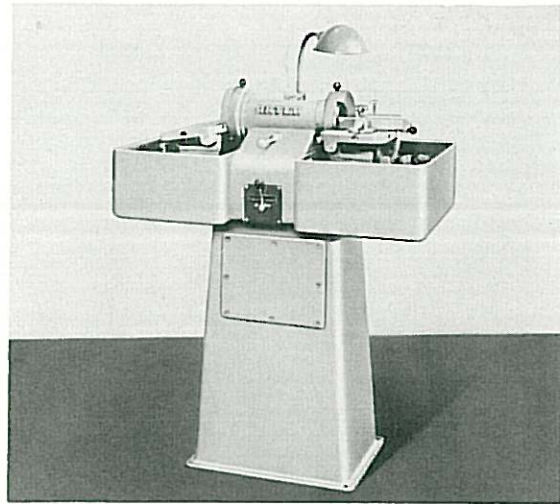


**carbide tool grinder**



The Arter Imperia Carbide Tool Grinder Model 200 offers something new in a method of grinding carbide tools. The work table, with the tool held by hand or in a holder is moved across the face of the grinding wheel. Tool feed is accurately controlled by screw feed to the work table. In the same machine the chip breaker grind can be made by moving the wheel up and down. The work table can be tilted to the angle required and the protractor type tool holder locates the tool in the correct angular relation to the wheel. By this method, tools are repeatedly ground to the specified angles, which have become so very important in obtaining satisfactory performance and longer tool life between grinds. Contrast this method with sliding tools along a work table and feeding by hand pressure where if the shank is rough and not straight, or if the table is worn out of flat, the cutting face of the tool will not be straight. Hand pressure feed cannot be uniform and this with tools loosely held, can cause cracks in the tool surface and possible damage to an expensive diamond wheel.

**specifications**

Type of Grinding Wheel (Diamond)* .....	D6WHC
Diameter of Grinding Wheel .....	6"
Rim Width of Grinding Wheel .....	3/4"
Hole size of Grinding Wheel .....	1 1/4"
Back thickness of Grinding Wheel .....	7/16"
Speed of Grinding Wheel, peripheral, FPM .....	6000'
Largest size of tool shank held, width .....	1 1/2"
Largest size of tool shank held, height .....	1 1/2"
Dimensions of Work Table .....	16 3/8" x 3/4"
Horizontal travel of Work Table, total .....	2 1/8"
In-feed of Work Table .....	.030"
Size of tee slots .....	3/4 x 1/4 x 3/8 x 1/2" deep
Length of Machine, over frame .....	36"
Width of Machine, total .....	37"
Vertical movement of Grinding Wheel .....	1 3/4"
Horse Power of Motor 3 phase (3600 RPM) .....	3/4"
Height of Work Table from ground .....	42"
Height of Machine, total .....	48"
Tilt of Work Table, down .....	20°
Tilt of Work Table, up .....	7°
Dimensions of Machine Base on floor .....	22" x 16"
Net Weight .....	600

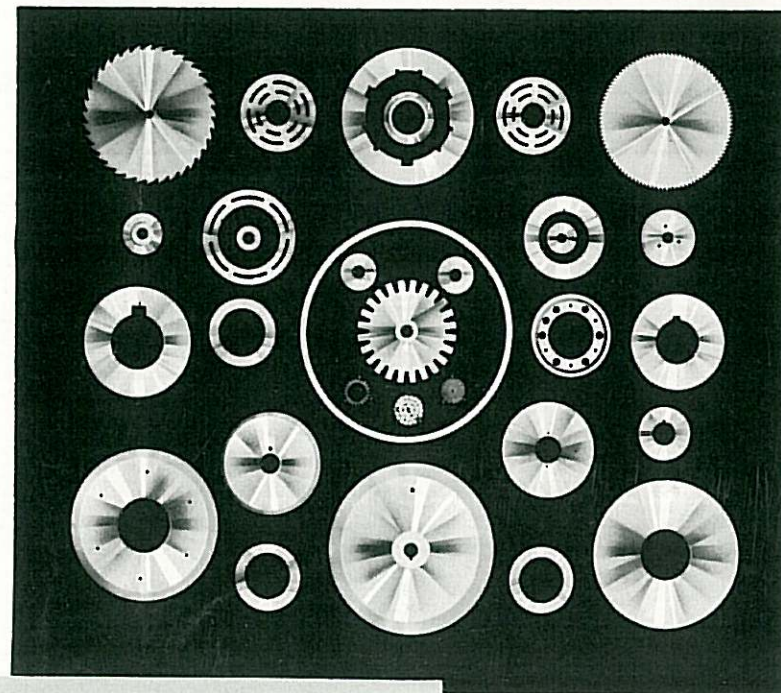
\*The machine is priced less grinding wheels but wheels can be furnished with the machine if desired. Tentative recommendations are:

(Roughing side	Norton ME27853 or equivalent	D100P50 V1/6
Finishing Side		
or	Norton ME27853 or equivalent	D320L100 B1/6

(50 V1/6, vitrified bond, is 50 diamond concentration, 1/6" thick)  
(100 B1/6, resenoid bond, is 100 diamond concentration, 1/6" thick)

**typical examples of precision parts ground on rotary surface grinders**

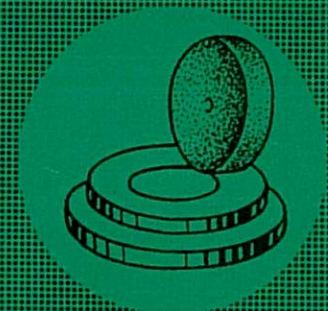
Illustrated are circular parts only. Flat pieces of any shape can be ground. Small circular metal cutting saws are .005" thick. Slitters represent grinding of great exactness for thickness, parallelism and finish. Hub diameters and fillets are ground with the side of the wheel.



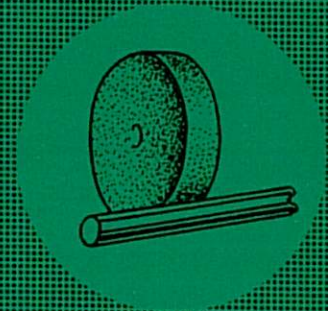
**Arter Grinding Machine Company**  
15 Sagamore Road Worcester, Massachusetts



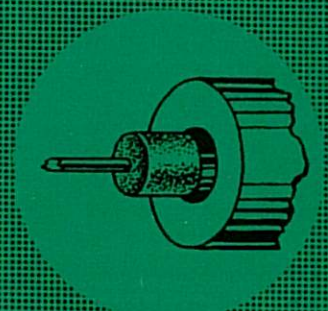
**precision grinding machines**



**rotary surface grinders**



**cylindrical grinder**



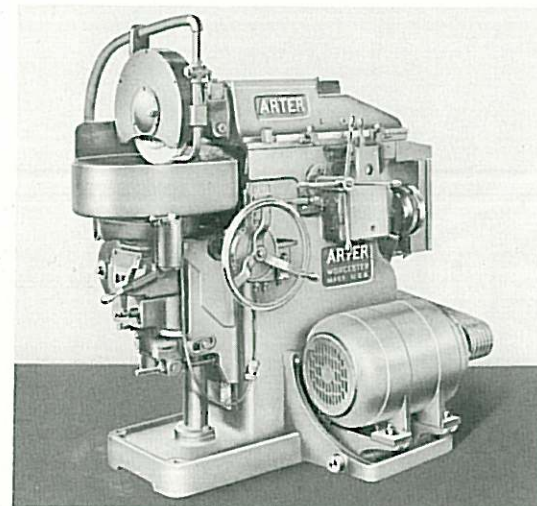
**internal grinder**

**Arter Grinding Machine Company**  
Worcester, Massachusetts

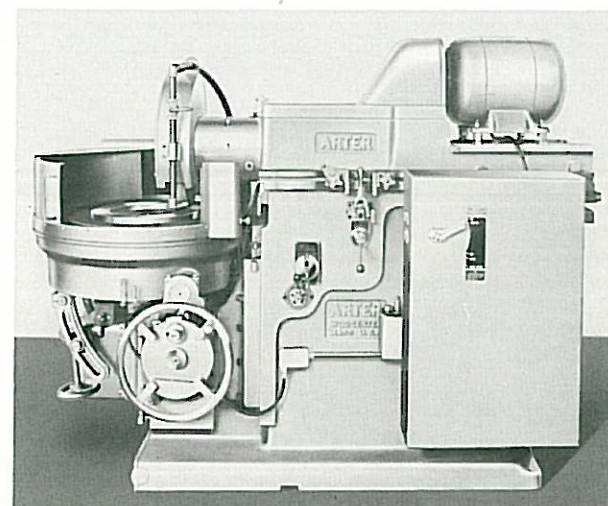




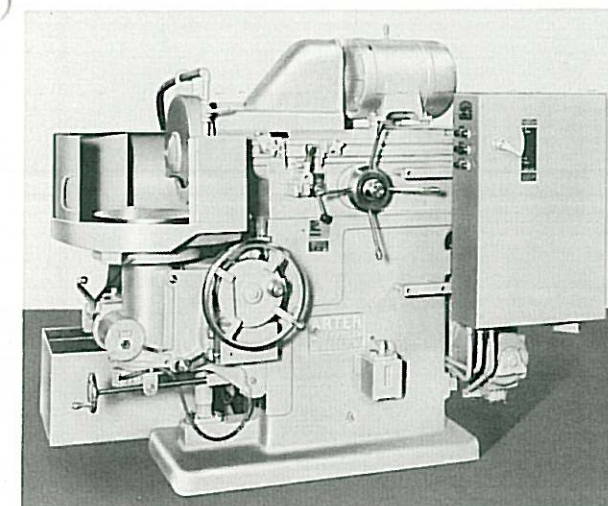
## rotary surface grinders



**Model "A" Rotary Surface Grinders** have been built by Arter for 35 years. Grinding is done on the periphery of the wheel, the work being held by a rotating chuck. Two sizes are offered, one with an 8" diameter electric magnetic chuck, the other with a 12" chuck. This model has three chuck speeds and for each speed, three wheel slide traverse speeds are available. The drives to the chuck and to the slide are primarily by a flat belt running over three step pulleys. The wheel spindle is mounted in straight-holed, split, adjustable bronze bearings. End thrust is taken on a collar running between bronze discs. Bearings are positively oiled by throwers positioned in the reservoirs adjacent to each bearing. Spindle is driven by a 4" flat leather belt. The work table is hung in a slide, mounted on dovetailed ways. The table can be tilted for grinding external tapers or bevels and internal tapers or reliefs. The chuck spindle runs in a self-centering, conical bearing at the top and a straight-holed, adjustable bronze bearing at the bottom.



**Model "B" Rotary Surface Grinders** are built in four chuck capacities 20", 24", 30" and 40". The machines are mainly hydraulically operated, the wheel slide being moved by a piston, the chuck is driven primarily by a hydraulic motor, and hydraulic means are employed for automatic, work table elevating feed. Vickers motor, pumps and valves are used. The magnetic chuck runs on a flat circular track bearing, thus providing rigid support for the work, regardless of the weight, position on the chuck, or wheel pressure. The work table can be tilted for grinding internal or external tapering surfaces. The oil tank for the hydraulic system is positioned on the floor behind the machine. The wheel spindle is mounted at the front in a steel-backed, babbitt-lined bearing, 3" in diameter by 12" long. The rear bearing is a precision double row ball bearing. The spindle pulley is driven by multiple vee belts from a 10 h.p. motor. As extra equipment, a motor driven arrangement can be supplied for raising and lowering the work table.



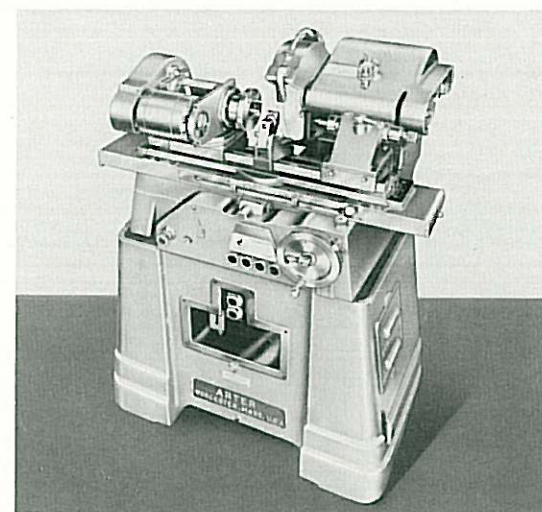
**Model "D" Rotary Surface Grinders** are built in two chuck capacities, 12" and 16". A 7½ h.p. motor, precision balanced, mounted on the wheel slide delivers full power by multiple vee belts, to the wheel spindle. The wheel slide is moved hydraulically on wide flat and vee ways, automatically lubricated and which extend forward of the front wall of the base. The piston rod and the wheel spindle axis are in the same horizontal plane as the ways. This construction gives greater support and stability to the wheel slide, particularly when extended over the work. The wheel spindle is mounted at the front in a long steel-backed babbitt-lined bearing, and at the rear in a double row precision ball bearing. The work table slide has widely spaced dovetailed ways, automatically lubricated. Hand and automatic feeds are provided. The work spindle is mounted, top and bottom in double row precision ball bearings. The primary drive to the spindle is a U. S. Electric Vari-Drive unit mounted on the end of the machine and giving stepless speeds from 60 to 250 r.p.m.

## specifications

	A		B				D	
	8"	12"	20"	24"	30"	40"	12"	16"
Surface Diameter of Magnetic Chuck	8½"	12"	21"	25"	31"	40"	13"	17"
Greatest Swing Inside Water Pan	11"	16"	26"	30"	38"	44"	25"	25"
Vertical Capacity—Full Diameter Wheel	9"	9"	8"	8"	8"	6¼"	9"	9"
Tilt of Work Table Concave Grinding	10°	8°	10°	10°	10°	3°	10°	10°
Tilt of Work Table, Convex Grinding	10°	12°	10°	10°	10°	10°	20°	20°
Grinding Wheel, Diameter	14"	14"	20"	20"	20"	20"	16"	16"
Grinding Wheel, Hole Size	8"	8"	12"	12"	12"	12"	8"	8"
Grinding Wheel, Width	1"	1"	2"	2"	2"	2"	1½"	1½"
Chuck Spindle Speeds	86-156-283	53-86-174	—	—	—	—	—	—
Chuck Spindle Speeds, Stepless, Range	—	—	165 Max.	140 Max.	100 Max.	75 Max.	60-250	60-250
Wheel Spindle Speed, RPM	1500	1500	950	950	950	950	1400	1400
Main Shaft Speed, RPM	500	500	—	—	—	—	—	—
Main Drive Motor 1800 RPM	5 HP	5 HP	—	—	—	—	—	—
Wheel Spindle Drive Motor 1800 RPM	—	—	10 HP	10 HP	10 HP	10 HP	7½ HP	7½ HP
Hydraulic Pump Drive Motor 1800 RPM	—	—	7½ HP	7½ HP	10 HP	10 HP	2 HP	2 HP
Chuck Spindle Drive Motor (U.S. Electric Vari-Drive)	—	—	—	—	—	—	2 HP	2 HP
Cool and Pump Motor	¼ HP	¼ HP	¼ HP	¼ HP	¼ HP	¼ HP	¼ HP	¼ HP
Coolant Tank Capacity	24 Gals.	24 Gals.	55 Gals.	55 Gals.	55 Gals.	55 Gals.	55 Gals.	55 Gals.
Hydraulic Oil Tank Capacity	—	—	50 Gals.	50 Gals.	50 Gals.	50 Gals.	14 Gals.	14 Gals.
Net Weight	2600	2800	9000	9200	9800	10400	5100	5400
Crated Weight	3000	3200	9500	9700	10300	11100	6000	6500
Boxed Weight	3400	3600	10000	10200	11000	12000	6800	7100
Cubic Feet Boxed	168	168	370	370	370	400	350	350
Floor Space Necessary	6' x 6'	6' x 6'	9' x 8'	9' x 8'	9' x 8'	10' x 8'	9' x 8'	9' x 8'

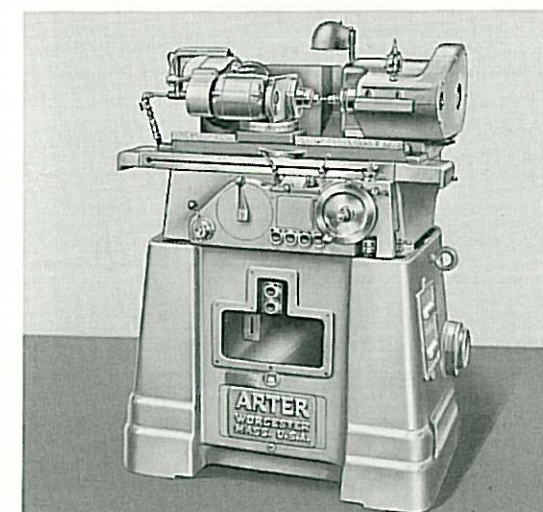
## cylindrical and internal grinders

**Model "103" Cylindrical Grinder** is a dual purpose external cylindrical and internal grinding machine. It can be purchased as an external grinder only, or as an internal grinder only. Convertible equipment can be purchased at any time. The machine has hydraulic table movement and hydraulic means for automatic in-feed of the wheelhead through worm and worm wheel and a screw. The work table, wheelhead and headstock can be swivelled for grinding angular work. Face grinding also is possible. The cross feed will operate automatically at either or both ends of the worktable stroke even with both dogs at the minimum setting. A graduated knob controls the table speed. Maximum feed is .0005", minimum is .0001" at each table reverse. Hand feed is by means of a wheel, graduations being .001". A separate hand knob gives feeds of .0001" on work diameter. The table is reversed by dogs operating a micro switch and solenoid valve. Reversals can be made within less than 1/8" table movement and the reversal positively and repeatedly made within a distance of .005" on the work. The work spindle nose is tapered on the OD to take three or four jaw chucks, face plates or step chucks. The machines are self contained, the coolant tank, hydraulic oil tank and pump being within the base.



MODEL EG-103

External grinding equipment includes a self contained wheelhead with ¾ h.p. motor and 10" x ¾" grinding wheel, a driving dog type of face plate and a tailstock.



MODEL IG-103

The wheelhead for internal grinding is self contained with ¾ h.p. motor and a spindle unit either 15000 or 32000 r.p.m. Exello, Pope or Whitman spindles supplied. Spindle takes wheel quills or a wheel chuck. Work spindle takes 5 C collets.

	(EG) EXTERNAL	(IG) INTERNAL
Capacity, diameter, maximum	3" O.D.	3" I.D.
Capacity, between centers	9½"	—
Capacity, depth of hole	—	4"
Swing, over table	9" Dia.	9" Dia.
Table travel	9½"	9½"
Table speeds, hydraulic	4" to 100" F.P.M.	4" to 100" F.P.M.
Table swivel, in or out	5°	5°
Wheelhead travel, total	3"	3"
Wheelhead feed, automatic, maximum	.0005"	.0005"
Wheelhead feed, automatic, maximum	.0001"	.0001"
Wheelhead feed, graduations, hand knob	.0001"	.0001"
Wheelhead swivel, right or left	15°	15°
Wheel Spindle speeds, by belt change	2320 or 2880 RPM	—
Wheel Spindle speeds, if selected	—	15000 RPM
Wheel Spindle speeds, if selected	—	32000 RPM
Wheel, grinding, standard	10" x ¾" x 1¼" hole	none
Workhead speeds, by belt change	224-475-600 RPM	224-475-600 RPM
Workhead swivels (graduated 45° R and L.)	90°	90°
Workhead—Takes 5C collet	1" maximum	1" maximum
Workhead—Takes step chuck	3" maximum	3" maximum
Workhead—Takes face plate	8" maximum	8" maximum
Workhead—Takes jaw chucks	4" maximum	4" maximum
*Motors, Wheelhead	3450 RPM	¾ H.P.
*Motors, Workhead	1725 RPM	¼ H.P.
*Motors, Hydraulic Pump	1725 RPM	¼ H.P.
*Motors, Coolant Pump	—	¼ H.P.
Tank, coolant capacity	12 gals.	12 gals.
Tank, hydraulic capacity	3 gals.	3 gals.
Floor space required	45" x 32"	45" x 32"

\*Note—Motors of 220 volts, 3 phase, 60 cycles only are standard equipment. If factory power differs from above, a transformer mounted on the machine can be supplied, as an extra.

Weight—Net	2000
Weight—Crated	2200
Weight—Boxed	2600
Cubic Feet, boxed	83