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# Vertical Machining Center

Great Reliability Machining Partner

Cat.25 1501(E)x1500B

KAO MING MACHINERY INDUSTRIAL CO., LTD.



## KMC-1100V

- X-axis travel: 1100 mm (43.3")
- Y-axis travel: 610 mm (24.0")
- Z-axis travel: 610 mm (24.0")
- 20 tools magazine
- Extra wide 4-boxway bed construction (Span: 1200 mm / 47.2")
- Two-step gear drive spindle for extra powerful cutting.
- Square boxway on 3-axis.

### CUTTING CAPACITY

- Spindle motor: 15/20 HP
- Workpiece material: S45C
- Tool: Ø125 mm
- Cutting width: 100 mm
- Cutting depth: 5 mm
- Spindle speed: 600 r.p.m.
- Feedrate: 750 mm/min.
- Cutting capacity: **375** cc/min.



## KMC-1500V

- X-axis travel: 1530 mm (60.2")
- Y-axis travel: 850 mm (33.46")
- Z-axis travel: 800 mm (31.5")
- 32 (40 optional) tools magazine
- Extra wide 4-boxway bed construction (Span: 1420 mm / 55.9")
- Two-step gear drive spindle for extra powerful cutting
- Square boxway on 3-axis

### CUTTING CAPACITY

- Spindle motor: 20/25 HP
- Workpiece material: S45C
- Tool: Ø125 mm
- Cutting width: 90 mm
- Cutting depth: 6 mm
- Spindle speed: 600 r.p.m.
- Feedrate: 1152 mm/min.
- Cutting capacity: **622** cc/min.



# KMC-V Series

## HIGH RIGID CONSTRUCTION FOUR SLIDWAYS ON BASE

- Extra wide 4-boxway bed construction having (1420 mm (55.9") span on KMC-1500V & 1200 mm (47.2") on KMC-1100V), ensures high precision machining accuracy.
- Major parts of the machine are constructed by high quality Meehanite cast iron, incorporating a reinforced ribs design to get better rigidity and stability of heavy-duty machining.
- All 3-axis are fully supported by hardened square guideways within strokes: displacements caused by overhang will never happen on this machine.
- All sliding surfaces are coated with wear-resistant TURCITE-B to ensure smooth axis traversing without stick-slip.



Kao Ming machines feature outstanding geometric accuracy, which not only results from precision machining on structural parts, but also relies on our state-of-the-art scraping techniques. Our highly skilled scraping technicians have rich experiences with their meticulous working attitude to achieve the optimal squareness, flatness and moving smoothness. During scraping process, sophisticated inspection instruments are also applied for calibrating the machine's geometric accuracy to the best condition.

## PRECISE SCRAPING



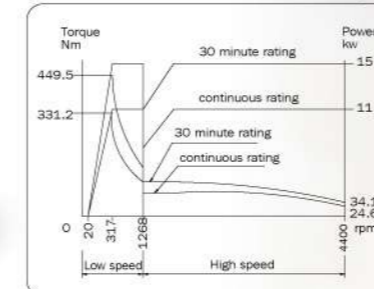
## HIGH RIGID SPINDLE HEAD

- A 11 KW / 15 KW (15 HP / 20 HP) spindle motor with 2-step gear transmission provide a high revolution up to 4400 rpm.
- The spindle is supported by grease packed super precise angular contact ball bearings to minimize heat generation.
- The lubricant for both spindle and the gear box is forced-cooled by the standard oil cooling system to ensure protection from thermal displacement.
- Thanks to the special design of the tool-release hydraulic cylinder, no external forces will be applied on the spindle bearings when the tool is unclamping.
- Guiding and safety design for the spindle head counter-balance system.

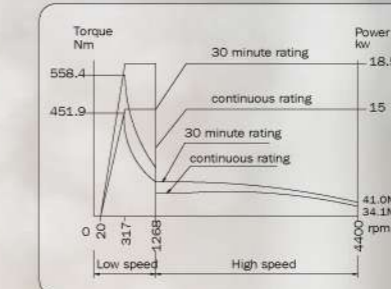
## SPINDLE OUTPUT AND TORQUE

### KMC-1500V

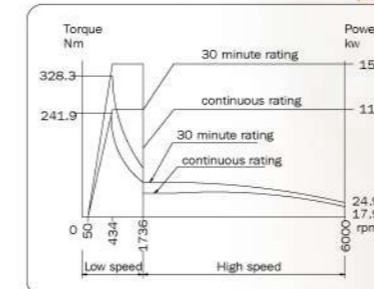
11/15KW(15/20HP),4400RPM (STD.)



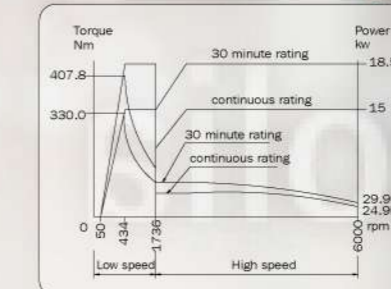
15/18.5KW(20/25HP),4400RPM (OPT.)



11/15KW(15/20HP),6000RPM (OPT.)

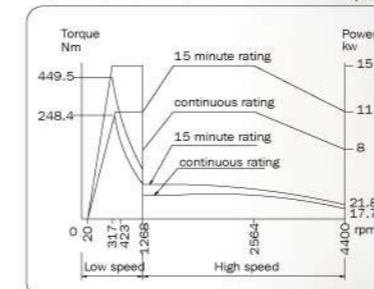


15/18.5KW(20/25HP),6000RPM (OPT.)

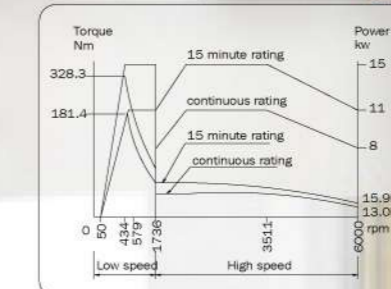


### KMC-1100V

11/15KW(15/20HP),4400RPM (STD.)



11/15KW(15/20HP),6000RPM (OPT.)



## MAGAZINE & CAM TYPE ATC

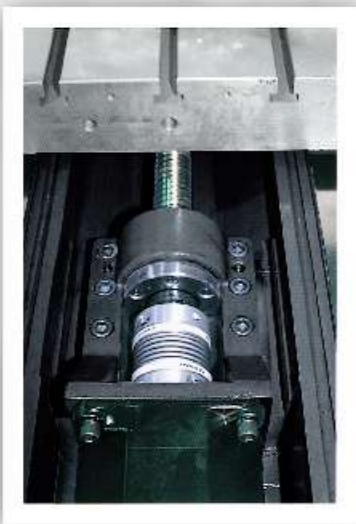


### The 20-station rotary-type tool magazine is driven by a cam unit (KMC-1100V)

- The ATC is a cam-driven construction, its double-arm system provides a 3.7 sec. (tool-tool change time).
- Bi-directional shortest path tool change design makes the ATC efficient.



### The 32-station chain-type tool magazine is driven by an electric motor (KMC-1500V)



## FEED SYSTEM

- All 3-axis servomotors are directly mounted on the ball screw to maintain positioning accuracy.
- The 50mm diameter ballscrews are pretensioned and supported by heavy load high precision angular contact ball bearings, providing outstanding positioning / repeatability accuracy.

## SPINDLE HEAD MULTIPLY CAPABILITY

- An universal angle head (optional) can widely extend machining application.
- Coolant through spindle system (optional) includes a large capacity coolant tank of 600L and high pressure pump with duplex filter for cooling the tools and extending the tools' service life.



## STANDARD ACCESSORIES (EXAMPLE)



- Spindle oil cooling system
- Hydraulic oil tank

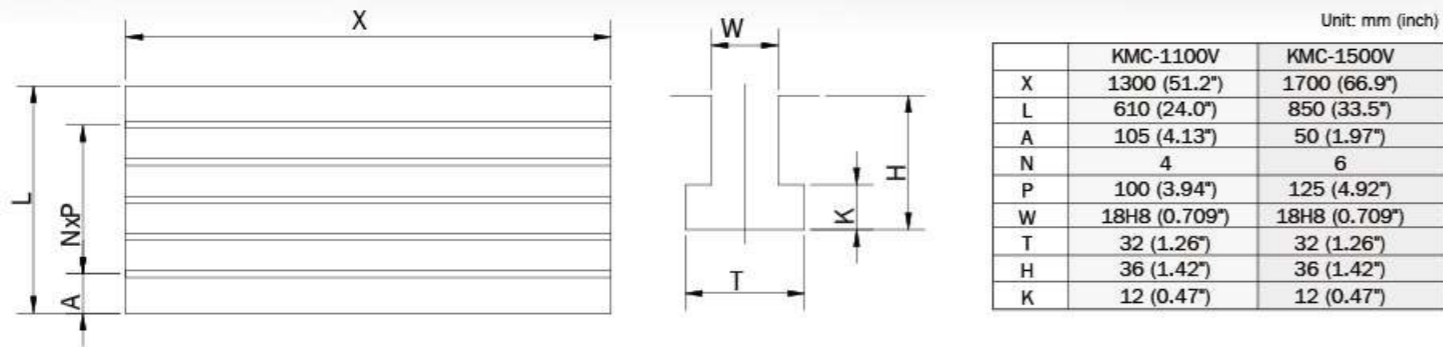


- Screw-type chip conveyor
- Y-axis telescopic cover
- Y-axis ball screw protective casing

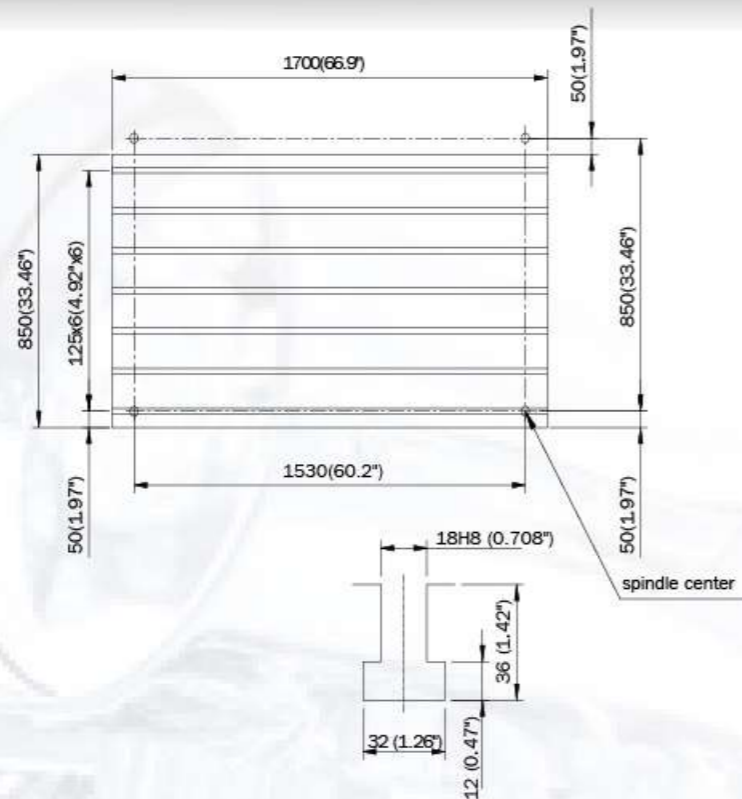


- Accumulator-hydraulic counterbalance system

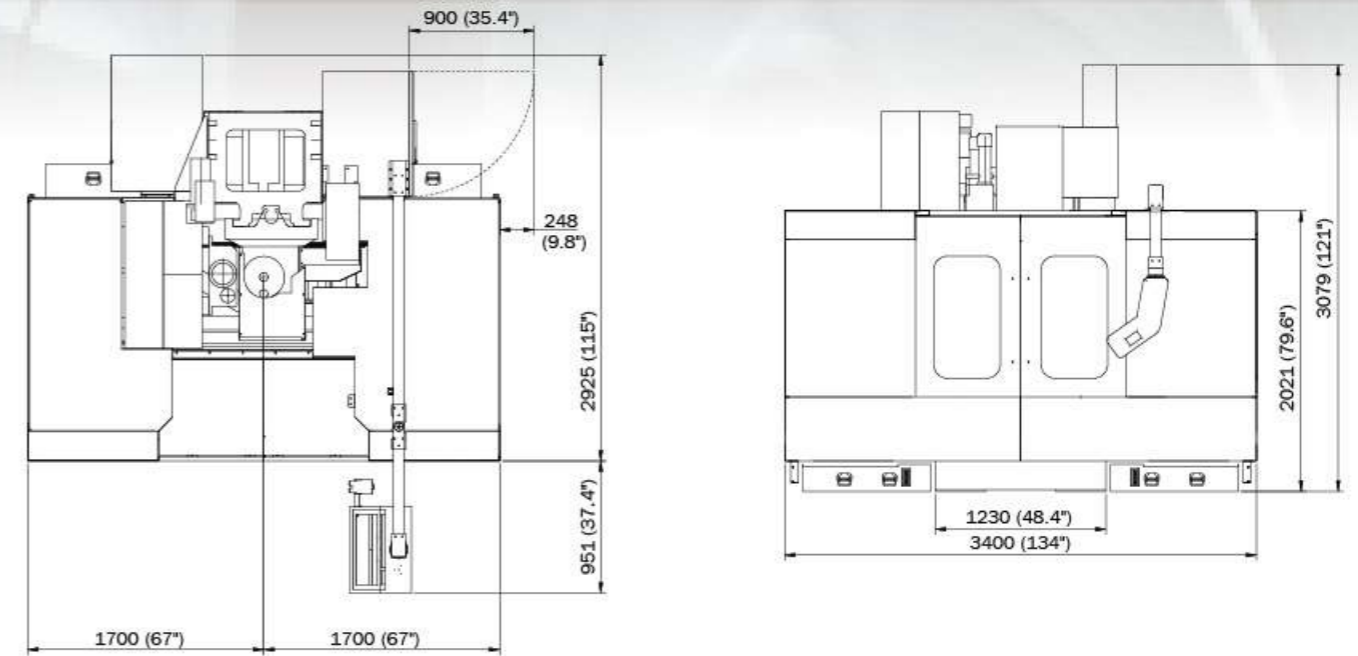
### KMC-V SERIES TABLE DIMENSIONS



### KMC-1500V X/Y-AXIS MACHINING RANGE DRAWING

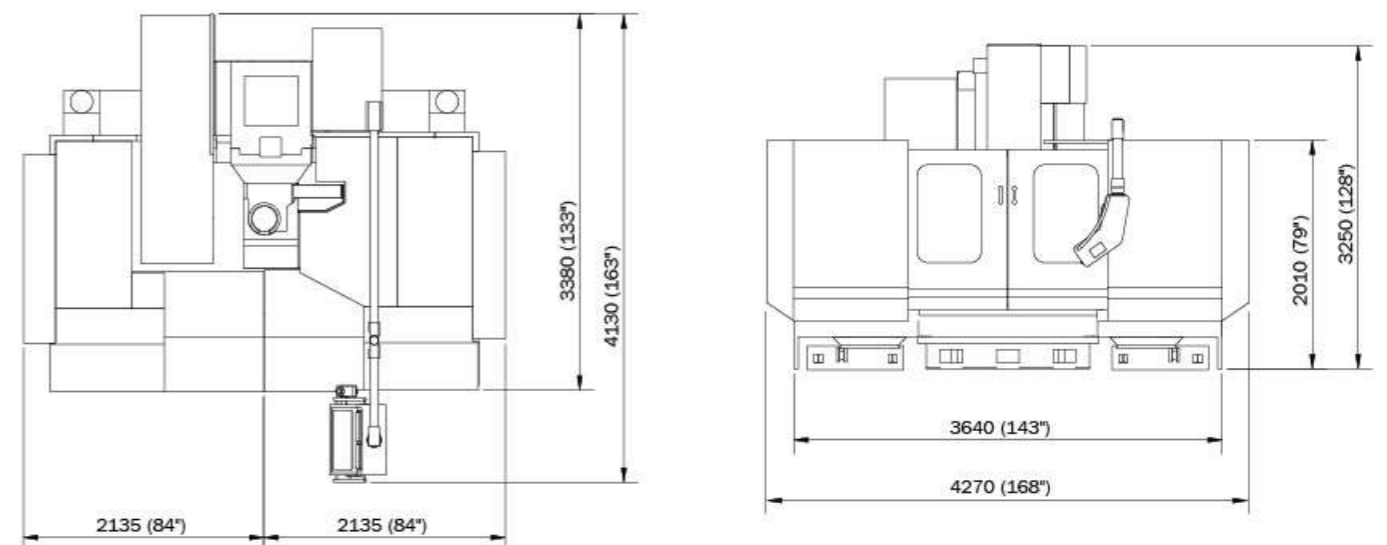


### KMC-1100V FLOOR SPACE



### KMC-1500V FLOOR SPACE

FULLY ENCLOSED SPLASH GUARD



## SPECIFICATIONS

ITEM	KMC-1100V	KMC-1500V
<b>STROKE &amp; RANGE</b>		
X axis travel (Table: right / left)	1100 mm (43.3")	1530 mm (60.2")
Y axis travel (Table: back / forth)	610 mm (24.0")	850 mm (33.46")
Z axis travel (Spindle head: up / down)	610 mm (24.0")	800 mm (31.5")
Spindle nose to table top	150 ~ 760 mm (5.9" ~ 29.9")	200~1000 mm (7.87"~39.37")
Spindle center to column surface	650 mm (25.6")	850 mm (33.46")
<b>TABLE</b>		
Table size overall	1300 x 610 mm (51.2" x 24.0")	1700 x 850 mm (66.93" x 33.46")
Table load capacity	1200 kgs (2640 lbs)	2200 kgs (4840 lbs)
T-slot	18 mm x 5 x 100 mm (0.709" x 5 x 3.94")	18 mm x 7 x 125 mm (0.709" x 7 x 4.92")
<b>SPINDLE</b>		
Spindle taper	BT-50	BT-50
Spindle speed	4400 (*6000, *7000, *8000) rpm	4400 (*6000, *7000, *8000) rpm
Spindle speed range	2-Speed, Gear head	2-Speed, Gear head
Spindle motor (continuous / 15 min)	AC 11/15kw (15/20HP)	-
Spindle motor (continuous / 30 min)	-	AC 11/15 kw (15/20 HP), * 15/18.5 Kw (*20/25 HP)
<b>FEED</b>		
Rapid traverse rate mm/min.	X,Y:15000 (590ipm) Z:12000 (472 ipm)	X,Y:15000 (590 ipm) Z:12000 (472 ipm)
Cutting feed rate	1~8000 mm/min.(0.1~313.7 ipm)	1 ~ 8000 mm/min. (0.1~313.7 ipm)
Minimum input increment	0.001 mm(0.0001")	0.001 mm (0.0001")
<b>ATC</b>		
Tool magazine capacity	20	32 (*40)
Tool shank shape	BT-50	BT-50
Max. tool diameter	Ø125 mm (Ø5")	Ø125 mm (Ø5")
Max. tool length	300 mm (11.8")	350 mm (13.8")
Max. tool weight	15 kgs (33 lbs)	20 kgs (44 lbs)
Tool selection method	Random shortest path	Random shortest path
Tool change time	3.7 sec.	3.7 sec.
<b>ACCURACY</b>		
Positioning accuracy	±0.005 mm / 300 mm (±0.0002" / 12")	±0.005 mm / 300 mm (±0.0002"/12")
Repeatability accuracy	±0.003 mm (±0.0001")	±0.003 mm (±0.0001")
<b>MACHINE SIZE</b>		
Floor space requirement (L x W)	3400 x 3876 mm (134" x 152.6")	4270 x 4130 mm (168" x 163")
Overall machine height	3079 mm (121")	3250 mm (128")
Machine net weight	10000 kgs (22000 lbs)	14000 kgs (30800 lbs)
<b>POWER SUPPLY</b>		
	35 KVA	45 KVA
<b>CNC CONTROLLER</b>		
	FANUC, *HEIDENHAIN	FANUC, *HEIDENHAIN

Option / Design specifications are subject to change without notice.

### Standard Accessories

- Coolant equipment
- Centralized automatic lubrication system
- Fully enclosed splash guard
- Adjusting tools and tool box (1 set)
- Manual and electrical drawing (1 set)
- Leveling and foundation fittings
- Work light
- Spindle cooling system (Chiller unit)
- Alarm lamp
- Air blast
- Automatic power off
- Operation finish lamp
- Screw-type chip conveyor
- Transformer (except 220V, except CE)

### Optional Accessories

- CAT 50, DIN 50 & ISO 50 tool shank
- Link-type chip conveyor
- Mist coolant unit
- Oil hole drill interface
- Linear scale feedback system
- Automatic tool length measuring system
- Automatic touch probe centering system
- Coolant through spindle system (A, B type)
- NC rotary table
- Rigid tapping (except KMC-1100V)
- Universal head (manual)