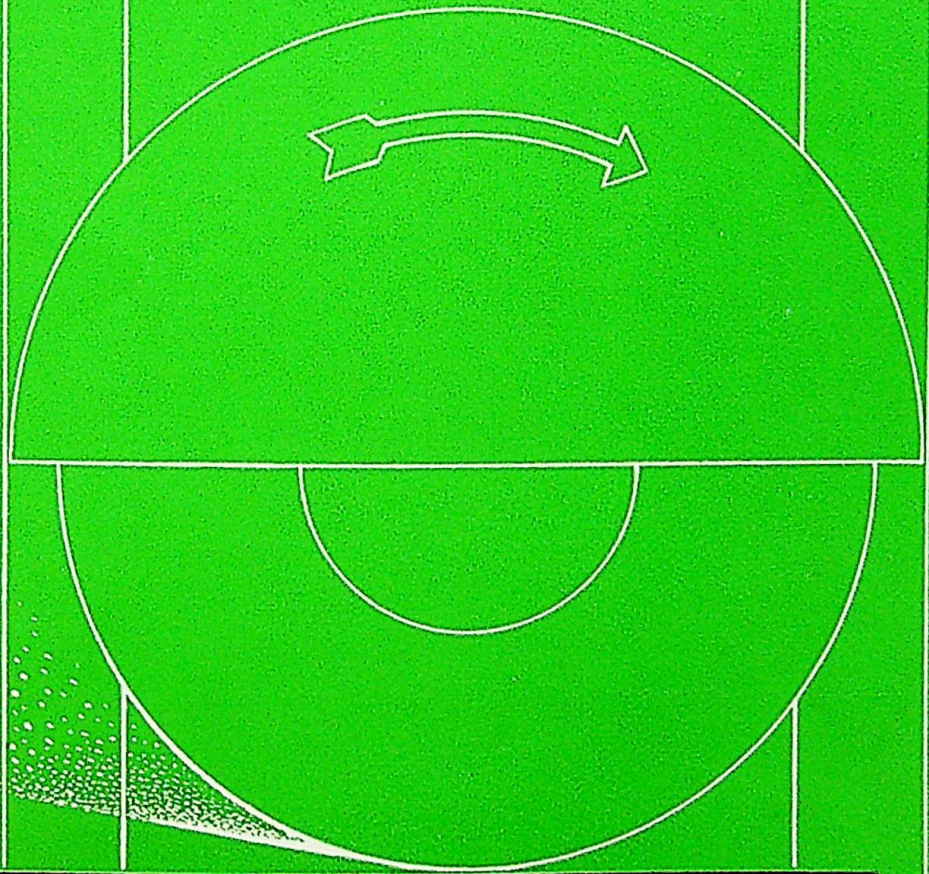


ABRASIVE

SURFACE GRINDERS

SEP 29 1954



ABRASIVE MACHINE TOOL COMPANY
EAST PROVIDENCE, . . . RHODE ISLAND

No. 1½ SURFACE

FOREWORD...

THE ABRASIVE MACHINE TOOL COMPANY was founded in 1916 with sound ideas for the manufacture of Surface Grinding Machines capable of producing unusually accurate, smooth, flat surfaces.

One such idea was that of having the bed of the machine a one piece casting, heavily ribbed to give the machine the rigid foundation which must be a basis of all accurate grinding.

Another important idea was that of the unit system of construction which permits easy access to parts for adjustment or repair.

Improvements made since 1916 have been the result of constantly expanding experience which has led to better design; use of better materials as they have become available; improved workmanship; and the most careful supervision of every operation.

Indicative of the Company's desire to further expand their machine tool manufacture is the announcement, on the last page of this bulletin, of the Abrasive No. IG Internal Grinder. This machine, like those shown here, is fully described in a separate bulletin.

Further information about Abrasive products — machines or accessories — will be furnished upon request.

SPECIFICATIONS

Type

No. 1½ Horizontal Spindle, Reciprocating Table. Hand Feed.

Capacity

Longitudinal, 15" (381 mm.).
Transverse, 10" (254 mm.), with Wet Grinding Attachment 9½".
Vertical 12" (305 mm.) under a 12" wheel.

Work Table

Work Surface, 15" x 10" (381 mm. x 254 mm.).
Overall, 11¼" x 48" (260 mm. x 1219 mm.).
Three Tee-slots, 7/16" (11.11 mm.) Spaced 2⅞".
Side of table working surface ground square with Spindle and can be used for setting up work.

Spindle

Hardened, ground and lapped. Chrome Carbon tool steel. 1¼" diameter, taper nose.
Carried in one phosphor-bronze adjustable box and two ball bearings (middle and rear).
Normal Speed, 1750 R.P.M. Removable Cartridge Type Assembly.

Wheels

Standard wheel is 12" diam. x ½" thick x 3" hole.

Speeds

No automatic feeds are, or can be, provided.

Feeds

All feeds by hand. Elevating handwheel graduated in quarter thousandths of an inch.
Transverse handwheel graduated in thousandths. One turn advances Saddle ¼". Handwheels can be graduated in millimeters if desired.

Drive

Motor drive only. Motor mounted directly on spindle. Power required is 1 H.P. at 1750 R.P.M., N.E.M.A. standard shiftless motor, precision balanced, dynamically and electrically. Push button starter, switch mounted inside base, is standard equipment.
For electrical circuits other than 2 or 3 phase, 60 cycle, ask the factory for information.
Cannot be furnished for operation on 25 cycle current.

Wet or Dry Arrangement

Abrasive individual Motorized Exhaust Attachment or Wet Grinding Attachment with Motorized Coolant Pump can be furnished.

Standard Equipment

Standard equipment consists of motor and control, one 12" x ½" grinding wheel, diamond holder, necessary wrenches, and bolts.

Floor Space

Transversely, 50" (1270 mm.). Longitudinally, 65" (1651 mm.).

Weights

Net weight, 1325 lbs. (600 kgs.).
Gross Domestic shipping weight, 1540 lbs. (700 kgs.).
Gross Foreign shipping weight, 1700 lbs. (775 kgs.).
Cubic contents boxed for export, 85 cu. ft.

Shipping Dimensions

Domestic, 73" high x 38" wide x 44" deep.
Export, 74" high x 38" wide x 44" deep.

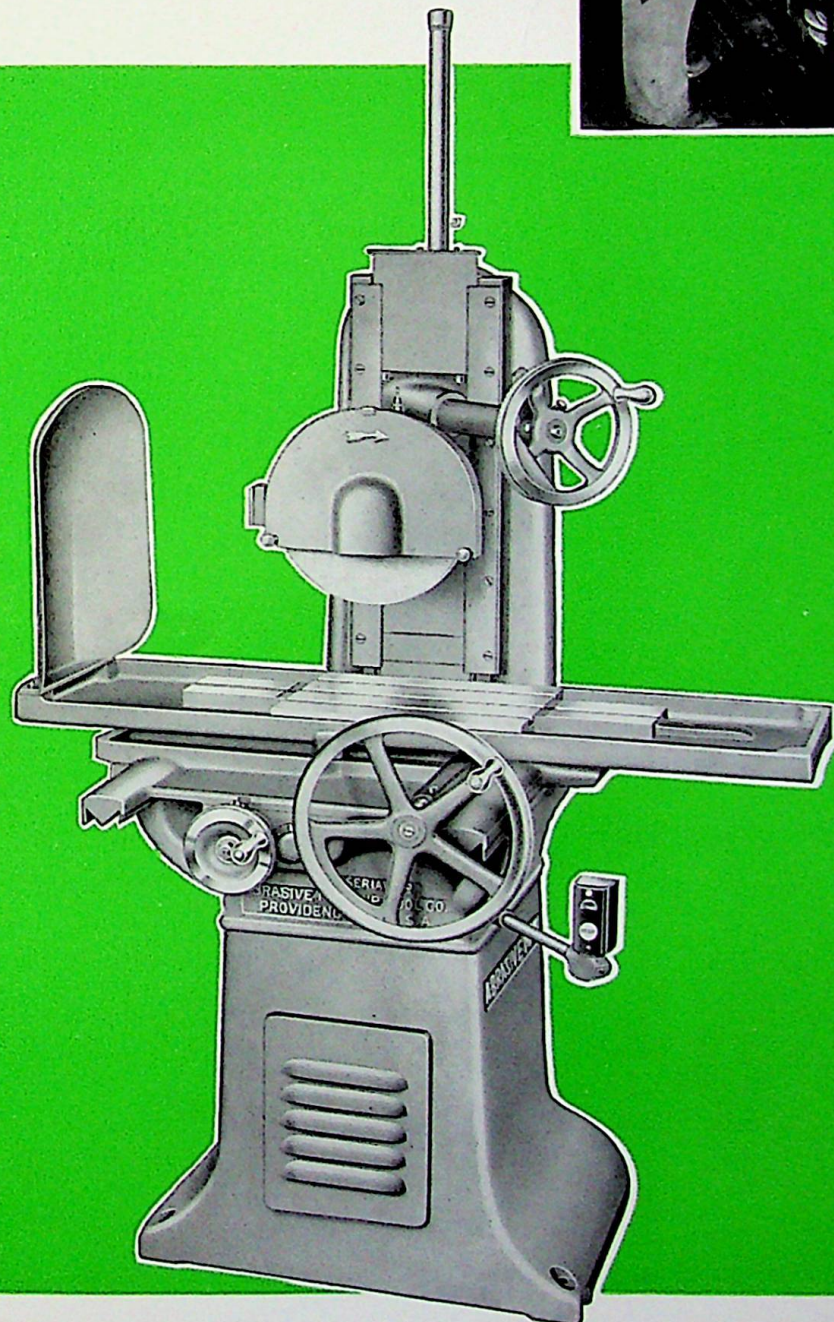
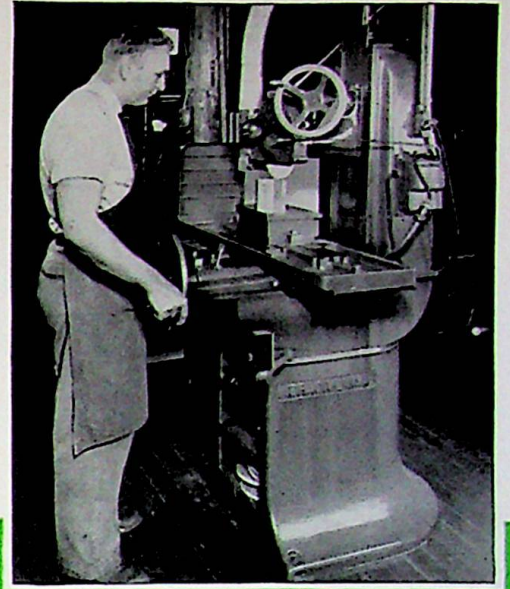
GRINDING MACHINE

Recommended Uses

The Abrasive No. 1½ grinds accurately, gives a fine finish, and is recommended for the finest types of flat, form, and gage grinding. It is a hand feed grinder designed to handle the large number of toolroom jobs which consist of one piece only and for which no mechanic will bother to adjust automatic feeds and stops. It has an unusual capacity, handling work 15" long x 10" wide x 12" high.

Features

Built-in motor, an integral part of head; hand feeds, eliminate many moving parts; hand wheels of good size, conveniently located; vertical adjustment rapid and sensitive; wearing surfaces easily lubricated.



No. 3B SURFACE GRINDING

Recommended Uses

The Abrasive No. 3B is recommended for production and tool room jobs calling for a fast, accurate, fully automatic, surface grinding machine.

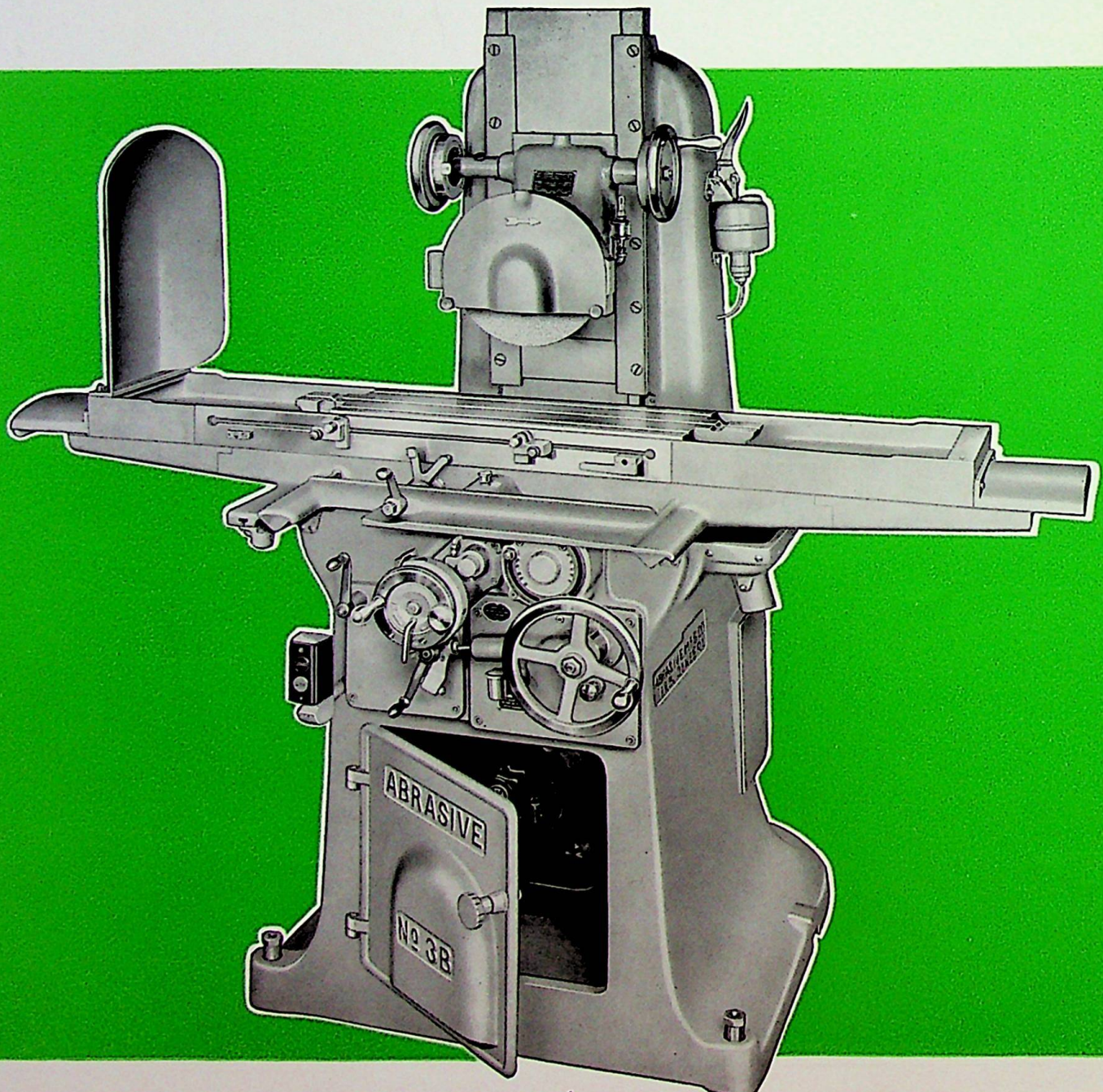
Hundreds of No. 3B are now in use in automotive, airplane engine, tank, munitions, and tool plants helping to produce the accurate, interchangeable parts necessary to maintain mass production schedules.

Features of Construction

The bed is of typical Abrasive design, a one-piece casting made rigid by heavy ribs and strongly reinforced openings. The head is suspended on a ball thrust bearing and accurately cut acme threaded screw. Adjustments for wear are provided. Elevating hand wheel is graduated to .0001".

The saddle is of the deep box type for stiffness; ample means of oiling the ways are provided.

Table is well ribbed to provide maximum rigidity, has necessary T-slots, safety and adjustable dogs.

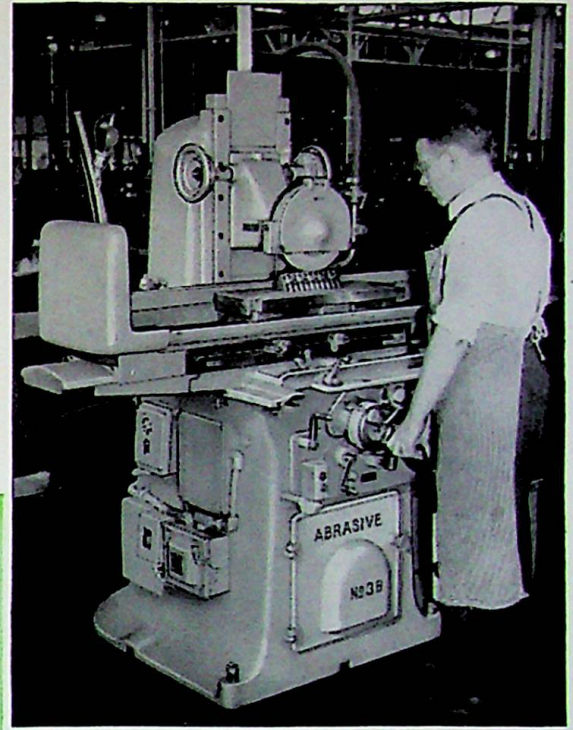


MACHINE - Horizontal Spindle

The cross feed mechanism is a carefully built, simple, durable unit. The hand wheel has .001 graduations, an adjustable index pointer, and a micrometer feed gear for use in fine adjustments for side wheel grinding. A one-shot lubrication system is used.

Variations of the No. 3B

This machine, when furnished with a motorized spindle, similar to the No. 11½ (page 3), is known as the No. M3. When furnished with hardened and thread ground feed screws, hardened and ground ways and full automatic pressure lubricating system it is designated as the No. 3S.



SPECIFICATIONS

Type

No. 3B Horizontal Spindle, Reciprocating Table, Mechanical Feeds.

Capacity

Longitudinal, 24" (610 mm.). Total movement, 26" (660 mm.).
Transverse, 8" (220 mm.) Total transverse movement, 9" (229 mm.).
Vertical, 12" (300 mm.). Total vertical movement, 13" (330 mm.).

Work Table

Work Surface, 24" x 8" (610 x 200 mm.). Overall, 66" x 10½" (1500 x 270 mm.).
Three Tee-slots, 9/16" for ½" std. T Bolts (14.28 mm.).

Spindle

Chrome steel, hardened, ground and lapped. 1⅝" diameter, taper nose, carried in phosphor bronze box at front, adjustable for wear, and super-precision ball bearings at rear. Whole assembly mounted in removable cartridge type housing.

Normal speed, 2290 RPM.

Spindle driven by endless flat belt.

Wheels

Standard wheel, Type I, Face "A," 10" diameter x ¾" thick x 3" hole. (254 x 19 x 76 mm.). Larger diameters furnished on special order...

Speeds

Two table speeds of 20 ft. and 40 ft. per minute respectively.
Change of speed made with push-pull knob at front of gear box.

Feeds

Automatic in longitudinal and transverse directions.

Adjustable dogs on table and saddle control length of feeds and safety dogs prevent damage to mechanism.

Wheel slide provided with one hand wheel graduated in 1/10 thousandths for fine feed and one hand wheel with 1 to 3 ratio for quick movement.

Transverse feed hand wheel provided with micrometer adjustment and dial graduated in thousandths.

Table hand wheel provided with automatic lock-out so that it will not revolve when power feed is thrown in, and cannot be engaged.

All hand wheels located in most natural positions for operator.

A built-in shock absorber in the gear case cushions table reversal.

Automatic cross feed adjustable from 0 to .070 at either or both ends of table stroke.

A friction gear in longitudinal feed mechanism protects same from damage in case of collision.

Drive

Either countershaft or motor.

One motor only required, 3 HP at 1750 RPM. Standard motor and magnetic starter with push button control used. A 5 or 7½ HP motor can be used for special grinding.

Magnetic starter is mounted in enclosed compartment in base.

Wet or Dry Arrangement

Either Dust Exhaust or Wet Grinding Attachments are available. Both attachments can be furnished on the same machine, whether or not it is equipped with generator or motor or both.

Wet grinding attachment consists of table guards, wheel hood, connections, portable tank, and motorized centrifugal pump.

Standard Equipment

Standard equipment consists of one grinding wheel 10" x ¾", diamond holder less diamond, necessary tools, wrenches, etc.

Floor Space

Transversely 48" (1220 mm.). Longitudinally, 98" (2480 mm.).

Weights

Net weight, 2700 lbs. (1230 Kgs.). Gross Domestic Shipping Weight, 3000 lbs. (1379 Kgs.).

Gross Foreign Shipping Weight, 3300 lbs. (1500 Kgs.).

Shipping Dimensions

Domestic, 48" x 53" x 73". (1219 x 1346 x 1854 mm.).

Export, 50" x 58" x 74". (1285 x 1490 x 1880 mm.).

Miscellaneous

Magnetic chucks, vises, high speed attachment, and generator or rectifier for operating magnetic chuck, can be furnished for this machine. The Saddle is carried in V-ways.

The Wheel Slide is carried in square ways, and provided with adjustable taper gib.

No. 34 SURFACE GRINDING

Recommended Uses

The Abrasive No. 34 is recommended for the many types of flat grinding that can be done faster and more economically by a properly designed surface grinder using a vertical spindle and ring wheel. Small flat dies, washers, punches, spacers, parallels, chasers, and raising blocks are good examples of such work.

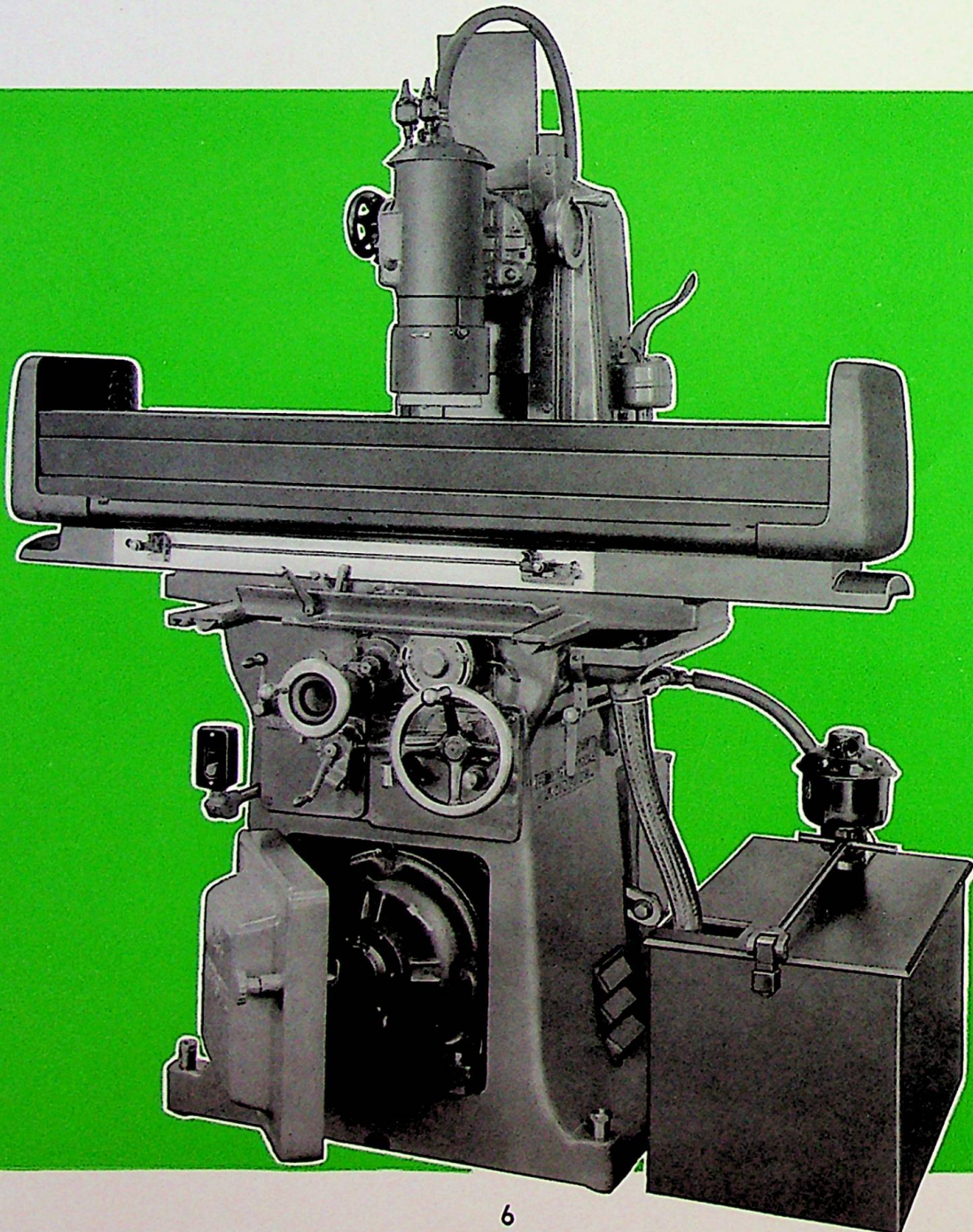
The use of a rotary magnetic chuck, as illustrated on page 7, will increase production of small parts.

Features of Construction

The bed is a one-piece casting, strongly ribbed, and well proportioned. It follows the well-known Abrasive principle of design which was originated by this Company.

The heavy spindle, mounted on high-grade ball bearings at top and bottom, is driven by hardened and lapped spiral bevel gears. These gears are lubricated by oil under pressure, supplied by a separate geared pump. The operation is smooth, positive, and powerful.

The saddle is deep and well ribbed to prevent distortion, and engages with the bed by two V-ways.



MACHINE - Vertical Spindle

The table is comparatively light in weight but deep to maintain proper alignment. It reciprocates on the saddle in one V-way and one flat way.

The transmission case is a complete drive unit, readily detachable from the machine. A built-in shock absorber eliminates shock of table reversal, and two speeds are available.

Lubrication of most of the bearings is by means of a Bijur one-shot system. Transmission case, table ways and saddle ways are automatically lubricated from ample reservoirs.

Materials and workmanship, the finest obtainable, are fully guaranteed for one year against defects.



SPECIFICATIONS

Type

No. 34 Vertical Spindle, Reciprocating Table, Automatic Down Feed.

Capacity

Longitudinal, automatic, 24" (610 mm.) total movement 33" (838 mm.).
Transverse, hand, 8" (200 mm.) total movement 9" (229 mm.).
Vertical, automatic, 12" (305 mm.) total movement 13" (330 mm.).

Work Table

Work Surface, 8" x 24" (200 x 610 mm.) overall 59" x 10 1/2" (1500 x 270 mm.). Three 9/16" T-Slots (14.28 mm.) for 1/2" T-Bolts.

Spindle

The wheel spindle is an alloy steel of massive proportions to eliminate torsional vibration. It is mounted in large radio-thrust ball bearings, provided with automatic adjustment for wear and end-thrust.

Spindle is carried in a very heavy wheel slide which has square vertical ways and taper gib to take up wear. This slide is suspended on a ball thrust bearing and actuated by means of worm and worm wheel, elevating screw and bronze nut.

Wheels

Standard wheel is a Type 2 cylinder wheel, steel back, 5" in diameter. On special order 6" wheel equipment can be supplied.

Speeds

Normal spindle speed for 5" diameter wheel is 3050 R.P.M. Table speeds, 20 feet and 40 feet per minute. Changes made with push-pull knob at front of transmission case.

Feeds

Table feed from two-speed transmission case to long pinion, bull-gear and table rack. Hydraulic Shock Absorber reduces shock of table reversal to a minimum. Transmission case self-lubricating. Table feed automatic in either direction, length of stroke being obtained by setting of adjustable dogs. Reversing lever in saddle so table can be reversed by hand at any point.

A friction gear prevents damage to driving parts if table or work meets with a collision.

Transverse feed by hand.

Vertical feed automatic or hand adjustment. The amount of feed can be adjusted to advance from 0.000125" to 0.002", or 0.0025 mm. to

0.04 mm. at each table reversal. The dial can be set to a predetermined depth of cut and will automatically throw out the feed at the desired point, or it can be locked for continuous feeding. Wheel wear must be considered when working to close figures.

Hand wheel for fine adjustment, on left side of wheel slide is provided with dial graduated to 0.00025", or to 1/100 mm. if desired. Hand wheel for rapid adjustment, on right side, having 3 to 1 acceleration.

Drive—Individual Motor

Motor required, 7 1/2 H.P., 1750 R.P.M., open type, 40 deg. C. rise for continuous duty. When supplied by us we furnish ball bearing motor and magnetic starter with push button control. All wiring is fully enclosed, and all necessary belting is furnished.

Standard Equipment

Standard equipment consists of wet grinding attachment which includes table guards, wheel guard, connections, portable tank, and motorized centrifugal pump, one Type 2 grinding wheel, one wheel dresser, necessary tools and one can of soluble oil.

Floor Space

Transversely, 48" (1220 mm.). Longitudinally, 108" (2746 mm.).

Weights

Net weight, about 3000 lbs. (1360 Kg.).
Gross domestic shipping weight, about 3240 lbs. (1470 Kg.).
Gross foreign shipping weight, about 3620 lbs. (1640 Kg.).

Shipping Dimensions

Domestic, 48" x 53" x 77".
Export, 49" x 58" x 78" (1244 x 1473 x 1981 mm.).
Space occupied, about 128 cu. ft. (3.62 cu. meters).

Miscellaneous

Several makes and sizes of magnetic chucks are available for use and are recommended for a large variety of work.
Most of the lubrication is taken care of by a central one-shot system.

Attachments For Abrasive Grinders

There are several attachments which can be used with surface grinding machines to increase output, including:

Plain Vise

Jaws 4" wide, $\frac{3}{4}$ " deep, opening to $2\frac{1}{2}$ "; sliding jaw is bevelled to accommodate round or irregular sections; base has circular slots so that it can be clamped at an angle to the wheel

Swivel Vise

Handy for holding small pieces; body of the vise can be tilted 90° ; and the entire base swivelled 360° .

Eight Inch Index Centers

Can be furnished with index plate which divides practically all numbers to 50 and many beyond.

Radius and Angular Truing Device

Used for truing wheels up to $1\frac{1}{2}$ " wide, either concave or convex. A separate slide is designed to dress the wheel at an angle which can be read directly on the scale.

Rotary Grinding Attachment

With an individual motor-driven magnetic chuck is particularly useful for vertical spindle grinding.

More information about these and other attachments will be furnished upon request.

Announcing the New

ABRASIVE No IG INTERNAL GRINDER



The Abrasive No. IG Internal Grinder has been developed recently to handle the large volume of manufacture requiring a highly accurate, easily handled, internal grinder. Typical of such work is the huge quantity of die work, particularly those used in bullet and cartridge manufacture.

This machine will grind holes up to 12" diameter; has a longitudinal travel of 8"; and spindle cross feed of $3\frac{1}{2}$ ". Cross Feed is provided with hand wheel graduated .001". Longitudinal Feed has graduated hand wheel .001" as well as positive stop with micrometer adjustment. These fine graduations PLUS the rapid acting draw-in collet, and the quick operating hand feed, make the Abrasive No. IG an extremely handy and accurate tool.

Write for Bulletin IG.

ABRASIVE MACHINE TOOL COMPANY

Dealers in Principal Cities

EAST PROVIDENCE . . . RHODE ISLAND