. 93-610, 96-320 or 96-342 Motor. Kit consists of the No. 49-420 Kit and No. 49-396 Magnetic Starter. **NO. 49-422**

*Magnetic Control Drum Switch Kit, with reversing magnetic starter including 208-220/440 to 110 volt transformer. For use with Nos. 93-610, 96-320, 96-342, 96-620 and 96-640 Motors. Includes drum switch, reversing starter with transformer and wiring diagrams. **NO. 49-423**

*Magnetic Control Push Button Switch Kit, with reversing magnetic starter including 208-220/440 to 110 volt transformer. For use with Nos. 93-610, 96-320, 96-342, 96-620 and 96-640 Motors. Includes push button switch, reversing starter with transformer, mounting parts and wiring diagrams. **NO. 49-424**

*Magnetic Control Drum Switch Kit, 208-230 volt only, for 14" Metal Lathe. For use with Nos. 96-610, 96-320, 96-342, 96-620 and 96-640 Motors. Kit includes No. 49-432 Kit and No. 49-396 Magnetic Starter. **NO. 49-434**

Magnetic Control Drum Switch Kit for 10" Metal Lathe and Milling Machine. For use with all Milling Machine and 10" Metal Lathe Motors and No. 49-396 or 49-397 Magnetic Starter. Kit includes drum switch and wiring diagrams. **NO. 49-392**

Magnetic—3-Phase—Two-Speed

*Magnetic Control Drum Switch Kit, 208-220/440 volt, for 14" Metal Lathe. For use with Nos. 96-350 or 96-351 Motor. Kit includes switch, magnetic starter, wiring diagrams, wiring and mounting parts between motor and drum switch. **NO. 49-429**

*Magnetic Control Drum Switch Kit, with two reversing magnetic starters including 208-220/440 to 110 volt transformer. For use with Nos. 96-350 or 96-351 Motor. Includes switch, reversing magnetic starters and wiring diagrams. **NO. 49-430**

Power Cord and Plug Set

Consists of 8-foot long #16—3 conductor cord with a 3-prong 115 V grounding plug. For use with single phase motors up to 1 HP on 115 V. **NO. 49-357**

Lathe Accessories That Increase Safety and Speed Production

Safety Spindle Brake and Electrical Disconnect Switch Kit for 14" Metal Lathe. This kit makes the lathe safer and speeds production work. When the brake lever is pushed, the power is cut off and the spindle stops. A separate button starts the lathe again *in the same direction*. Recommended for use with Magnetic Control Kits Nos. 49-422, 49-423, 49-429, 49-430 and 49-434. Includes braking mechanism, disconnect and start switches, mounting parts and wiring diagrams for field mounting. Mounted without charge but not wired when ordered with a new lathe. **NO. 25-265**

Magnetic Starter Safety Electrical Disconnect Switch Kit for 11" Metal Lathe. This kit, when used with a three-phase magnetic starter, automatically shuts off motor when gear train guard is swung open. Motor remains off even when cover is closed until start button is depressed. Includes disconnect switch, wiring, mounting parts, wiring diagram and everything needed for connecting between switch and motor. Designed for field mounting. **NO. 25-513**

Magnetic Starter Safety Electrical Disconnect Switch Kit for 11" Metal Lathe. Same as 25-513 but price includes charge for mounting at factory when ordered as original equipment on new lathes. **NO. 25-514**

Magnetic Starter Safety Electrical Disconnect Switch Kit for 10" Metal Lathe. This kit, when used with a three phase magnetic starter, automatically shuts off the motor when headstock cover is swung open. Motor remains off, even when cover is closed, until start button is depressed. Includes switch, mounting parts and wiring diagrams for field mounting. **NO. 25-813**

Magnetic Starter Electrical Disconnect Switch Kit for 10" Metal Lathe. Same as No. 25-813 but price includes charge for mounting at factory when ordered as original equipment on new lathes. **NO. 25-814**

***Specify motor number and voltage when ordering.**

For further information on Rockwell Machine Tools, contact:

In the United States, Mexico and Puerto Rico:
ROCKWELL MANUFACTURING CO.
400 N. Lexington Avenue, Pittsburgh, Pa. 15208

In Canada:
ROCKWELL MANUFACTURING CO. OF CANADA, LTD.
P. O. Box 978, Montreal, Quebec

All other countries:
ROCKWELL INTERNATIONAL, S.A.
81 Rue de la Servette, Geneva, Switzerland

Cable Address: ROCKINT
with agents and distributors throughout the world

Rockwell
MANUFACTURING COMPANY

AD-1177 Rev-2
2Y 7/63 (11)

Printed in U.S.A.

ROCKWELL POWER TOOL DIVISION

SPECIFICATION GUIDE SHEET

DELTA

VERTICAL MILLING MACHINE

MACHINE DATA

Table

Working Surface	6½ x 24"
No. of T-Slots	on Front—1; on Top—3
Size of T-Slots	on Front—⅜"; on Top—⅞"
Spacing of T-Slots, (Center to Center)	2"
Height from Floor, (Lowest Position)	35"

Range

Table Longitudinal Travel	16"
Table Cross Travel	6¾"
Table Vertical Travel	16½"
Spindle Nose to Table	0 to 16½"
Spindle ℄ to Column V-ways	2⅝" to 11¼"

Spindle

Spindle Taper	R8
Hole Through Spindle	⅞"
Number of Bearings	5
Number of Splines	6

Speeds

With 1725 RPM Motor	370, 700, 1170, 2440, 4420 and 6300 rpm

Quill

Diameter	3"	Stroke	2½"
Feed	Choice of Rapid or Fine Feed		

Overall Dimensions

Height (including ½ HP Motor)	73½"		
Width	37¾"	Front to Rear	33¾"

Cabinet Base Dimensions

Width	17½"	Front to Rear	26½"

BID SPECIFICATION FOR ACTUAL USE OR EXACT COPY:

Vertical Milling Machine: motor to be flange mounted above a 3¼" diameter ram; to have a single belt, close-coupled drive for rigidity and high torque transfer; spindle brake and lock to be standard equipment for safety; spindle to run in vertical or horizontal position without incurring lubrication problems; quill to be hard chrome plated to assure prolonged new machine accuracy and be at least 3" in diameter; spindle to take R8 collets with ¾" capacity; 1" diameter 6-spline spindle must not project above guard at any time; cast iron 5-step pulleys to be fully machined and balanced; ram and head casting to be single unit construction (not bolted together) to virtually eliminate all deflection of head; to have worm and gear tilting mechanism with fine adjustment for tilting spindle safely to any angle; tilt scale and locking bolts to be located on same side of machine; table, saddle and knee to slide on precision ground ¾" ways with accurately fitted, tapered gibs; tapered gibs to have adjusting screws at each end for accurate adjustment with absolutely no end play; angle of dove tail ways to be 50°; table to be equipped with coolant trays at each end; all feed screws must operate on ball bearings for ease of operation; ball bearing elevating screw to be enclosed by knee casting; knee to retain full bearing contact with column slide when in fully lowered position; cast iron base must be at least 17" x 26" and have built-in coolant tray; cabinet base to provide for convenient storage; column to be single-piece cast iron for maximum rigidity; motors must comply with or exceed National Electrical Manufacturers Association (NEMA) standards; machines and major accessories to be shipped with complete parts and instruction manuals; manufacturer to have available a line of key accessories for each machine offered. Specific model to be Delta number:

No. 21-100 _____ Vertical Milling Machine, including cabinet base, V-Belt and Motor Pulley, ⅝" bore (less motor and controls).
No. 21-813 _____ Guards for side openings in head.

Specific motor and controls to be (choose one motor and appropriate controls):

1 Phase Motors

No. 62-510 _____ ½ HP Motor
No. 62-550 _____ ¾ HP Motor (One Required)
No 49-357 _____ Cord and Plug (Required)

1 Phase Manual Controls

No. 25-806 _____ Manual Control Reversing Drum Switch Kit (Required)
No. 49-365 _____ Overload Switch (Optional)

3 Phase Motor

No. 66-510 _____ ½ HP Motor
No. 66-550 _____ ¾ HP Motor (One Required)

3 Phase Manual Controls

No. 25-806 _____ Manual Control Reversing Drum Switch Kit (Required)
No. 49-365 _____ Overload Switch (Optional)

3 Phase Magnetic Controls

No. 49-392 _____ Magnetic Control Reversing Drum Switch Kit (Required)
No. 49-396 _____ Magnetic Starter (208-220V)
No. 49-397 _____ Magnetic Starter (440V) (One Required)

See latest Rockwell Machine Tool Catalog for other basic units, electrical variations and accessories available for this unit.

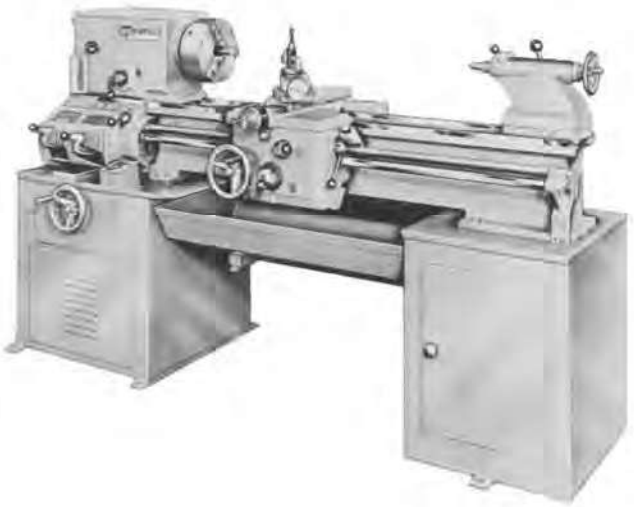
Printed in U.S.A.

ROCKWELL POWER TOOL DIVISION

SPECIFICATION GUIDE SHEET

DELTA

14" METAL LATHE



MACHINE DATA

Capacity:
- Swing over bed and saddle wings ..... 14¼"
- Swing over cross slide ..... 9⅛"
- Between centers (tailstock completely on bed) ..... 41"
- Hole through spindle ..... 1⅜"
- Maximum capacity with 5-C style collet ..... 1⅛"

Spindle Speeds (with 1725 r.p.m. motor)
- Infinite choice of speeds in direct drive ..... 210-1600 r.p.m.
- Infinite choice of speeds in gear drive ..... 40-265 r.p.m.

Threads and Feeds:
- Quick change gear box has 54 thread changes ..... L.H. or R.H.
- Lead screw (no keyway) ..... 1" dia. Acme x 8 t.p.i.
- Feed rod ..... ¾" hex.

Headstock:
- Spindle (heat treated and ground alloy steel)
  - Center used ..... No. 3 M.T.
  - Taper hole in nose ..... Mod. No. 5 M.T.
  - Spindle nose, Long taper key drive, size L-00

Carriage:
- Length of saddle V-way ..... 16"
- Width of saddle bridge ..... 4¾"
- Cross slide travel ..... 8"
- Compound slide travel ..... 4¾"
- Tool Post Opening (takes standard tool holders for ⅜" bits) ..... 1⅛" x 1⅞"
- Compound Slide ..... graduated 90° in both directions with three witness marks

Tailstock (has automatic center ejection)
- Ram diameter ..... 1-15/32" Ram travel ..... 5½"
- Length of graduations marked on ram by ⅛ths ..... 5½"
- Center used ..... No. 3 M.T.
- Set-over (either direction) ..... ¾"

BID SPECIFICATION FOR ACTUAL USE OR EXACT COPY:

14" Metal Cutting Lathe: to have perfected variable speed drive with speeds from 40 to 1600 RPM incorporating matched V-belts to the spindle for high torque transmission; to offer instant change from longitudinal to cross feed while cut is in progress; direction of lead screw to be reversible, while unit is running, for operator convenience and protection of quick change gear box; clutch to be cone type for quick action; apron to have safety lock out feature to prevent simultaneous setting for power feeding and threading; to have separate lead screw and feed rod for continued accuracy; compound and cross feed to have easy-to-read, direct reading micrometer collars; bed to be at least 9⅝" wide and 9½" deep, with precision ground V and flat ways; bed bracing to be stress engineered for permanent accuracy; tail stock to have a lever controlled cam action clamp and micrometer collar; thread chasing dial to be standard equipment; oil bath apron to be double-wall construction and have oil level sight gage; headstock gears to run in oil bath and have oil level sight gage; to have double-row, precision ball bearings at spindle nose and one floating precision ball bearing at outboard end of spindle to compensate for spindle expansion; to have positive lock out to prevent engaging back gears and direct drive simultaneously, when machine is running, for safety and long machine life; motors to comply with or exceed National Electrical Manufacturers Association (NEMA) standards; machines and major accessories to be shipped with complete parts and instruction manuals; manufacturer to have available a complete line of accessories for each machine offered. Specific model to be Delta number:

No. 25-200 _____ Standard Bed, L-00 Spindle Nose.

No. 25-210 _____ Hardened Bed, L-00 Spindle Nose.

Specific motor and controls to be (choose one motor and appropriate controls):

3 Phase Motors

No. 96-320 _____ 2 HP Motor
No. 96-620 _____ 3 HP Motor
(one required)

Specify voltage: 208V_____, 220 V _____, 440V_____ for motor and controls.

Machine(s) to include the following accessories:

No. 25-220 _____ Power driven spindle speed changer.

No. 25-221 _____ Tachometer.

No. 25-222 _____ Taper attachment, telescoping type.

No. 25-265 _____ Safety Spindle Brake with electrical disconnect and start switches (used with magnetic controls only).

3 Phase Manual Controls

No. 49-420 _____ Drum Switch Kit for 2 HP Motor

No. 49-432 _____ Drum Switch Kit for 2 and 3 HP Motors (one required)

No. 49-365 _____ Overload Switch (optional)

3 Phase Magnetic Controls

No. 49-422 _____ Drum Switch Kit and Magnetic Starter for 208-220V, 2 HP Motors

No. 49-434 _____ Drum Switch Kit and Magnetic Starter for 208-220V for 2 and 3 HP Motors

No. 49-423 _____ Drum Switch Kit and Reversing Magnetic Starter including 110V Transformer for 2 and 3 HP Motors (one required)

See latest Delta Lathe Catalog for other basic units, electrical variations and accessories available for this unit.

Form No. 25-14 (15)

Printed in U.S.A.

QUALITY CONTROL CERTIFICATE

Rockwell MANUFACTURING COMPANY
POWER TOOL DIVISION

DELTA 14" METAL CUTTING LATHE

CATALOG NUMBER ..... INSPECTED BY .....

SERIAL NUMBER ..... DATE .....

This Delta 14" Metal Cutting Lathe is a precision machine tool, modern in design and built to highest quality standards. Before it left our factory it had to pass more than 50 tests for dynamic balance, accuracy and ease of operation. Some of these test results are reported here to show you the quality built into your particular lathe.

The Delta 14" Metal Lathe is built to give you many years of good service. PLEASE STUDY THE INSTRUCTION MANUAL CAREFULLY BEFORE OPERATING THE LATHE. Keep the lathe clean, well lubricated and in proper adjustment. **The accuracy of the work it produces depends on you.**

Dial Indicator Inspection*

	TEST	Limit Allowed	This Lathe
1.	Spindle Nose Runout (Indicator on O.D. of Taper)	.0004 T.I.R.	
2.	Spindle Taper Hole Runout—Test Bar in Spindle Hole—Indicate at End of Spindle Nose	.0004 T.I.R.	
3.	Spindle Taper Runout—Test Bar in Spindle Hole—Indicate 12" from Spindle Nose	.0008 T.I.R.	
4.	Spindle Alignment with Bed Ways—Vertical—Along 12" of Test Bar—High at End of Bar	0 to .001	
5.	Spindle Alignment with Bed Ways—Horizontal—Along 12" of Test Bar	± .0005	
6.	Vertical Alignment of Head and Tail Centers (High at Tailstock)	0 to .003	
7.	Cross Slide Alignment—to Face Hollow or Concave only on 12" Diameter (6" R.)	.001	
8.	Lead Screw Cam Action	.0004	
9.	Cross Feed Screw Backlash (8 Marks on Micrometer Collar)	.004	
10.	Compound Feed Screw Backlash	.004	
11.	Tailstock Feed Screw Backlash	.010	
12.	Bed Level—using Spirit Level in Transverse Direction	.0005 in 12"	
13.	Lead Screw Alignment—Horizontal—End to End	.004	
14.	Lead Screw Alignment—Vertical—End to End	.004	
15.	Cam Action of Spindle	.0005 T.I.R.	

Additional Inspection

	TEST	Check If O.K.
1.	Travel of Carriage Full Length of Bed, using Handwheel.	
2.	Lead Screw—Lead per Foot ± .0015 and Lead in any 4" ± .0005.	
3.	Lead Screw Control Lever (Forward, Neutral, Reverse).	
4.	Functioning of Half Nuts (Lathe Running).	
5.	Lock-out Device for Half Nuts.	
6.	Quick Change Gear Box—Check for Noise or Vibration with Lathe Running.	
7.	Graduations on Three Micrometer Collars and Compound Swivel Saddle. Witness Marks for Tailstock Set-over, Swivel Saddle (3) and Three Micrometer Collars.	
8.	Check Maximum and Minimum Spindle Speeds in Direct Drive (1600 and 210 RPM) using Stroboscopic Tachometer.	
9.	Vibration from 210 to 1600 RPM not to Exceed .0005" Amplitude on Bed and .0003" at Spindle using Electronic Vibration Analyzer.	
10.	Turn and Face Drive Plate and Pack with Same Lathe.	
11.	Make Light Cut 6" Long on Stock Held in a Chuck and Check for Taper—not to exceed .0005.	
12.	Make Heavy Cut at Least 1" in Length @ 450 RPM, 1¼ Dia., C-1113 Stock with .0124 Feed, .300 Depth of Cut with HSS Rd. Nose Tool.	
13.	Cut a ¾-10 Thread.	
14.	Tailstock Ejects Center.	
15.	Check Witness Mark on Tailstock Ram—Shows Correct Center Height?	

*Meet ASA Accuracy Standards.

Printed in U.S.A.

LATHE MANUFACTURER & SIZE	Delta 14"	South Bend 13"	South Bend 14-1/2"	Sheldon 13"	Sheldon 15"	Logan 14"	Logan 14"	Colchester 13"
SADDLE & APRON								
Length on Bed	16"	N.A.	N.A.	13"	17-1/2"	N.A.	N.A.	13-1/2"
Cross Slide Travel	8"	8-3/4"	10"	6-9/16"	8"	10"	10"	6-1/2"
Compound Slide Travel	4-3/4"	3-1/8"	3-1/8"	3-1/2"	3-1/8"	4"	4"	4-1/4"
Tool Post Opening	11/16" X 1-7/8"	1/2" X 1-1/8"	5/8" X 1-3/8"	5/8" X 2-1/2"	11/16" X 2-5/8"	1/2" X 1-1/8"	1/2" X 1-1/8"	for 9/16" tools
SPEEDS-DRIVE & H.P.								
No. Speeds & Range with a 1725 RPM Motor	infinite 40-1600	8 only 40-940	8 only 30-875	infinite 40-2000	8 only 40-1250	infinite 40-1400	infinite 50-2000	8 only 52-1000
Type Belts and Drive	2-vari 2-V-belts	1 flat 2-V-belts	1 flat 2-V-belts	Double V belts	3-V belts	2-Vari drive belts	2-Vari drive belts	2-V-belts
Recommended HP	2 and 3	1	2	2	2 and 3	2	2	1-1/2 or 3
Weight less Motor	1894 lbs	1560 lbs	2070 lbs	1600 lbs	2345 lbs	1775 lbs	1850 lbs	1860 lbs (w/motor)
PRICES								
'62 Base Price w/o electricals	$2,195.00	$1,881.00	$2,241.00	$2,684.00	$3,018.00	$1,975.00	$2,595.00	$2,785.00
Extra for Hardened Bed	125.00	227.00	244.00	238.00	256.00	65.00	included	included
Extra for Taper Nose	included	35.20	43.50	40.50	121.00	20.00	included	included
Extra for Oil & Chip Pan	included	121.00	133.00	65.50	73.00	included	included	included
Total Price w/o electricals	$2,320.00	$2,264.20	$2,661.05	$3,028.00	$3,468.00	$2,060.00	$2,595.00	$2,785.00 (with motor)
FEATURES								
All oil bath headstock & apron	Yes	No	No	No	Yes	No	No	Yes
Interlocked Headstock	Yes	No	No	No	Yes	No	No	No
Separate Feed Rod & lead screw	Yes	No	No	No	No	No	No	Yes
Instant feed rod & lead screw reverse	Yes	No	No	No	Yes	No	No	No
Trav'g varispeed control available	Yes	No	No	No	No	No	No	No
Perfected variable speed drive	Yes	No	No	Yes	No	No	No	No
Tachometer available	Yes	No	No	Yes	No	No	No	No
Instant longitudinal to cross feed change	Yes	No	No	No	Yes	No	No	No

DELTA 14" METAL LATHE COMPARISON CHART

LATHE MANUFACTURER & SIZE	Delta 14"	South Bend 13"	South Bend 14-1/2"	Sheldon 13"	Sheldon 15"	Logan 14"	Logan 14"	Colchester 13"
MODEL NO. OF MACHINE	25-200	CL-145C	CL-185C	WM70P	ER72P	6560	6565	6565
CAPACITY								
Swing Over Bed	14-1/4"	13-1/8"	14-5/8"	13-1/8"	15-1/4"	14-5/8"	14-5/8"	13"
Swing Over Cross Slide	9-1/8"	7-3/4"	8-3/4"	8-7/8"	9-1/2"	9"	9"	8"
Distance Between Centers	41"	40"	36"	47"	42"	40"	40"	36"
Spindle Hole	1-3/8"	1-3/8"	1-3/8"	1-3/8"	1-1/2"	1-3/8"	1-5/8"	1-9/16"
Collet Capacity	1-1/16"	1-1/16"	1-1/16"	1-1/16"	1-1/16"	1-1/16"	1-1/2"	1-1/2"
HEADSTOCK								
Front Spindle Bearing	1 DOUBLE ROW PRELOADED BALL	1 Bronze	1 Bronze	1 Roller	1 Roller	2 Ball	2 Ball	2 Roller
Intermediate Spindle Bearing	None	None	None	None	1 Roller	None	None	None
Rear Spindle Bearing	2 Ball	1 Bronze	1 Bronze	1 Roller	2 Roller	2 Ball	2 Ball	1 Roller
Spindle Nose	LOO	Threaded	Threaded	Threaded	Threaded	Threaded	LO	LO
Back Gears	Oil Bath	Dry	Dry	Dry	Oil Bath	Dry	Dry	Oil Bath
BED								
Length	74"	72"	72"	70"	72"	68"	68"	64"
Width	9-5/8"	9-1/2"	10-11/16"	8"	9-1/2"	10"	10"	8-1/2"
Depth	9-1/2"	N.A.	N.A.	N.A.	7-15/16"	8"	8"	8"
GEAR BOX & DRIVE TO APRON								
Threads & Feeds	54	48	48	60	60	48	48	45
Lead Screw	1"-8	1"-6	1-1/8"-6	7/8"-8	1"-8	1-1/8"-8	1-1/8"-8	1-1/8"-6
	Solid	Keyed	Keyed	Keyed	Keyed	Keyed	Keyed	Solid
Separate Feed Rod	3/4" Hex	None	None	None	None	None	None	3/4" round
TAILSTOCK								
Ram Travel	5-1/2"	4-1/4"	5-1/4"	3-1/2"	3-1/8"	5-1/2"	5-1/2"	3-3/4"
Method of Clamping	lever & cam	wrench	wrench	wrench	lever & cam	wrench	wrench	wrench
Tailstock Setover	3/4"	15/16"	15/16"	1"	3/4"	9/16"	9/16"	N.A.
Graduations	1/16"&.001	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/8"

(continued - over)

ROCKWELL POWER TOOL DIVISION

SPECIFICATION GUIDE SHEET

DELTA

11" METAL LATHE

MACHINE DATA

Capacity:
- Swing over bed and saddle wings ..... 11 1/16"
- Swing over cross slide ..... 6 7/16"
- Between centers with L-00 tapered key drive nose:
  - 4 foot bed ..... 24" 5 foot bed ..... 36"
- Between centers with 2 1/4"-8 threaded nose:
  - 4 foot bed ..... 25" 5 foot bed ..... 37"

Threads and Feeds:
- Quick change gear box with 54 thread and feed changes ..... R.H. or L.H.
- Lead screw ..... 3/4" dia. Acme x 8 t.p.i.

Spindle and Headstock:
- Infinite stepless speeds in direct drive ..... 220-1550 r.p.m.
- Infinite stepless speeds in back gear ..... 45-250 r.p.m.
- Spindle center ..... No. 2 M.T.
- Hole through spindle ..... 1 3/8"
- Maximum collet capacity (5-C type collet) ..... 1 1/16"

Cross Slide and Compound Rest:
- Length of saddle V-way ..... 12 3/8"
- Width of bridge ..... 4 1/4"
- Cross slide travel ..... 6 3/4"
- Compound travel ..... 2 1/4"

Tool Post:
- 9/16" x 1 7/16" opening takes standard tool holders for 5/16" bits.

Tailstock:
- Ram diameter ..... 1 3/8" Ram travel ..... 2 3/4"
- Length of graduations marked on spindle by 1/16ths ..... 3"
- Center ..... No. 3 M.T.
- Handwheel adjustable micrometer collar graduated in .001"
- Set-over ..... 3/4"

BID SPECIFICATION FOR ACTUAL USE OR EXACT COPY:

11" Metal Cutting Lathe: to have perfected variable speed drive maintaining perfect belt alignment for vibration-free operation and long belt life; variable speed pulleys to maintain their balance at all speeds; final drive to the spindle to be matched V-belts between spindle bearings for high torque transmission; spindle nose to have two zero precision, tapered roller bearings for easy adjustment and accuracy; ball bearing at outboard end of spindle to float to compensate for spindle expansion; to be available with 2 1/4"—8 or L-00 tapered key drive spindle nose; changing from direct to gear drive to be done by one exterior selector lever equipped with lock out feature for operator convenience and safety; bed to be at least 8 1/4" wide, box construction, with two flat and two prismatic ground V-ways; leveling screws to be built into all four bed mounting pads; saddle to be machined for field mounting of taper attachment and other accessories; cross slide compound and tail stock collars to be modern, direct reading type; lock out to be provided between power and threading mechanisms; lead screw must have T-section key way for long, accurate half nut life; thread dial to be built into apron; clutch to be cone type for quick action; tail stock end of steel cabinet base to provide for tool storage; edge of coolant pan to be rounded for safety; motors to comply with or exceed National Electrical Manufacturers Association (NEMA) standards; machines and major accessories to be shipped with complete parts and instruction manuals; manufacturer to have available a complete line of accessories for each machine offered. Specific model to be Delta number:

	SINGLE PHASE		THREE PHASE			
	MANUAL STARTER		MANUAL STARTER		MAGNETIC STARTER	
Spindle Nose	2 1/4"—8 Threaded	L-00 Taper	2 1/4"—8 Threaded	L-00 Taper	2 1/4"—8 Threaded	L-00 Taper
4' Bed Length	25-105 _____	25-135 _____	25-305 _____	25-335 _____	25-307 _____	25-337 _____
5' Bed Length	25-115 _____	25-145 _____	25-315 _____	25-345 _____	25-317 _____	25-347 _____
	(Wired for 230V)		(Specify voltage 208-220V _____ 440V _____)			

Bed to be FLAME-HARDENED _____.

Note: Add "H" to catalog number for FLAME-HARDENED bed.

Machine(s) to include the following safety accessory:

No. 25-514 _____ Magnetic starter electrical disconnect switch, mounted at the factory. Shuts off power when gear train guard is swung open.

See latest Delta Lathe Catalog for other basic units, electrical variations and accessories available for this unit.

QUALITY CONTROL CERTIFICATE

Rockwell MANUFACTURING COMPANY
POWER TOOL DIVISION

DELTA 11" HAND SCREW MACHINE

CATALOG NUMBER ..... INSPECTED BY .....

SERIAL NUMBER ..... DATE .....

This Delta 11" Hand Screw Machine is a precision machine tool, modern in design and built to highest quality standards. Before it left our factory it had to pass more than 50 tests for dynamic balance, accuracy, and ease of operation. Some of these test results are reported here to show you the quality built into your particular hand screw machine.

The Delta 11" Hand Screw Machine is built to give you many years of good service. PLEASE STUDY THE INSTRUCTION MANUAL CAREFULLY BEFORE OPERATING THE HAND SCREW MACHINE. Keep the machine clean, well lubricated, and in proper adjustment. **The accuracy of work it produces depends on you.**

Dial Indicator Inspection

	TEST	Limit Allowed	This Lathe
1.	Spindle Nose Runout (Indicator on Face and Pilot of Threaded Nose Models)	.0005 T.I.R.	
2.	Spindle Taper Hole Runout — Test Bar in Spindle Hole — Indicate 1½" from Spindle Nose	.0005 T.I.R.	
3.	Spindle Taper Runout—Test Bar in Spindle Hole—Indicate 12" from Spindle Nose	.001 T.I.R.	
4.	Spindle Alignment with Bed ways—Vertical —along 12" of test bar	.001	
5.	Spindle Alignment with Bed ways—Horizontal—along 12" of test bar	.0005	
6.	Spindle Alignment with Travel (4") of Ram of Bed Turret—Vertical	+ .001 — .002	
7.	Spindle Alignment with Travel (4") of Ram of Bed Turret—Horizontal	.0005	
8.	Spindle Alignment with Tool Shank Holes in Turret Faces—Vertical	.002	
9.	Spindle Alignment with Tool Shank Holes in Turret Faces—Horizontal	.002	
10.	Check Repeat Indexing of Turret — all six positions	.002	
11.	Cross Slide Alignment—To Face Hollow or Concave only on 10" Diameter	0 to .003 (5" Rad)	

Additional Inspection

	TEST	Check If O.K.
1.	Bed Level—using spirit level in transverse and longitudinal directions	
2.	Witness Marks Stamped and Matched for Eccentric Shaft for Back Gears	
3.	Check Maximum and Minimum Spindle Speeds in Direct Drive (1550 and 220 rpm) Using Stroboscopic Tachometer	
4.	Vibration at 1220 rpm not to exceed .0005" amplitude on Bed and .0003" at the Spindle using Electronic Vibration Analyzer	
5.	Vibration from 220 to 1550 rpm not to exceed .005" amplitude on Variable Speed Drive Bracket, using Electronic Vibration Analyzer	
6.	Check Full Travel of Cross Slide	
7.	Assemble Collet and check action of Collet Closer—Machine running at 1550 rpm	
8.	Check Drive Selector and run Machine in Direct Drive and Back Gear. Check Loose and Locked Spindle Positions	
9.	Cut a Fine Thread with Chasers (dia. x 2=L)	

Printed in U.S.A.

414-01-753-5002

QUALITY CONTROL CERTIFICATE

Rockwell MANUFACTURING COMPANY
POWER TOOL DIVISION

DELTA 11" METAL CUTTING LATHE

CATALOG NUMBER ..... INSPECTED BY .....

SERIAL NUMBER ..... DATE .....

This Delta 11" Metal Lathe is a precision machine tool, modern in design and built to highest quality standards. Before it left our factory it had to pass more than 50 tests for dynamic balance, accuracy, and ease of operation. Some of these test results are reported here to show you the quality built into your particular lathe.

The Delta 11" Metal Lathe is built to give you many years of good service. PLEASE STUDY THE INSTRUCTION MANUAL CAREFULLY BEFORE OPERATING THE LATHE. Keep the lathe clean, well lubricated, and in proper adjustment. **The accuracy of work it produces depends on you.**

Dial Indicator Inspection

	TEST	Limit Allowed	This Lathe
1.	Spindle Nose Runout (Indicator on Face and Pilot of Threaded Nose Models)	.0005 T.I.R.	
2.	Spindle Taper Hole Runout — Test Bar in Spindle Hole — Indicate 1½" from Spindle Nose	.0005 T.I.R.	
3.	Spindle Taper Runout—Test Bar in Spindle Hole—Indicate 12" from Spindle Nose	.001 T.I.R.	
4.	Spindle Alignment with Bed ways—Vertical —along 12" of test bar	.001	
5.	Spindle Alignment with Bed ways—Horizontal—along 12" of test bar	.0005	
6.	Tailstock Ram Alignment with Bed ways—Vertical—along 3" Test Bar mounted in extended Ram—high at Headstock end	0 to .0015	
7.	Tailstock Ram Alignment with Bed Ways—Horizontal—along 3" Test Bar mounted in extended Ram	.001	
8.	Vertical Alignment of Head and Tail Centers (High at Tailstock)	0 to .003	
9.	Cross Slide Alignment—To Face Hollow or Concave only on 10" Diameter	.001 (5" Rad)	
10.	Lead Screw Cam Action	.0005	
11.	Cross Feed Screw Backlash (8 marks on micrometer collar)	.004	
12.	Compound Feed Screw Backlash	.006	
13.	Tailstock Feed Screw Backlash	.010	

Additional Inspection

	TEST	Check If O.K.
1.	Bed Level—using spirit level in transverse and longitudinal directions	
2.	Travel of Carriage full length of bed, using handwheel	
3.	Lead Screw Alignment with Bed Ways—Vertical and Horizontal—end to end	
4.	Lead Screw — Lead per foot + or − .002; and Lead in any 4" + or − .00075	
5.	Lead Screw Control Lever (forward, neutral, reverse)	
6.	Functioning of Half Nuts (lathe running)	
7.	Lock out Device for Half Nuts	
8.	Quick Change Gear Box—Check for noise or vibration with lathe running	
9.	Graduations on three Micrometer Collars and Compound Swivel Saddle. Witness Marks for Tailstock Set-over, Swivel Saddle (2), Eccentric Shaft for Back Gears, Shear Pin and three Micrometer Collar	
10.	Check Maximum and Minimum Spindle Speeds in Direct Drive (1550 and 220 rpm) using Stroboscopic Tachometer	
11.	Vibration at 1220 rpm not to exceed .0005" amplitude on Bed and .0003" at the Spindle using Electronic Vibration Analyzer	
12.	Vibration from 220 to 1550 rpm not to exceed .005" amplitude on Variable Speed Drive Bracket, using Electronic Vibration Analyzer	
13.	Turn and Face Drive Plate and pack with same lathe	
14.	Make light and heavy cuts 6" long, and check for taper—not to exceed .0005"	
15.	Cut a coarse and a fine thread	
16.	Tailstock ejects center	

Printed in U.S.A.

414-01-753-5001

ROCKWELL POWER TOOL DIVISION

SPECIFICATION GUIDE SHEET

DELTA

10" METAL LATHE

MACHINE DATA

Capacity:
- Swing over bed and saddle wings . . . . . 10⅛"
- Swing over cross slide . . . . . 6"
- Between centers (tailstock completely on bed)
  - Standard bed . . . . . 24½" Long bed . . . . . 36½"
- Hole through spindle . . . . . 15/16"
- Maximum capacity with 4-C style collet . . . . . ¾"

Threads and Feeds:
- Quick change gear box has 54 thread changes . . . . . L.H. or R.H.
- Lead screw . . . . . ¾" dia. Acme 8 t.p.i.

Spindle and Headstock:
- Infinite choice of speeds in direct drive . . . . . 250-1500 r.p.m.
- Infinite choice of speeds in gear drive . . . . . 50-300 r.p.m.
- Spindle (hardened and ground alloy steel)
  - Diameter at inboard bearing . . . . . 1 31/32"
  - Center used . . . . . No. 2 M.T.
  - Nose (has ground threads) . . . . . 1½"-8
  - Hole—modified (shortened) . . . . . No. 9 B. & S.

Carriage:
- Length of saddle V-way . . . 10" Width of saddle bridge . . . 3¼"
- Cross slide travel . . . . . 6" Compound slide travel . . . . . 2"

Tool Post:
- 7/16 x 1⅛" opening (takes standard tool holders for ¼" bits)

Tailstock (has automatic center ejection)
- Ram diameter . . . . . 1⅛" Ram travel . . . . . 2½"
- Length of graduations marked on ram, by ⅛ths . . . . . 2½"
- Center used . . . . . No. 2 M.T.
- Handwheel adjustable micrometer collar graduated in .001"
- Set-over adjustment (either way) for taper turning . . . . . 1⅛"

BID SPECIFICATION FOR ACTUAL USE OR EXACT COPY:

10" Metal Cutting Lathe: to have perfected variable speed drive maintaining perfect belt alignment for vibration-free operation and long belt life; variable speed pulleys to maintain their balance at all speeds; final drive to the spindle to be matched V-belts for high torque transmission; ¾" 4C type collets to fit directly into ground taper at spindle nose for extreme accuracy; to have double-row precision ball bearings at spindle nose and floating ball bearing at outboard end of spindle for accuracy and to allow for spindle expansion; bed to be at least 6 7/16" wide, U-section design, with two precision ground V and flat ways; quick change gear box to be 54 speed (including 27 threads per inch); provision to be made to pre-set high and low spindle speeds for safety; compound slide rest must not overhang swivel bearing pad in its most forward position; micrometer collars on tail stock, compound and cross feed to be modern, direct reading type; thread dial to be built into the apron; half nuts to be engaged by lifting the handle; lock out to be provided between threading and feed mechanism; to have cone type clutch that can be pre-set or instantly adjusted for work being done; mechanical back gear lock out and magnetic electrical disconnect to be available; edges of coolant pan to be rounded for safety; to be available with a choice of drive mechanism located either in cabinet under head stock or at rear of head stock; motors to comply with or exceed National Electrical Manufacturers Association (NEMA) standards; machines and major accessories to be shipped with complete parts and instruction manuals; manufacturer to have available a complete line of accessories for each machine offered. Specific model to be Delta number:

Machine complete with variable speed drive located underneath headstock in steel cabinet base (magnetic starter not mounted):

	1 PHASE		3 PHASE MANUAL		3 PHASE MAGNETIC	
Length Between Centers:	24"	36"	24"	36"	24"	36"
Cabinet with 3-Shelf Tail Stock Pedestal with Door	25-724 _____	25-725 _____	25-728 _____	25-729 _____	25-732 _____	25-733 _____
Cabinet with Open Tailstock Leg	25-726 _____	25-727 _____	25-730 _____	25-731 _____ (Specify 208-220V _____ or 440V _____)	25-734 _____	25-735 _____

Machine complete with variable speed drive located behind headstock on steel cabinet base.

Cabinet with 3-Shelf Head Stock Pedestal with Door	25-701 _____	25-711 _____	25-702 _____	25-712 _____	25-704 _____ (208-220V)	25-714 _____
					25-705 _____ (440V)	25-715 _____

Machine(s) to include the following safety accessories:

No. 25-814 _____ Magnetic starter electrical disconnect switch, mounted at the factory. Shuts off power when headstock cover is opened.

No. 25-831 _____ Mechanical back gear lock out kit, installed at the factory. Protects headstock gears because operator must raise headstock cover before back gears can be engaged.

See latest Delta Lathe Catalog for other basic units, electrical variations and accessories available for this unit.

Form No. 25-10 (15)

Printed in U.S.A.

New Delta Underneath Drive
10" Metal Lathe With Enclosed
Tailstock Pedestal

New Delta Underneath Drive
10" Metal Lathe With Plain
Tailstock Leg

STANDARD EQUIPMENT

- Cabinet with coolant pan
- Quick change gear box
- Matched V-belts for spindle
- Variable speed drive complete, including belts
- Motor pulley
- 6" diameter drive plate
- Centers for headstock and tailstock
- Tool post, ring and rocker
- Spindle adapter, No. 2 Morse taper i.d.
- Thread chasing dial
- Combination wrench for tool post, etc.
- Box wrench for tailstock
- Extra shear pins

Famous DELTA 10" Metal Lathe

with the only PERFECTED VARIABLE SPEED DRIVE NOW mounted in pedestal

EXCLUSIVE PERFECTED VARIABLE SPEED DRIVE

Gives you all the advantages of a variable speed drive, with an infinite choice of speeds from 50 to 1500 rpm — PLUS the high torque transmitting power of matched V-belts. Delta's variable speed drive incorporates an extra shaft between the variable speed drive pulleys and the spindle. This makes possible high speed power transmission through the variable speed drive belts while twin V-belts transmit steady power to the spindle.

catalog listing

BASIC 10" METAL LATHE

With enclosed tailstock pedestal, shelves and door.
- 24" between centers. 510 lbs. ..... NO. 25-720
- 36" between centers. 555 lbs. ..... NO. 25-721

With plain tailstock leg.
- 24" between centers. 500 lbs. ..... NO. 25-722
- 36" between centers. 545 lbs. ..... NO. 25-723

For Single Phase Operation

10" METAL LATHE UNIT, with single phase motor and reversing drum switch for manual on-and-off control, assembled. Consists of: Basic Lathe, No. 62-710 115/230 V Motor and No. 25-806 Switch Kit, mounted and wired to motor for 115 V, 60 cycle operation.

With enclosed tailstock pedestal, shelves and door.
- 24" between centers. 560 lbs. ..... NO. 25-724
- 36" between centers. 605 lbs. ..... NO. 25-725

With plain tailstock leg.
- 24" between centers. 550 lbs. ..... NO. 25-726
- 36" between centers. 605 lbs. ..... NO. 25-727

For Three Phase Operation

10" METAL LATHE UNIT, with three phase motor and reversing drum switch for manual on-and-off control, assembled. Includes overload switch, not assembled. Consists of: Basic Lathe, No. 66-710 208-220/440 V Motor, No. 25-806 Switch, mounted and wired to motor, and No. 49-365 Overload Switch. Specify whether 208-220 or 440 volts.

With enclosed tailstock pedestal, shelves and door.
- 24" between centers. 553 lbs. ..... NO. 25-728
- 36" between centers. 598 lbs. ..... NO. 25-729

With plain tailstock leg.
- 24" between centers. 543 lbs. ..... NO. 25-730
- 36" between centers. 588 lbs. ..... NO. 25-731

10" METAL LATHE UNIT, with three phase motor and reversing drum switch for magnetic on-and-off control, assembled. Includes magnetic starter for overload, low-voltage and no-voltage protection, not assembled. Consists of: Basic Lathe, No. 66-710 208-220/440 V Motor, No. 49-392 Switch, mounted and wired to motor, and either No. 49-396 208-220 V, 60 cycle or No. 49-397 440 V, 60 cycle Magnetic Starter. Specify whether 208-220 V or 440 V.

With enclosed tailstock pedestal, shelves and door.
- 24" between centers. 551 lbs. ..... NO. 25-732
- 36" between centers. 596 lbs. ..... NO. 25-733

With plain tailstock leg.
- 24" between centers. 541 lbs. ..... NO. 25-734
- 36" between centers. 586 lbs. ..... NO. 25-735

machine data

CAPACITY

Swing: Over bed....10⅛"; Over cross slide....6"
Between centers (tailstock completely on bed)
Standard bed.....24½"; Long bed.....36½"
Hole through spindle.....15/16"
Maximum capacity with 4-C style collet.....¾"

THREADS AND FEEDS

Quick change gear box has 54 thread and feed changes L.H. or R.H.
Range of feed rates per spindle revolution
Longitudinal ....0810-.0014; Cross 0413-.0007
Lead Screw.....¾" dia. Acme 8 t.p.i.

SPINDLE AND HEADSTOCK

Infinite choice of speeds in direct drive .....250-1500 rpm
Infinite choice of speeds in gear drive...50-300 rpm
Center used .....No. 2 M.T.
Nose.....(has ground threads) 1½"—8

CARRIAGE

Cross slide travel...6"; Compound slide travel..2"

TOOL POST

7/16 x 1 1/16" opening (takes standard tool holders for ¼" bits)

TAILSTOCK (has automatic center ejection)

Ram diameter.....1⅛"; Ram travel.....2½"
Center used .....No. 2 M.T.
Set-over adjustment (either way) for taper turning.....11/16"

NEW, DELUXE TAILSTOCK PEDESTAL

Excellent design and use of heavy gage metal make it an ideal mounting for smooth operation. Pedestal has three 12x17¼" shelves for convenient tool storage and a tight-closing door with rattle-proof latch.

FOR COMPLETE DESCRIPTION OF MOTORS, CONTROLS AND ACCESSORIES, SEE YOUR DELTA METAL LATHE DISTRIBUTOR.

Rockwell
MANUFACTURING COMPANY

QUALITY CONTROL CERTIFICATE

Rockwell MANUFACTURING COMPANY

POWER TOOL DIVISION

DELTA 10" METAL CUTTING LATHE

CATALOG NUMBER ..... INSPECTED BY .....

SERIAL NUMBER ..... DATE .....

This Delta 10" Metal Lathe is a precision machine tool, modern in design and built to highest quality standards. Before it left our factory it had to pass more than 50 tests for dynamic balance, accuracy, and ease of operation. Some of these test results are reported here to show you the quality built into your particular lathe.

The Delta 10" Metal Lathe is built to give you many years of good service. PLEASE STUDY THE INSTRUCTION MANUAL CAREFULLY BEFORE OPERATING THE LATHE. Keep the lathe clean, well lubricated, and in proper adjustment. **The accuracy of work it produces depends on you.**

Dial Indicator Inspection

	TEST	Limit Allowed	This Lathe
1.	Spindle Nose Runout (Indicator on Face and Pilot)	.0005 T.I.R.	
2.	Spindle Taper (20° for Collet)—Runout—(High point in line with high point of .950 I.D.)	.0004 T.I.R.	
3.	Spindle Hole (.950 I.D. for Collet Body)—Runout—(High point in line with high point of 20° taper)	.0004 T.I.R.	
4.	Spindle Taper (for Center)—Runout—Indicator on test bar next to spindle nose	.0005 T.I.R.	
5.	Spindle Taper (for Center)—Runout—Indicator on test bar 12" from spindle nose	.001 T.I.R.	
6.	Spindle Alignment with Bed Ways—Vertical—along 12" of test bar	.001	
7.	Spindle Alignment with Bed Ways—Horizontal—along 12" of test bar	.001	
8.	Tailstock Ram Alignment with Bed Ways—Vertical—along 3" Test Bar mounted in extended Ram—high at Headstock end	0 to .0015	
9.	Tailstock Ram Alignment with Bed Ways—Horizontal—along 3" Test Bar mounted in extended Ram	.001	
10.	Vertical Alignment of Head and Tail Centers (High at Tailstock)	0 to .003	
11.	Cross Slide Alignment—To Face Hollow or Concave only on 10" Diameter	.001 (5" Rad)	
12.	Lead Screw Cam Action	.0005	
13.	Cross Feed Screw Backlash	.004	
14.	Compound Feed Screw Backlash	.006 .010	

Additional Inspection

	TEST	Check If O.K.
1.	Bed Level—using spirit level in transverse and longitudinal directions	
2.	Travel of Carriage full length of bed, using handwheel	
3.	Lead Screw Alignment with Bed Ways—Vertical and Horizontal—end to end	
4.	Lead Screw — Lead per foot + or − .002; and Lead in any 4" + or − .00075	
5.	Lead Screw Control Lever (forward, neutral, reverse, and Match Marks)	
6.	Functioning of Half Nuts (lathe running)	
7.	Lock Out Device for Half Nuts	
8.	Quick Change Gear Box—Check for noise or vibration with lathe running	
9.	Graduations on three Micrometer Collars and Compound Swivel Saddle. Witness Marks for Tailstock set-over, Swivel Saddle (3), and three Micrometer Collars	
10.	Set Maximum and Minimum Spindle Speeds in Direct Drive (1500 and 250 rpm) using Stroboscopic Tachometer	
11.	Vibration at 1220 rpm not to exceed .0005" amplitude on Bed and .0003" at the Spindle using Electronic Vibration Analyzer	
12.	Vibration from 250 to 1500 rpm not to exceed .005" amplitude on Variable Speed Drive Bracket, using Electronic Vibration Analyzer	
13.	Turn and Face Drive Plate and pack with same lathe	
14.	Turn ¾" C-1113 bar held in collet, at 600 rpm with .0042 feed, removing .300 from diameter with HSS round nose tool. Set Apron Clutch to slip on any cut heavier than this. Inspect quality of cut	
15.	Make a light cut 6" long and check for taper—not to exceed .0005"	
16.	Cut a coarse and a fine thread	
17.	Tailstock ejects center	
18.	Tailstock Feed Screw Backlash	

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CONVERSION AND COMPARISON CHART
BETWEEN
SOUTH BEND 10K AND NEW DELTA 10" LATHE

SOUTH BEND 10K				DELTA 10"	
MODEL	BED LENGTH	16 SPEED V-BELT HORIZONTAL DRIVE	12 SPEED FLAT BELT HORIZONTAL DRIVE		
TOOL ROOM	3	CL 8770Y $833	CL 8670Y $815	Cat. 25-700 Lathe	$680.00
	3½	CL 8770Z 858	CL 8670Z 840	25-859 Pulley Guard	12.35
	4	CL 8770A 883	CL 8670A 865	25-825 Draw Bar	35.95
				25-828 Collet Rack	18.40
				25-856 Taper Attachment	78.75
				25-830 Thread Stop	4.15
				25-839 9" Faceplate	10.25
				25-854 Micrometer Carriage Stop	10.50
				TOTAL	$850.35
A	3	CL 770Y $591	CL 670Y $573	Cat. 25-700 Lathe	$680.00
	3½	CL 770Z 616	CL 670Z 598	25-859 Belt & Pulley Guard	12.35
	4	CL 770A 641	CL 670A 623		
	4½	CL 770R 677	CL 670R 659	TOTAL	$692.35
B	3	CL 767Y $504	CL 667Y $486	Cat. 25-730 Change Gears Lathe	
	3½	CL 767Z 529	CL 667Z 511		
	4	CL 767A 554	CL 667A 536	*(Not Yet Available)*	
	4½	CL 767R 590	CL 667R 572		
BENCH:					
CE 1780			$46.50	Cat. 25-801	$ 75.00
Drawer			9.05	25-802	14.95
				25-803 Back & Side Stops	9.50
MOTORS:					
CE 3228 ½ HP, 1 ph. 115 V			$53.50	Cat. 62-710 ¾ HP, 1 ph. 115/230 V	$ 67.50
CE 3229 ½ HP, 1 ph. 230 V			53.50		
CE 3227P ½ HP, 3 ph. 208 V			$39.00	Cat. 66-710 ¾ HP, 3 ph. 208/220/440 V	$ 55.00
CE 3227D ½ HP, 3 ph. 220 V			39.00		
CE 3227F ½ HP, 3 ph. 440 V			39.00		
DRUM SWITCH *(Manual)*:					
ED-790 *(for horizontal motor drive)*			$12.00	Cat. 25-806	$ 11.55
EB-790 *(for underneath motor drive)*			12.00	49-365 *(for overload protection)*	14.70
DRUM SWITCH *(Magnetic)*:				Cat. 29-802 Drum Switch	$ 16.60
EB-961 1 speed drum control with Linestarter *(prices on application)*				49-396 208/220 V Starter	40.95
				49-397 440 V Starter	40.95
TAPER ATTACHMENT:					
CL 428NK *(plain, non-Telescopic)*			$98.00	Cat. 25-856 *(Telescopic Type)*	$ 78.75
COLLET SETS:					
CE 3068 1/16 to 5/8 in 1/16ths *(10 in set)*			$50.95	Cat. 25-800 1/16 to 3/8 in 1/16ths *(6 in set)*	$ 36.20
CE 3069 3/32" to 19/32" in odd 32nds, *(9 in set)*			45.85	25-810 7/16ths to ¾ by 1/16ths *(6 in set)*	36.25
CE 3070 5/64ths to 39/64ths in odd 64" *(18 in set)*			90.80		
LATHE DOGS *(Safety Type)*:					
CE 3820 3/8"			$ 1.30	Cat. 25-861 3/8"	$ 1.40
CE 3821 1/2"			1.35	25-862 1/2"	1.45
CE 3822 3/4"			1.60	25-863 3/4"	1.70
CE 3823 1"			1.70	25-864 1"	2.10
CE 3824 1-1/4"			1.85	25-865 1-1/4"	2.25
CE 3825 1-1/2"			2.30	25-866 1-1/2"	2.25
STEADY REST:					
CL 2400K			$18.10	Cat. 25-852	$ 15.75
FOLLOWER REST:					
CL 2395K			$12.00	Cat. 25-850	$ 9.20
DRIVE PLATE:					
CL 2175NK 5-1/8" O.D.			$ 8.15	Cat. 25-840 6" O.D.	$ 7.10
LARGE FACEPLATE:					
CL 2180NK 7-3/8" O.D.			$11.30	Cat. 25-839 9" O.D.	$ 10.25