

MILLING MACHINE

VHR-A

VERTICAL TURRET TYPE



SHIZUOKA MACHINE TOOL CO., LTD.

Precision multi-purpose Milling Machine

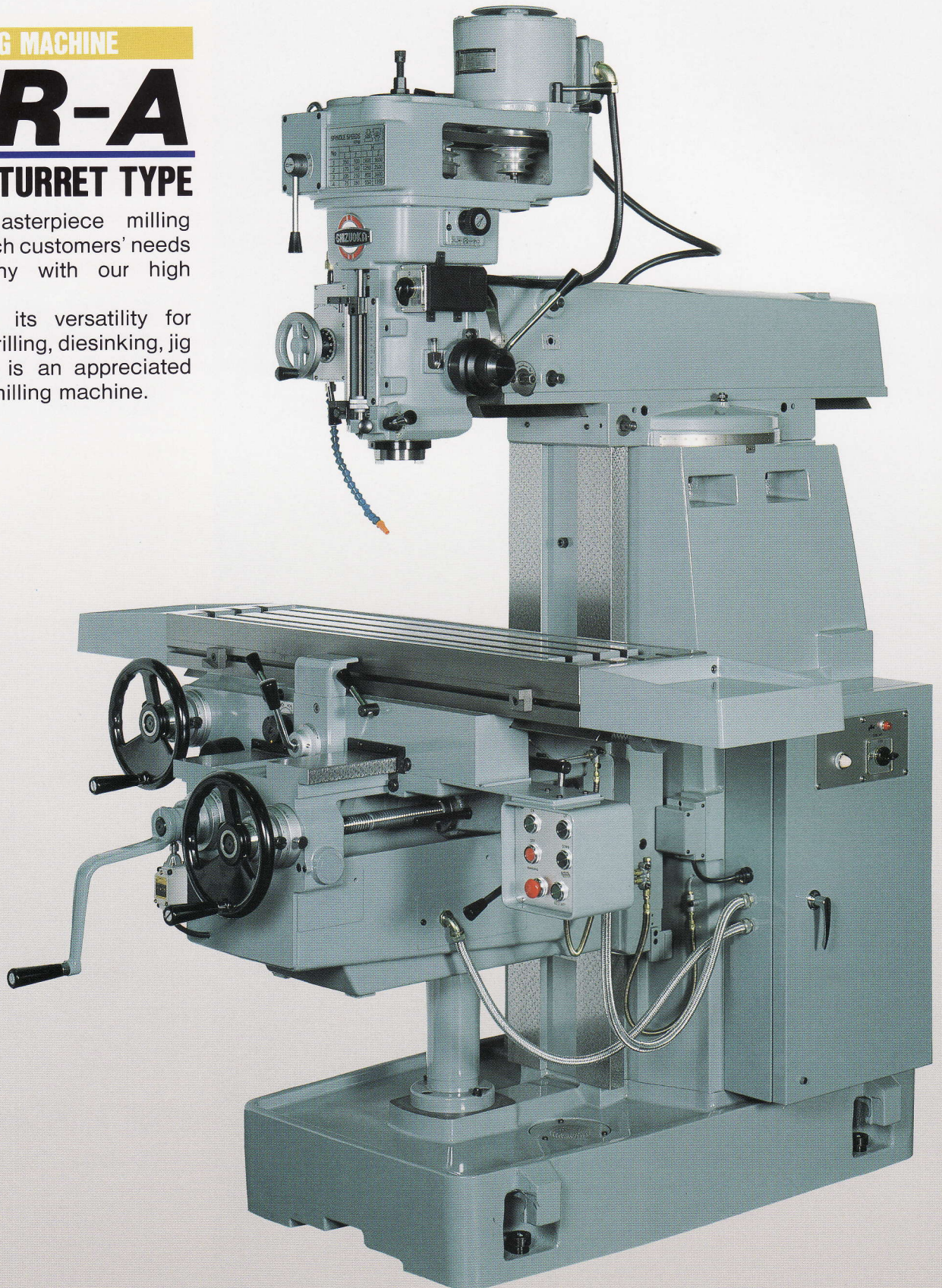
MILLING MACHINE

VHR-A

VERTICAL TURRET TYPE

This is a masterpiece milling machine in which customers' needs are in harmony with our high technology.

In addition to its versatility for angular work, drilling, diesinking, jig boring, VHR-A is an appreciated multi-purpose milling machine.



FEATURES

WIDE APPLICATION

Spindle speed is changeable in 16 steps to allow the use of various sizes of cutting tools, from a large diameter of 100mm to a small diameter of 2mm, and to suit both hard and soft material cuttings.

AUTOMATIC AND MANUAL FEED

The vertical spindle has a three-step automatic feed arrangement, together with a manual fine feed handwheel and a manual rapid feed lever. Adjustable trip stops are provided for use on automatic feed.

SPINDLE OPERATING LEVER

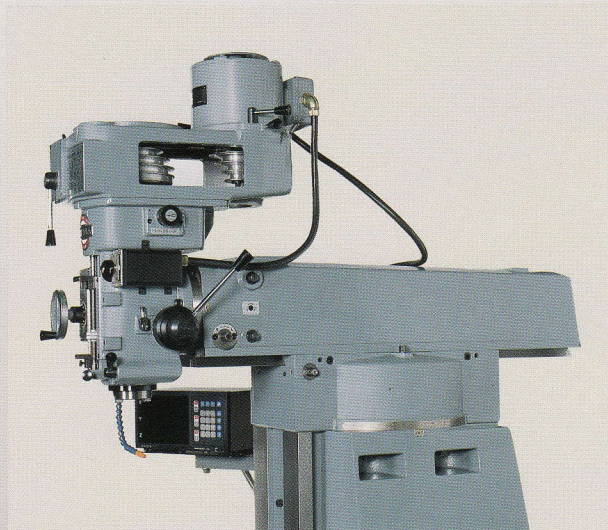
The spindle operating lever for the vertical spindle is arranged for "stop", "start", "brake and clamp" positions.

SWIVEL HEAD

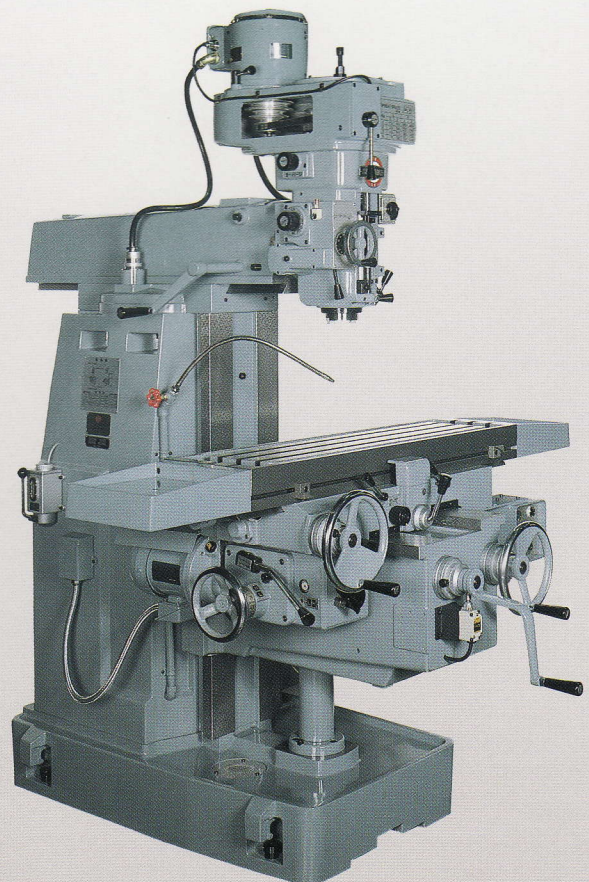
The vertical milling head can be swivelled 90° in either direction for angular milling and can be locked at any position. A graduated scale is provided for adjustment.

RANGE OF WORKING

The overarm supporting the vertical milling head is of sturdy design and construction. Therefore, fine accuracy is maintained even when the head is moved to its maximum position of 26" (660 mm) from the slide surface of the column. Moreover, the overarm is located on the graduated swivel base and it can be locked at any position within 360° rotation. Due to its special construction, the table has a large area of traverse movements comparable to that of much larger size machines. In addition, the table is capable of supporting workpieces of up to 1,100 lbs. (500 kgs.) in weight. Selection of desired main spindle and table feed speeds is easily made by changing the belt inside the head and table feeds by a drum type dial on the feed gear box.



Riser Block(option)



ACCESSIBILITY

Feed handwheels for longitudinal, cross and vertical movements of the table, a speed change lever and push buttons for motors are all gathered near at operator's hand, to permit quick and easy manipulation and fine adjustment for precision machining. Table feed speed is controllable without stopping machine operation.

LUBRICATION

All sliding surface of the column, saddle, table and knee as well as bearings, gears and feed screws are force lubricated through two plunger pumps attached to the saddle and knee.

RAPID ACTION

Separate motor drives are provided for the table longitudinal feed and the knee vertical feed. Therefore, both feeds can be operated at the same time if required, allowing rapid positioning of the workpiece.

BACKLASH ELIMINATOR

The table longitudinal feed screw is equipped with a backlash eliminator which is provided for climb milling operation. In addition, an adjustable backlash device is fitted with the table cross-feed screw.

SAFETY DEVICE

Longitudinal feed of the table is started by inclining lever to right or left, and automatic stopping device is prepared. When the cutter is overloaded, a shear pin is broken off automatically, feed is stopped, and damage of the machine is prevented. Safety devices include limit switches built in the thermal relays and circuit breakers in the control box. Besides the coolant motor, all the other motors can be stopped by the emergency stop switch.

CUTTING OIL

The cutting oil is housed in a tank within the base of the machine and is supplied to the cutter via oil lines driven by a motorized pump. After delivery, it is returned to the tank through a filter plates from the table.

INSTALLATION

The machine can be easily installed in position and adjusted for alignment by means of the four levelling bolts provided in its base.

HIGH ACCURACY

Each machine is carefully checked for accuracy in accordance with the Japan Industrial Standards and only those machines conforming to such standards are allowed to leave our works. Test sheets showing actual checked results are supplied to the customer with each machine.

TABLE POWER CROSS-FEED

The machine can also be supplied with a power cross-feed as a special order.

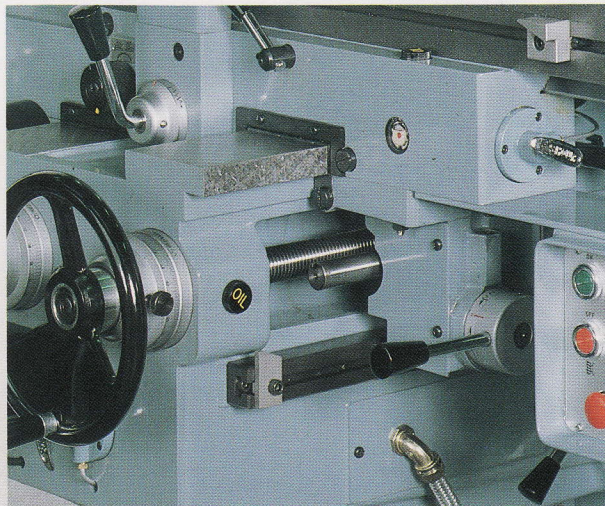


Table Power Cross Feed (option)

WORLDWIDE ATTENTION

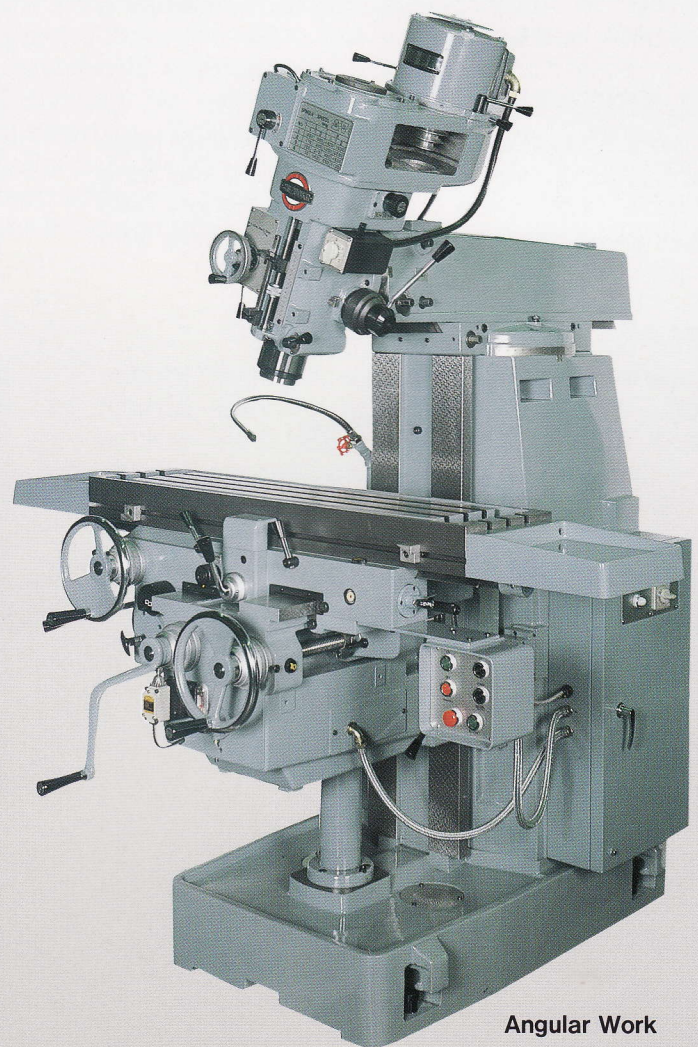
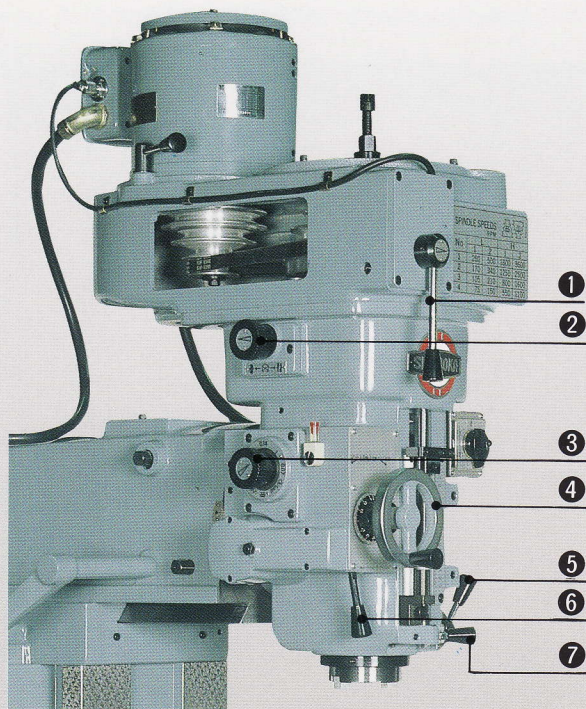
High precision, durable and easy to use VHR-A produced in our plant specially layed out for milling machine production, has now delivered to many customers throughout the world.

CONSTRUCTION

■ Main castings are of Meehanite cast iron of high tensile strength and superior quality. These are subjected to artificial seasoning, after which they are carefully machined to ensure accuracy over a long period of time.

■ The main spindles and intermediate shafts are constructed of nickel-chrome steel which is heat treated and finished ground.

■ The sliding surface of the knee (part responsible for large amount of cutting) is hardened and finely finished by precision grinding.



Angular Work

- ① Vertical Spindle ON, OFF and Clamp Lever
- ② Vertical Spindle Clutch Knob
- ③ Vertical Spindle Feed Change Knob (3 Range)
- ④ Vertical Spindle Manual Fine Feed Handle
- ⑤ Quill Clamp Lever
- ⑥ Automatic Vertical Spindle Feed Lever
- ⑦ Vertical Spindle Automatic or Manual Fine Feed Release Lever

SPECIFICATIONS (VHR-A)

		Metric(mm)	Imperial(inch)
TABLE			
Working surface		1,100×280	43-1/4×11
T-slot (width×number×pitch)		16×3×60	5/8×3×2-3/8
Travel	Longit	820	32
	Cross	300	12
	Vertical	450	17-3/4
Longit. & cross feeds (12 steps) (Cross is special order.)	50Hz	13~600mm/min.	0.5~24"/min.
	60Hz	15~720mm/min.	0.6~29"/min.
Longit. & cross rapid traverse (Cross is special order.)	50Hz	2,500mm/min.	103-5/8"/min.
	60Hz	3,000mm/min.	124-3/8"/min.
Vertical rapid traverse	50Hz	665mm/min.	34-1/4"/min.
	60Hz	800mm/min.	41-1/4"/min.

SPINDLE

Spindle speeds (16 steps)	75 ~ 3,600 rpm	
Spindle nose taper	NST 40	
Quill travel	140	5-1/2
Vertical feeds (per spindle rev., 3 steps)	0.035 • 0.007 • 0.14	0.0014 • 0.0028 • 0.0056
Head swivel (right & left)	90°	
Overarm travel	535	21
Overarm swivel	360°	
Spindle nose to table surface	75~525	3 ~ 20-5/8
Spindle center to column surface	125 ~ 660	5 ~ 26

MOTOR

Vertical spindle Standard	2.0kW
Table longit. feed	0.75kW (with Power cross feed 1.5kW)
Table vertical rapid traverse	0.6kW
Coolant pump	100W

WEIGHT

	2,100kg	4,620lbs
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★Specifications given here are subject to change without advance notice for further improvement of the machine.

STANDARD ACCESSORIES

- Coolant equipment (with 100W pump) 1 set
- Arbor drawing bolts 1 set
- Leveling bolts 4 pcs.
- Tool box (spanners & wrenches) 1 set
- Instruction manual
- Accuracy test certificate 1 set

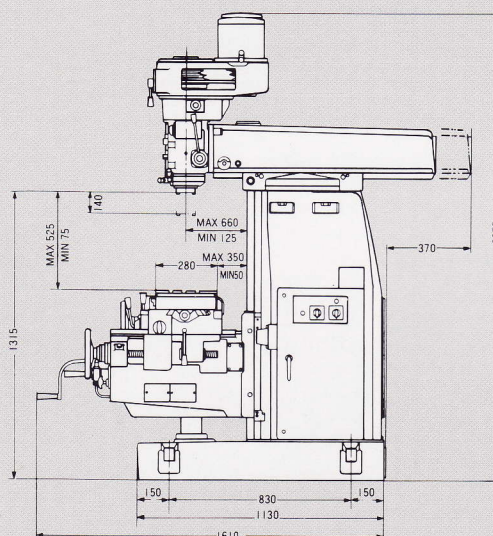
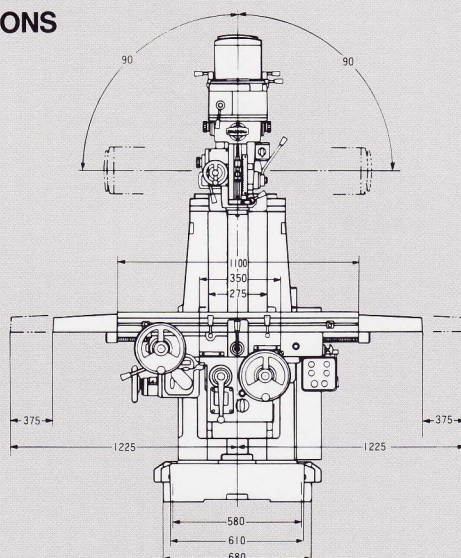
SPECIAL ACCESSORIES

- Face cutter arbors (3", 4", 5")
- Digital counter (0.005 mm) 850×350
- Machine light
- Slotting attachment
- Plane vice
- Swivel vice
- Universal indexing head
- Rotary table
- Milling chuck

SPECIAL SPECIFICATIONS

- Long table (1,300×280mm)
- 100mm higher base
- Table power cross feed

DIMENSIONS



Unit:mm



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