

ARTER

PRECISION

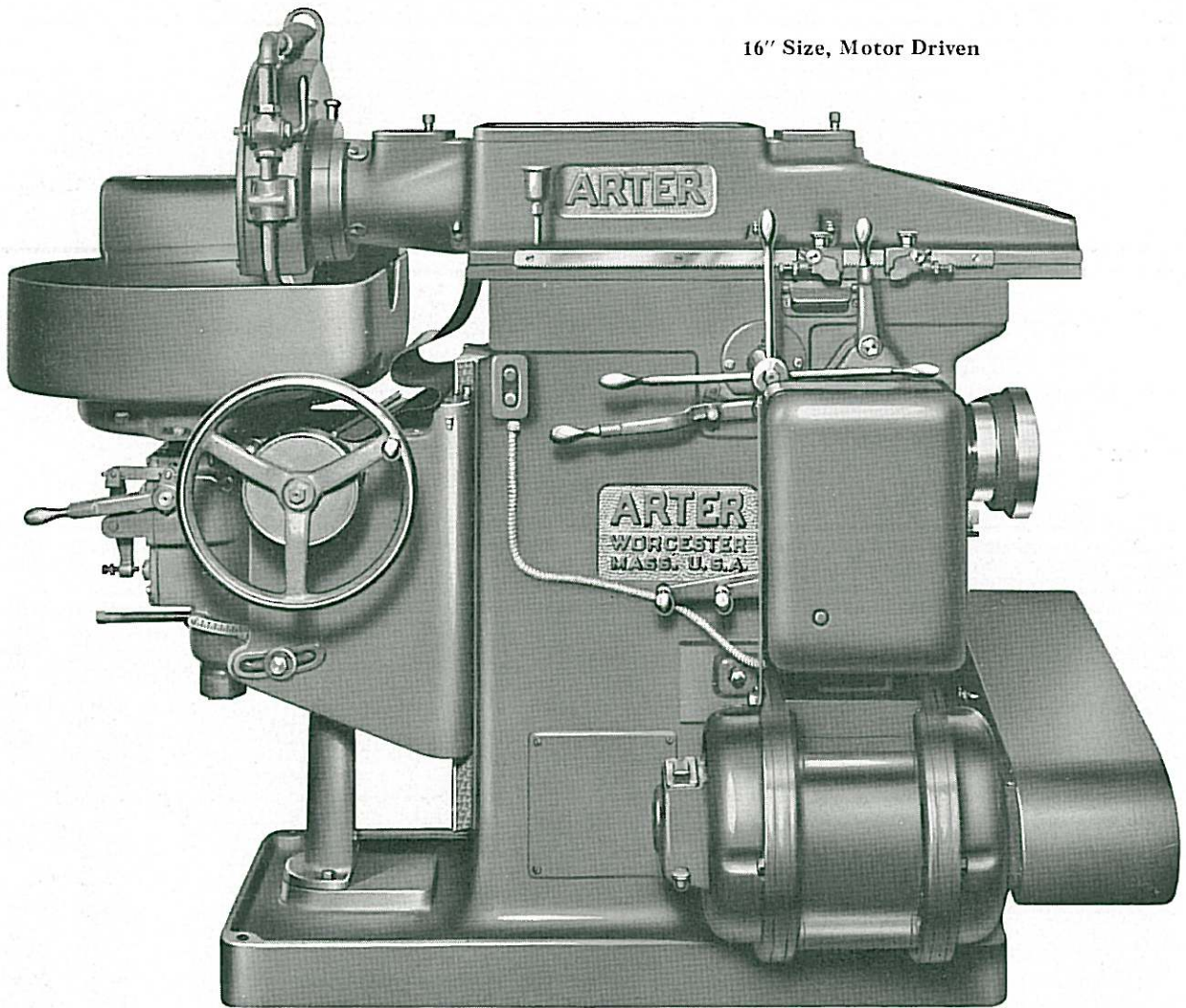
*Grinding Machines*



Rotary Surface Grinders  
Automatic Cylindrical Grinder  
Automatic Piston Ring Grinders  
Automatic Head Grinder

ARTER GRINDING MACHINE CO., WORCESTER, MASS., U. S. A.

16" Size, Motor Driven



## Model A

### *Rotary Surface Grinder*

*3 sizes, 8", 12", 16"*

**T**HE Arter Grinding Machine Company has been building precision grinders for twenty years. Starting with Rotary Surface Grinders of small capacity the line has been extended so that it now embraces machines up to 30" capacity. In addition, the Arter line includes Automatic Cylindrical Grinders, Automatic Head Grinders and Automatic Piston Ring Grinders. These machines

are illustrated and briefly described in this booklet.

Individual bulletins, containing complete information, can be had on request.

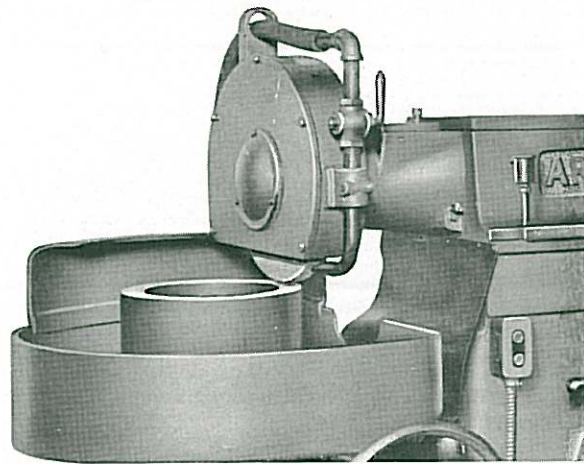
Model A Rotary Surface Grinders are built in three sizes, 8", 12", 16". They are mechanically operated as contrasted with Models B and C which are mainly hydraulically operated.

The machine, being of knee type construction, has great vertical capacity, a double tapered gib running the full length of the knee insuring accurate

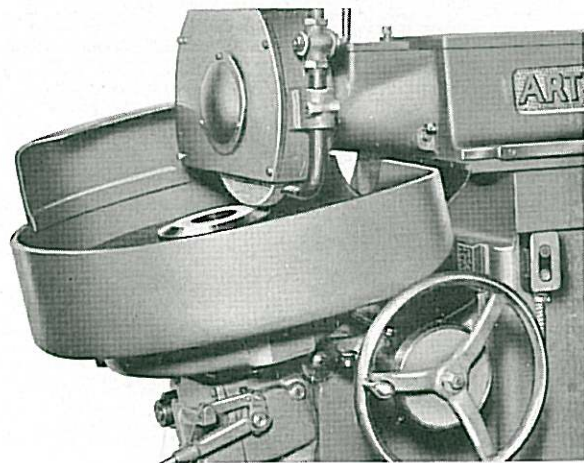
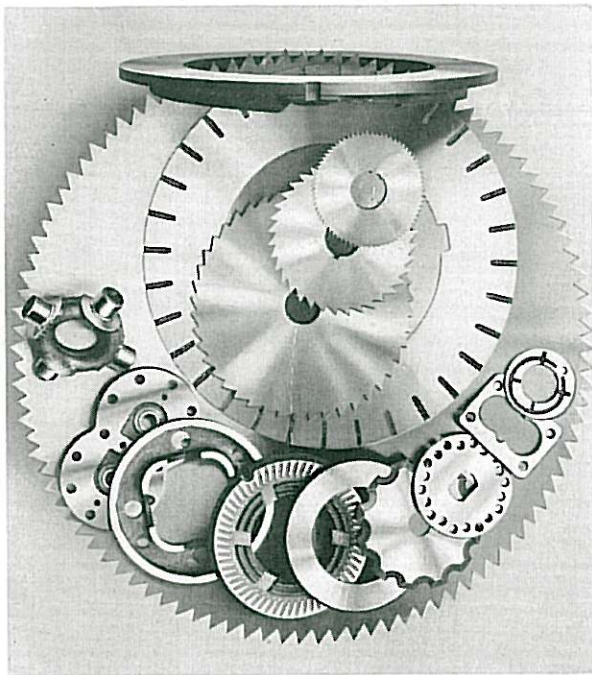


alignment and rigidity in all positions. The work table is tiltable for grinding concave or convex surfaces. An Arter magnetic chuck of great holding power is standard equipment. Automatic work table elevating feed can be provided as an extra. See page 11 for specifications.

The illustrations on this page show a variety of jobs that are ground on Arter Rotary Surface Grinders. Most of these are positioned directly on and held by the magnetic chuck. Others are held by fixtures developed by our competent staff of engineers.



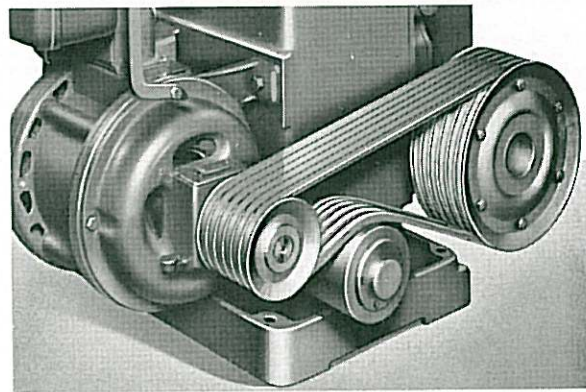
Great Vertical Capacity



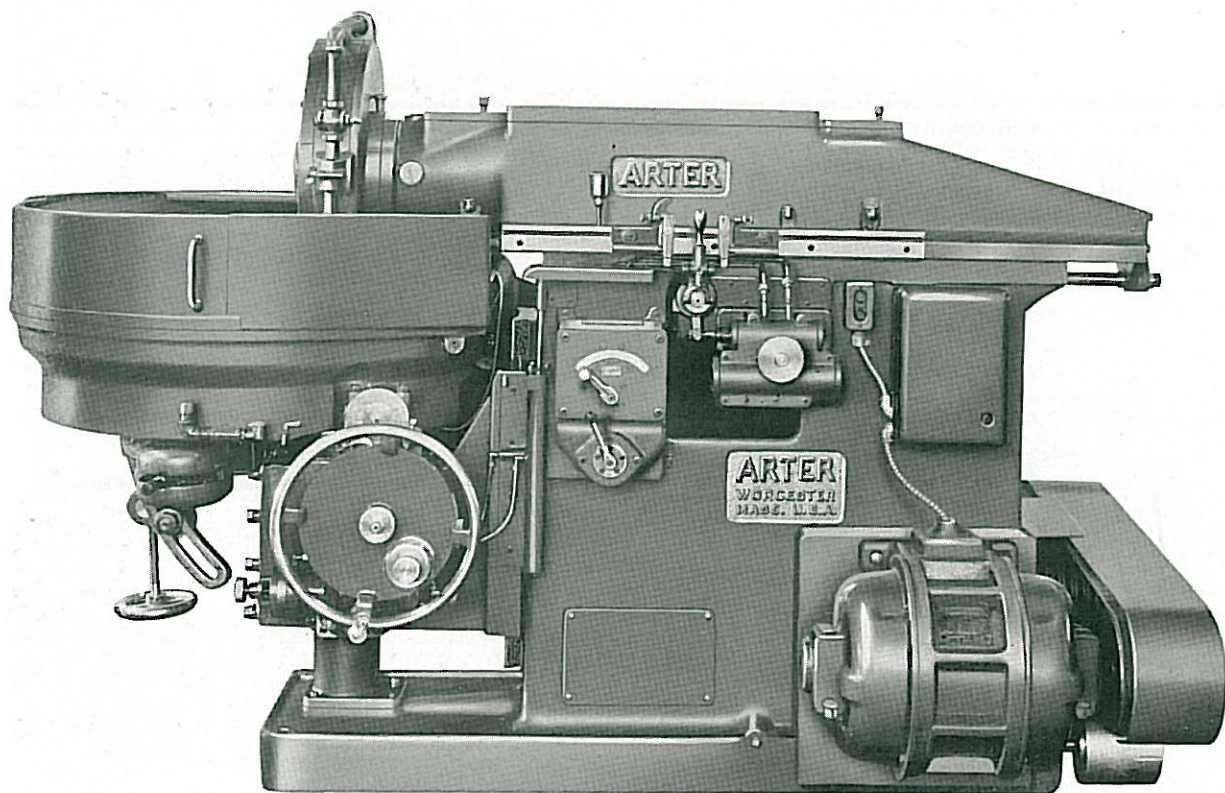
Tiltable Work Table

*Arter has been building precision grinding machines since 1915 . . . twenty years of progressive designing and manufacturing. Progressive because of the constant improvements and changes made to meet the current requirement of speed production.*

*Today Arter rotary surface and other Arter precision grinding machines are in daily use throughout America and abroad. Results obtained are their best advertisement!*



Motor Drive Arrangement



## Model B

### *30" Hydraulic Rotary Surface Grinder*

**M**ODEL B Rotary Surface Grinders are built in three sizes, 20", 24", 30". The wheel slide and the chuck are moved by hydraulic means, separate oil circuits and speed control valves being provided; thus a wide range of speeds is available individually for each of the units.

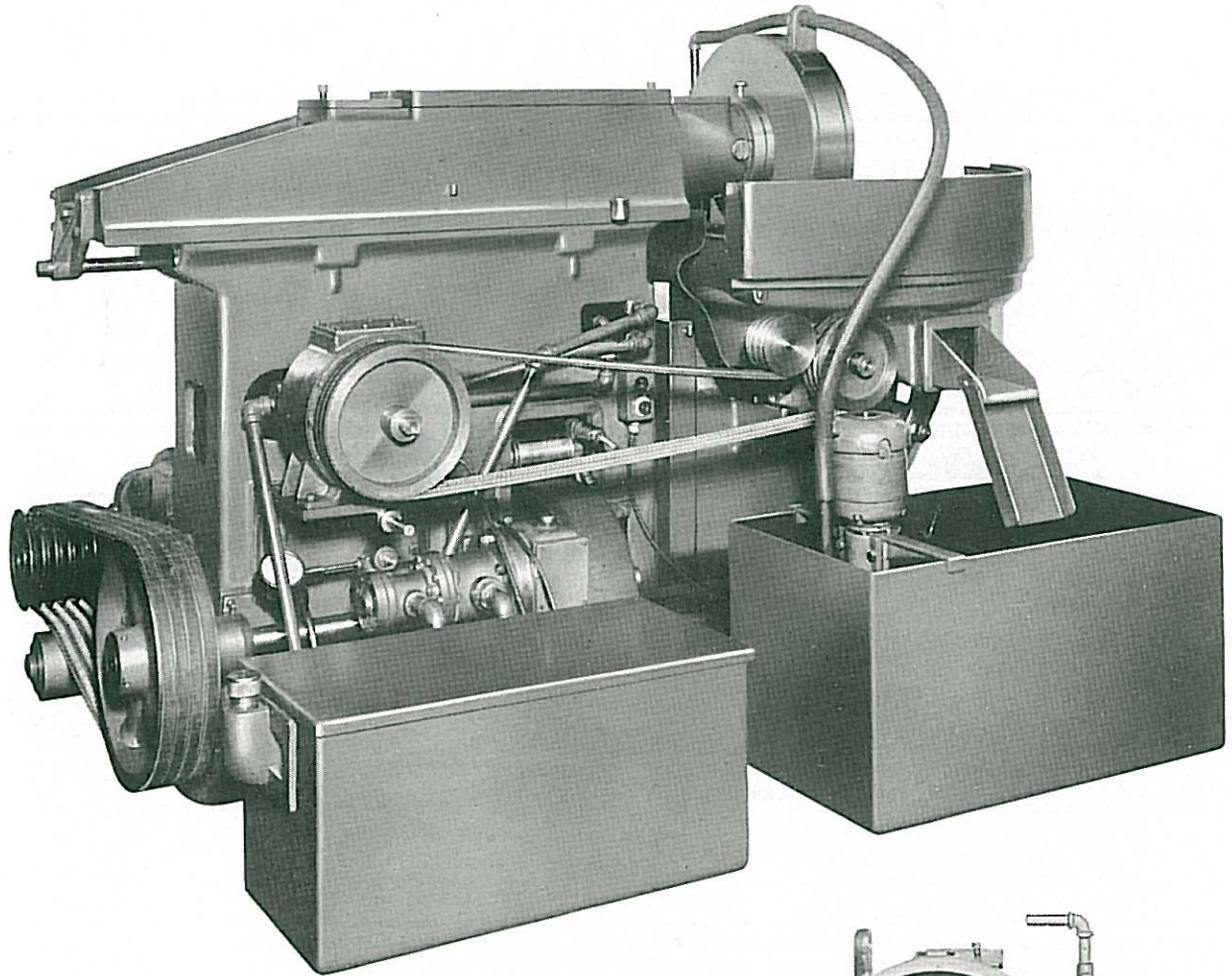
The main drive motor is hung on the front wall of the base, the drive to the main shaft being by vee belts. From this shaft the wheel spindle is driven by a 6" flat belt.

A pair of oil pumps, tandem-mounted, provide oil to the wheel slide cylinder and to the hydraulic chuck drive motor. From this motor the chuck is

driven by vee belts, a worm, and a worm wheel, which is attached to the chuck. The work table can be tilted for grinding concave or convex surfaces. The wheel is trued by placing a diamond holder on the chuck. As an extra a wheel truing attachment, mounted on top of the wheel guard, can be provided.

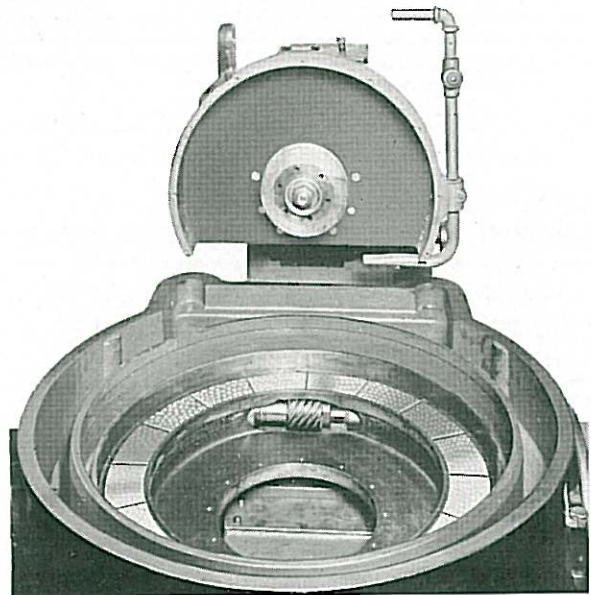
The machine, as illustrated, has an automatic, hydraulically operated work table elevating attachment. The oil pump tank, and the electrically driven coolant pump and tank, are separate units being positioned on the floor behind the machine. See page 11 for specifications.

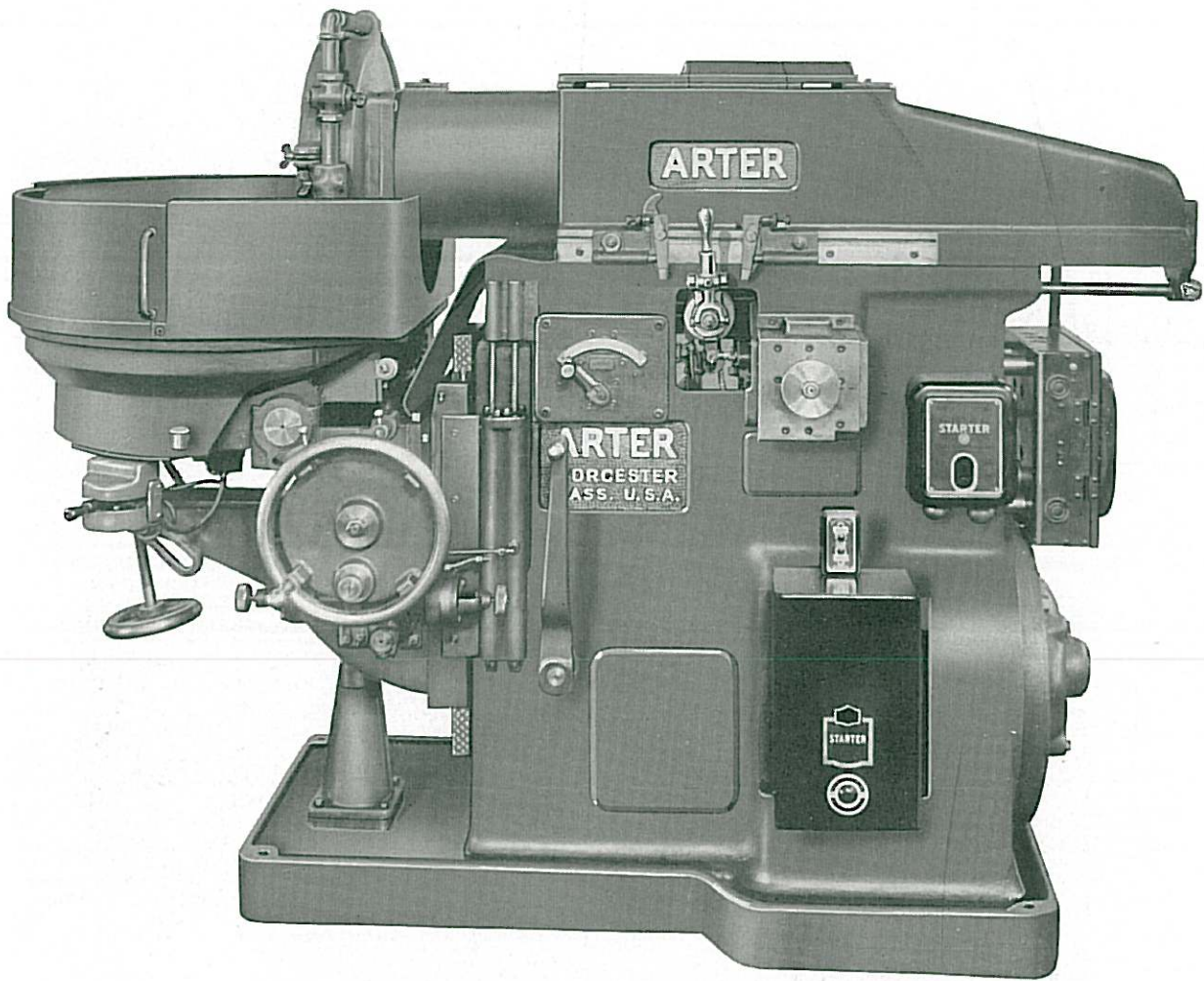




### *Rear View Model B 30"*

The illustration shows the chuck mounting. The chuck, instead of being mounted on a spindle, runs on a flat track bearing, thus affording a rigid support to the work regardless of the wheel position or pressure.





## Model C

### *16" Hydraulic Rotary Surface Grinder*

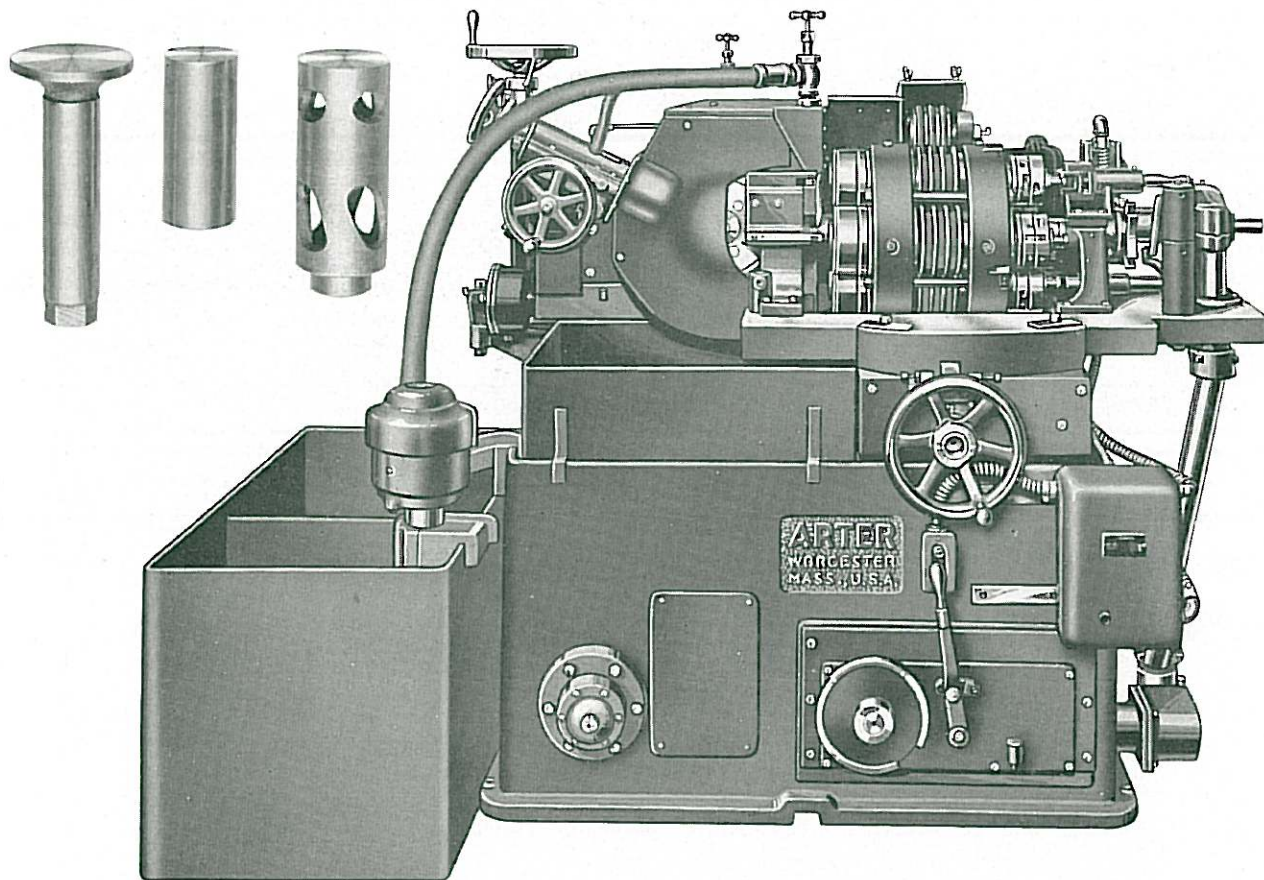
**M**ODEL C Rotary Surface Grinders are built in three sizes, 8", 12", 16". They are essentially heavy duty machines built to stand up under day in and day out runs of production work. The wheel slide and the chuck are driven hydraulically by oil with separate circuits and speed control valves for each, thus providing an unlimited range of speeds.

An electric motor is built into the base of the machine. On the extension of its shaft, are mounted in tandem two oil pumps. One supplies oil to a cylinder and piston for moving the wheel

slide and the other oil for an hydraulic motor to drive the chuck. The final drive to the chuck is by vee belts, a worm and worm wheel attached to the chuck. An electric motor is built into the head of the machine for driving the wheel spindle.

The rotor is mounted directly on the spindle. Thus, the maximum power available in the motor is delivered to the wheel. The work table, a powerful Arter magnetic chuck, can be tilted for grinding concave or convex surfaces. The diamond wheel truing fixture is permanently mounted in the grinding pan.





## No. 150 *Automatic Head Grinder*

**T**HE No. 150 Automatic Head Grinder is used to grind the heads or ends of valve push rods, push rod adjusting screws, bushings, etc., square, conical or curved in relation to the axis.

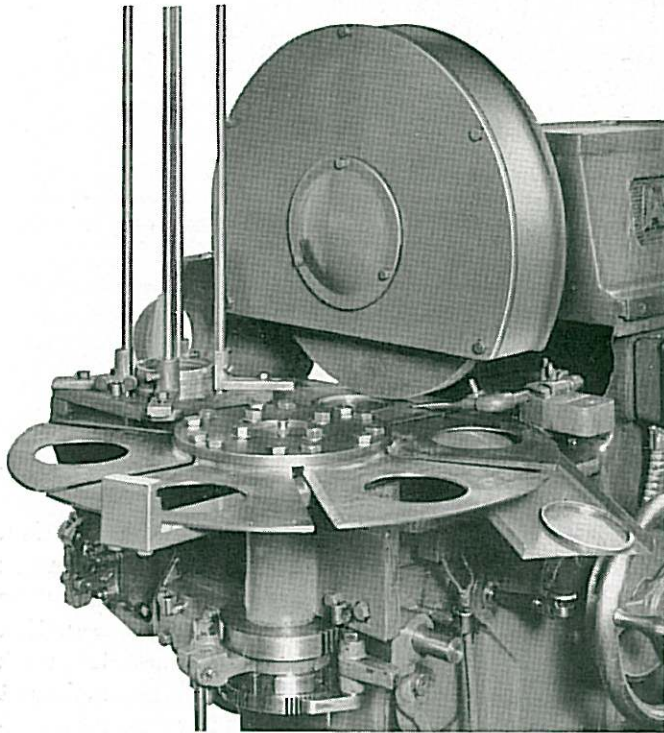
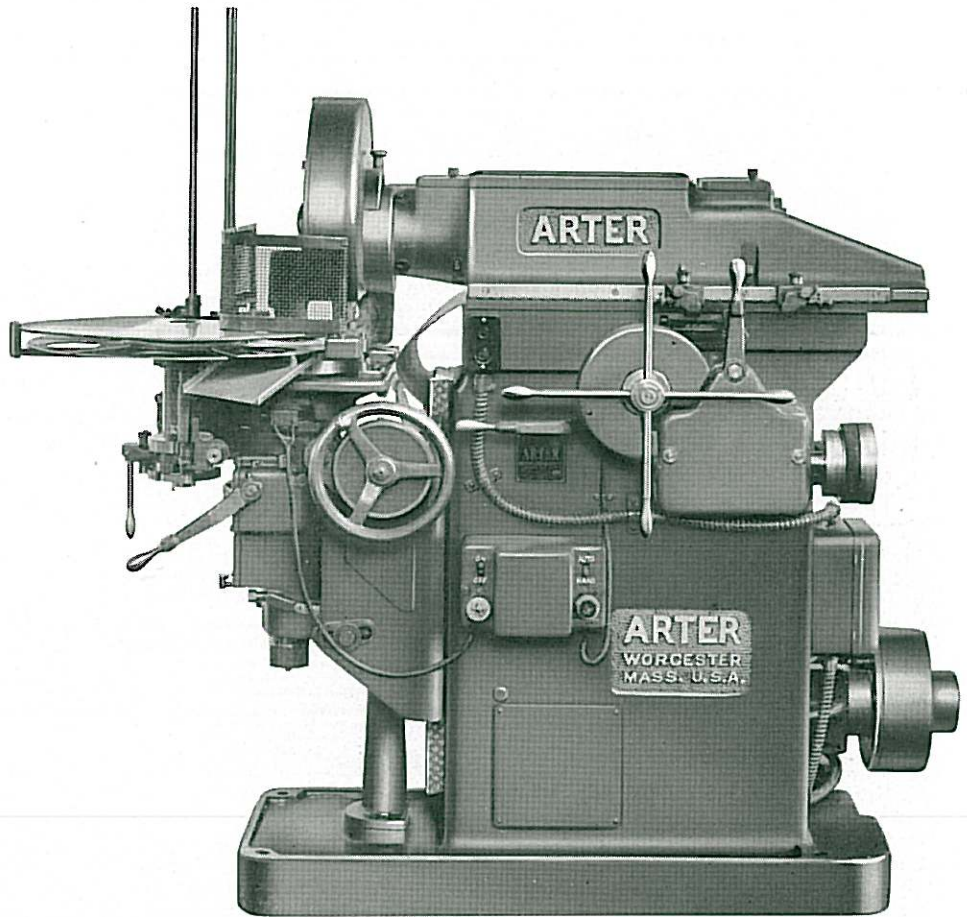
The work is loaded by hand into a work spindle collet against a spring. A latch holds the piece in place. As the work turret indexes to the second position the face of the work moves along a guide plate and then across a roll which positions the piece while the collet closes, so that the face of

each piece is in the same relative position to the grinding wheel.

When the turret indexes to the third position, the slide on which it is mounted carries the work across the face of the wheel, the wheel at the same time being fed into the work. At the fourth station the collet is automatically opened and the work ejected. An automatic work loading attachment can be supplied. See page 11 for complete specifications.



No. 2B  
*Automatic  
Piston Ring  
Grinder*



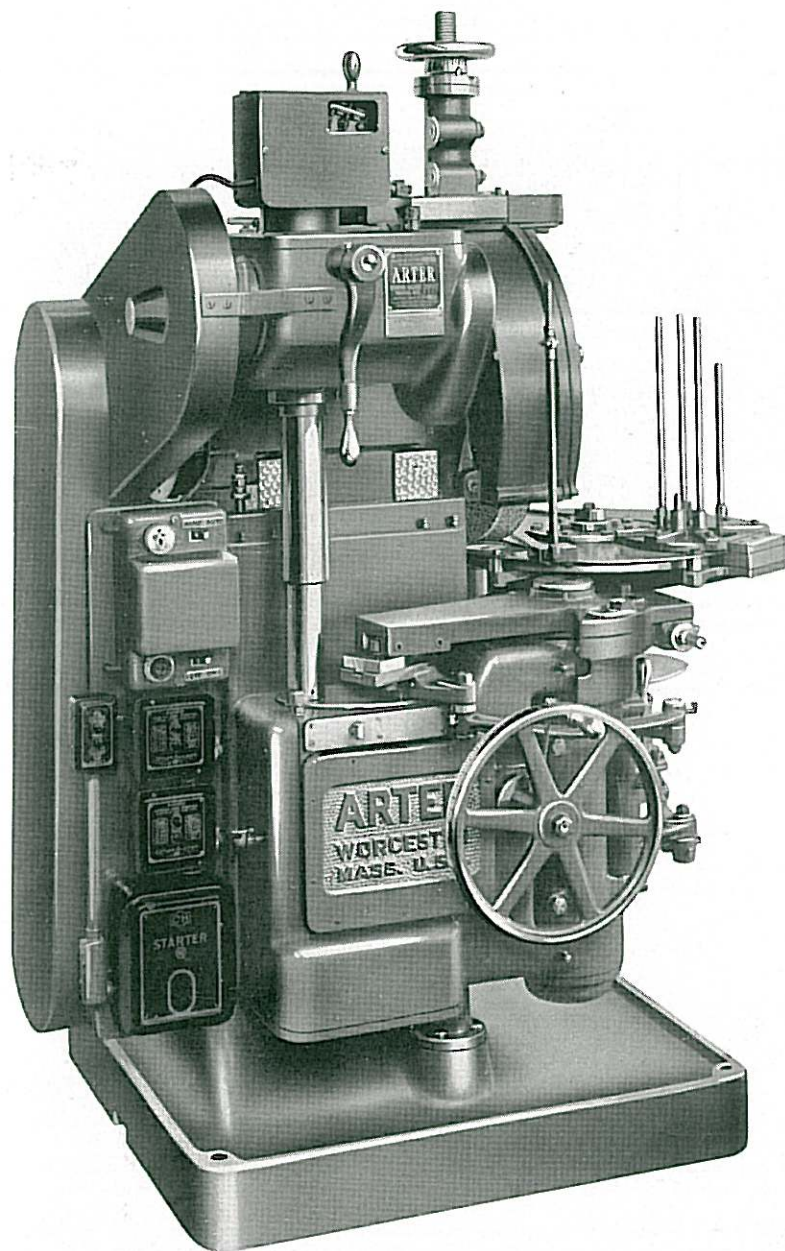
Automatic Work Handling Mechanism

**T**HE No. 2 B Piston Ring Grinder is built on the same general lines as the Arter Model A Rotary Surface Grinder.

The work is held on a revolving magnetic chuck, one ring being ground on one side at each reversal of the wheel slide. An automatic work handling mechanism carries a ring from the vertical magazine on to the chuck, at the same time moving the ground ring off the chuck and on to a chute leading to a container.





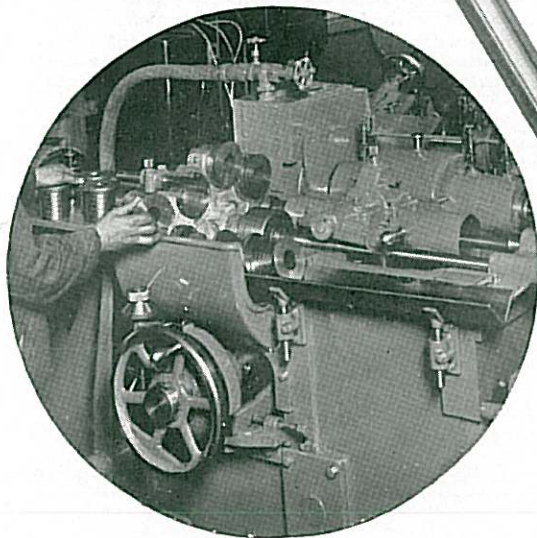
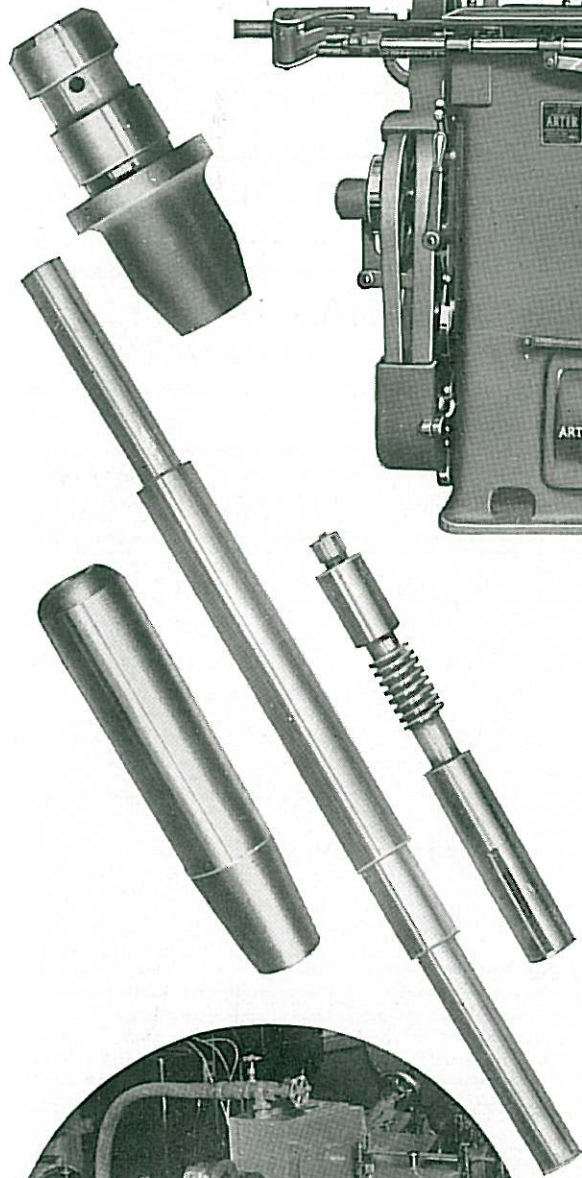
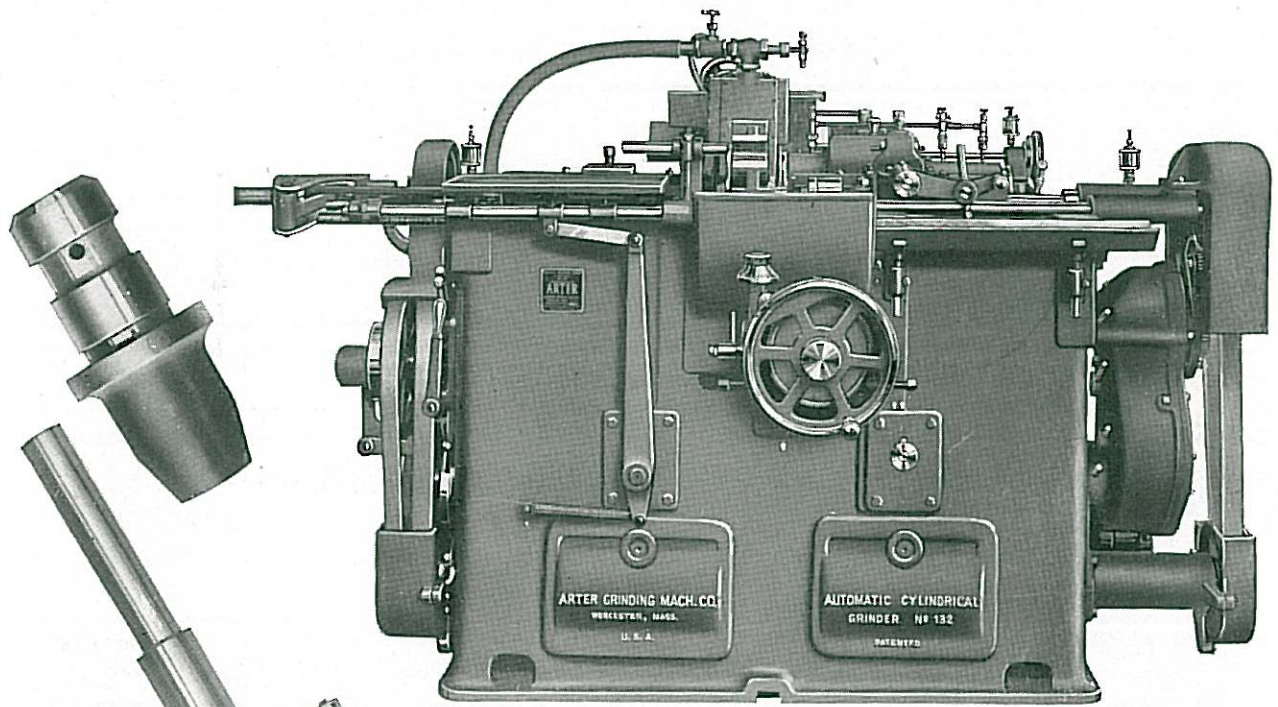


## No. 3A *Automatic Piston Ring Grinder*

**T**HE Arter No. 3-A Automatic Ring Grinder is fundamentally a rotary surface grinder of the peripheral wheel grinding type, designed especially for the high speed dry grinding of piston rings.

It comprises a grinding wheel spindle eccentrically mounted in a quill which, when rocked, feeds the wheel down on the work, a magnetic chuck mounted on a swinging bracket which, on moving, carries the work across the face of the wheel, and an automatic work handling device.

In one automatically controlled cycle a ring is carried from the stack on to the continuously revolving magnetic chuck, the chuck switch is closed, the swinging bracket carries the ring under and across the wheel, which at the same time is fed down on the work. Next, the chuck switch is opened, the wheel is lifted, and the ground ring is moved off the chuck and down a chute to a container as another ring is carried on to the chuck. Specifications will be found on page 11.



## No. 132 *Automatic Cylindrical Grinder*

**T**HE No. 132 Automatic Cylindrical Grinder grinds work on centers by the plunge-cut or straight in-feed method. It is particularly adapted to jobs requiring concentricity of several diameters, concentricity with the hole, or squareness with an end face.

The feed drum is loaded manually but all other movements of the machine are automatic. The work is carried into position and driven by the two live centers, the wheel under cam control feeds in grinds and retreats, the work drops off centers and is carried to and discharged on a chute. The illustration shows a few of the jobs to which the machine is particularly adapted.



### Model A Rotary Surface Grinders

	8"	12"	16"
Surface Diameter of Magnetic Chuck	8 $\frac{1}{2}$ "	14 $\frac{1}{2}$ "	17 $\frac{1}{2}$ "
Largest Diameter Wheel Clear Grinds	8 $\frac{1}{2}$ "	12 $\frac{1}{2}$ "	16"
Greatest Swing Inside Water Pan	11 $\frac{1}{2}$ "	16 $\frac{1}{2}$ "	20"
Vertical Capacity, Full Diameter Wheel	11"	9 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "
Tilt of Work Table for Convex Grinding	5°	12°	14°
Tilt of Work Table for Concave Grinding	5°	12°	16°
Size of Grinding Wheel—8" hole	12" x 1"	14" x 1"	14" x 1"
Chuck Spindle Speeds	38-68-123	30-49-89-147	30-49-89-147
Base of Machine on Floor	46" x 19"	48" x 19"	48" x 19"
Floor Space with Water Tank	64" x 54"	67" x 54"	72" x 54"
Weight of Machine, Approximate	2700	3000	3450
Weight, Crated	2900	3300	3700
Weight, Boxed	3200	3600	4000
Dimensions, Boxed	67" x 61" x 41"	71" x 61" x 41"	76" x 41" x 61"
Cubic Feet, Boxed	96	103	103
Motor required	5 H. P.	7 $\frac{1}{2}$ H. P.	10 H. P.

### Model B Rotary Surface Grinders

	20"	24"	30"
Surface Diameter of Magnetic Chuck	21"	25"	31"
Greatest Swing Inside Water Pan	26"	30"	38"
Vertical Capacity Full Diameter Wheel	6 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "
Tilt of Work Table for Convex Grinding	10	10	10
Tilt of Work Table for Concave Grinding	10	10	10
Diameter of Grinding Wheel—12" hole	20"	20"	20"
Width of Grinding Wheel	2"	2"	2"
Main Shaft, R.P.M.	500	500	500
Main Drive Motor, 1200-1500 R.P.M.	15 H.P.	20 H.P.	20 H.P.
Net Weight	7300	7800	8300
Cubic Feet	240	244	251
Floor Space Occupied	94" x 87"	96" x 87"	100" x 87"

### Model C Rotary Surface Grinders

	8"	12"	16"
Surface Diameter of Magnetic Chuck	9"	13"	17"
Greatest Swing Inside Water Pan	14"	18"	22"
Vertical Capacity Full Diameter Wheel	6 $\frac{3}{8}$ "	6 $\frac{3}{8}$ "	6 $\frac{3}{8}$ "
Tilt of Work Table for Concave Grinding	6°	6°	6°
Tilt of Work Table for Convex Grinding	15°	15°	15°
Diameter of Grinding Wheel—8" hole	16"	16"	16"
Width of Grinding Wheel	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "
Net Weight	4900	5100	5200
Cubic Feet	153	158	163
Floor Space Occupied	85" x 70"	87" x 70"	89" x 70"

### Automatic Piston Ring Grinders

	2-B	3-A
Work Capacity, .000" thick and up	7" dia.	7" dia.
Diameter Magnetic Chuck	8 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "
Air Consumption	4 cu. ft.	
Wheel Size	16" x 1" x 8"	20" x 2" x 12"
Approximate Net Weight	2600	4300
Approximate Gross Weight, crated	2800	4600
Approximate Gross Weight, boxed	3100	5000
Cubic Feet, boxed	106	180
Floor Space Occupied	70 x 41	63 x 54
Motor Required 1200-1500 R.P.M.	3-5 H.P.	Built-in

### No. 132 Automatic Cylindrical Grinder

Work capacity, diameter	5"	Floor space occupied	90" x 70"
Work capacity, length one grind	5 $\frac{1}{2}$ "	Net weight	5800
Maximum distance between centers	16"	Gross weight, crated	6000
Main shaft	1150 R.P.M.	Gross weight, boxed	6500
Wheel spindle	1370 R.P.M.	Measurements, machine	82" x 61" x 61" = 177
Grinding wheel 18" dia. 12" hole, width, as necessary for work.		pump-tank	36" x 27" x 23" = 13
		Cubic feet, boxed, total	190

Motor specifications, 10-25 H.P. according to work. 1200-1500 R.P.M.'s less base and pulley.

### No. 150 Automatic Head Grinder

Work Capacity, diameter stem	1 $\frac{1}{4}$ "
Main Shaft	1150 R.P.M.
Wheel Speed	1600 R.P.M.
Wheel Size	16 x 10" hole, face optional
Floor Space Occupied	64" x 55" x 50"
Net Weight	5100 lbs.
Gross Weight, Crated	5300 lbs.
Gross Weight, Boxed	5500 lbs.
Cubic Feet, Boxed	170

Motor specifications, 10 H.P.—1200-1500 R.P.M.

Individual bulletins giving detailed information on each machine will be furnished on request.



# Partial List of ARTER Users

## Rotary Surface Grinders

General Electric Company  
Norton Company  
Carborundum Company  
Eastman-Kodak Company  
Fisher Governor Company  
Toland & Son Company  
Ericson Mfg. Company  
Barber-Colman Company  
Caterpillar Tractor Company  
Burgess Battery Co.  
Houde Engineering Corp.  
Harley-Davidson Co.  
Union Tool Company  
National Acme Company  
Warner Gear Corp.  
Teesdale Mfg. Co.  
Boston Gear Works  
Worthington Pump Co.  
Johnson Motor Company  
Wright Aeronautical Corp.  
Frost Gear & Forge Co.  
Studebaker Corporation  
Corning Glass Co.  
Skinner Chuck Co.  
U. S. Army Air Corps.  
Robert H. Hassler Co.

Otis Elevator Co.  
Chas. Koegel Sons Co.  
Spicer Mfg. Co.  
Henry Disston & Sons Co.  
International Harvester Co.  
Buick Motor Company  
American Ball Company  
Bantam Ball Bearing Co.  
Ball & Roller Bearing Co.  
Bearings Co. of America  
Nice Ball Bearing Company  
Detroit Twist Drill Co.  
Fellows Gear Shaper Co.  
Goddard & Goddard Co.  
Gorham Tool Co.  
Greenfield Tap & Die Co.  
Haynes Stellite Company  
Illinois Tool Works  
Murche Machine & Tool Co.  
National Twist Drill & Tool Co.  
Pratt-Whitney Co., Hartford, Conn.  
Pratt & Whitney Company of Can.  
Taft-Pierce Mfg. Co.  
Victor Tool Company  
Continental Motors Corp.  
Ford Motor Car Co.

Hudson Motor Car Company  
Novo Engine Company  
Olds Motor Works  
Stutz Motor Car Company  
Timken-Detroit Axle Co.  
E. C. Atkins & Company  
James Ohlen & Sons Saw Mfg. Co.  
Simonds Saw & Steel Company  
Berger Mfg. Company  
Osgood Bradley Car Company  
Continental Can Company  
DeLaval Company Ltd.  
Duff Mfg. Company  
Esterbrook Steel Pen Mfg. Co.  
Fay & Bowen Engine Company  
R. Hoe & Company  
Ingersoll-Rand Company  
Milwaukee Corrugating Company  
National Lamp Works  
Neptune Meter Company  
Nestor Mfg. Company  
Westinghouse Electric Mfg. Co.  
Wildman Mfg. Company  
Reed Prentice Corp.

## Automatic Piston Ring Grinders

The Perfect Circle Company  
Muskegon Piston Ring Company  
McQuay-Norris Manufacturing Company  
Superior Piston Ring Company  
American Hammered Piston Ring Company  
U. S. Hammered Piston Ring Company  
Burd Piston Ring Company  
Ramsey Accessories Corp.  
White Company  
Unico Motor Products Corp.  
O. E. Szekeley Corporation  
Wausan Motor Parts Company

Hepworth & Grandage, England  
Binet, France  
Renault, France  
Goetz, Germany  
Michigan Piston Ring Company  
Seal-Tite Piston Ring Company  
Wilcox-Rich Corporation  
Richmond Piston Ring Company  
Buick Motor Company  
Ford Motor Company of Canada  
DuBois Piston Ring Company  
Royal Piston Ring Company

N. Y. Air Brake Company  
Thompson Products, Inc.  
Whitinsville Spinning Ring Co.  
Caterpillar Tractor Co.  
Mobilia, Czechoslovakia  
Citroen, France  
Replacement Parts Pty. Ltd., New Zealand  
Kharkov, Russia  
Autostroy, Russia  
Cheliabinsk, Russia  
Amo, Russia

## No. 132 Automatic Cylindrical Grinders

Bendix Brake Company  
Nash Motor Company  
John Deere Tractor Company  
Northeast Electric Company  
Chevrolet Motor Car Company  
Packard Motor Car Company  
Hudson Motor Car Company  
Cadillae Motor Car Company

A. C. Spark Plug Company  
Ford Motor Company  
Orange Bearings Company  
Borg & Beck  
Continental Motors Corp.  
International Harvester Co.  
Landers, Frary & Clark  
Fiat, Italy

W. C. Grunow Co.  
Wilcox-Rich Corp.  
Saginaw Steering Gear Co.  
Universal Products Co.  
Evans Appliance Co.  
Apex Electrical Mfg. Co.  
Timken-Detroit Axle Co.

## No. 150 Automatic Head Grinders

Nash Motor Company  
Wilcox-Rich Corporation

J. J. Case Threshing Machine Co.  
Renault, France

Citroen, France  
ZIS, Russia

