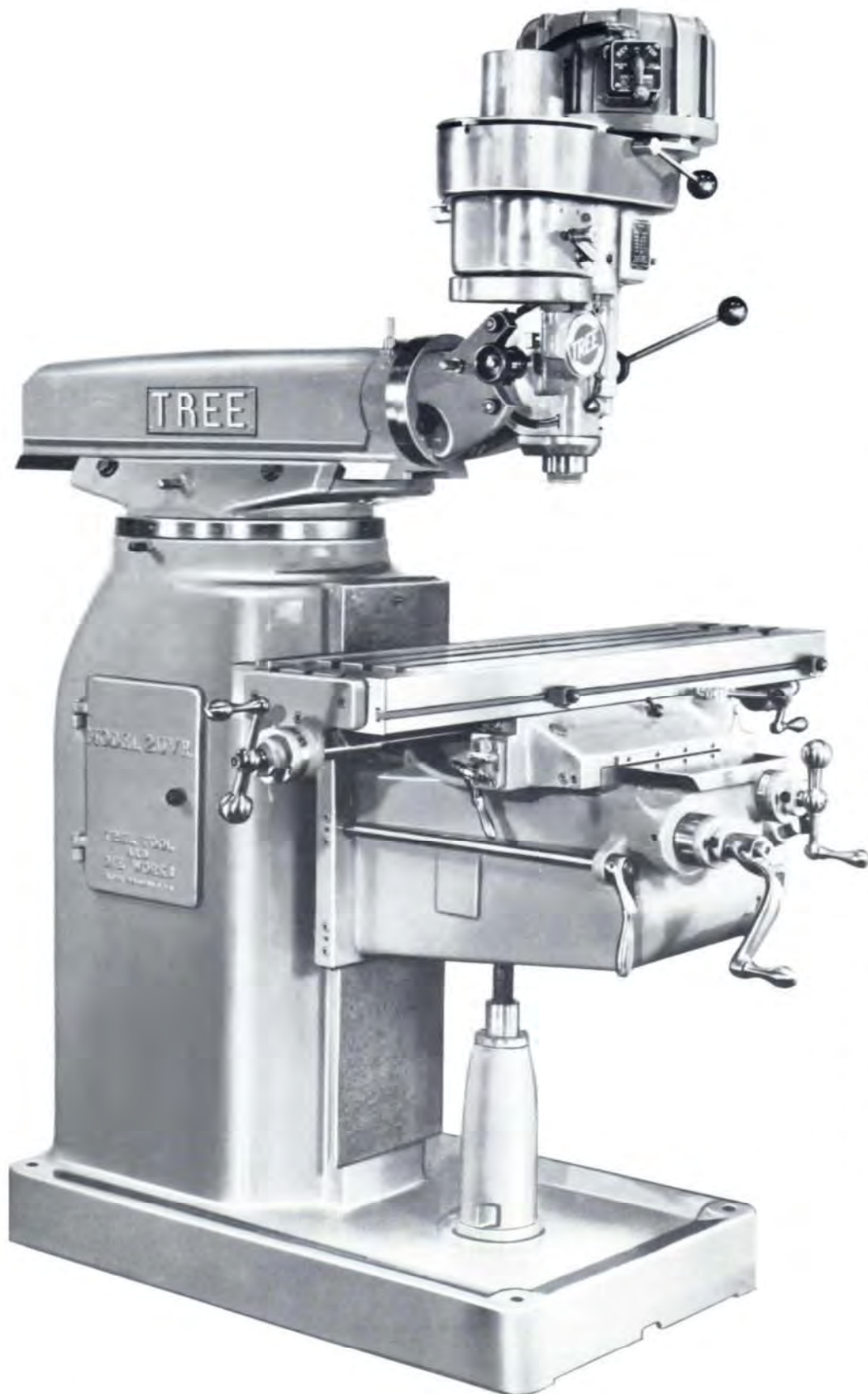


TREE
20V
2VG
MILLS

Cat. No. 390

The TREE 2UVR VERTICAL MILL



The TREE 2UVR Vertical Milling Machine is designed and built to give you unusual accuracy and capacity for mills of this size. In addition, it is designed for maximum operator convenience.

Spindle speeds infinitely variable from 60 to 3300 RPM make the 2UVR useful for a wide range of jobs. Desired spindle speeds are quickly selected and clearly indicated visually.

Power down-feed to the quill ranges from .0015 to .008 per revolution and is also indicated visually. Both spindle speeds and quill feeds are changed by simply turning easily accessible hand knobs.

The 2UVR is designed for use in tool room, experimental department, pattern shop or production department . . . wherever your requirement is for extreme accuracy. Rugged construction plus unique design make the 2UVR ideal for heavy-duty work, with unusual range and versatility.

with UNIVERSAL HEAD

*for all-angle milling,
drilling and boring operations*



The universal head of the TREE 2UVR adds flexibility to perform a wide range of jobs requiring milling, drilling, tapping and boring at any angle . . . with both speed and accuracy. Outstanding features of the head include the exclusive patented roller drive, automatic collet closer, heavy-duty spindle (hardened and ground from collet seat to special spline) which accommodates up to $\frac{3}{4}$ " diameter tool shanks, hardened and ground quill with a counter-balance that makes power or hand operations sensitive throughout its 4" travel, enclosed micrometer depth stop and spindle brake. Variable speed ranges are 60-420 RPM in back gear and 450-3300 RPM in open belt. Back gearing in this milling head is positively lubricated by a built-in pump.



AUTOMATIC COLLET CLOSER

The patented TREE automatic collet closer has proved itself the quickest built-in method of changing tools, the easiest for the operator and the most secure because it assures positive locking and eliminates tool slippage . . . even when capacity cuts are being taken. Collet closer parts are of alloy steel, hardened and precision ground.



ROLLER SPINDLE DRIVE

A rigid connection between the drive unit and the spindle is obtained by the patented roller drive. Torque is transmitted through four hardened and ground rollers mounted on eccentric pins for adjustment. These rollers engage the spindle so as to eliminate the backlash which is typical of standard involute spline drives.



HEAD TO RAM MOUNTING

The rigidity and accuracy of the 2UVR mill depends to a great extent on the superior design of its head to ram mounting. The head is compactly mounted in a special two-way adapter which permits angular movement of the spindle both across and parallel with the table. The head is securely clamped in any angular position and gearing is provided for both movements.

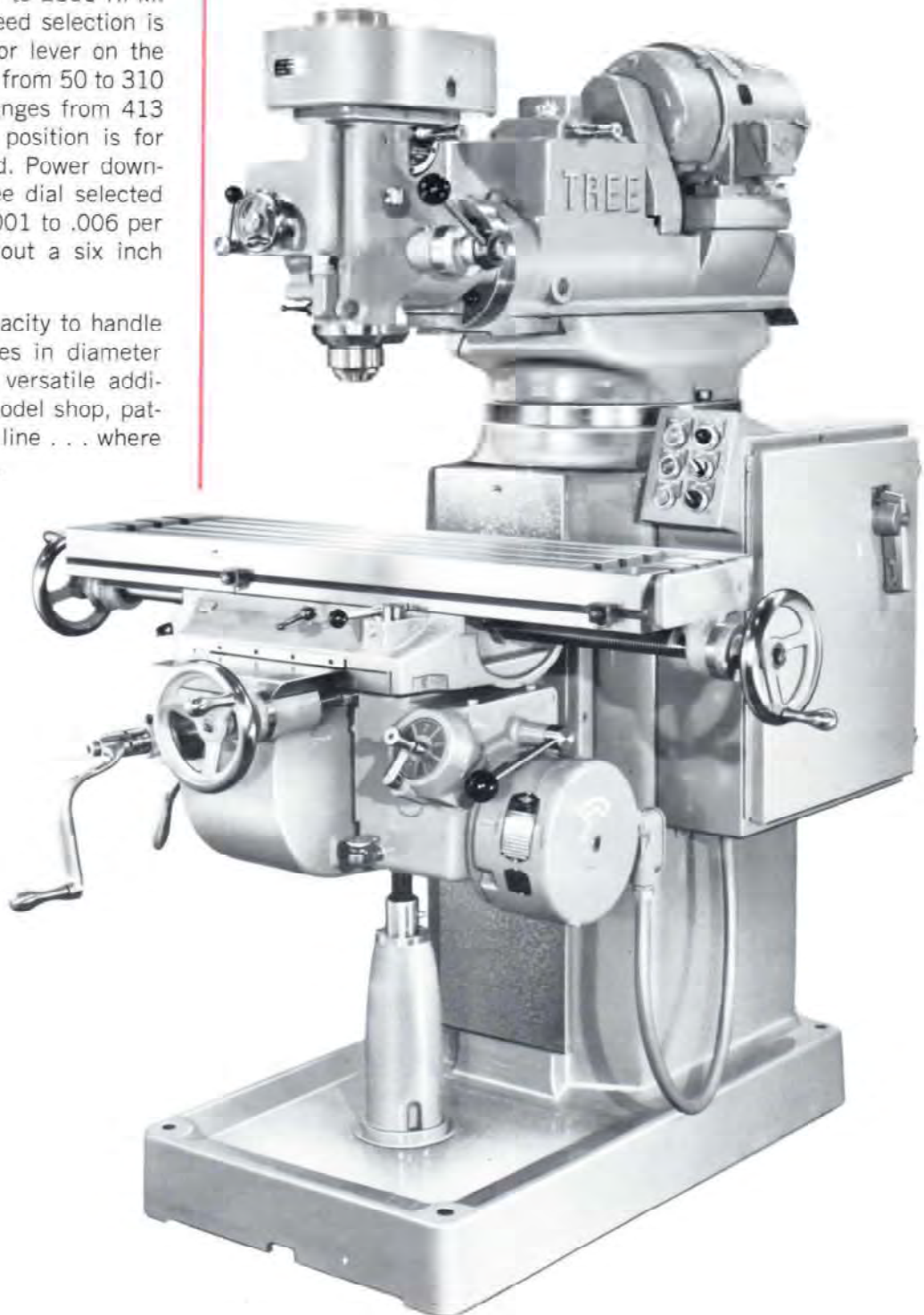
THE TREE 2VG VERTICAL MILL

The TREE 2VG Milling Machine is designed for jobs which require greater capacity than that provided by the TREE 2UVR mill. It features a geared-in-ram head and drive assembly in which the ram is dovetail type with integral gear box and 3 horse power motor mounted.

Like all TREE mills, the 2VG is built to achieve greatest possible accuracy while at the same time offering many features designed for operator convenience.

The 2VG has twelve geared spindle speeds ranging from 50 to 2500 RPM. High, low or neutral speed selection is made quickly by selector lever on the head. Low speed ranges from 50 to 310 RPM and high speed ranges from 413 to 2500 RPM. Neutral position is for rotating spindle by hand. Power down-feed to the quill in three dial selected feed rates range from .001 to .006 per revolution . . . throughout a six inch travel.

The 2VG has ample capacity to handle cutters up to four inches in diameter with ease, making it a versatile addition to any tool room, model shop, pattern shop or production line . . . where accuracy is a premium.



... with GEARED HEAD



The geared-in-ram head and drive assembly of the 2VG mill provides maximum accuracy for milling, drilling, tapping and boring throughout its angular movement in the vertical plane parallel with the mill table. Depending on the job being done, the operator can use the hand feed lever, hand wheel or power feed throughout the six inch quill travel. Power feeds both up and down . . . at any of the three dial selected feed rates. Automatic collet closer action to hold tools up to one inch diameter shank size. An enclosed micrometer depth stop is provided for depth control. Construction of the ram permits moving spindle to any position without the necessity of resetting for alignment. Movements to ram and head-stock are controlled by gearing. Electric spindle brake is standard equipment.



SPINDLE SPEEDS

Twelve geared spindle speeds are provided in two ranges changed by levers and visually indicated.



AUTOMATIC COLLET CLOSER

Positive locking of tools plus greatest possible operator convenience is assured with the patented TREE Automatic Collet Closer. Through use of a yoke on the head a downward pull on the hand feed lever loosens the cutting tool. An upward push locks the tool in readiness for operation. All collet closer parts are hardened and ground (externally and internally) of special alloy steel. Spindle has lugs which engage the collet nose and accessory tool holding equipment for positive driving.



SPINDLE DRIVE

Rigid connection between drive unit and the spindle is provided by a drive mechanism consisting of four square blocks paired on eccentrics for backlash adjustment.



RAM AND TURRET

In order to assure accuracy of spindle alignment throughout the range of ram movement, the dovetail type ram design has been utilized on the TREE 2UVR and 2VG milling machines. The ram has precision ground ways and can be easily positioned by means of a rack and pinion.

TURRET:

Generously proportioned casting with long ram bearing ways. Capable of 360° rotation. Easy-to-read graduations for reference.

TURRET LOCKING RING

The turret features an exclusive patented one clamp locking mechanism through an internal split ring which aligns automatically as it locks.

COLUMN

TREE milling machine columns are high grade iron castings engineered for balance and rigidity and machined to the TREE standards of quality to provide a rugged support for turret and knee. Internal ribs and massive proportions assure a rigidity in the column that means vibration-free operation on the heaviest cuts. Careful weight distribution and a broad, heavy mounting base give the 2UVR and the 2VG greater balance and stability. Ample storage space for cutters, clamps and collets is provided in the storage compartment in the column.



KNEE

Knee-to-column ways have been extended above the saddle slide to give greater bearing surface and support to the knee without sacrificing spindle to table capacity. Unique gibs eliminate the usual loose, tapered gib found in knees of most conventional milling machines. All controls are grouped for accessibility and ease of operation . . . no awkward stretching for out-of-the-way handles and levers.

TABLE

Close grained high tensile strength cast iron machined all over and finish ground for long life and accuracy. Three standard $\frac{1}{8}$ " T-slots provided. Adjustable table stops are provided.

LEAD SCREWS

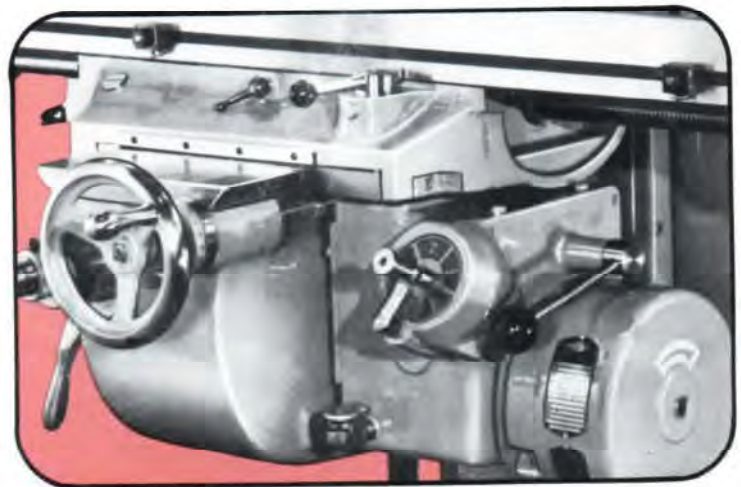
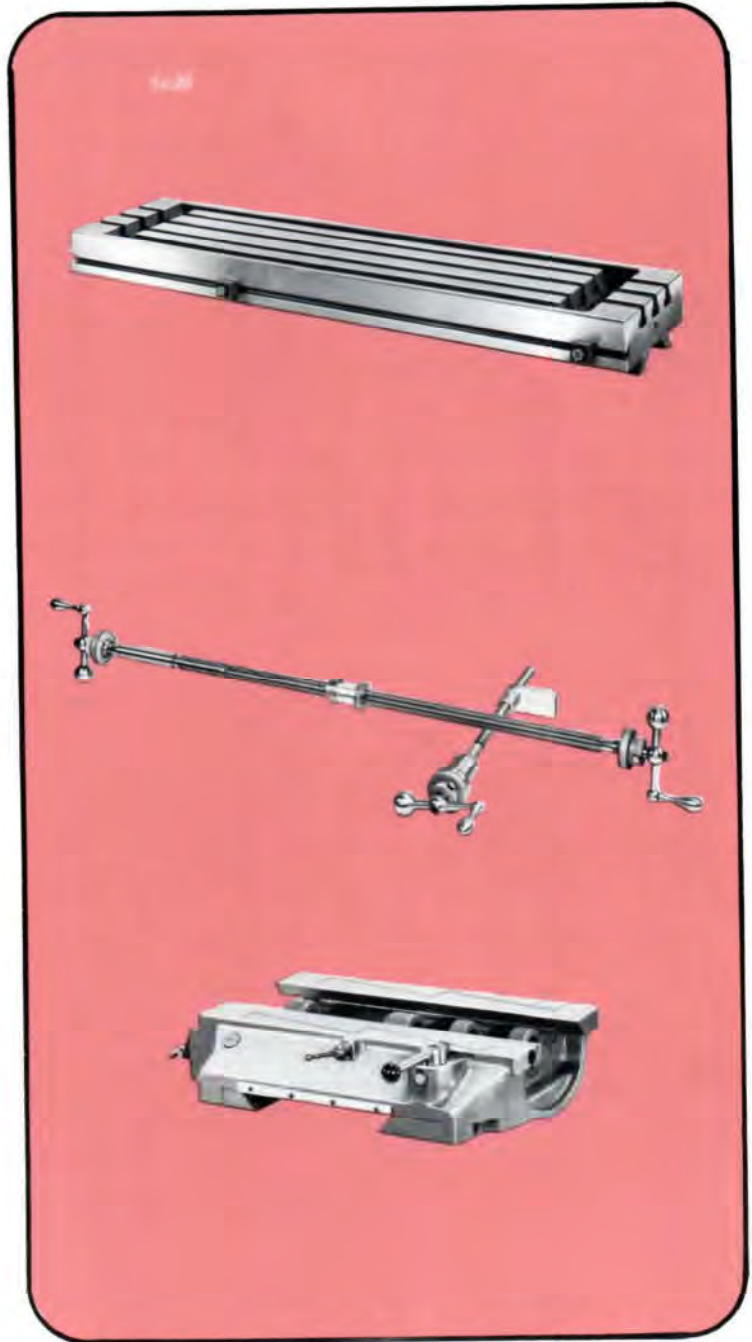
Longitudinal and cross feed screws are Acme, alloy-steel hardened and ground for accuracy and long wearing qualities.

SADDLE

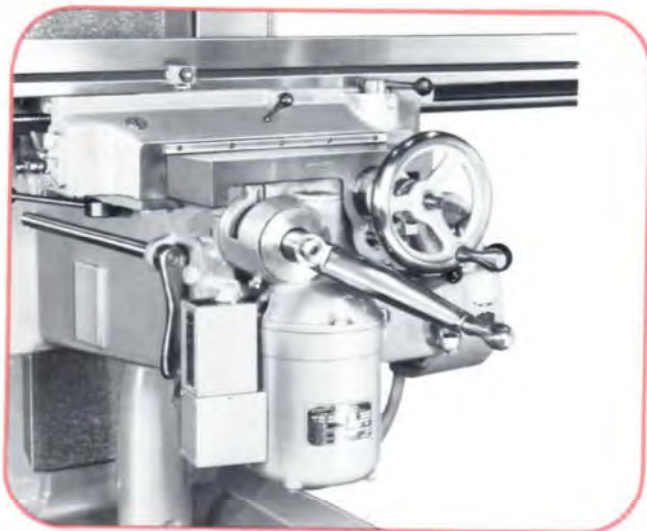
The saddle of the 2UVR and 2VG mills is amply proportioned to provide longer, broader bearing surfaces in knee-to-saddle and table-to-saddle ways. Sturdy gibs are easily adjusted for alignment, accuracy of movement and compensation for wear. Built-in Bijur pump assures proper lubrication. One shot of the Bijur lubricates table-to-saddle ways, knee-to-saddle ways, table screw and power feed gearing conveniently and efficiently. Mating parts of knee, saddle and table are carefully hand scraped to assure proper fit, adequate oiling and smooth accurate operation.

POWER TABLE FEED AND RAPID TRAVERSE

The 2UVR and 2VG are equipped with a built-in motor driven longitudinal table feed-box which provides a convenient range of five rates of feed and rapid traverse. This unit is independent of the table, being a part of the saddle construction and having a hand scraped supporting way on the knee. The feed rates of $\frac{3}{4}$ ", $1\frac{3}{8}$ ", $2\frac{3}{8}$ ", 4 and 7 inches per minute are changed quickly and easily by a single crank at the operator's fingertips. The rapid traverse has a speed of 70 inches per minute and can be operated when the feed is engaged. Adjustable table stops are provided.

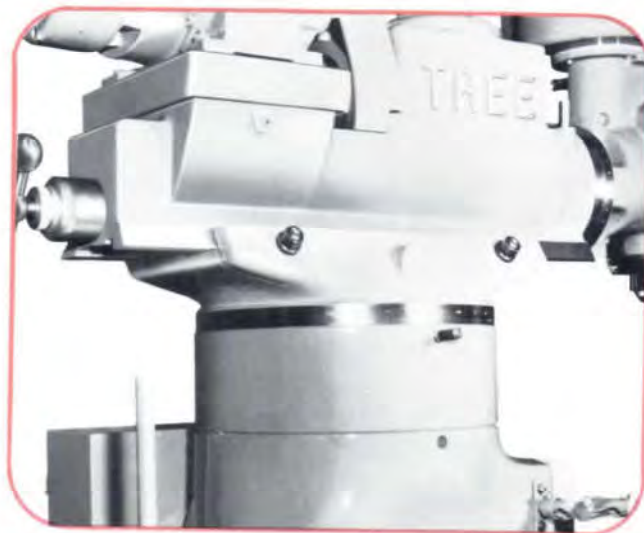


OPTIONAL EQUIPMENT



KE-35 ELEVATING UNIT

The KE-35 elevating accessory unit is designed for use on all TREE knee type milling machines to provide rapid vertical knee movement in addition to the hand crank operation. This rapid traverse results in faster set-up time and less operator fatigue. Traverse rate is 35 inches per minute. Hand crank is disengaged during traverse.

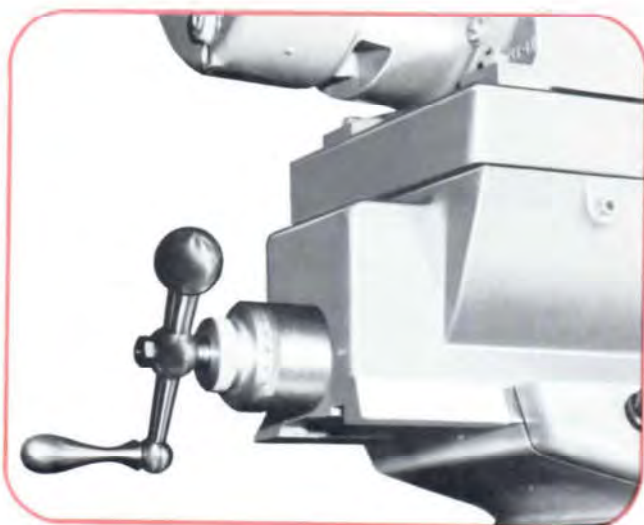


COLUMN RISER

In order to achieve additional vertical capacity, TREE milling machines can be equipped with risers as shown. These 5" risers are built with characteristic TREE accuracy and ruggedness and can be used without appreciable loss of milling accuracy.

RAM ADJUSTING SCREW

TREE ram adjusting screw moves the ram by means of a hand crank with a graduated dial, enabling the operator to move the head a known distance beyond the limit of the table movement, maintaining his other points of reference.



2VG HEAD CONTROL STATION

The 2VG head control station provides the operator with an additional convenience. Controls can be reached quickly and easily. Control station fits over standard 2VG head.



TRACER MILLS



GETTYS ALL-ELECTRONIC CONTROLLED

The 2UVR and 2VG mills are available equipped with either 2D or 3D Gettys all-electronic systems . . . for contouring (2 axis or 3 axis), die-sinking (scanning) or pencil tracing.



SCAN-O-MATIC CONTROLLED

TREE 2UVR and 2VG mills may be equipped with Scan-O-Matic tracer control. This adds fully automatic, hydraulic three-dimensional scanning and semi-automatic profiling while maintaining their full original ranges and capabilities.

TRUE-TRACE CONTROLLED

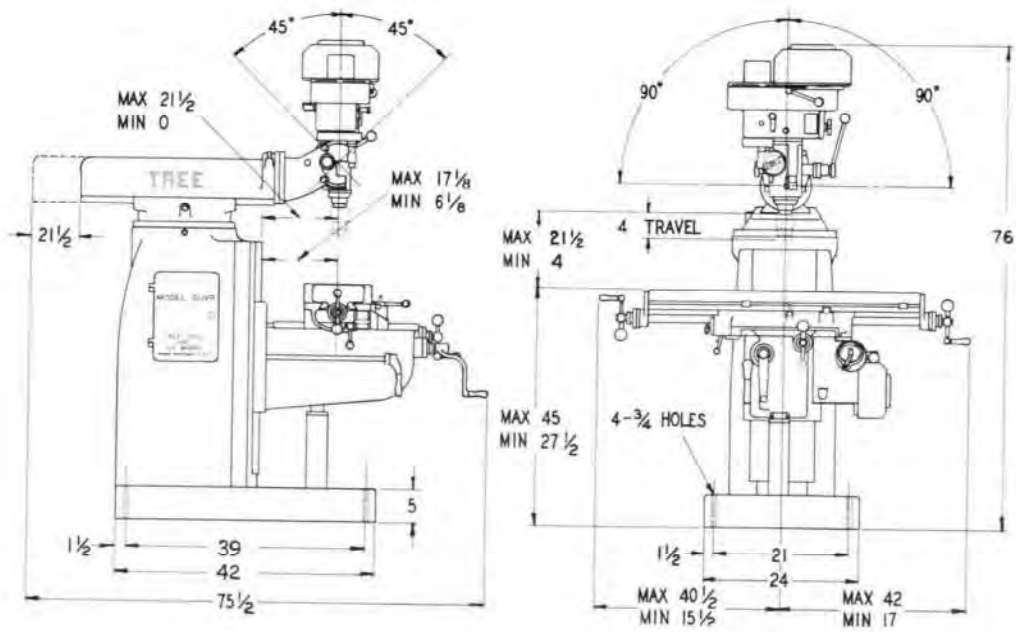
The installation of True-Trace 2D or 3D hydraulic equipment provides for 360° profiling or three-dimensional tracing of a pencil-trace nature or 360° automatic profiling with the addition of a Man-Au-Trace valve.

T-RAM ATTACHMENT

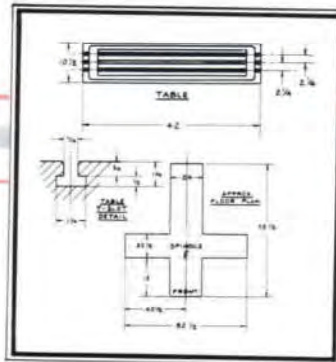
The TREE 2UVR mill is available with a T-ram for mounting two or three heads for standard or tracer mill operation. Heads are mounted on adapters which can be spaced as desired.



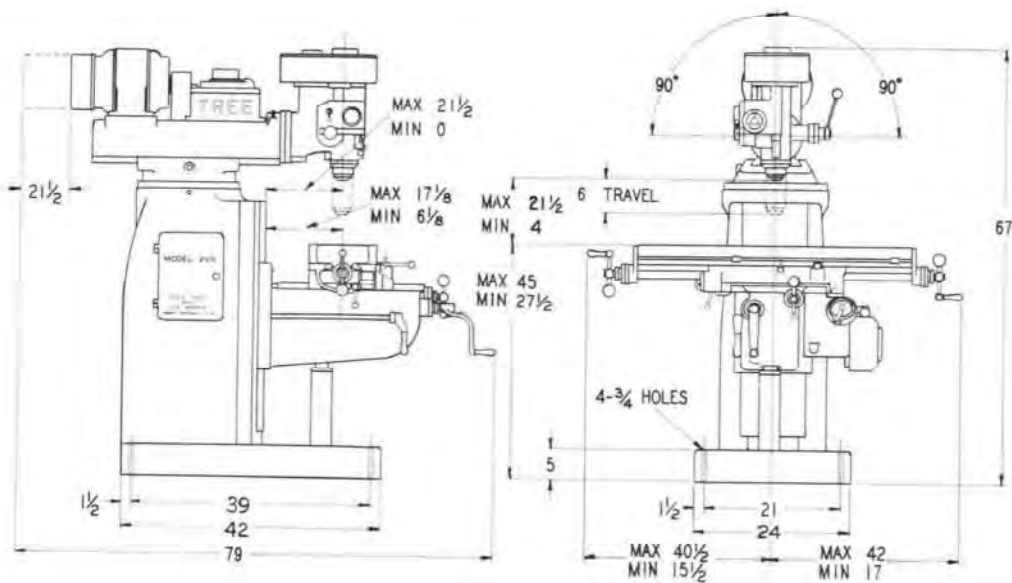
2UVR



NET WT. - 3000#
SHIPPING WT. - 3300#



2VG



NET WEIGHT: 3200# SHIPPING WEIGHT: 3500#

SPINDLE:

Alloy steel — hardened and ground — mounted on precision ball bearings grease sealed at the factory. Quick acting cutter holding mechanism.
 ¾" dia. cutter shank capacity.

SPINDLE SPEEDS:

Variable 60 — 3300 R.P.M.

QUILL:

Alloy steel — hardened and ground. Four inch travel by hand feed lever or power down feed. Enclosed micrometer depth stop for trouble-free operation. Feed — variable .0015 to .008" per revolution. Long wearing bronze clutch slips when feeding to positive depth stop.

TABLE:

Cast to high specifications of density and brinell hardness for a longwearing surface. 10½" x 42" with three ⅛" T-slots and coolant trough provided.

TABLE FEED:

Power feed to longitudinal table movement. Five feed rates — ¾"; 1⅜"; 2⅜"; 4" and 7" per min. Rapid traverse — 70" per min. Feeds changed by single lever — direct reading open-faced dial. Safety device provides overload protection when feed is in operation. Resets automatically.

SCREWS:

Five pitch — hardened and ground. Mounted in sealed ball bearings. Dials grad. in .001".

TURRET:

360° movement; one clamp locking and graduated movement for fast operation.

SPINDLE:

Alloy steel — hardened and ground — mounted on precision ball and roller bearings grease sealed at the factory. Quick acting cutter holding mechanism.
 1" dia. cutter shank capacity.

SPINDLE SPEEDS:

Range — 50-2500 R.P.M. (12 speeds)

Low — 50-73-105-155-216-310

High — 413-587-843-1240-1740-2500

Six geared changes in ram gear box. High and low range selection on head. Neutral position on head for rotating spindle by hand.

QUILL:

Alloy steel — hardened and ground. Six inch travel by hand feed lever hand wheel or power feed. Enclosed micrometer depth stop for trouble-free operation. 3 rates — .001", .0025", .006" per rev. Feed — both up and down. Adjustable trip on down feed. Trip for up feed.

TABLE:

Cast to high specifications of density and brinell hardness for a longwearing surface. 10½" x 42" with three ⅛" T-slots and coolant trough provided.

TABLE FEED:

Power feed to longitudinal table movement. Five feed rates — ¾"; 1⅜"; 2⅜"; 4" and 7" per min. Rapid traverse — 70" per min. Feeds changed by single lever — direct reading open-faced dial. Safety device provides overload protection when feed is in operation. Resets automatically.

SCREWS:

Five pitch — hardened and ground. Mounted in sealed ball bearings. Dials grad. in .001".

TURRET:

360° movement; one clamp locking and graduated movement for fast operation.

RAM:

Dovetail type; permits moving the spindle to any position without the necessity of resetting for alignment. Movements to Ram and Headstock are controlled by rack and pinion.

RANGE:

Longitudinal feed — 25"; Transverse feed — 11"; Vertical feed — 17½". Distance — centerline of spindle to column face; Max. — 22"; Min. — 0". Distance — end of spindle to table; Max. — 21½"; Min. — 4". Head — rotated across table 45° each way; with table 90° each way.

STANDARD EQUIPMENT:

Electrical — 1½ HP Spindle motor controlled by magnetic starter and reversing switch. ½ HP feed motor controlled by magnetic starter.

Mechanical — Handles for all feed screws; crank for knee elevating screw. Handle for all rack and pinion movements. Wrench for head clamping bolts. Four collets — ¾"; ½"; ⅝" and ⅜".

LUBRICATION:

One-shot pressure pump built into saddle to oil the table ways, top of knee saddle, feed lever, feed screw, and table feed gearing.

Feed gear box fully enclosed, and lubricated by a splash system. Screw bearings are sealed and require no lubrication.

Spindle bearings are grease sealed and require no lubrication. Oil cups are provided to lubricate slow moving headstock parts and vertical knee ways.

RAM:

Dovetail type with integral gear box and motor mounted; permits moving the spindle to any position without the necessity of resetting for alignment. Movements to Ram and Headstock are controlled by gearing.

RANGE:

Longitudinal feed — 25"; Transverse feed — 11"; Vertical feed — 17½". Distance — centerline of spindle to column face; Max. 21½; Min. 0. Distance — end of spindle to table; Max. 21½; Min. 4 Head — rotated with table 90° each way.

STANDARD EQUIPMENT:

Motors — 3 HP spindle motor with magnetic brake. ½ HP feed motor.

Electrical — Spindle motor push button controlled by magnetic reversing starter. Feed motor selector switch controlled by magnetic starter and "on" indicated by signal light. Low voltage control circuit.

Mechanical — Handwheels for all feed screws; crank for knee elevating screw. Handle for all rack and pinion movements. Wrenches for head clamping bolts. Six collets — ⅝"; ½"; ⅜"; ¼"; ⅛" and 1".

LUBRICATION:

One-shot pressure pump built into saddle to oil the table ways, top of knee saddle, feed lever, feed screw, and table feed gearing.

Feed gear box fully enclosed, and lubricated by a splash system. Screw bearings are sealed and require no lubrication.

Oil cups are provided to lubricate slow moving headstock parts and vertical knee ways.

Ram gear box splash lubricated from reservoir. Head gearing lubricated by continuous running built-in pump.

JUL 11 1975



TREE Machine Tool Company, Inc.

1600 JUNCTION AVENUE / RACINE, WISCONSIN