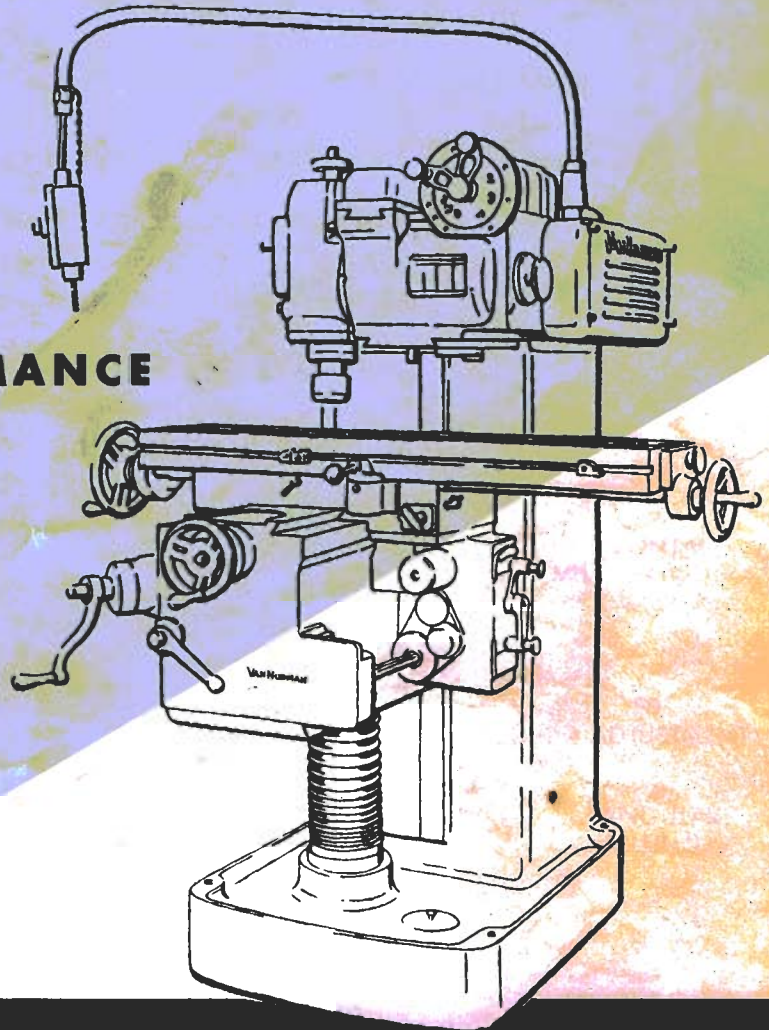
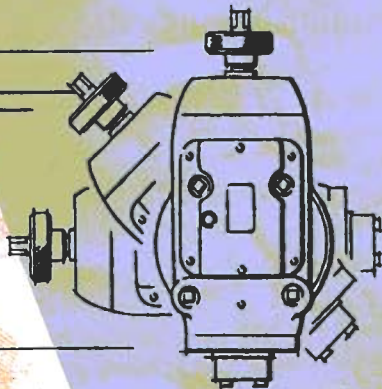


**ENGINEERED FOR
MAXIMUM PERFORMANCE**



RAM - TYPE MILLING MACHINES

of INDUSTRY-INTEGRATED DESIGN

by

VAN NORMAN

**NEW MACHINE DESIGNATION
(TYPICAL)**

1
CLASS

R
RAM
TYPE

Q - **3**
QUILL
SPINDLE

- **3**
SPINDLE
HP

- **22**
TABLE
TRAVEL

Over 65 years of designing and building milling machines has resulted in the equipment described in this catalog. All VAN NORMAN Milling Machines are engineered from base to spindle to meet the exacting requirements of Industry.

VAN NORMAN

is proud to present

its latest line of

MILLING MACHINES

1R-3-22

PLAIN OR UNIVERSAL

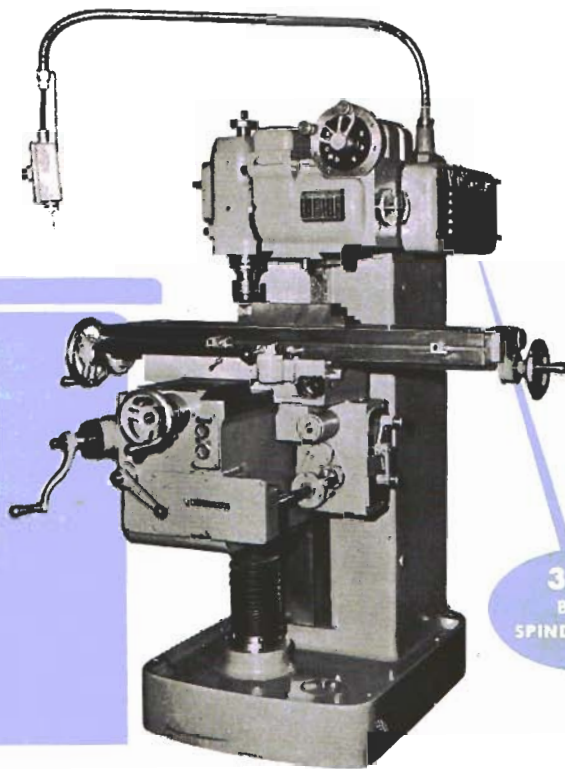
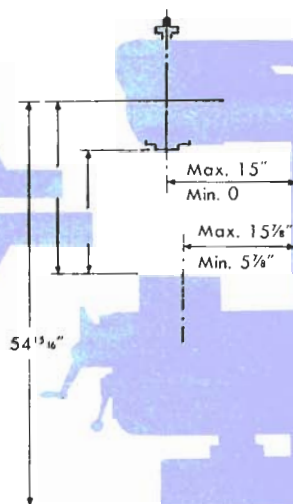
Spindle C/L to Table Top
with Cutterhead Horizontal

	PLAIN	UNIVERSAL
Max.	24 $\frac{11}{16}$ "	23 $\frac{3}{16}$ "
Min.	1 $\frac{1}{16}$ "	0

Spindle Nose to Table Top
with Cutterhead Vertical

	PLAIN	UNIVERSAL
Max.	19 $\frac{1}{16}$ "	17 $\frac{9}{16}$ "
Min.	0	0

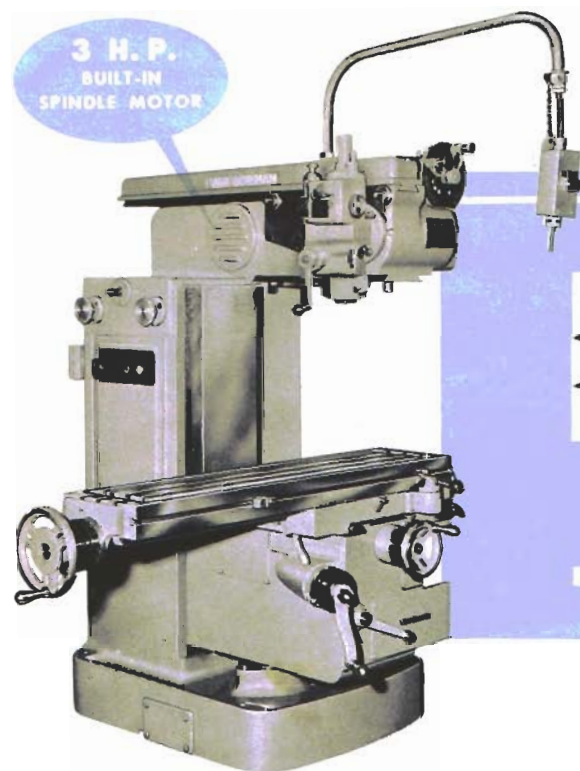
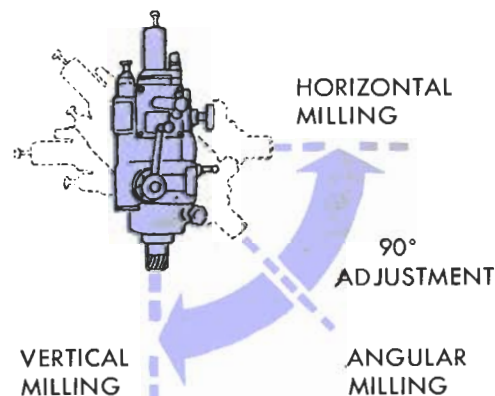
The rugged, all-purpose **1R-3-22**, with the **HEAVY-DUTY ADJUSTABLE CUTTERHEAD**, cuts milling costs on high speed production or diversified operations.



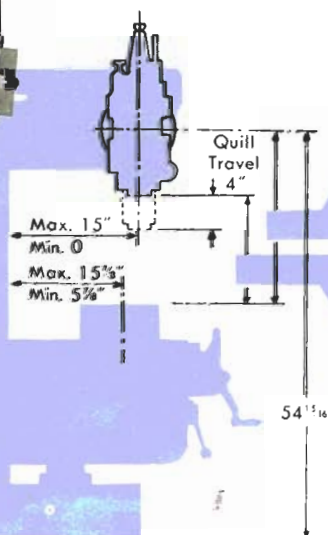
3 H.P.
BUILT-IN
SPINDLE MOTOR

VAN NORMAN WORKABILITY . . . TWO MACHINES IN ONE

THE ADJUSTABLE CUTTERHEAD on ALL VAN NORMAN MILLING MACHINES is quickly and precisely positioned through a full 90° for vertical, angular or horizontal milling. Set-ups, machine down-time and tooling costs are cut as much as 50%.



3 H.P.
BUILT-IN
SPINDLE MOTOR



Spindle C/L to Table Top
with Cutterhead Horizontal

	PLAIN	UNIVERSAL
Max.	24 $\frac{11}{16}$ "	23 $\frac{3}{16}$ "
Min.	1 $\frac{1}{16}$ "	0

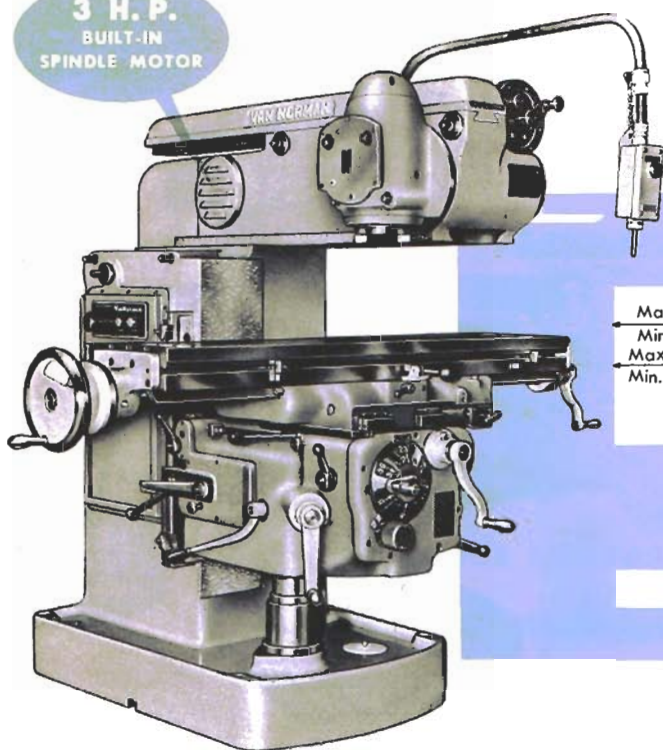
Spindle Nose to Table Top
with Cutterhead Vertical

	PLAIN	UNIVERSAL
Max.	16 $\frac{1}{16}$ "	14 $\frac{9}{16}$ "
Min.	0	0

Compact and modern in design, the **1RQ-3-22**, with the **QUILL-TYPE ADJUSTABLE CUTTERHEAD**, combines heavy-machine stability and versatility range.

1RQ-3-22
PLAIN OR UNIVERSAL

3 H.P.
BUILT-IN
SPINDLE MOTOR



~~\$16500~~
18,190

36 wks.

2R-3-28
PLAIN OR UNIVERSAL

Spindle C/L to Table Top
with Cutterhead Horizontal

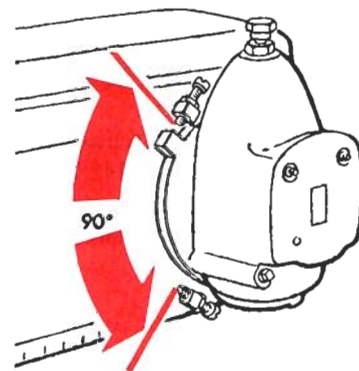
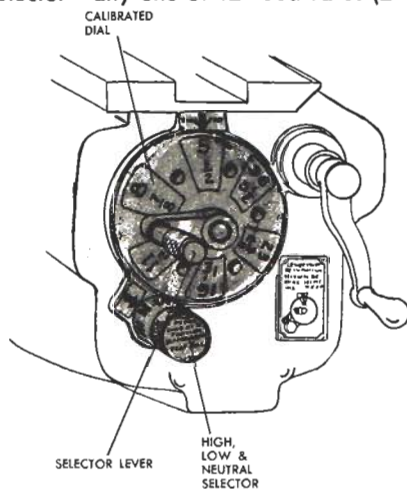
	PLAIN	UNIVERSAL
Max.	21"	19 1/4"
Min.	1"	0

Spindle Nose to Table Top
with Cutterhead Vertical

	PLAIN	UNIVERSAL
Max.	15 1/2"	14 1/4"
Min.	0	0

As in all VAN NORMAN milling machines, heavy-machine performance is built into the **2R-3-28** from base to HEAVY-DUTY RAM AND CUTTERHEAD. Unit construction holds positive alignment under the most extreme milling conditions.

Fig. 11A Feed Selector—any one of 12 feed rates (2R3, 2RQ3 and 2R5)



2RQ-3-28
~~\$17750~~

Like the 1RQ-3-22, the 2RQ-3-28 is a new concept in milling machine versatility, combining 3 way milling—horizontal, vertical and angular milling with jig boring.

3 H.P.
3600 RPM, 60 CYCLE
BUILT-IN
SPINDLE MOTOR

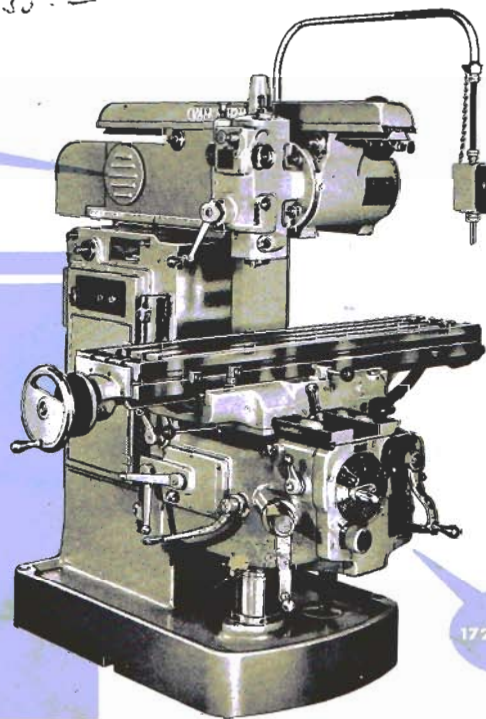
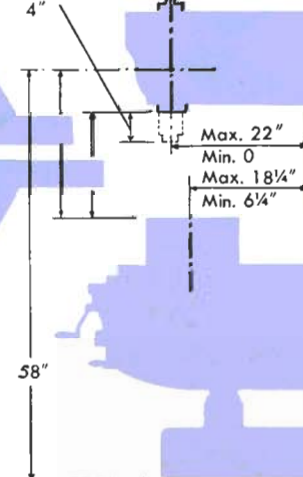
Spindle C/L to Table Top
with Cutterhead Horizontal

	PLAIN	UNIVERSAL
Max.	24"	22 1/4"
Min.	1"	0

Spindle Nose to Table Top
with Cutterhead Vertical

	PLAIN	UNIVERSAL
Max.	15 1/2"	14 1/4"
Min.	0	0

Quill
Travel
4"



1 1/2 H.P.
1725 RPM, 60 CYCLE
FEED MOTOR

2RQ-3-28
PLAIN OR UNIVERSAL

2R-5-28

PLAIN OR UNIVERSAL

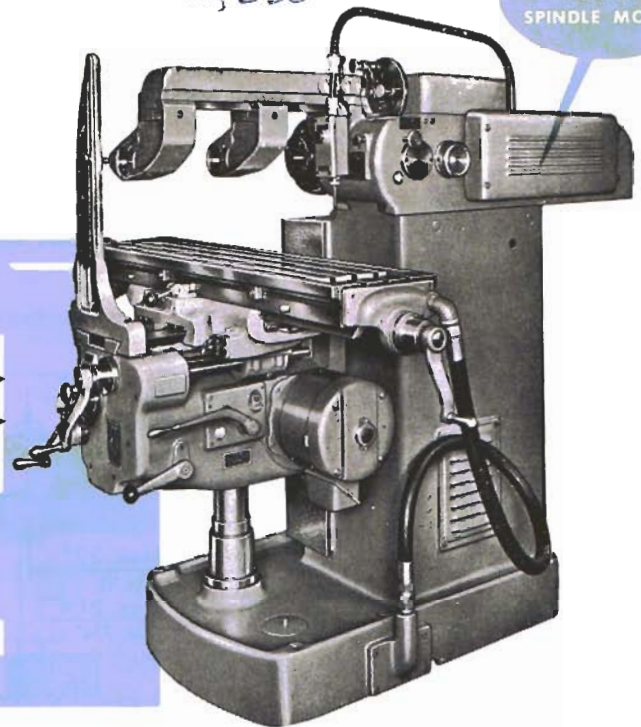
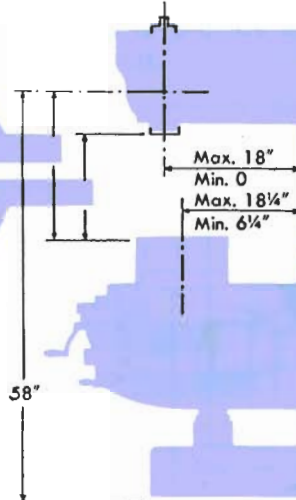
VAN NORMAN milling machines are **BUILT FOR WORK**. The heavy-duty drive motor delivers its full output to the spindle for the **maximum stock removal** that **speeds production** . . . **cuts operating costs**.

Spindle C/L to Table Top
with Cutterhead Horizontal

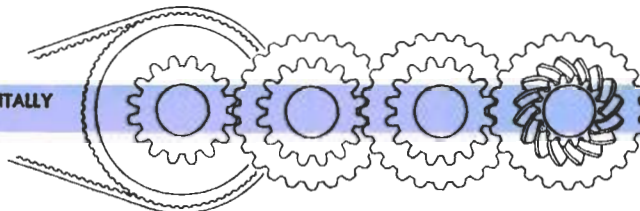
	PLAIN	UNIVERSAL
Max.	24"	22 3/4"
Min.	1"	0

Spindle Nose to Table Top
with Cutterhead Vertical

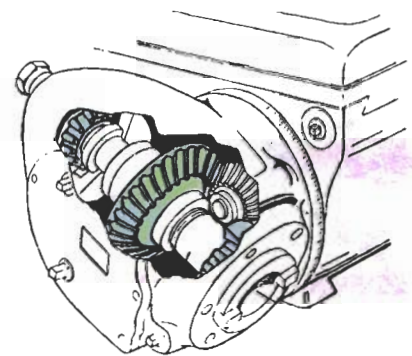
	PLAIN	UNIVERSAL
Max.	18 1/2"	17 1/4"
Min.	0	0



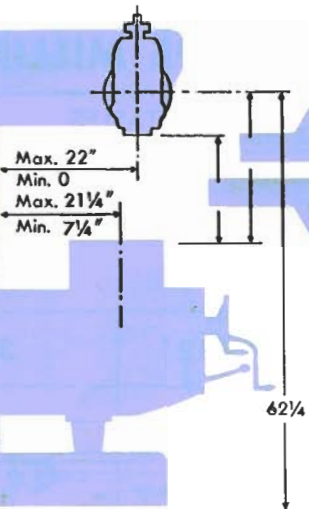
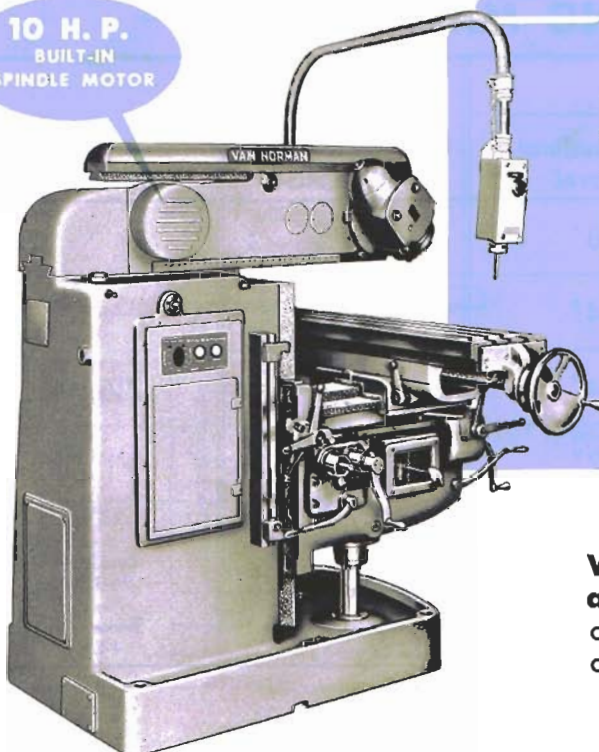
RAM TRANSMISSION IS HORIZONTALLY
ALIGNED FOR TOP EFFICIENCY.



Quiet, hardened, alloy steel gears with large area teeth ride on multi-spline shafts in anti-friction bearings in all transmissions. Wear is minimized in VAN NORMAN millers . . . they're **DESIGNED TO LAST**.



10 H.P.
BUILT-IN
SPINDLE MOTOR



Spindle C/L to Table Top
with Cutterhead Horizontal

	PLAIN	UNIVERSAL
Max.	23 3/4"	21 3/4"
Min.	1"	0

Spindle Nose to Table Top
with Cutterhead Vertical

	PLAIN	UNIVERSAL
Max.	17 1/2"	16"
Min.	0	0

The **3R-10-34** is an economical and high output milling machine.

VAN NORMAN milling machines are ENGINEERED and BUILT TO TAKE IT . . . and hold original accuracies over long, hard day-in — day-out service. Maintenance costs are low.

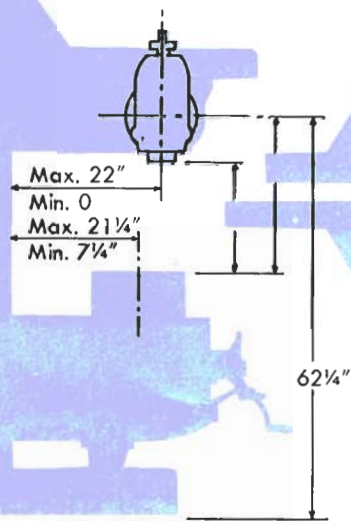
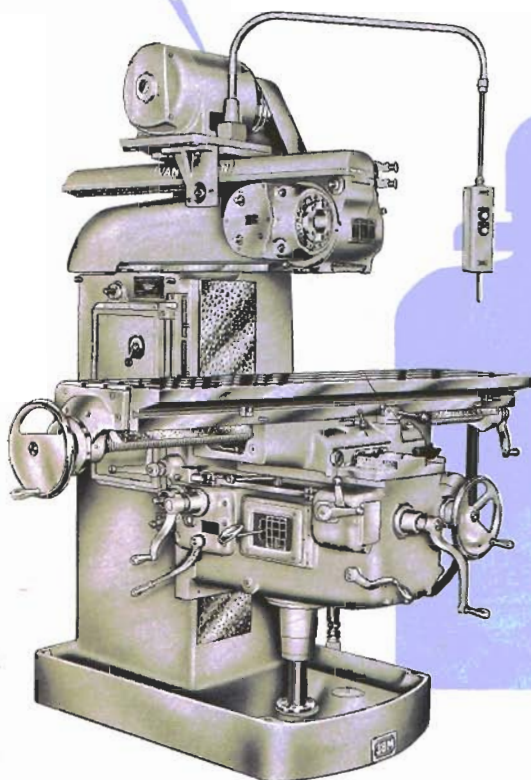
3R-10-34
PLAIN OR UNIVERSAL

38MA

PLAIN OR UNIVERSAL

10 H.P.

SPINDLE MOTOR



Spindle C/L to Table Top
with Cutterhead Horizontal

	PLAIN	UNIVERSAL
Max.	23 1/4"	21 1/4"
Min.	1"	0

Spindle Nose to Table Top
with Cutterhead Vertical

	PLAIN	UNIVERSAL
Max.	17 1/2"	16"
Min.	0	0

Massive, precise . . . the **38MA** is built for the heaviest milling production. It offers exceptional milling capacity for aircraft, pattern, tool and die industries.

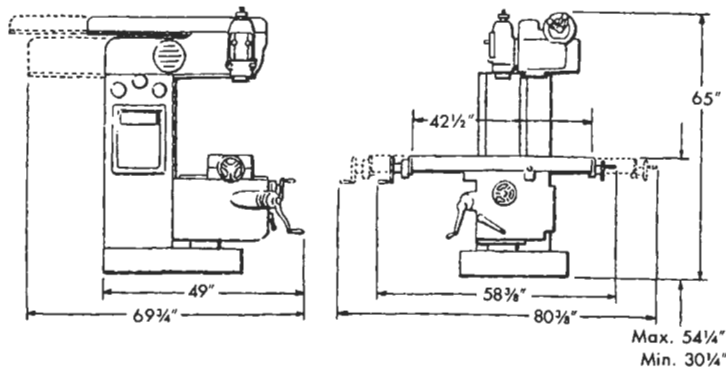
SPECIAL FEATURES AVAILABLE FOR VAN NORMAN RAM TYPE MILLING MACHINES

MODEL No.	TABLES		RISER BLOCKS	MOTORS
	Size	Longitudinal Travel		
1R-3, 1RQ-3	48 1/2" x 10"	28"	5"	
2R-3, 2RQ-3	56" x 12"	34"	8"	
2R-5	56" x 12"	34"	8"	7 1/2 H.P.
3RH-10	72" x 14"	42"	8"	
38MA, 38MEA	72" x 14"	42"	8"	15 H.P. — Dual Speed 7 1/2-15 H.P. — Brake Motor 10 H.P.

Dimensional Data

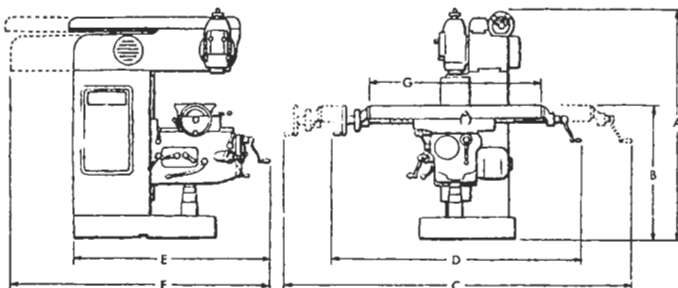
VAN NORMAN RAM-TYPE MILLING MACHINES

The clean, compact design of VAN NORMAN millers conserves valuable floor space for additional milling economy. The maximum in versatility and cutability is engineered into the minimum machine dimensions to provide the **most possible milling workability per square foot of plant area.**



1R-3-22

1RQ-3-22



	2R-3-28 2RQ-3-28	2R-5-28	3-R-10-34
A	64 1/4"	69 1/4"	73 1/2"
B*	Max. 53" Min. 33"	Max. 57" Min. 34"	Max. 59 1/4" Min. 39"
C	99 1/2"	99 1/2"	119"
D	71 1/2"	71 1/2"	85"
E	56"	56"	68 3/4"
F	85"	81"	97 3/4"
G	50"	50"	64"

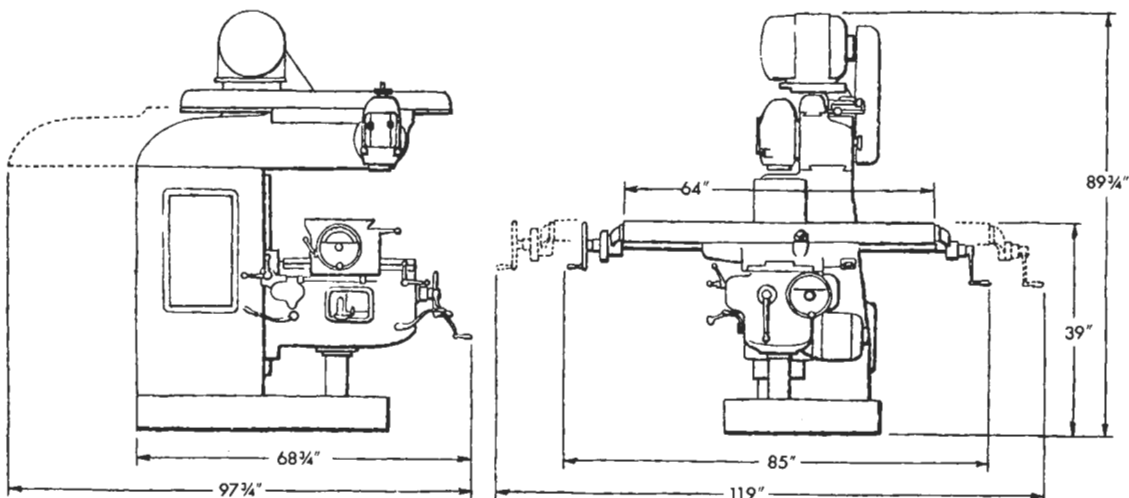
2R-3-28

2RQ-3-28

2R-5-28

3R-10-34

*PLAIN TABLE

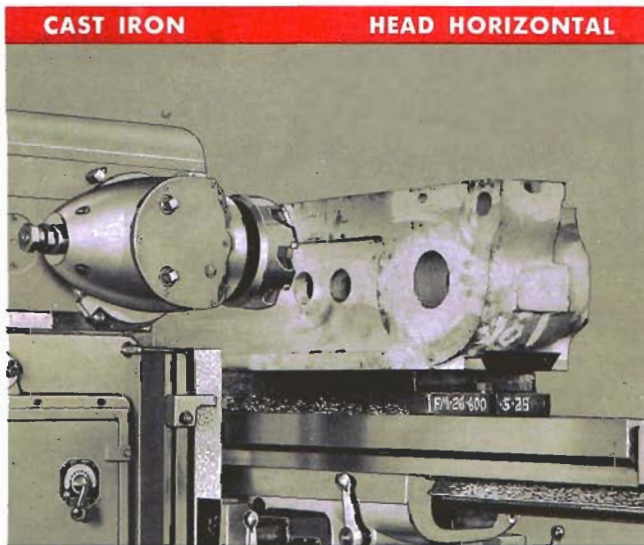


38MA

FOR 38MA ADD 2" TO VERTICAL FEED RANGE AND HEIGHT

VAN NORMAN CUTABILITY

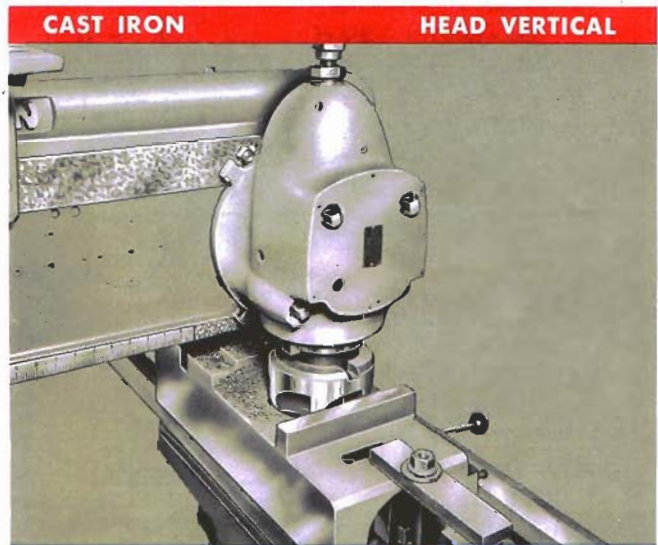
- FULL H.P. TO SPINDLE
- MAXIMUM MACHINE RIGIDITY
- WIDE WORK RANGE
- SIMPLIFIED SET-UP



CAST IRON

HEAD HORIZONTAL

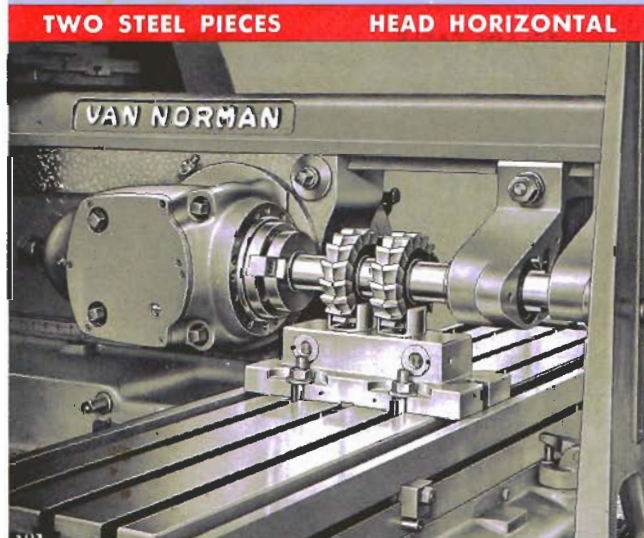
CUTTER: 8" Carbide Face Mill
FEED: 15 I.P.M. SPEED: 267 R.P.M.
DEPTH OF CUT: $\frac{3}{16}$ "
WIDTH OF CUT: Up to 7"



CAST IRON

HEAD VERTICAL

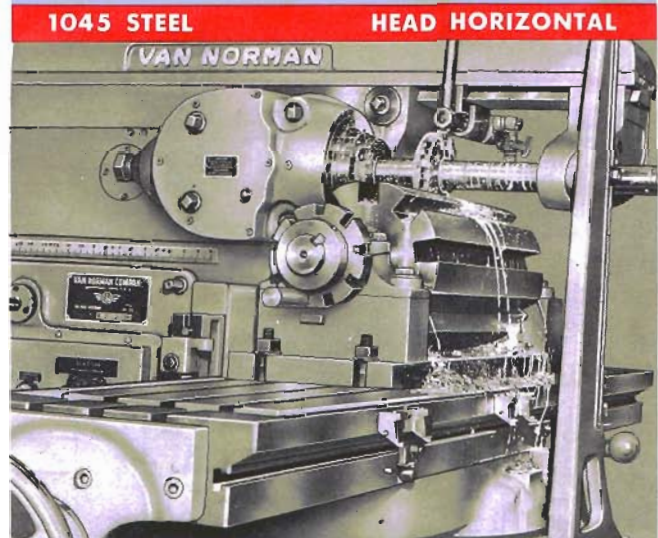
CUTTER: 6" Carbide Face Mill
FEED: 15 I.P.M. SPEED: 267 R.P.M.
DEPTH OF CUT: $\frac{3}{16}$ "
WIDTH OF CUT: Up to 6"



TWO STEEL PIECES

HEAD HORIZONTAL

CUTTER: Two 5" x $1\frac{1}{2}$ " Interlocking High Speed Cutters
FEED: $\frac{5}{8}$ I.P.M. SPEED: 70 R.P.M.
DEPTH OF CUT: $1\frac{1}{16}$ "
WIDTH OF CUT: 3"



1045 STEEL

HEAD HORIZONTAL

CUTTER: Two 5" x $\frac{3}{4}$ " Staggered Tooth Cutters
FEED: 5 I.P.M. SPEED: 50 R.P.M.
DEPTH OF CUT: $1\frac{1}{4}$ "
WIDTH OF CUT: $1\frac{1}{2}$ "

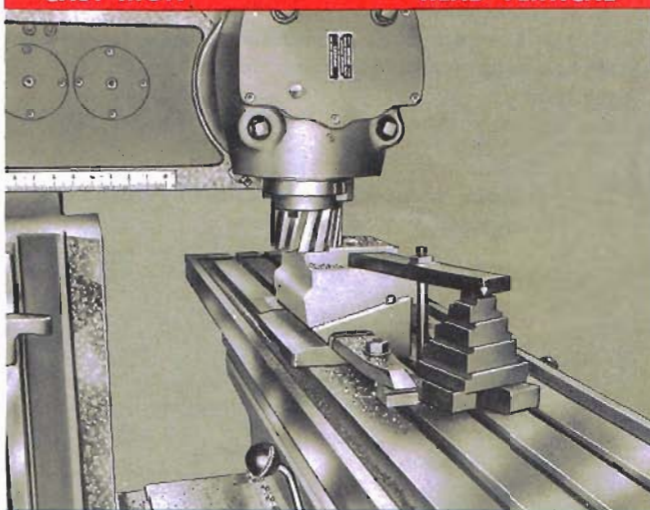
AN OFFERS

VERSATILITY

- WORK QUALITY IMPROVED
- INCREASED MILLING CAPACITY WITH LESS MACHINES
- MINIMUM TOOLING REQUIREMENTS
- ALL TYPES OF MILLING ON ONE MACHINE

CAST IRON

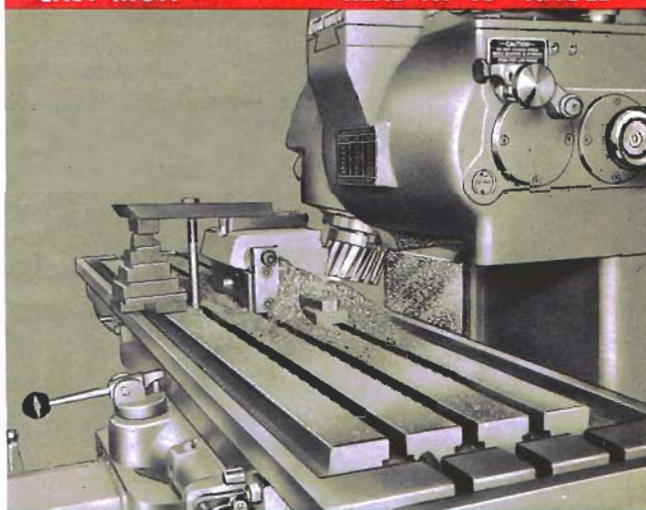
HEAD VERTICAL



CUTTER: 4" High Speed Shell Mill
FEED: $8\frac{1}{2}$ I.P.M. SPEED: 79 R.P.M.
DEPTH OF CUT: $\frac{1}{4}$ "
WIDTH OF CUT: $3\frac{1}{2}$ "

CAST IRON

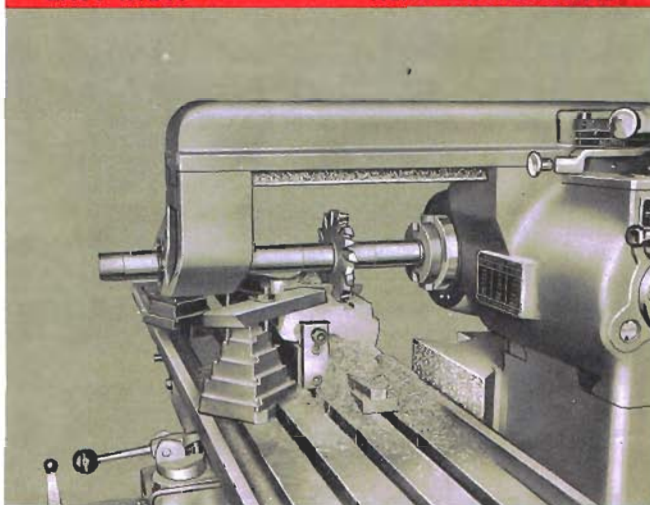
HEAD AT 15° ANGLE



CUTTER: 4" High Speed Shell Mill
FEED: $8\frac{1}{2}$ I.P.M. SPEED: 79 R.P.M.
DEPTH OF CUT: $\frac{1}{4}$ "
WIDTH OF CUT: $1\frac{1}{2}$ "

CAST IRON

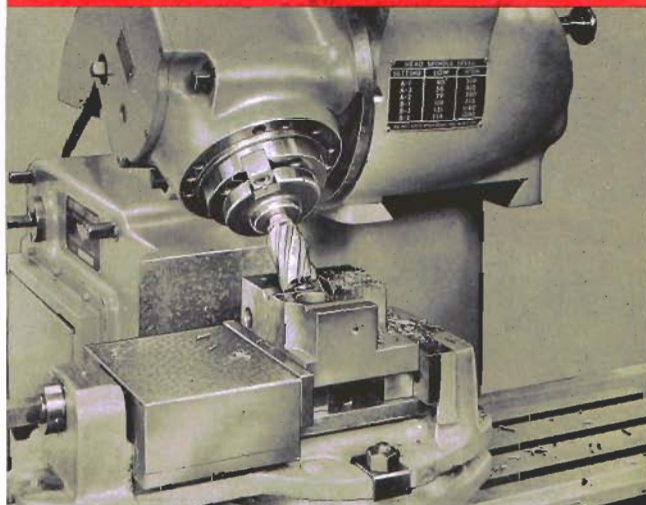
HEAD HORIZONTAL



CUTTER: 6" Stagger Tooth Slot Mill
FEED: $8\frac{1}{2}$ I.P.M. SPEED: 70 R.P.M.
DEPTH OF CUT: $\frac{1}{2}$ "
WIDTH OF CUT: $\frac{3}{4}$ "

1020 STEEL

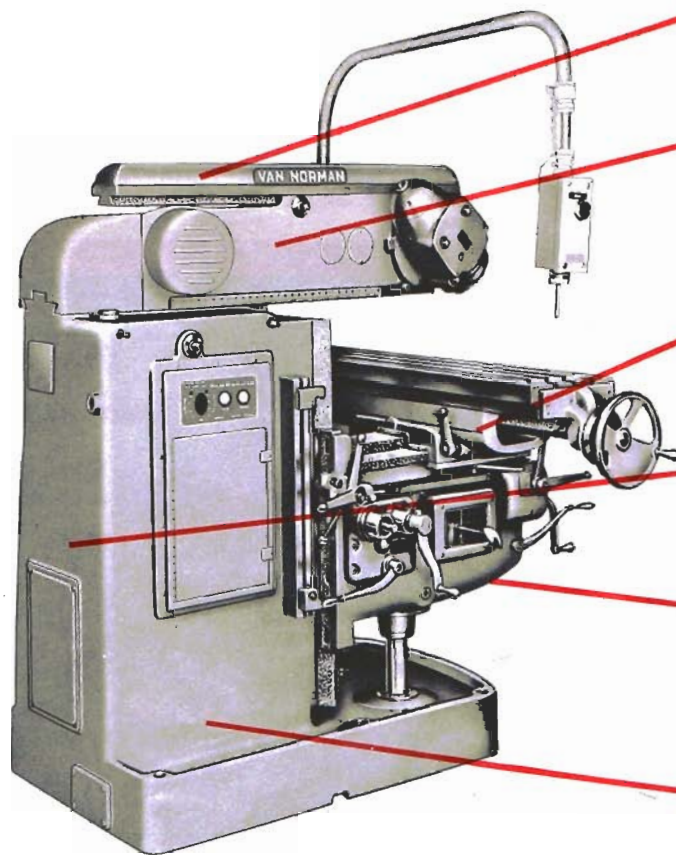
HEAD AT 45° ANGLE



CUTTER: $1\frac{1}{2}$ " End Mill—6 Lip
FEED: $6\frac{1}{2}$ I.P.M. SPEED: 151 R.P.M.
DEPTH OF CUT: $\frac{3}{8}$ "
WIDTH OF CUT: $\frac{7}{8}$ "

VAN NORMAN

Quality



Large cross-section, dovetailed overarm holds arbor in rigid alignment for horizontal milling.

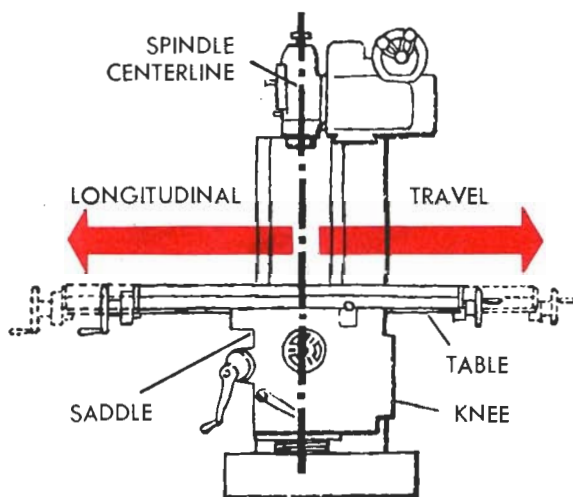
Heavy constructed ram encloses spindle drive motor and transmission . . . provides solid, vibration-free support for the swivel Cutterhead.

Large, heavy saddle . . . plain or universal . . . supports table on long, dovetail ways.

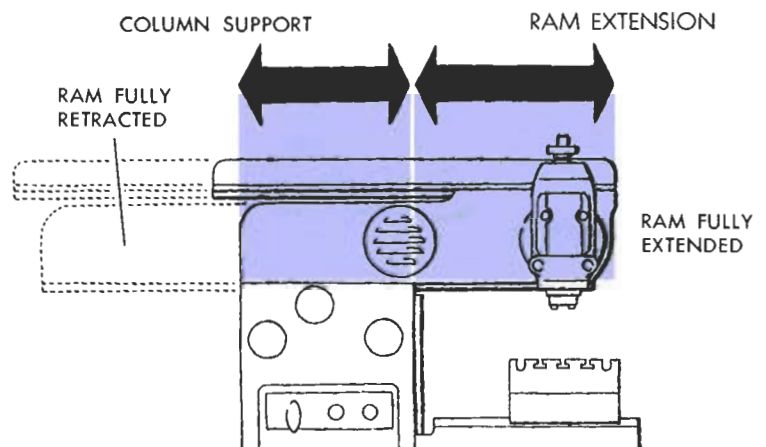
More-than-ample coolant system is completely enclosed in machine column.

Heavy, box-type knee is proportioned with saddle and table for constant alignment in any position . . . under any milling conditions.

Rugged base and column provide the solid foundation for VAN NORMAN overall milling performance.



VAN NORMAN centered design permits full utilization of extended longitudinal table feed range . . . AND adds to machine stability. Spindle, column ways, table and saddle are centered for maximum rigidity and precise alignment.



Rugged, heavy-duty ram is rigidly supported on high length-to-width ratio ways . . . even when fully extended. Alignment is constant for full-power, vibration-free cutting with the cutterhead in any position.

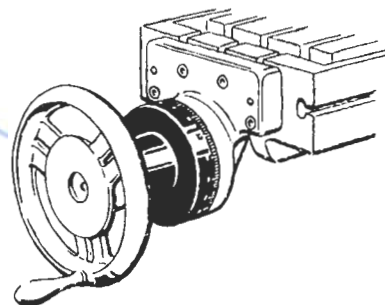
VAN NORMAN

Controlability

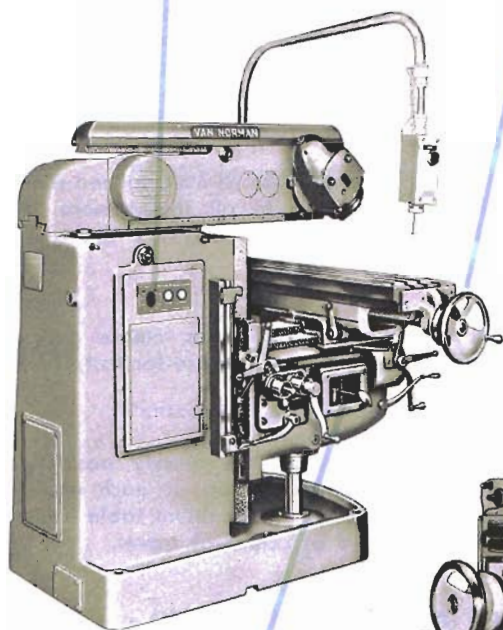


A single switch selects any combination of spindle, feed and coolant motors . . . A "start-stop" push-button is located on the panel.

Table and knee feed dials are calibrated in .001", white on black for maximum readability . . . a real operating aid.

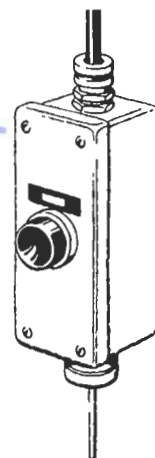


Control lever is readily accessible for table feed. Adjustable stop dogs provide automatic disengagement.

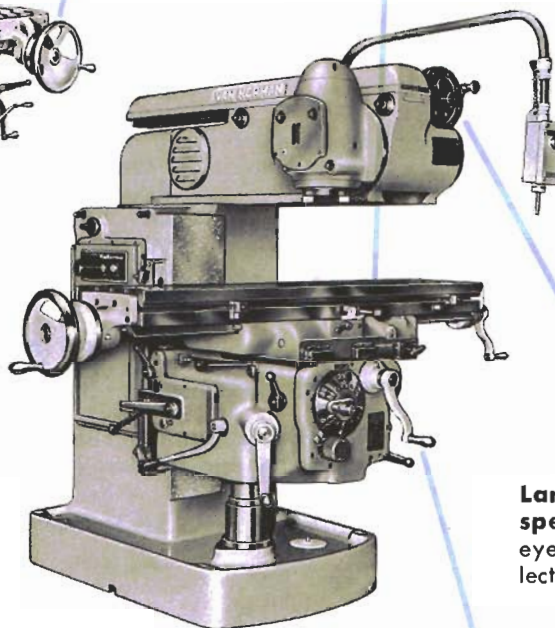


Single lever selects any one of 18 table feeds on a large dial . . . with effortless actuation (3R-10-34, 38MA) (Dial control for 2R-3-28, 2R-5-28)

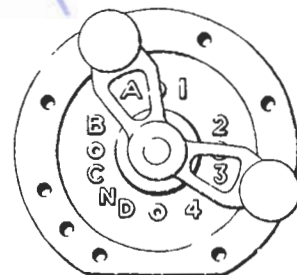
Pendant "start-stop" control brings starting convenience and the safety of instant, "feather-touch" power cut-off to the operator.



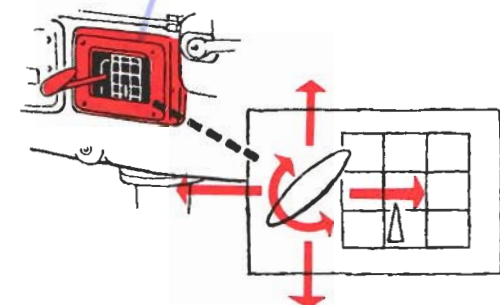
Large, easily read, spindle speed selector dial is placed at eye level. Speeds are quickly selected by two dial arms.



Hand cranks automatically disengage when released . . . another VAN NORMAN safety feature.



Spindle hand wheel for precision indicating and set-up.



Convenient knee lock lever moves binder segment and locks knee.

One-shot lubrication unit is placed for operator convenience.

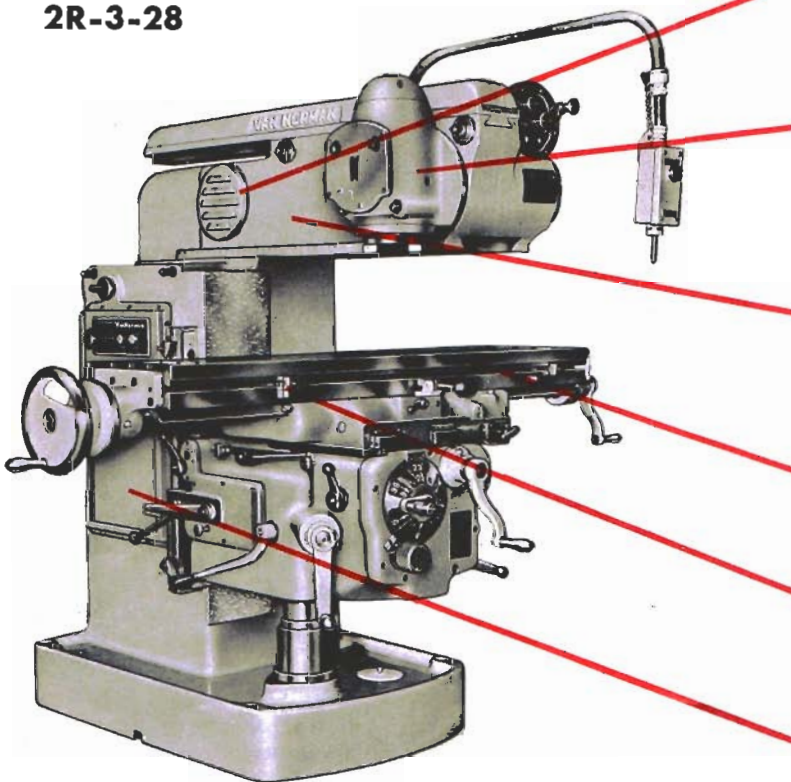
Front and rear hand controls make set-up easier . . . save time. Standard equipment on 2R-3-28, 2R-5-28, 3R-10-34, 38MA.

ADVANTAGES AND BENEFITS THAT

Cut Milling Costs

The reasons why **VAN NORMAN MILLING MACHINES** do more jobs better . . . faster . . . and continuously build production savings. Quality is engineered and built into every VAN NORMAN . . . into every component . . . with but one thought—to make available to modern industry the finest in milling equipment.

2R-3-28



Spindle drive motor is enclosed within ram . . . multi-speed, in-line transmission runs in oil reservoir. Machine silhouette is lower and uncluttered . . . maintenance is simplified.

Heavy-duty Adjustable Cutterhead with full 90° calibrated swivel scale and positive lock permits instant changeover from vertical to angular, to horizontal milling without changing the work set-up. Drive motor powers spindle only, through hardened steel helical gearing.

Hardened steel gears ride on multi-splined shafts with anti-friction bearings in all transmissions. All gearing is broad-toothed for long life and quiet operation.

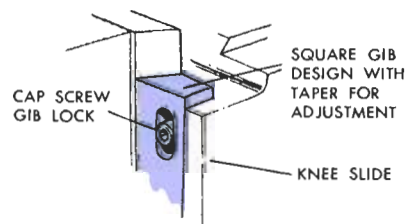
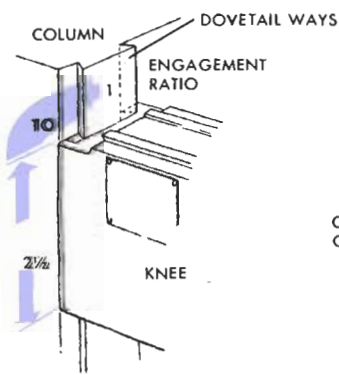
Massive, three-slot table has ample coolant runoff troughs . . . provides solid base for fast, deep-cut milling.

Adjustable table stops are quickly positioned and locked . . . with a fixed stop at each end of travel for added safety. Spring-return table control is conveniently placed at center of travel.

Electrical panel enclosed in column . . . easily accessible.

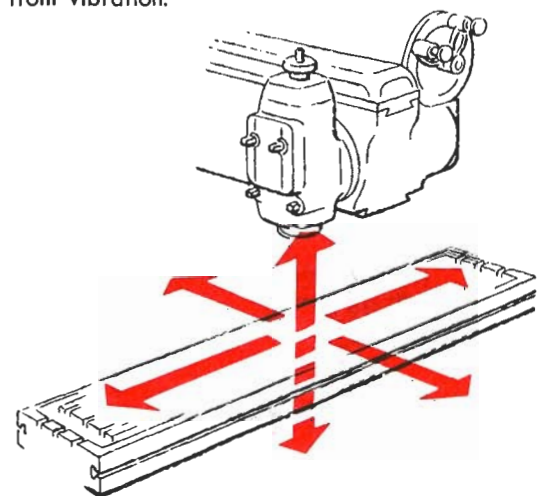
Calibrated ram scale facilitates positioning in set-up.

Cutting force is against side of ram . . . for maximum stability and freedom from vibration.



EXCLUSIVE GIB DESIGN

High length-to-width knee slide engagement ratio and exclusive VAN NORMAN gib design prevent rocking . . . assure stability and rigid alignment under the most severe milling stresses.



Extended ram table and knee movement provide maximum milling capacities with cutterhead in any position.

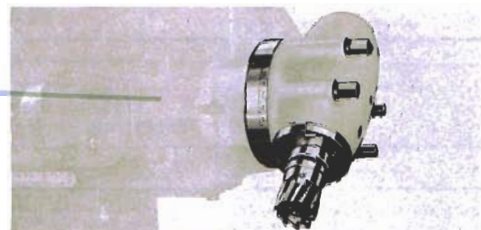
VAN NORMAN

Optional Attachments

for the increased **PRODUCTION SAVINGS**
of even broader **MILLING VERSATILITY**

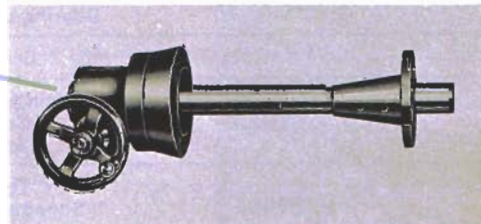
Universal Subhead

Swiveling through a full 360 degrees, the universal subhead facilitates odd-angle milling in combination with the Heavy-Duty Adjustable Cutterhead.



Boring and Drilling Attachment

Adds precision boring and drilling to the work range of the Heavy-Duty Adjustable Cutterhead. The unit may be used in vertical, angular or horizontal positions.



10" Horizontal Swivel Dividing Head

Set-ups for milling on cylindrical work are reduced and facilitated... headstock swivels 360 degrees in a horizontal plane.



10" Vertical Swivel Dividing Head

Horizontal milling such as cutting gear teeth is speeded and set-ups are greatly reduced with this dividing head attachment.



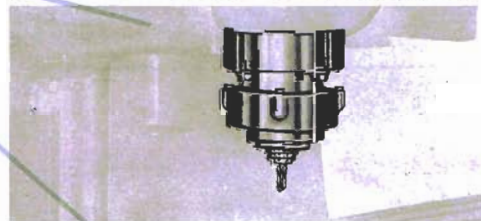
8" Rotary Table

Table is indexed in divisions of 2, 3, 4, 6 or 12 indexes per turn by means of a quick-index plunger. Manual operation.



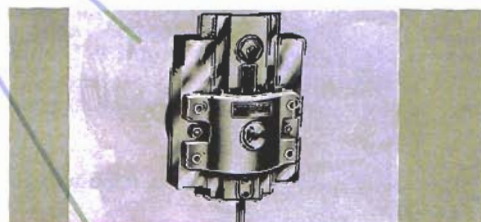
High Speed Attachment

Available for 2R3, 2R5, 3R10 and 38MA.



Slotting Attachment

Available for all machines. Adjustable stroke.

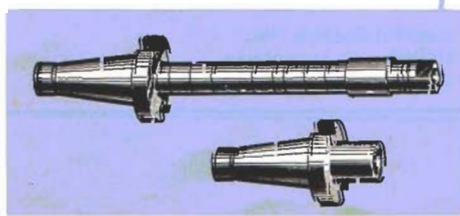


Optical Vernier Attachments

For longitudinal and cross-feed—available for all models. Standard vernier and gage block attachments are also available for all models.

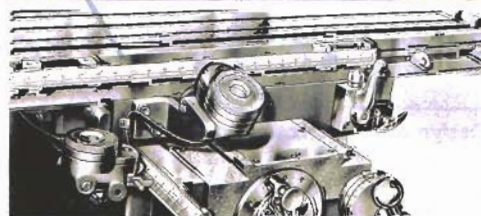
Arbors

All type arbors and adapters in standard sizes available for complete line.



Quick Change Tools

Available for all models.



SPECIFICATIONS



		IR-3-22		IRQ-3-22	
TABLE WORKING SURFACE	Area	42½" x 10"		42½" x 10"	
	"T"-Slots No. & Width	3, ½"		3, ½"	
	Distance Between "T"-Slots	2¼"		2¼"	
	Table Swivels (Universal Models Only)	L. 45° - R. 35°		L. 45° - R. 35°	
SADDLE	Length	21 Plain	21 Universal	21 Plain	21 Universal
RAM	Length at Ways	36¼"		36¼"	
	Travel	20½"		20½"	
	Bearing on Column	17"		17"	
OVERARM	Length	44"		44"	
FEED RANGES	Longitudinal	22"		22"	
	Cross	10"		10"	
	Vertical	24"		24"	
SPINDLE	Nat. Taper Size	#40		#30 or "C"	
	Speeds-Number	14		14	
	Speeds-Range	55-2000 RPM		100-3600 RPM	
FEED RATES	Number	9		9	
	Longitudinal-IPM	¾-17		¾-17	
	Cross-IPM	—		—	
	Vertical-IPM	—		—	
RAPID TRAVERSE (Power)	Longitudinal-IPM	—		—	
	Cross-IPM	—		—	
	Vertical-IPM	—		—	
CONTROLS	Longitudinal	Power (Front)		Power (Front)	
	Cross, Vertical	Hand (Front)		Hand (Front)	
	Feed Changes	Side		Side	
	Rapid Traverse	—		—	
	Speed Changes	Front		Front	
LUBRICATION	Spindle, Transmission, Knee Saddle and Table	Automatic One-Shot		Automatic One-Shot	
COOLANT SYSTEM	Capacity - Gallons Pump	10 ⅛ H.P. - Independent Motor		10 ⅛ H.P. - Independent Motor	
SPINDLE MOTOR	Rating	3 H.P., 3600 RPM, 60 Cycle		3 H.P., 3600 RPM, 60 Cycle	
FEED MOTOR	Rating	⅓ H.P., 1800 RPM, 60 Cycle		⅓ H.P., 1800 RPM, 60 Cycle	
INSTALLATION DATA	Floor Space Required	81" x 70"		81" x 70"	
SHIPPING DATA	Net Weight, lbs.	3000 Plain 3100 Universal		3050 Plain 3150 Universal	
	Crated Weight, lbs.	3500 Plain 3600 Universal		3550 Plain 3650 Universal	
	Boxed Weight, lbs. (Export)	3700 Plain 3800 Universal		3750 Plain 3850 Universal	
	Boxed Dimensions (Export)	60 x 56 x 67		60 x 56 x 67	
	Cubic Measurement	130 cu. ft.		130 cu. ft.	
QUILL	Travel Feeds	— —		4" .0015" - .003" - .006"	
STANDARD EQUIPMENT		Motors, Controls, Style "A" Arbor Support, Spindle Draw Bar, Outer Brace, Wrenches, Pulleys, Guards and Belts and Pendant control.		Motors, Controls, Style "A" Arbor Support Spindle Draw Bar, No. 30 to #7 B&S Adaptor (with machine with #30 spindle), ½" Dia. #7 B&S Taper Spring Collet (with "C" Style Spindle- ½" "C" Style Collet,) Outer Brace, Wrenches, Pulleys, Guards, Belts and Pendant control.	
AVAILABLE AS OPTIONAL EQUIPMENT		Coolant System Lamp installed with receptacle Powered vertical positioning of the knee			

Design and specifications subject to change without notice.

RAM-TYPE MILLING MACHINES

2R-3-28		2RQ-3-28		(2R-5-28)		38MA 3R-10-34
50" x 12" 3, 1 ¹ / ₁₆ " 2 ¹ / ₂ " L. 45° - R. 35°		50" x 12" 3, 1 ¹ / ₁₆ " 2 ¹ / ₂ " L. 45° - R. 35°		50" x 12" 3, 1 ¹ / ₁₆ " 2 ¹ / ₂ " L. 45° - R. 35°		64" x 14" 3, 1 ¹ / ₁₆ " 2 ³ / ₄ " L. 45° - R. 35°
25 Plain	27 Universal	25 Plain	27 Universal	25 Plain	27 Universal	32"
47 ¹ / ₄ " 29" 22"		47 ¹ / ₄ " 29" 22"		44 ¹ / ₄ " 25" 22"		52 ³ / ₄ " 29" 26"
50"		50"		50"		56"
28" 12" 20"		28" 12" 23"		28" 12" 23"		34" 14" 22 ¹ / ₄ "
#50 14 50-1740 RPM		#30, #40 or "C" 14 100-3600 RPM		#50 12 40-1600 RPM		#50 12 50-2000 RPM
12 .5 - 36 .5 - 36 .3 - 22		12 .5 - 36 .5 - 36 .3 - 22		12 .5 - 36 .5 - 36 .3 - 22		18 3/8 - 32 1/2 - 24 5/8 - 12 ¹ / ₁₆
130" 130" 75"		130" 130" 75"		130" 130" 75"		100" 75" 40"
Power (Front & Rear), Hand (Front) Power (Front & Rear), Hand (Front) Front Power (6 directions, Front & Rear) Front		Power (Front & Rear), Hand (Front) Power (Front & Rear), Hand (Front) Front Power (6 directions, Front & Rear) Front		Power (Front & Rear), Hand (Front) Power (Front & Rear), Hand (Front) Front Power (6 directions, Front & Rear) Front		Hand and Power (Front and Rear) Hand and Power (Front and Rear) Front and Rear Power (6 directions, Front & Rear) Front
Automatic One-Shot		Automatic One-Shot		Automatic One-Shot		Automatic One-Shot
15 *1/8 H.P. - Independent Motor		15 *1/8 H.P. - Independent Motor		15 *1/8 H.P. - Independent Motor		20 *1/8 H.P. - Independent Motor
3 H.P., 3600 RPM, 60 Cycle		3 H.P., 3600 RPM, 60 Cycle		5 H.P., 1725 RPM, 60 Cycle		10 H.P., 1725 RPM, 60 Cycle
1 ¹ / ₂ H.P., 1725 RPM, 60 Cycle		1 ¹ / ₂ H.P., 1725 RPM, 60 Cycle		1 ¹ / ₂ H.P., 1725 RPM, 60 Cycle		2 H.P., 1725 RPM, 60 Cycle
93" x 85"		98" x 85"		100" x 81"		120" x 98"
4100 Plain 4200 Universal 4900 Plain 5000 Universal 5500 Plain 5600 Universal 75" x 69" x 71" 213 cu. ft.		4100 Plain 4200 Universal 4900 Plain 5000 Universal 5500 Plain 5600 Universal 75" x 69" x 71" 213 cu. ft.		4300 Plain 4400 Universal 5100 Plain 5200 Universal 5700 Plain 5800 Universal 75" x 75" x 70" 228 cu. ft.		With Motors and Std. Equipment 7500 Plain 7600 Universal 8100 Plain 8200 Universal 8750 Plain 8850 Universal 86" x 83" x 83" 345 cu. ft.
— —		4" .0015" - .003" - .006"		— —		— —

With Models 2R-3-28, 2RQ-3-28, 2R-5-28, 3R-10-34, 38MA and 38MEA: Set of wrenches, pulleys, guard and belts for spindle drive; Style "A" Arbor Support with 2³/₄" size hole; Style "B" Arbor Support for 2¹/₈" sleeve; outer brace; draw-in bar; adaptor for Van Norman No. 2 collets; 7/8" dia. Van Norman No. 2 collet; Coolant system: motors and electrical controls for operation on 220/380/440 volt, 50 or 60 cycle, 2 or 3 phase, 3 wire A.C. with "Stop-Start" buttons, operating on 110 volts provided at side of machine and in pendant.

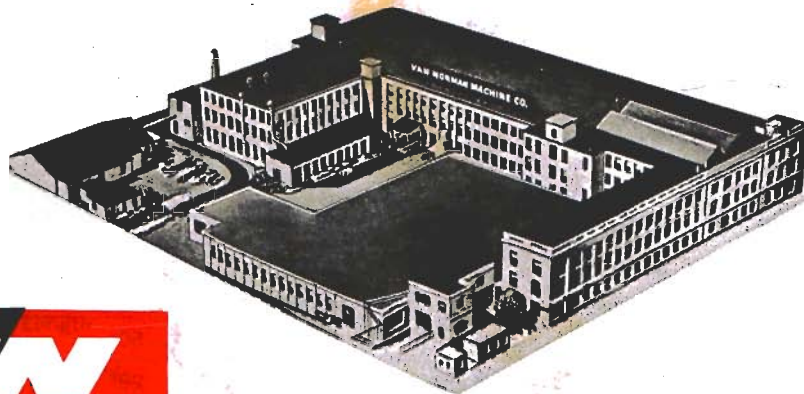
With Model 2RQ-3-28 only: No. 30 to No. 7 B&S Adaptor and 1/2" dia. No. 7 B&S Collet substituted for Van Norman No. 2 adaptor and collet.

Models 3R-10-34, 38MA and 38MEA only: Automatic Backlash Eliminator; two Style "B" Arbor supports instead of one each Style "A" and Style "B" unless this latter combination requested.

Automatic Backlash Eliminator

*1/4 H.P. Pump

NOTE: Optional feed rates; available at extra cost, installed at factory only. Table feed rates as follows: 1/2" to 43" or 3/4" to 64" (Cross and vertical proportionate).
*1/4 H.P. Pump



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SPRINGFIELD 7, MASSACHUSETTS, U. S. A.

