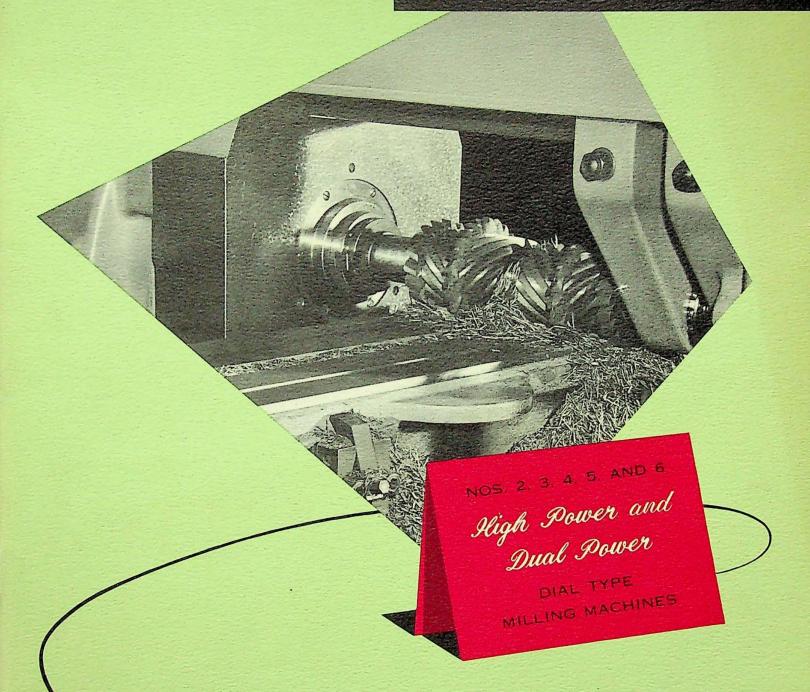
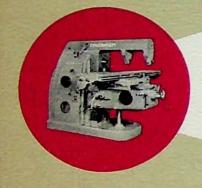
Cincinnati



FULL POWER TO SPINDLE with separate feed drive



DYNAPOISE OVERARM AND WIDE WAYS
for full power cutting accuracy

FRONT AND REAR OPERATING STATIONS
for easy full power control

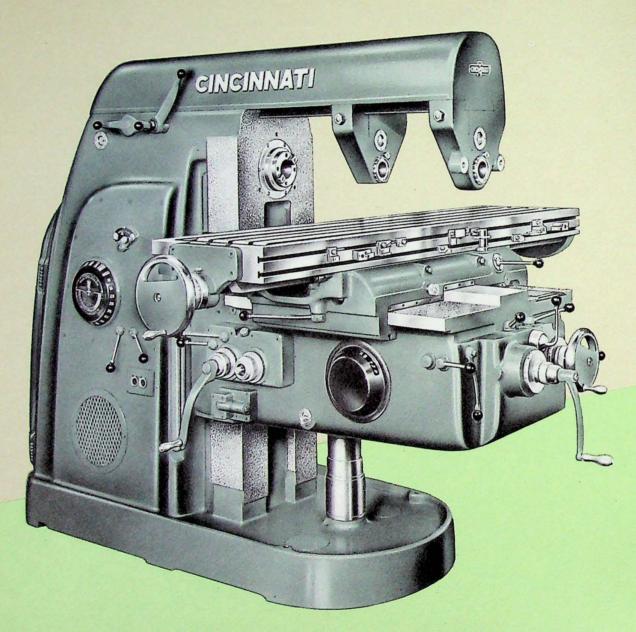
FOR EXTRA CUTTING ACTION

... with new Full Power



New Cincinnati High Power and Dual Power Dial Types are big, rugged and powerful, designed for both automatic cycle and toolroom milling. They're the last word for extra heavy, fast cutting action combined with easy, convenient operation. The last word in power . . . full horsepower to the spindle and a separate feed drive motor. The last word in versatility . . . quickly set up for any job, speed and feeds to mill the toughest alloys and the newest light metals. The last word in convenience and safety . . . front and rear operating controls, power speed and feed selection, handwheels can't spin. The last word in pleasing appearance and low cost of maintenance. The last word in highly profitable investment for your shop.

Cincinnati High Power and Dual Power Dial Type
Milling Machines

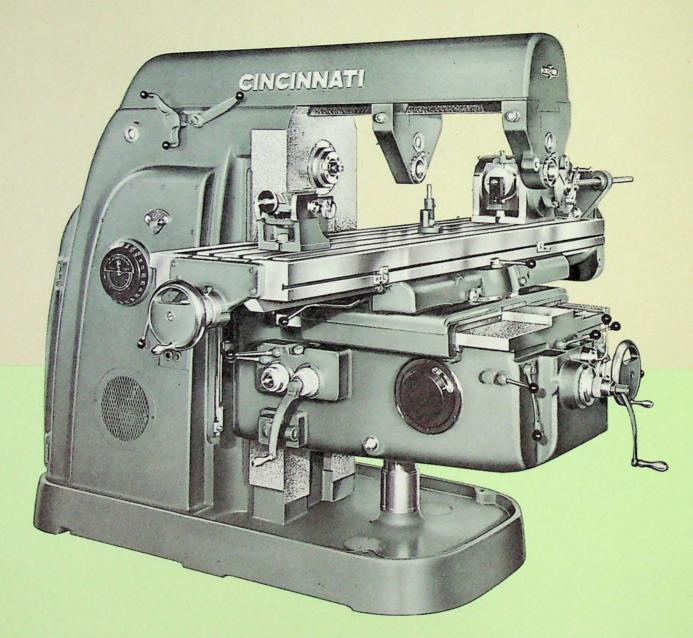


Cincinnati PLAIN

High Power and Dual Power Dial Types

Built in Nos. 2, 3, 4, 5, and 6 sizes.

Engineered for Full Power ... from top to bottom CUTTING ABILITY, ACCURACY, EASY OPERATION AND L



Cincinnati

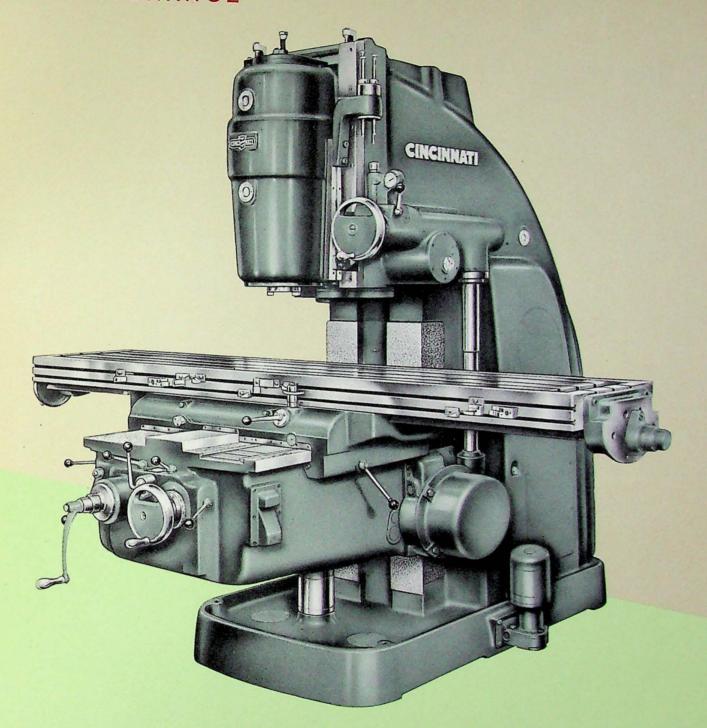
UNIVERSAL

High Power and Dual Power Dial Types

Built in Nos. 2, 3, 4, and 5 sizes.

See page 13 for explanation of High Power and Dual Power.

OW MAINTENANCE

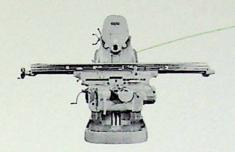


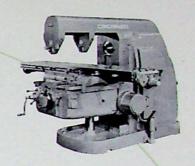
Cincinnati

VERTICAL

High Power and Dual Power Dial Types

Built in Nos. 2, 3, 4, 5, and 6 sizes.

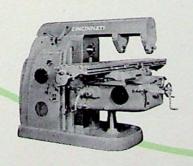


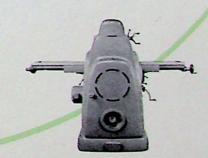


FROM EVERY ANGLE

the last word

IN MILLING MACHINES





Cincinnati High Power and Dual

OFFER ALL

	P	AGE	S)
DYNAPOISE RECTANGULAR OVERARM eliminates chatter and assures greater accuracy under full power cutting action speeds set-up.	10	and	11
FULL LENGTH TAPER GIB CLAMP FOR OVERARM adds to rigidity of set-up; lever operated, no wrench.	10	and	11
FULL POWER TO SPINDLE high horsepower motor drives spindle only for extra cutting action.	12	and	13
FLY-WHEEL MOUNTED ON SPINDLE , a built-in feature for high speed carbide milling.	12	and	13
ENCLOSED MOTOR-CRADLE TYPE MOUNTING greatly simplifies electrical maintainance.	13		
TWENTY-FOUR SPINDLE SPEEDS 100 to 1 ratio—offers the right speed for any cutter and work material.	14		
SYNCHRO-MESH SPEED CHANGE GEARS noiseless hydraulic gear shift no clashing of gears regardless of speed selected.	14		
LARGE, DIRECT READING SPEED AND FEED DIALS rotate in either direction as desired, numerals easy to read from working positions.	14	and	15
THIRTY-TWO FEEDS 3%" to 90" per minute in geometrical progression (240 to 1 ratio) a wide selection for toolroom and production milling.	15		
HIGH RATE OF RAPID TRAVERSE 150" per minute (table and cross) while the spindle is running or stationary. Time saver when setting up the job.	15		
SINGLE LEVER SELECTION OF SPEEDS AND FEEDS BY POWER it's no effort to change to the right cutting speed and feed for the job.	16	and	17
FRONT AND REAR POWER AND HAND CONTROL STATIONS save time and assure visibility for all set-ups.	18	and	19
HYDRAULIC SPINDLE STARTING AT FRONT AND REAR OPERATING POSITIONS a small finger-tip control hydraulically engages and disengages the clutch; easier and more convenient for the operator.	18	and	19
PULL-OUT QUICK ADJUSTING MICROMETER DIALS on hand traverse adjustments; easy to set, no thumbscrews to loosen.	19		
SINGLE LEVER CONTROL OF TABLE FEED AND RAPID TRAVERSE* convenient when setting up the machine.	20		

Dower Dial Type Milling Machines

THESE ADVANTAGES

		PAGE	(S)
COMPLETELY AUTOMATIC TABLE FEED CYCLES* dog controlled, easy to arrange for various set-ups. Saves time and energy.	21		
DIRECT FEED DRIVE separate motor drive to the knee for all power feeds.	22	and	23
EXTRA WIDE KNEE BEARING, PRACTICALLY FULL LENGTH OF SADDLE affords ample support to table; improves accuracy of long cuts.	24	and	25
FULL GIBBINGS AND WIDE RECTANGULAR WAYS for column-knee and knee-saddle bearings, adds to structural rigidity.	26	and	27
AUTOMATIC BACKLASH ELIMINATOR on table feed screw; adds "down milling" operations to the variety of work which may be assigned to these machines.	28	and	29
OVERARM-MOTOR DRIVEN INDEPENDENT SPINDLE increases machine versatility.	30	and	31
RIGID CAST CONSTRUCTION for full power accuracy.	32	and	33
AUTOMATIC LUBRICATION of column, saddle, table and knee parts, reduces wear and minimizes maintenance expense.	34		
CROSS AND VERTICAL SCREWS AND ROTATING SHAFTS COMPLETELY COVERED protected from dust and chips to retain accuracy; safer for the operator.	34		
BUILT-IN ELECTRICAL CONTROLS AND PUSH BUTTONS protected from dust, moisture and damage.	34		
VERTICAL SCREW AUTOMATICALLY LUBRICATED in bath of oil from individual reservoir. Keeps vertical screw cool and accurate when using vertical feed.	34		
MILLING MACHINE ACCESSORIES	34		
UNIVERSAL DIVIDING HEAD	35		
LOCATION OF CONTROLS AND CONSTRUCTION DETAILS	36	and	37
SPECIFICATIONS AND DIMENSIONS			
PLAIN—High Power and Dual Power Machines	38	and	39
UNIVERSAL—High Power and Dual Power Machines	40	and	41
VERTICAL—High Power and Dual Power Machines	42	and	43
STANDARD AND EXTRA EQUIPMENT * Plain and Vertical Machines Only	44	and	45

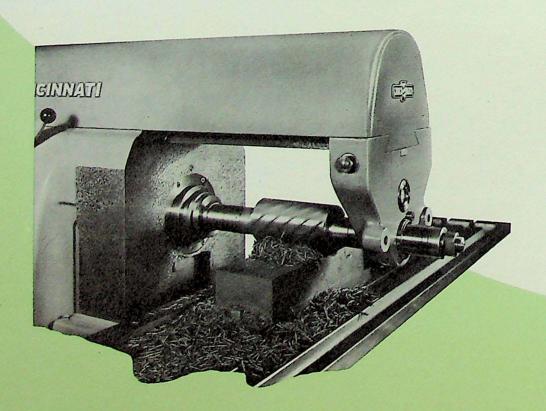
Cincinnati DYNAPOISE Engineered for



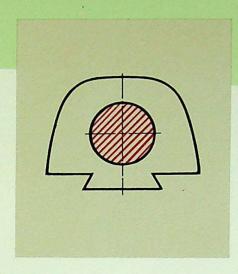


DYNAPOISE RECTANGULAR OVERARM PERMITS HIGHER SPEEDS AND FEEDS

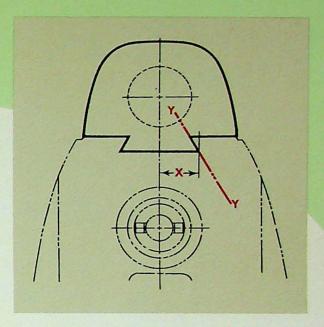
Basically, the Dynapoise Rectangular Overarm performs three functions especially important with full power milling (1.) Provides a rigid support for arbors and cutters, (2.) Maintains accurate alignment, and (3.) Dampens vibrations set up by cutting action. Each of these functions is performed without sacrifice to any other function. Furthermore, the external rectangular design with vee-ways on the underside permits easy shifting and location of the overarm. And arbor supports slip on and off dovetail of Dynapoise Overarm quickly. See diagrams on opposite page for details.



Full Power cutting action



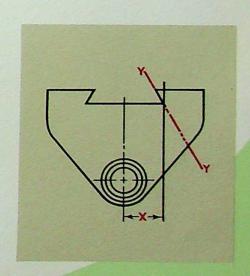
Self sustained vibrations or chatter are effectively damped out by internal chatter-dampening unit of Dynapoise Rectangular Overarm.



Rigidity of Dynapoise Rectangular Overarm resists forces tending to twist or deflect overarm. Accuracy of alignment is provided because overarm is positively clamped to surface Y. Dimension X remains constant.

- AN EXCLUSIVE FEATURE
- SPEEDS SET-UP
- MAINTAINS ACCURACY
- STOPS CHATTER

Arbor supports and milling attachments also clamp against surface Y to maintain accuracy of dimension X.



Full Power SPINDLE DRIVE for more cutting



Plenty of Power...for increased rate and volume of stock removal





FULL HORSEPOWER TO THE SPINDLE DRIVE

High Power and Dual Power Dial Type Millers have rugged, high horsepower drives with full power going solely to the spindle. (There's a separate motor for feed drive, see page 23.) The high available horsepower, from 15hp up to 50hp, combined with a wide range of 24 spindle speeds (100 to 1 ratio) assures plenty of power and speed for every size and type of cutter of any known material for any job within the range of the machines. See next page.

These milling machines are offered with either High Power or Dual Power arrangement on spindle drive as described at right. High Power drives offer a range of 15 to 25 horsepower, while even greater horsepower range is available with Dual Power arrangement running up to 50 horsepower.

The spindle drive is simple, positive and direct. Spindle is mounted on three anti-friction bearings for permanent accurate alignment under full power operation. Fly-wheel is mounted on spindle, which gives extra built-in full power efficiency especially for high-speed carbide milling.

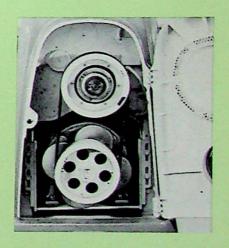
Choice of Two Types of Spindle Motor Drives

High Power spindle motor drive provides full-maximum horsepower to spindle at all spindle speeds. This drive is available in range of horsepower ratings from 15hp to 25hp. See table below.

Dual Power spindle motor drive of greater horsepower than the High Power Machines provides full horsepower to spindle at all higher spindle speeds and one-half available horsepower for the six slowest spindle speeds. This dual action is accomplished through automatic controls within the machine column. Up to 50 horsepower is available with dual horsepower spindle drive arrangement.

MACHINE SIZE	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
High Power	15hp	20hp	25hp	25hp	25hp
Dual Power	20hp	30hp	50hp	50hp	50hp

NOTE: Plain and Vertical Machines available in all sizes as shown. Universal Machines available in Nos. 2, 3, 4 and 5 sizes only.



Enclosed Motor Drive With Cradle Type Mounting

Powerful spindle drive motor is located inside the main column at the rear, with a large hinged door for quick accessibility. The motor is mounted on a cradle which in turn is bolted to the rear face of the column. The motor shaft and the first drive shaft are parallel and the belt tension is simply adjusted by raising or lowering the motor cradle.



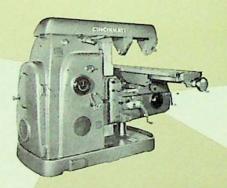
TWENTY-FOUR SPINDLE SPEEDS

100 to 1 Ratio

Twenty-four spindle speeds, 100 to 1 ratio, are available, offering the right speed for any cutter and work material. See specifications pages 39, 41 and 43 for exact speeds available with each size and type of High Power and Dual Power Miller. Large, direct reading speed dial rotates in either direction, is equipped with

built-in milling speed calculator for determining the correct cutting speed and cutter rpm. Speed changes are easily made by power using a single control lever. Synchromesh speed change gears provide noiseless hydraulic gear shift, eliminating any possibility of clashing regardless of speed.





SPEED DIAL WITH BUILT-IN MILLING SPEED CALCULATOR.

reading dials

THIRTY-TWO FEEDS

3/8" to 90" per min.



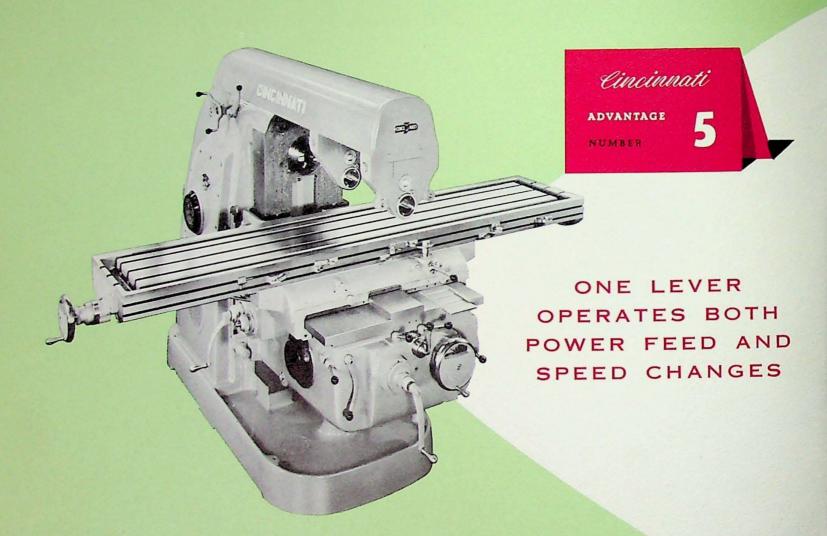
Thirty-two feeds, 240 to 1 ratio, are provided on all High Power and Dual Power Dial Type Millers. Longitudinal and Cross Feeds range from 3/8" to 90" per minute and Vertical Feeds are one-fourth this range, from 3/32" to 22½". See specifications pages 39, 41, and 43 for listing of feeds, same for all sizes and types of

High Power and Dual Power Millers. Large, direct reading feed dial can be rotated in either direction. Cover is removed on the dial illustrated below to show calibrations. Note that the dial is provided with two sets of figures, one set visible when working at front and other set visible when working at rear of machine.

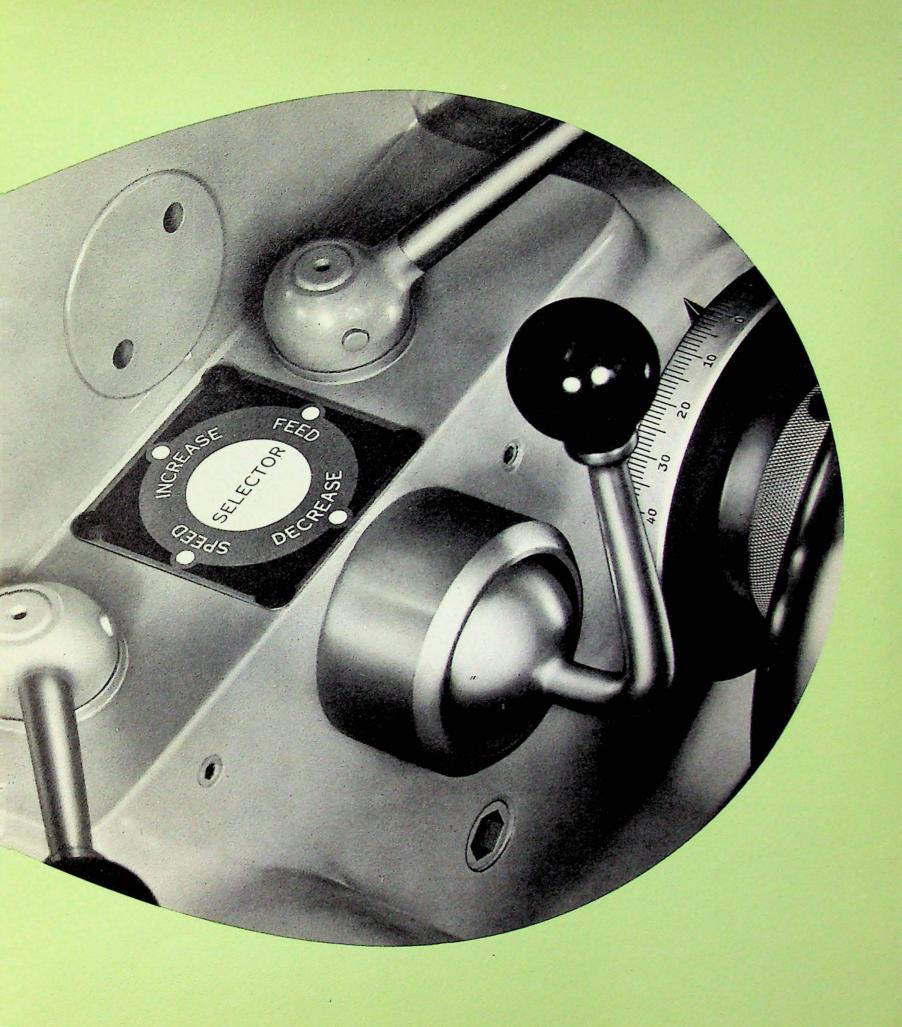
FEED DIAL READABLE FROM FRONT OR REAR OPERATING POSITION.



Power Speed and Feed change with single lever



Cincinnati High Power and Dual Power Dial Type Millers offer a wide range of feeds and speeds as shown on pages 14 and 15. The single lever at the front working position for selecting speeds and feeds—by power, requires no effort at all to change to the right cutting speed and feed for the job. Note "INCREASE" and "DECREASE" positions for rotating the speed and feed dials in either direction. This feature invites maximum cutting efficiency and goes a long way toward reducing milling costs. Rear speed and feed change levers are also provided. Cincinnati High Power and Dual Power Dial Type Millers leave nothing to be desired in the way of speed or feed change control.



For convenient Full Power

FRONT AND REAR—POWER AND HAND CONTROL STATIONS

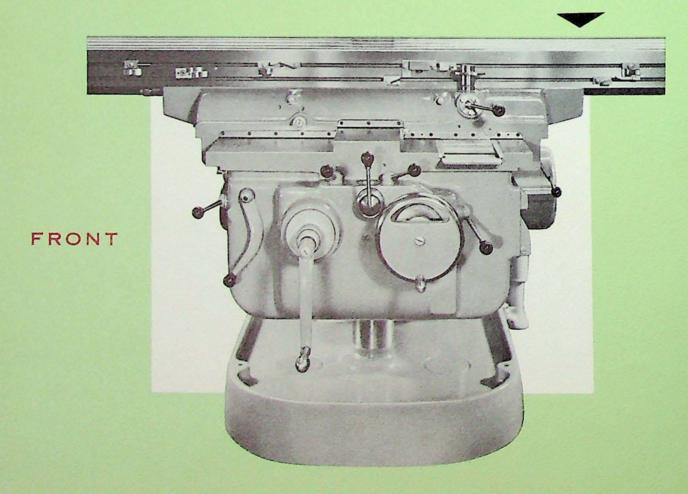
Cincinnati

Advantage

NUMBER

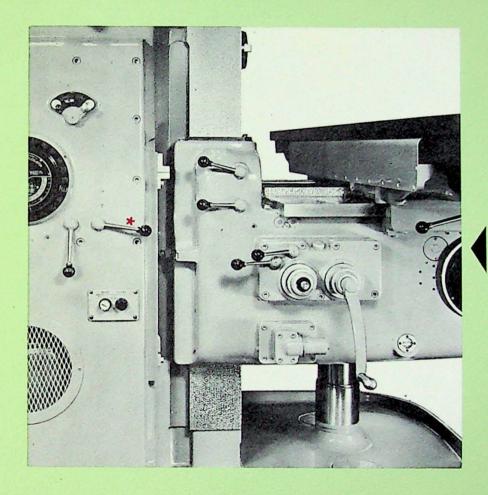
Two independent operating stations, one at the front and one at rear. Stations include fully directional and labeled controls. Duplicate hand and power controls at the rear are standard equipment with Plain and Universal High Power and Dual Power Dial Type Millers . . . extra for Verticals. Machines equipped with pullout, quick adjusting micrometer dials for hand adjustments . . . easy to set without loosening thumb screws. Finger tip hydraulic starting and stopping of spindle drive, engaged with a small lever, at both front and rear operating positions.

Note centralized grouping of controls at front operating station . . . all within easy reach of the operator. Power feed levers are independent and directional . . . each with forward, neutral and reverse positions. Helps new operators gain confidence in their work. Engagement of power feed levers disengages hand feed controls.

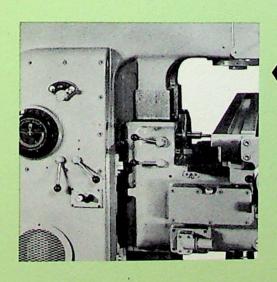


operation for all set-ups

REAR

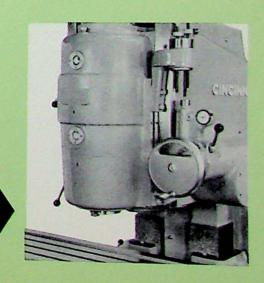


Rear control station for Plain and Universal High Power and Dual Power Dial Type Millers is shown at left. Complete rear hand and power controls enable operator to see cutting action and safely control machine when work obscures cutter from front position. Note convenient finger-tip hydraulic spindle starting control.



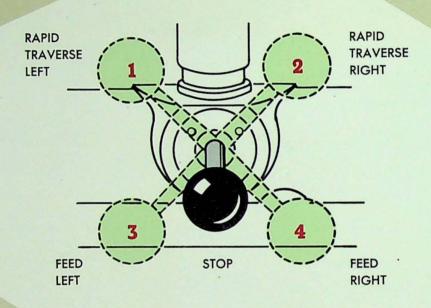
Rear controls for Vertical High Power and Dual Power Dial Type Miller include spindle starting, speed and feed change, table feed and rapid traverse. Rear hand and power feed controls, cross and vertical are supplied at extra cost.

Standard Equipment for Vertical High Power and Dual Power Dial Types includes 4-position turret stop and dial indicator, and power feed and rapid traverse to the vertical head. Full length lever-operated taper gib clamps head firmly in position.

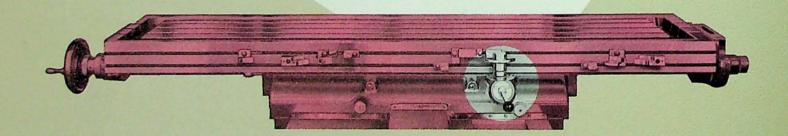




SINGLE LEVER CONTROL OF TABLE FEED AND RAPID TRAVERSE



Operation positions in green.



Manual engagement of table feed and rapid traverse is accomplished through a single directional control lever located on the front of the saddle at the operator's normal working position. Four operating positions plus "Stop" are provided as shown in the diagram above. This arrangement enables the operator to feed or rapid traverse the table directionally, or stop it quickly at any desired point . . . convenient when setting up the machine. Single Lever Control of the table feed and rapid traverse is found on the Plain and Vertical Machine only.



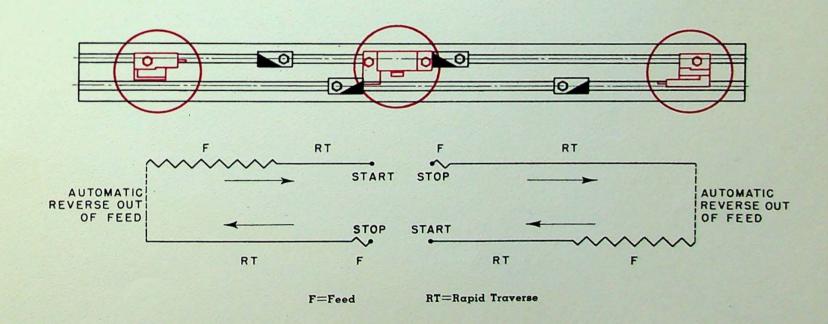
WIDE RANGE OF AUTOMATIC TABLE CYCLES AT NO EXTRA COST

Cincinnati High Power and Dual Power Plain and Vertical Dial Type Milling Machines provide a wide range of automatic cycles as standard equipment. Combines increased productive capacity with Knee and Column Milling Machine flexibility. In addition, through ingeniously designed table trip dogs, a completely automatic reciprocating table cycle with automatic reverse out of feed and automatic center safety stop is provided.

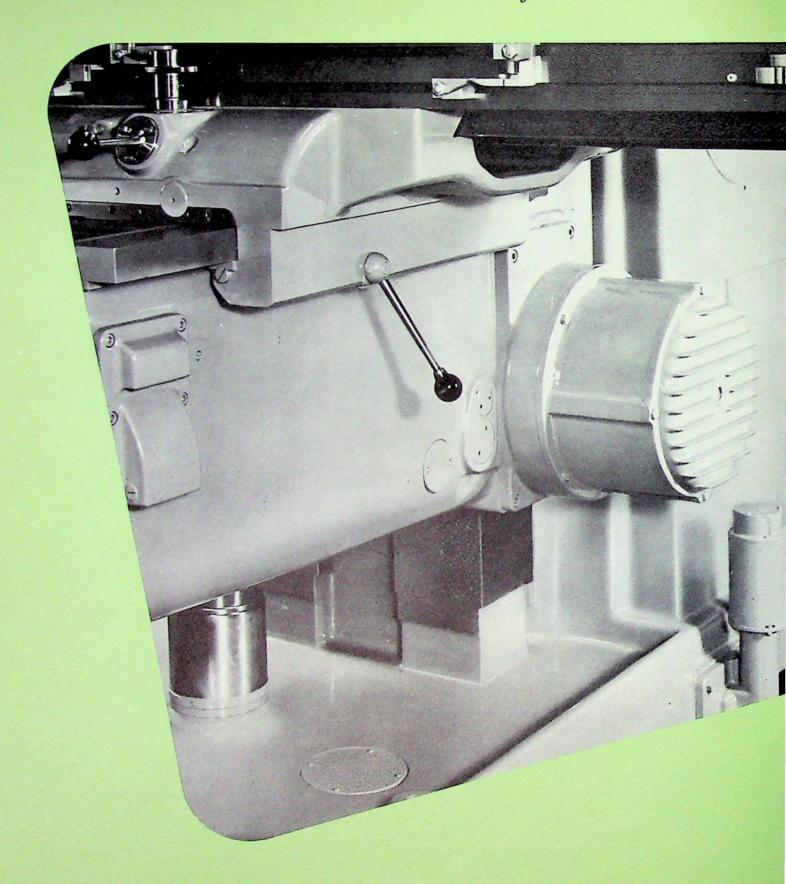
PLUS ... AUTOMATIC REVERSE OUT OF FEED AND AUTOMATIC SAFETY STOP

The drawing below illustrates a typical cycle available by using these dogs. Arrows in the drawing indicate direction of the table movement. The cycle drawing progresses in the opposite direction in order to illustrate the relative movement between the trip plunger and the trip dogs so that each dog can be illustrated directly above the function it controls in the cycle.

^{*}Dogs used in automatic reciprocating table cycle are circled below.



Full Power FEED DRIVE for more cutting







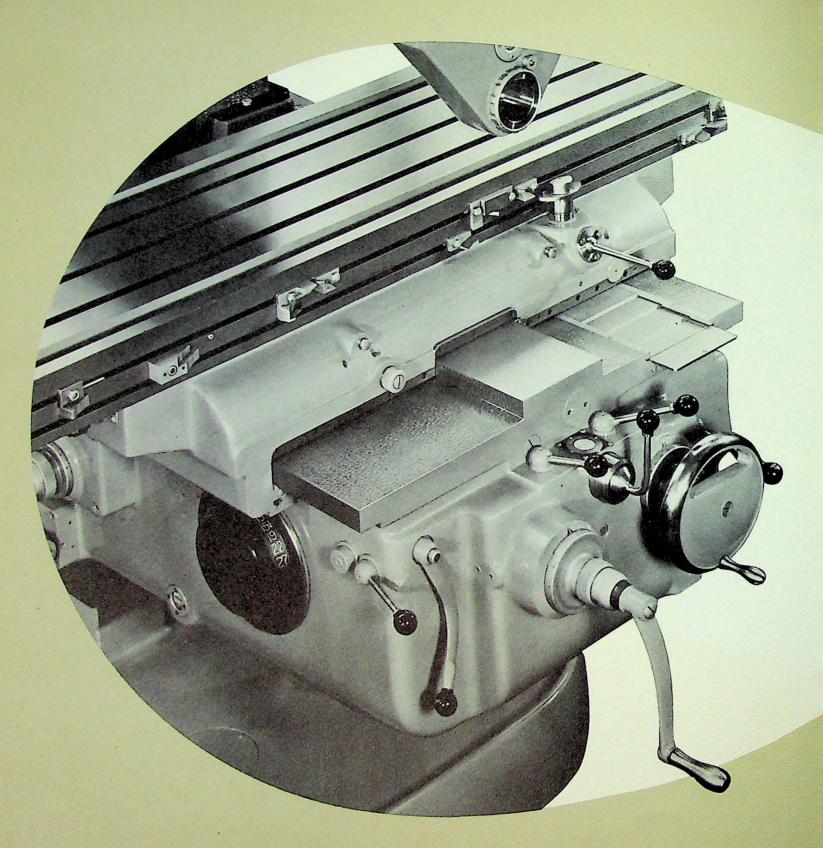
DIRECT FEED DRIVE TO THE KNEE

A separate enclosed motor on the knee provides a simple, direct drive to the feed mechanism for the knee, saddle and table power movements . . . eliminating gearing from the spindle drive in machine column. There is plenty of reserve power for longitudinal, cross and vertical feeds . . . 5hp for all High Power and Dual Power Dial Type Milling Machines, except the No. 2 size machines which have 3hp. Thirty-two feeds, $\frac{3}{8}$ to 90'' per minute are provided . . . 240 to 1 ratio. See page 15 for details on feeds.

The independent motor driven cutting fluid pump shown at the right side of machine base is standard equipment.

- SIMPLIFIED AND DIRECT
- INDEPENDENT UNIT
- ACCESSIBLE
- MORE EFFICIENT
- LOW MAINTENANCE

For greater accuracy and faster

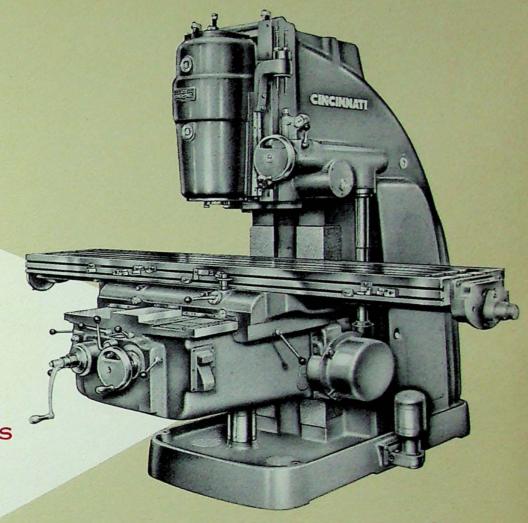


The knee is practically a yard wide, $35\frac{1}{2}$ " on the Nos. 4, 5 and 6 sizes. Improves accuracy of long cuts. Note guided sliding plates right top of knee.

stock removal under Full Power



EXTRA WIDE KNEES AND SADDLES



The bearing surface of the saddle is as long or longer than the table travel on all High Power and Dual Power Milling Machines except No. 6.

The wide knees and saddles provide the needed support for the table and workpiece. Make it possible to increase feeds and speeds and depth of cut to take advantage of full power with assured rigidity and accuracy.

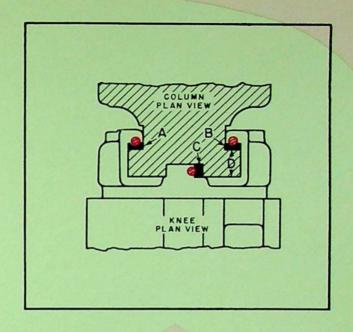


Look at the wide square gibbed grip the knee has on the column. It easily resists the stresses developed when taking heavy cuts with large cutters.

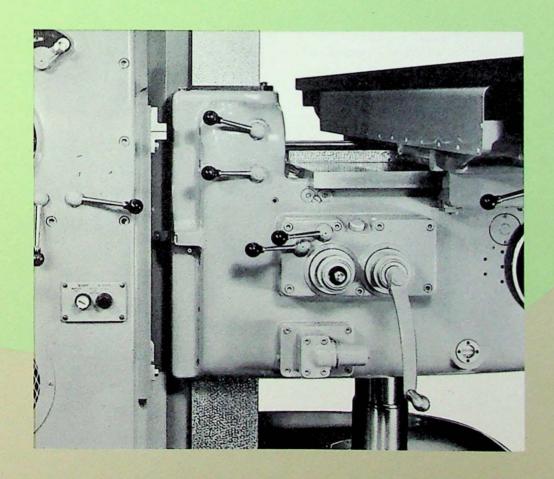
FULL GIBBING AND WIDE RECTANGULAR WAYS

for square-deep grip that resists twist

Just as knee-saddle bearings are full and wide, so the bearing surfaces between column and knee are built with extra structural rigidity. Machine alignments are more stabilized and rate of stock removal is at its all-time high with this knee-to-column bearing design. Wipers at the top of knee bearing keep the column face clean.

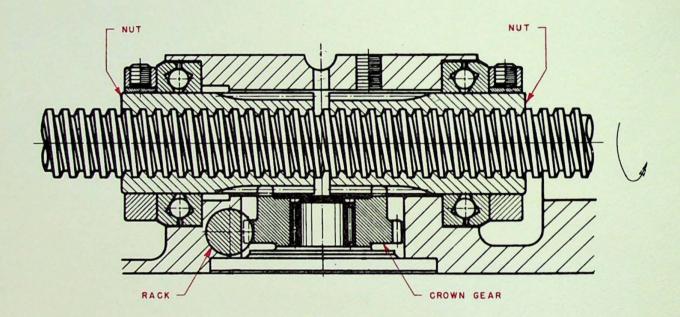


Note the full, three position gibbing... shown A, B and C in drawing. Depth of grip, D, is 61/4 inches.



Note wide square face column bearing. Long deep ways on side of main column with lots of contact area with knee.

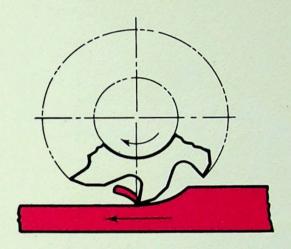
Exclusive Automatic Feature



Automatic Backlash Eliminator applied to table feed screw is standard equipment on High Power and Dual Power Dial Type Milling Machines.



AUTOMATIC BACKLASH ELIMINATOR

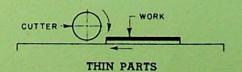


Climb down-milling cut. You'll find this of value in two cases; thin parts difficult to clamp and where breakout of metal at end of cut cannot be tolerated.

Now you can down-mill as well as up-mill

Cincinnati Backlash Eliminator is automatically activated while down milling, free during rapid traverse and manual table adjustments. This is how it works: Through the action of two independent nuts on the table feed screw, a crown gear, meshing with teeth on the two nuts, tends to rotate them in opposite directions. See drawing at left. Thus the backlash is entirely eliminated, and the down-milling as well as upmilling jobs may be assigned to High Power and Dual Power Dial Type Milling Machines.







Setups like those diagramed here present no special problems when assigned to a Cincinnati with Automatic Backlash Eliminator.

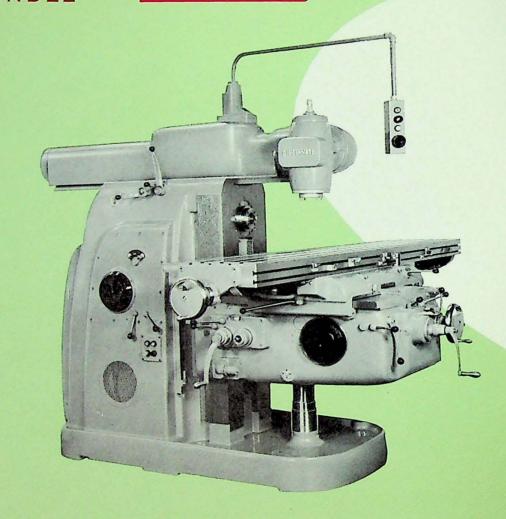
For increased cutting range

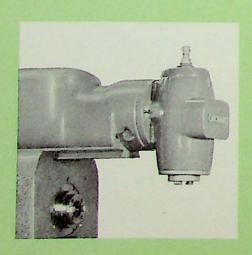
RECTANGULAR OVERARM WITH INDEPENDENT OVERHEAD SPINDLE

Cincinnati
ADVANTAGE
NUMBER

The new Independent Overhead Spindle adds to the versatility and productive capacity of Cincinnati High Power and Dual Power Milling Machines in many ways. (Supplied at extra cost.)

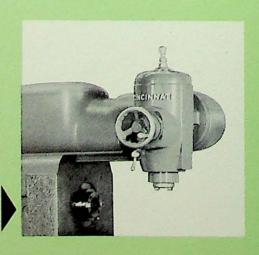
- 1. Built integral with machine rectangular overarm . . . always ready to use.
- 2. Increases effective range as illustrated on the opposite page.
- 3. No interference with normal set-ups requiring arbor supports.
- 4. Additional operations may be handled; vertical milling.. angular milling in two planes.
- 5. Two or more operations may be completed without removing work from machine table.
- 6. Machine spindle and overhead spindle have the standard No. 50 taper. Stub arbors may be interchanged from one to the other.

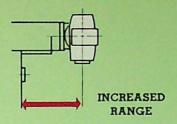


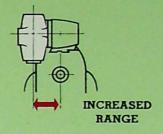


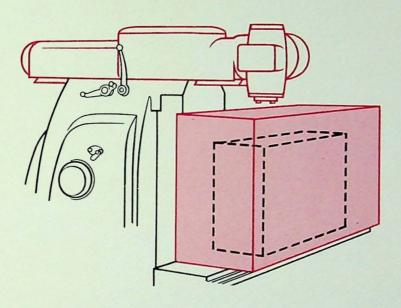
Independent Overhead Spindle with single swivel. Can be supplied with gooseneck for double swivel as shown above.

This Independent Overhead Spindle has a quill with movement controlled by handwheel. Quill has No. 40 spindle taper.









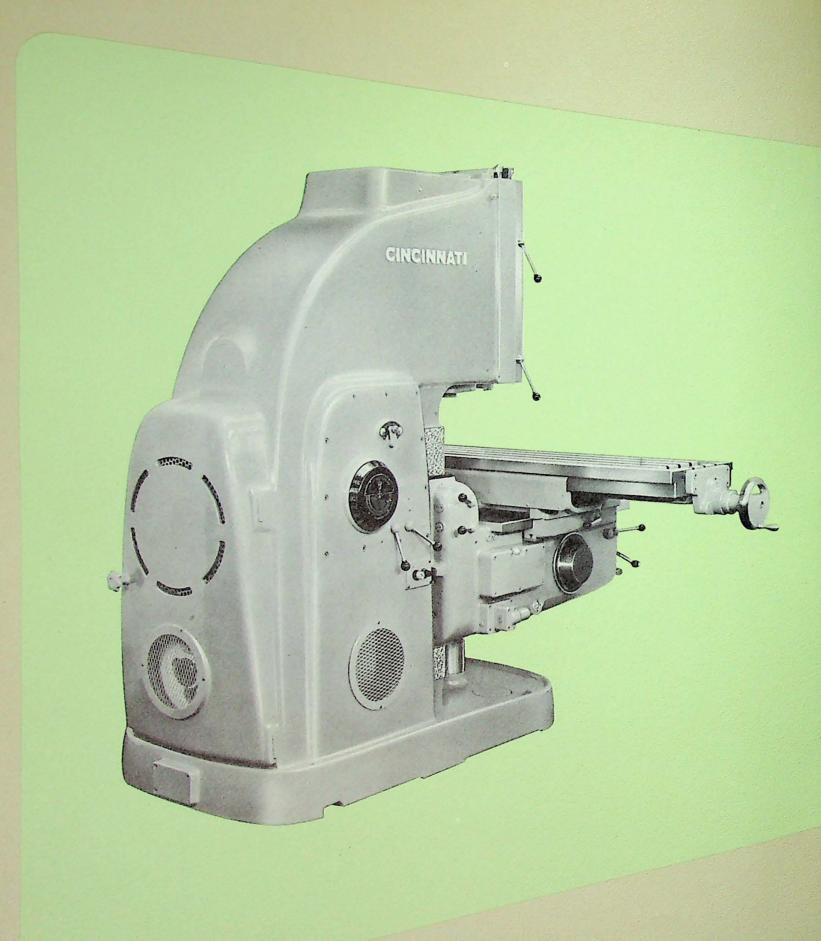


Colored box indicates increased cutting range which can be obtained on the Cincinnati High Power and Dual Power Dial Type Milling Machines, by replacing the Dynapoise Rectangular Overarm with a Rectangular Overarm having an Independent Overhead Spindle.



VERSATILITY





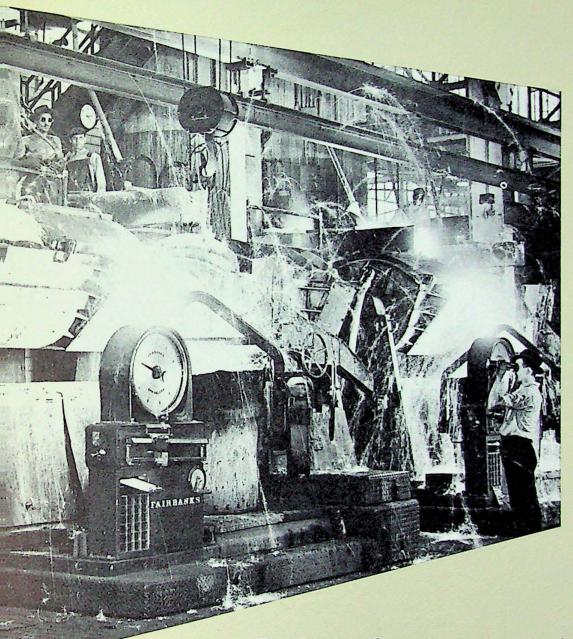
Rear view—smooth lines and well blended contours of Cincinnati High Power and Dual Power Dial Type Milling Machines portray the high quality castings used . . . constructed for long life of continuous service.

GREATER STRENGTH AND RIGIDITY

Cincinnati advantage

NUMBER





From Dynapoise Overarm to massive main column, knee, saddle and table, each unit is made of high grade dense cast iron with thick walls and reinforced with heavy internal ribs to withstand the stress imposed by heavy milling cuts. Cincinnati's Foundry is capable of pouring 15 different grades of controlled cast iron. The proper grade is selected for each part of the machine, dependent upon the function of the part being cast.

FOR LOWER MAINTENANCE

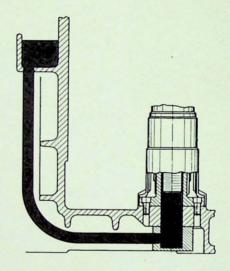
Built-in electrical controls and pushbuttons...protected from dust, moisture and damage.

Independent motor driven cutting fluid pump.

Cross and vertical screws and rotating shafts completely covered... protected from dust and chips to retain accuracy and increase operator safety.

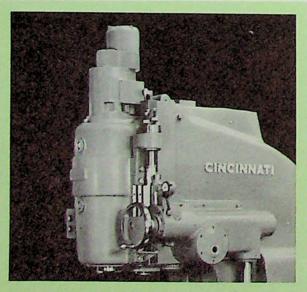
Automatic lubrication . . . of column, saddle, table and knee parts, reduces wear and minimizes maintenance expense. Every time the spindle starts, the saddle and the table mechanism are automatically oiled.

Automatic lubrication for the vertical screw maintains accuracy when using vertical feed. An individual reservoir located in column, feeds oil to bottom of the "pedestal" in which the screw operates as illustrated below. The vertical screw is continually bathed in oil as the knee traverses up and down.



It's the little things

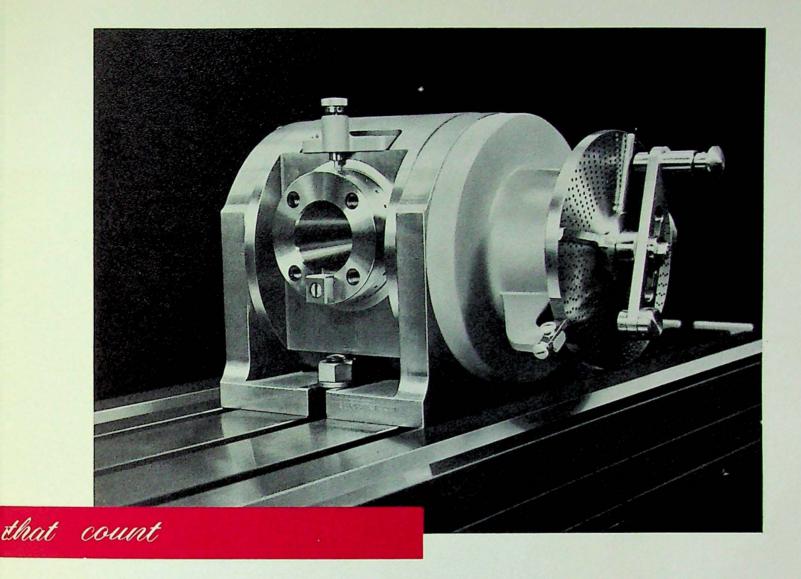
MILLING MACHINE ACCESSORIES



Power "draw bar" for spindle, located top of vertical head... with push button control (extra cost).

A wide variety of standard milling machine attachments and accessories are available at extra cost. They increase the versatility and usefulness of these Cincinnati Milling Machines. For example:

- Universal Dividing Head illustrated opposite page
- Independent Overhead Spindle. Pages 30-31
- Heavy Duty Vertical Milling Attachment
- Universal Spiral Milling Attachment
- · Circular Milling Attachment
- Slotting Attachment
- Precision Measuring Equipment

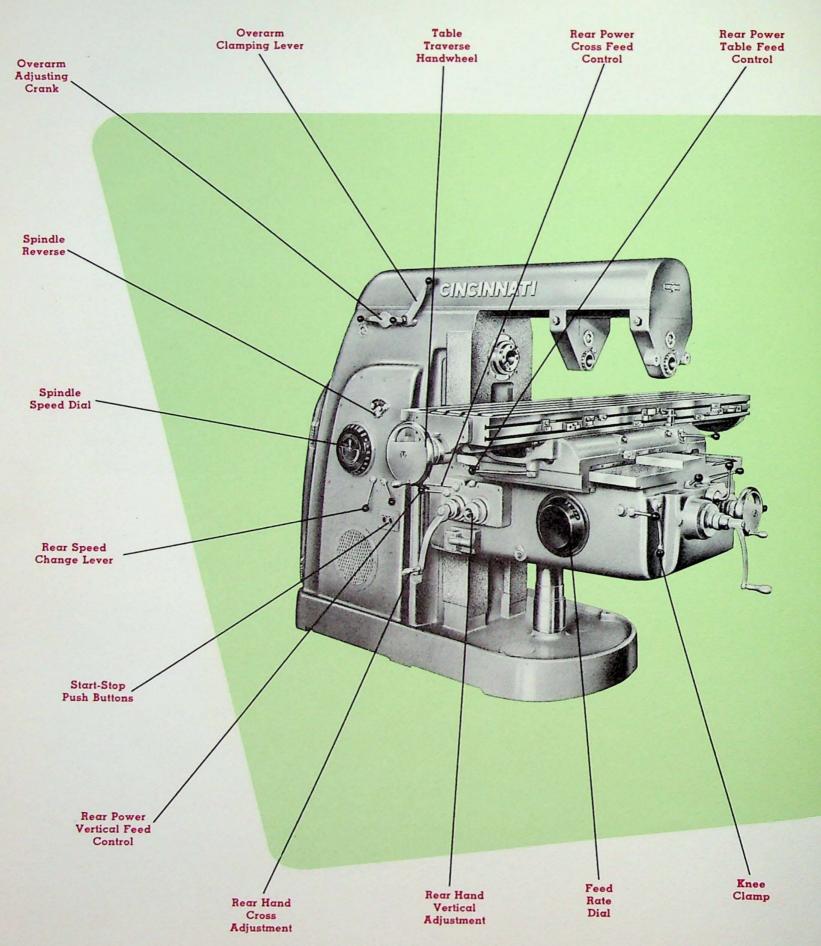


NEW UNIVERSAL DIVIDING HEAD

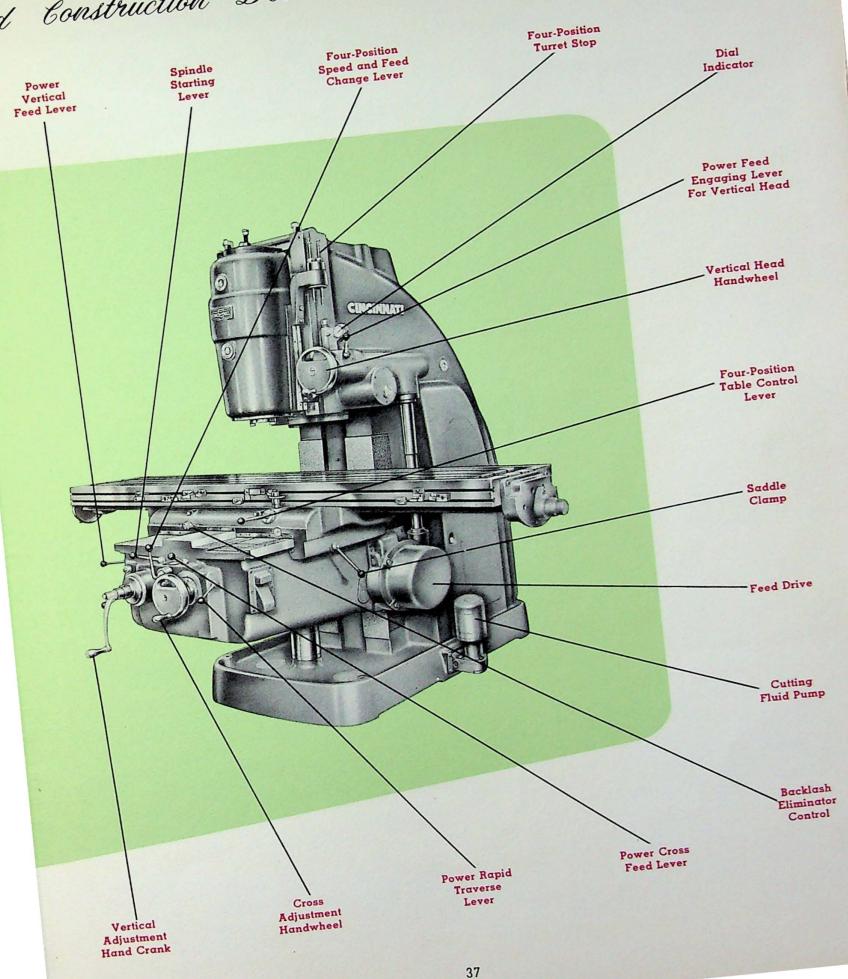
World famous Cincinnati Universal Dividing Head is known for its high degree of indexing accuracy. Supplied as standard equipment on Universal Machines. Among the new features are:

- Standard No. 50 milling machine spindle nose with non-sticking taper. All holding devices are held on arbors seated in tapered hole.
- Spindle mounted on high grade precision ball bearings... reduces friction and provides better performance on heavy helical milling cuts at slow feeds.
- New housing completely encloses mechanism and keeps out chips, dust and cutting fluid.
- Dimension from table to spindle nose (when in vertical position) has been shortened providing greater rigidity.

Location of Controls



d Construction Details



CINCINNATI Nos. 2, 3, 4, 5, and 6

PLAIN

High Power and Dual Power Dial Type Milling Machines

DIMENSIONS -317 T Q REAR COVER OPEN R FRONT 0 FF -TMAX-UMAX SPINDLE NOSE STANDARD FLANGED END WITH NO.50 SERIES TAPER TABLE & TEE SLOT **FLOOR PLAN** C D E P With F G H J K L Machine A B Without M N Min. Min. Max. Min. Max. Max. Max 1811/16 7% 151/16 2874 No. 2 Plain 361/4 21 511/16 801/4 445/8 241/4 0 681/16 62 23 11% 261/2 291/4 401/4 11% 22% No. 3 Plain 25% 20 541/4 17/16 501/2 26% 711/2 0 831/8 71% 81/4 77% No. 4 Plain 401/4 2334 581/2 201/2 56% 253/4 81/8 13 27 13 0 20 88% 91/4 77 30 31 No. 5 Plain 8834 77% 201/2 254 81/6 401/4 13 27 13 231/4 0 20 581/2 91/4 56% 31 77 30 231/4 77% 56% 251/4 No. 6 Plain 81/8 401/4 13 27 13 0 20 581/2 8834 201/2 91/4 31 77 30 U V GG KK Machine R X Y HH Without With Min. Max. Min. Max. Lugs Lugs 2415/16 5215/16 113/16 113/16 3334 24%16 231/4 31/4 No. 2 Plain 29% 52%16 581/4 121/16 28 16 115 261/2 2734 231/8 31/4 29/16 621/4 271/4 21/4 301/2 No. 3 Plain 31% 311/2 36 621/4 72 161/2 34 18 81/2 130% 721/4 3134 41/4 293/4 741/4 191/4 21/4 21/8 No. 4 Plain 351/4 341/4 40 133¾ 341/2 91/2 861/2 42 20 293/4 91/2 133¾ 41/4 21/8 No. 5 Plain 35% 341/4 801/4 3134 821/4 341/2 191/4 21/4 40 941/2 19 50 20 No. 6 Plain 351/4 341/4 40 293/4 901/4 3134 921/4 1041/2 19 60 20 91/2 1331/4 341/2 1914 21/8

SPECIFICATIONS

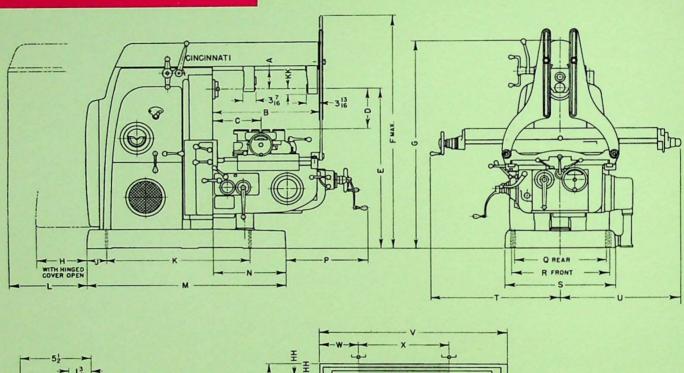
	No. 2	No. 3	No. 4	No. 5	No. 6	
MADLE.						
TABLE Working surface	58¾"x16"	72"x18"	86½"×20"	94½"x20"	104½"x20"	
Size over-all	58¾"x16"	72"x18"	861/2"×20"	94½"x20"	1041/2"x20"	
T-slots, number and size	Three—11/16"	Three_13/16"	Three_13/16"	Three—13/16"	Three—13/16"	
Distance between T-slots	3¼"	3'4"	41/4"	41/4"	4'4"	
RANGE						
Longitudinal		34"	42"	50"	60"	
Cross (without brace)		12"	14"	14"	14"	
Vertical	19" 18½"	20"	20"	20"	20"	
Centerline spindle to top of table Maximum Minimum.	0	0	0	0	0	
Face column to braces—maximum	361/4"	401/4"	401/4"	401/4"	401/4"	
SPINDLE						
Standard milling machine spindle nose	No. 50	No. 50	No. 50	No. 50	No. 50	
Diameter of nose		51/16"	51/16"	51/16"	51/16"	
Diameter of hole for draw-in bolt	11/6"	11/8"	11/4"	11/8"	1%"	
Speeds \ Number		24	24	24	24	
(Range		43, 52, 65, 80, 97, 256, 326, 394, 477,		, 37, 45, 57, 68, 83, 10 6, 500, 637, 757, 914		
	572, 729, 867, 104		217, 277, 344, 41	0, 300, 037, 737, 714	, 1100, 1400 Ipili	
Reverse	Included	Included	Included	Included	Included	
FFFDC						
FEEDS Number	32	32	32	32	32	
(Longitudinal	3/6"-90" per min.	%"-90" per min.	3/8"-90" per min.	3/8"-90" per min.	%"-90" per min.	
Range Cross	3/8"-90" per min.	%"-90" per min.	3/8"-90" per min.	%"-90" per min.	1/4"-90" per min.	
				⅓12"-22½" per min.		
Longitudinal and cross feeds				", 2¼", 2%", 3¼", 45", 54", 63", 79",		
(Vertical feeds are 1/4 these rates.)	07, 77, 4, 1	1 , 13 , 13A , 19 ,	12 , 27 , 31 , 37 ,	45 , 54 , 65 , 77 ,	per minure.	
LIVE POWER RAPID TRAVERSE						
(Spindle stopped or running) Longitudinal	150" per min.	150" per min.	150" per min.	150" per min.	150" per min.	
Cross	150" per min.	150" per min.	150" per min.	150" per min.	150" per min.	
Vertical	371/2" per min.	37½" per min.	371/4" per min.	371/4" per min.	371/2" per min.	
OVERARM—Rectangular, Dynapoise.						
Distance from under side to centerline						
of arbor	7%"	71/8"	81/4"	81/4"	81/4"	
SPINDLE DRIVE						
(High Down	15 hp	20 hp	25 hp	25 hp	25 hp	
Motor Rating AC Dual Power	20 hp	30 hp	50 hp	50 hp	50 hp	
FEED DRIVE						
Motor rating AC	3 hp	5 hp	5 hp	5 hp	5 hp	
					In-tdd	
CUTTING FLUID PUMP, Motor Driven	Included 5 gals, per min,	Included 5 gals, per min.	Included 5 gals. per min.	Included 5 gals. per min.	5 gals, per min.	
FLOOR SPACE	115"x117'/4"	130%"x124'/4"	133¾"x146¼"	133¾"x162½"	133¼″x182½″	
) =93¾ sq. ft.	=113 sq. ft.	=136 sq. ft.	=151 sq. ft.	=170 sq. ft.	
SHIPPING DATA	High Dual	High Dual	High Dual	High Dual	High Dual	
(Weights incude motor and controls)	Power Power	Power Power	Power Power	Power Power	Power Power	
Net weight, lbs.	9,800 10,000	11,600 11,900 12,600 12,900	15,000 15,300 16,000 16,300	15,300 15,600 16,300 16,600	15,600 15,900 16,600 16,900	
Domestic shipping weight (approx.), lbs Export shipping weight (approx.), lbs	13,000 13,200	15,100 15,400	16,000 16,300 17,500 17,800	17,800 18,100	18,100 18,400	
Size of case	84"x102"x60"	108"x74"x68"	120"x79"x70"	120"x79"x70"	126"x79"x70"	
Volume of case	298 cu. ft.	' 315 cu. ft.	384 cu. ft.	384 cu. ft.	403 cu. ft.	
CODE WAYER (High Power	HIPLA	HYPOW	НҮРОР	НҮРРА	HYPLO	
CODE NAMES High Power	the state of the s	DUALP	DUAPL	DUPAP	DUAPA	

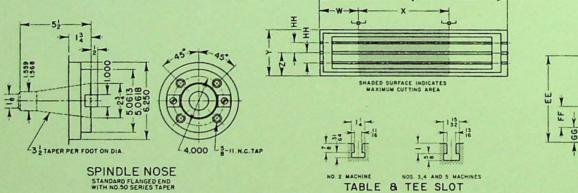
CINCINNATI Nos. 2, 3, 4, and 5

UNIVERSAL

High Power and Dual Power Dial Type Milling Machines

DIMENSIONS





1	
₩ ¥	3 0
# 1	SPINDLE
1 18	
1	S
-	-TMAX-UMAX-

Machine	A	В	1		С			D	E	F	G	F	1	1		L	м	N	P
				Vithout Braces		With aces													
			Min	. Max	. Min.	Max	Min.	Max.											
No. 2 Univ.	7%	361/4	11	251/	11	21	0	171/16	5111/16	801/4	681/16	15	1/16 6	/8 44	5/8 2	41/4	52	23	28¾
No. 3 Univ.	71/8	401/4	117/	21	111/8	221/8	0	181/2	543/4	831/8	71%	17	/16 8	4 50	1/2 2	6% 7	11/2	261/2	291/4
No. 4 Univ.	81/8	401/4	13	27	13	233/4	0	181/2	581/2	88¾	775/8	20	1/2 9	4 56	5/8 3	1 7	7	30	251/4
No. 5 Univ.	81/8	401/4	13	27	13	233/4	0	181/2	581/2	88¾	775/8	20	4 9	4 56	5/8 3	1 7	7	30	253/4
Machine	Q	R	S	Т		τ	J	v	w	х	Y	Z	EE	FF	GG	нн		KK	
				Min.	Max.	Min.	Мах.										0.00	hout igs	With Lugs
No. 2 Univ.	29%	30	33¾	2415/16	5215/16	24%16	52%16	58¾	127/16	28	16	71/2	115	261/2	231/4	31/4	1'	3/16	113/16
No. 3 Univ.	31%	311/2	36	273/4	621/4	273/4	621/4	72	161/2	34	18	81/2	1301/8	301/2	23%	31/4	21/	4	2%16
No. 4 Univ.	35¾	343/4	40	293/4	721/4	3134	741/4	861/2	19	42	20	91/2	133¾	341/2	191/4	41/4	21/	4	21/8
No. 5 Univ.	35¾	3434	40	293/4	801/4	3134	821/4	941/2	19	50	20	91/2	13334	341/2	191/4	41/4	21/	4	21/6

SPECIFICATIONS

	No. 2	No. 3	No. 4	No. 5		
TABLE						
Working Surface	58¾"x16"	72"x18"	86½"x20"	94½"x20"		
Size over-all	58¾"x16"	72"x18"	86½"x20"	94½"x20"		
T-slots, number and size	Three—11/16"	Three—13/16"	Three—13/16"	Three—13/16"		
Distance between T-slots	31/4"	31/4"	41/4"	4'4"		
Swivel, right and left	45°	45°	40°	40°		
RANGE						
Longitudinal	28"	34"	42"	50"		
Cross (without brace)	10"	12"	14"	14"		
Vertical	18"	181/2"	181/2"	181/4"		
(Maximum	171/4"	19"	19"	19"		
Centerline spindle to top of table	0	0	0	0		
Face column to braces—maximum	361/4"	401/4"	401/4"	401/4"		
SPINDLE						
Standard milling machine spindle nose	No. 50	No. 50	No. 50	No. 50		
Diameter of nose	51/16"	51/16"	51/16"	51/16"		
Diameter of hole for draw-in bolt	11/4"	11/8"	11/8"	11/4"		
S Number	24	24	24	24		
Speeds Range	16, 19, 23, 29, 36,	43, 52, 65, 80, 97,	14, 17, 20, 25, 31,	37, 45, 57, 68, 83,		
	116, 148, 176, 213,	256, 326, 394, 477,	100, 126, 151, 182	, 219, 279, 344, 416,		
	572, 729, 867, 10	047, 1258, 1600 rpm	500, 637, 757, 914	, 1100, 1400 rpm		
Reverse	Included	Included	Included	Included		
FEEDS						
Number	32	32	32	32		
(Longitudinal	3/4"-90" per min.	36"-90" per min.	%"-90" per min.	36"-90" per min.		
Range Cross	%"-90" per min.	%"-90" per min.	%"-90" per min.	1/4"-90" per min.		
(Vertical				1/32"-221/2" per min.		
Longitudinal and cross feeds		6", 13/16", 15/16", 11/8",				
(Vertical feeds are 1/4 these rates.)		7¼", 9", 11", 13", 1	5'4", 19", 22", 27", 3	31", 39", 45", 54",		
LIVE POWER RAPID TRAVERSE	63", 79", 90" pe	r minute.				
(Spindle stopped or running)						
Longitudinal	150" per min.	150" per min.	150" per min.	150" per min.		
Cross	150" per min.	150" per min.	150" per min.	150" per min.		
Vertical	371/4" per min.	371/4" per min.	371/4" per min.	371/4" per min.		
OVERARM—Rectangular, Dynapoise.						
Distance from under side to centerline of arbor	71/8"	7%"	81/4"	81/4"		
SPINDLE DRIVE						
(v:-) P	15 hp	20 hp	25 hp	25 hp		
Motor rating AC Dual Power Dual Power	20 hp	30 hp	50 hp	50 hp		
FEED DRIVE						
Motor rating AC	3 hp	5 hp	5 hp	5 hp		
DIVIDING HEAD						
Size (swing)	10"	12"	14"	14"		
Length between centers		45¾"	601/2"	681/4"		
Lead range		21/4" to 100"	21/2" to 100"	21/2" to 100"		
	Included-	Included-	Included—	Included—		
CUTTING FLUID PUMP, Motor Driven	5 gals. per min.	5 gals. per min.	5 gals. per min.	5 gals. per min.		
FLOOR CRACE	115"x1171/4"	130%"x1241/2"	133¼"x146'/4"	133¼"x162¼"		
FLOOR SPACE	=93¾ sq. ft.	=113 sq. ft.	=136 sq. ft.	=151 sq. ft.		
SHIPPING DATA	High Dual	High Dual	High Dual	High Dual		
(Weights include motor and controls)	Power Power	Power Power	Power Power	Power Power		
Net weight, lbs.	10,800 11,000	12,400 12,700	15,800 16,100	16,300 16,600		
Domestic shipping weight (approximate),lbs	11,800 12,000	13,400 13,700	16,800 17,100	17,300 17,600		
Export shipping weight (approximate), lbs	14,000 14,200	14,600 14,900	18,300 18,600	18,800 19,100		
Size of case	84"x102"x60"	108"x74"x68"	120"x79"x70"	120"x79"x70"		
Volume of case	298 cu. ft.	315 cu. ft.	384 cu. ft.	384 cu. ft.		
CODE NAMES { High Power		HYPUO	HYPAD	HYPTU		
Dual Power	UNDVA	DUAPU	DUALU	DUAMU		

No. 2

No. 3

No. 4

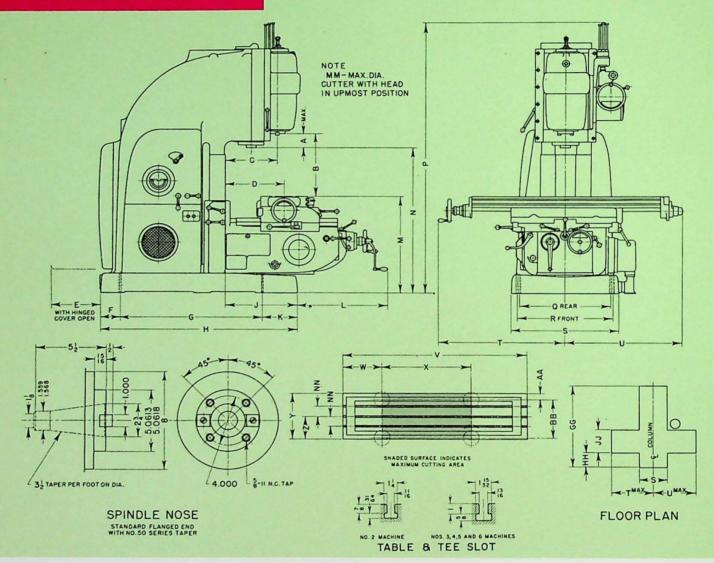
No. 5

CINCINNATI Nos. 2, 3, 4, 5, and 6

VERTICAL

High Power and Dual Power Dial Type Milling Machines

DIMENSIONS



Machine	A		В	C	1	D	E	F	G	H	J	K	L	M		N	P	Q
		Min.	Max.		Min.	Max.								Min.	Max.			
No. 2 Vertical	41/2	0	213/4	181/4	11	25	151/16	61/8	44%	62	23	111/4	28¾	321/4	463/4	505/16	901/32	29%
No. 3 Vertical	31/8	0	22	201/2	111/8	271/8	171/4	81/2	501/2	711/2	261/2	123/4	291/4	3315/16	507/16	5213/16	95%	31%
No. 4 Vertical	21/16	0	22	201/2	13	31	23%	61/4	56%	71	27	81/8	323/4	371/16	537/16	561/2	103¾	35¾
No. 5 Vertical	211/16	0	22	201/2	13	31	23%	61/4	56%	71	27	81/8	323/4	371/16	531/16	561/2	103¾	35¾
No. 6 Vertical	211/16	0	22	201/2	13	31	23%	61/4	56%	71	27	81/8	323/4	371/16	531/16	561/2	103¾	35¾
Machine	R	S		Г		U	v	w	х	Y	Z	AA	ВВ	GG	нн	11	MM	NN
			Min.	Max.	Min.	Max.												
No. 2 Vertical	30	33¾	2415/16	5215/16	24%16	52%16	583/4	121/16	28	16	71/2	13/4	12	1063/16	191/4	301/2	8	31/4
No. 3 Vertical	311/2	36	273/4	621/4	273/4	621/4	72	161/2	34	18	81/2	21/8	16	1211/2	19%	341/2	81/2	31/4
No. 4 Vertical	343/4	40	293/4	71%	313/4	741/4	861/2	19	42	20	91/2	0	18	127%	191/4	381/2	9	41/4
No. 5 Vertical	341/4	40	293/4	801/4	313/4	821/4	941/2	19	50	20	91/2	0	18	127%	191/4	381/2	9	41/4
No. 6 Vertical	3434	40	29¾	901/4	313/4	921/4	1041/2	19	60	20	91/2	0	18	127%	191/4	381/2	9	41/4

SPECIFICATIONS

	No. 2	No. 3	No. 4	No. 5	No. 6		
TABLE							
Working surface	58¾"x16"	72"x18"	861/2"x20"	94½"x20"	104½"x20"		
Size over-all		72"x18"	861/2"x20"	94½"x20"	1041/4"x20"		
T-slots, number and size	Three—11/16"	Three—13/16"	Three—13/16"	Three—13/16"	Three—13/16"		
Distance between T-slots	31/4"	31/4"	41/4"	41/4"	4'4"		
RANGE							
Longitudinal	28"	34"	42"	50"	60"		
Cross	14"	16"	18"	18"	18"		
Vertical	14"	16"	16"	16"	16"		
(Maximum	21¾"	22"	22"	22"	22"		
Spindle nose to top of table	0	0	0	0	0		
Vertical head movement	6"	7"	8"	8"	8"		
SPINDLE							
Standard milling machine spindle nose	No. 50	No. 50	No. 50	No. 50	No. 50		
Diameter of nose		51/16"	51/16"	51/16"	51/16"		
Diameter of hole for draw-in bolt		11/6"	11/4"	11/8"	11/4"		
(Number		24	24	24	24		
Speeds Range		43, 52, 65, 80, 97,		, 37, 45, 57, 68, 83, 10			
(nange		256, 326, 394, 477,		6, 500, 637, 757, 914,			
		7, 1258, 1600 rpm	217, 277, 344, 41	0, 300, 037, 737, 714, 	1.00, 1400 7011		
Reverse		Included	Included	Included	Included		
neverse	meloded	included	incidaed	included	Included		
FEEDS							
Number	32	32	32	32	32		
(Longitudinal	%"-90" per min.	1/8"-90" per min.	%"-90" per min.	%"-90" per min.	1/8"-90" per min.		
Cross	3/8"-90" per min.	⅓"-90" per min.		3/8"-90" per min.	1/3"-90" per min.		
Range Vertical				3/2"-221/2" per min.	1/12"-221/4" per min.		
Vertical head	3/16"-45" per min.	1/16"-45" per min.	716"-45" per min.	716"-45" per min.	3/16"-45" per min.		
Longitudinal and cross feeds				", 21/4", 25/8", 31/4", 3			
(Vertical feeds are 1/4 these rates.)	61/2", 71/2", 9",	11", 13", 15¼", 19",	22", 27", 31", 39",	45", 54", 63", 79", 9	0" per minute.		
LIVE DOWED DANID TRAVERCE							
LIVE POWER RAPID TRAVERSE							
(Spindle stopped or running)	150"	150" per min.	150" per min.	150" per min.	150"		
Longitudinal		150" per min.	150" per min.	150" per min.	150" per min. 150" per min.		
Cross	150" per min. 37½" per min.	37½" per min.	37½" per min.	37½" per min.	37½" per min.		
Vertical head		75" per min.	75" per min.	75" per min.	75" per min.		
vertical nead	75" per min.	75 per min.	75 per min.	75 per min.	/5 per min.		
SPINDLE DRIVE							
Motor rating AC High Power	15 hp	20 hp	25 hp	25 hp	25 hp		
Dual Power	20 hp	30 hp	50 hp	50 hp	50 hp		
FEED DRIVE							
Motor rating AC	3 hp	5 hp	5 hp	5 hp	5 hp		
	Included	Included	Included	Included	Included		
CUTTING FLUID PUMP, Motor Driven	5 gals. per min.	5 gals, per min.					
	5 gais. per min.	5 gais, per min.	5 gals. per min.	5 gals. per min.	5 gals. per min.		
	(1067/16"x1171/4"	1211/4"x1241/4"	127%"x1451/4"	127%"x1621/2"	127%"x1821/2"		
FLOOR SPACE	=861/2 sq. ft.	=105 sq. ft.	=129 sq. ft.	=1431/2 sq. ft.	=1611/2 sq. ft.		
SHIPPING DATA	High Dual	High Dual	High Dual	High Dual	High Dual		
(Weights include motor and controls)	Power Power	Power Power	Power Power	Power Power	Power Power		
Net weight, lbs.	11,600 11,800	13,600 13,900	16,800 17,100	17,100 17,400	17,400 17,700		
Domestic shipping weight (approx.), lbs	12,600 12,800	14,600 14,900	17,800 18,100	18,100 18,400	18,400 18,700		
Export shipping weight (approx.), lbs	14,800 15,000	17,100 17,400	19,800 20,100	20,100 20,400	20,400 20,700		
Size of case		108"x99"x58"	120"x105"x70"	120"x105"x70"	126"x107"x70"		
Volume of case	340 cu. ft.	359 cu. ft.	510 cu. ft.	510 cu. ft.	546 cu. ft.		
			A CONTRACTOR OF THE PARTY OF TH		THE RESERVE THE TAXABLE PARTY.		
CODE NAMES High Power		HYPAY	HYPEV	HYPIV	HYPNA		
Dual Power	VERDU	DUPOV	DULAY	DUVER	DUAVE		

CINCINNATI Nos. 2, 3, 4, 5, and 6

High Power and Dual Power Dial Type Milling Machines

STANDARD EQUIPMENT

SUPPLIED WITH THE MACHINE

PLAIN MACHINES

- Two Arbor Supports, one with lugs for braces and one without lugs, both fitted with adjustable arbor bushing for Style "B" arbors (2³/₄" hole in bushing for Nos. 3, 4, 5 and 6 machines, 2¹/₆" hole in bushing for No. 2 machines).
- Arbor Support Bushing Adapter for Style "A" arbor (including adjustable bushing, nut, washer, and screw).
- Complete Electrical Equipment for 50 or 60 cycle, 2 or 3 phase, 220 to 550 volts, A.C. and wired in accordance with the "Machine Tool Electrical Standards."

Motor: open, normal torque, low starting current, N.E.M.A. frame, ball bearing. See "General Specifications" for hp rating.

Control: Full voltage magnetic starter with overload and undervoltage protection including transformer and push buttons operated at 110 volts.

Disconnect Switch: A non-fusible type is supplied.

- 4. Automatic Backlash Eliminator.
- 5. Automatic Table Feed Cycles.
- Rear Hand Adjustments and Rear Power Feed Controls – longitudinal, cross and vertical.
- 7. Motor Driven Cutting Fluid Pump.
- 8. Overarm Braces and Bridle.
- 9. Adjustable Arbor Tightening Rod.
- 10. Wrenches.
- 11. Standard Feed Range, "" to 90" per minute.

UNIVERSAL MACHINES (NOS. 2, 3, 4, AND 5 SIZES)

- Standard Universal Dividing Head and Equipment, including tailstock with 2-point adjustable center, work driver; steady rest, one plate for indexing through 40 to 1 reduction all numbers up to and including 60, all even numbers and those divisible by 5 up to 120, and many beyond; direct indexing from spindle nose; one center for dividing head, and provision for connecting head to enclosed driving mechanism segment. 10" Dividing Head for No. 2 machine, 12" Dividing Head for No. 3 machine; 14" for Nos. 4 and 5 machines.
- Enclosed Driving Mechanism Segment, including change gears for spiral milling, leads range from 2½" to 100" (only) for Standard Universal Dividing Heads.
- 3. Two Arbor Supports, one with lugs for braces and one without lugs, both fitted with adjustable arbor bushing for Style "B" arbors. (23/4" hole in bushing for Nos. 3, 4, and 5 machines, 21/8" hole in bushing for No. 2 machines.)
- Complete Electrical Equipment for 50 or 60 cycle, 2 or 3 phase, 220 to 550 volts A.C. and

wired in accordance with the "Machine Tool Electrical Standards."

Motor: open, normal torque, low starting current, N.E.M.A. frame, ball bearing. See "General Specifications" for hp rating.

Control: Full voltage magnetic starter with overload and undervoltage protection including transformer and push buttons operated at 110 volts.

Disconnect Switch: A non-fusible type is supplied.

- 5. Automatic Backlash Eliminator.
- Arbor Support Bushing Adapter for Style "A" arbors (including adjustable bushing, nut, washer, and screw).
- Rear Hand Adjustments and Rear Power Feed Controls - longitudinal, cross, and vertical.
- 8. Motor Driven Cutting Fluid Pump.
- 9. Overarm Braces and Bridle.
- Adjustable Arbor Tightening Rod.
- 11. Wrenches.
- 12. Standard Feed Range, 3/8" to 90" per minute.

VERTICAL MACHINES

- Power Feed and Power Quick Traverse to the Vertical Head.
- 2. Turret Stop, four-position with dial indicator.
- 3. Rear Power Feed Control longitudinal only.
- Complete Electrical Equipment for 50 or 60 cycle, 2 or 3 phase, 220 to 550 volts A.C. and wired in accordance with the "Machine Tool Electrical Standards."

Motor: open, normal torque, low starting current, N.E.M.A. frame, ball bearing. See "General Specifications" for hp rating.

Control: Full voltage magnetic starter with overload and undervoltage protection including transformer and push buttons operated at 110 volts.

Disconnect Switch: A non-fusible type is supplied.

- 5. Automatic Backlash Eliminator.
- 6. Automatic Table Feed Cycles.
- 7. Motor Driven Cutting Fluid Pump.
- 8. Adjustable Arbor Tightening Rod.
- 9. Wrenches.
- 10. Standard Feed Range, 3/8" to 90" per minute.

EQUIPMENT AT EXTRA COST

NOT INCLUDED IN PRICE OF BASIC MACHINE

PLAIN AND UNIVERSAL MACHINES

 Arbor Support, Style "B", with an adjustable arbor bushing, without lugs for braces. (2³/₄" hole in bushing for Nos. 3, 4, 5 and 6 machines, 2¹/₈" hole in bushing for No. 2 machines.)

PLAIN AND VERTICAL MACHINES

Standard Universal Dividing Head and Equipment, including tailstock with 2-point adjustable center, work driver, steady rest, one plate for indexing through 40 to 1 reduction - all numbers up to and including 60, all even numbers and those divisible by 5 up to 120, and many beyond, direct indexing from spindle nose, one center for dividing head, and provision for connecting head to enclosed driving mechanism segment.

10" size for No. 2 machine.

12" size for No. 3 machine.

14" size for Nos. 4, 5 and 6 machines.

Enclosed Driving Mechanism Segment, including change gears for spiral milling, leads range from 2½" to 100" (only) for Standard Universal Dividing Heads.

UNIVERSAL MACHINES ONLY

 Long and Short Lead Attachment with a range .010 to 1000 inches or .025" to 3000". Must be installed at factory before machine is shipped.

VERTICAL MACHINES ONLY

 Rear Hand Adjustments and Rear Power Feed Controls, cross and vertical. Supplied at factory only. (Not included with standard equipment on Vertical Machines.)

PLAIN, UNIVERSAL AND VERTICAL MACHINES

- Electrical Equipment to meet "J. I. C. Standards" (includes totally enclosed motors).
- 2. Electrical Equipment for D.C.
- 3. Electrical Equipment for 25 cycle A.C.
- Wide Range Divider (applied to Standard Universal Dividing Head) for divisions from 2 to 400,000, hundreds of them exact and others compensated for the fractional remainder.
- 5. Vises, Chucks, and Chuck Adapters.
- Arbors, Adapters, Collets, Quick Change Adapters, etc.
- Standard Attachments: Circular Milling Attachment, High Number Indexing Attachment for Dividing Heads, etc.
- 8. Index Bases, Raising Blocks, Right Angle Plates.
- 9. Precision Measuring Equipment.
- 10. Extended Table Travel.

PATENT NOTICE—The machines and attachments illustrated and described in this booklet are protected by issued and pending United States and Foreign patents. The design and specifications of the machines and attachments illustrated herein are subject to change without notice.

KNEE TYPE MILLING MACHINES



BED TYPE MILLING MACHINES



DIE SINKING MACHINES



BROACHING MACHINES



CUTTER SHARPENING MACHINES



OPTICAL PROJECTION GRINDERS





HARDENING MACHINES



METAL FORMING MACHINES



METAL SPINNING MACHINES



CUTTING FLUIDS



PRECISION GRINDING WHEELS

Products of The Cincinnati Milling Machine Co. are listed and symbolized here. Products of their associate company, Cincinnati Grinders Incorporated, include a complete line of Centertype, Centerless, and Roll Grinding Machines. The products of The Cincinnati Milling Machine Co. and of Cincinnati Grinders Incorporated are sold by Cincinnati Milling and Grinding Machines, Inc.

THE CINCINNATI MILLING MACHINE CO.

CINCINNATI 9, OHIO, U. S. A.