

MODEL	UNIT	HK-x56L	HK-x66L	HK-x76L	HK-x86L		
Fanuc OiMF PLUS controller							
<b>TABLE</b>							
Table sizes	mm	4000 / 5000 / 6000 / 7000 / 8000 x 500	4000 / 5000 / 6000 / 7000 / 8000 x 600	4000 / 5000 / 6000 / 7000 / 8000 x 700	4000 / 5000 / 6000 / 7000 / 8000 x 750		
T-slots (No. x W x Dist.)	mm	5 x 100 x 18	5 x 100 x 18	5 x 125 x 18(22)	5 x 125 x 18(22)		
Max. table load	kg	1000 kg / m2					
<b>TRAVEL</b>							
X-axis travel	mm	4150 / 5150 / 6150 / 7150 / 8150					
Y-axis travel	mm	500	600	700	800		
Z-axis travel	mm	600 (St.), 800 (Opt.)					
Distance from spindle nose to table	mm	180					
<b>SPINDLE</b>							
Spindle nose taper		BBT40 (St.), BBT50 (Opt.), HSK (Opt.)					
Spindle motor	kw	#40: 11/15(St.), 15/18(Opt.), 18.5/22(Opt.) #50: 15/18.5(St.), 22/26(Opt.)					
Spindle speed & transmission	rpm	#40: 12000. #50: 8000 (direct drive)					
<b>FEED</b>							
(X/X1/Y/Z) axis seviro motors	kw	#40: 4/4/4/4, #50: 4/4/4/7					
Rapid feed rate - X/Y/Z axis	m/min	24(30) / 24 / 24					
3-axis cutting feed rates (X/Y/Z)	mm/min	15000					
Gear rack drive - X axis		X axis travel : 4150~8150 (gear transmission)					
Ballscrews class - Y/Z axis		D40mm driven by ball screw C3 class, D50 (Opt.)					
3-axis roller type linear ways (X/Y/Z)	mm	55 / 45 / 45 (St.), 55 / 55 / 55 (Opt.)		65 / 55 / 55			
<b>ATC</b>							
Tool storage capacity		#40 & #50 & HSK63: 32, 40 (Opt.)					
Max. tool length (with adjacent tool)	mm	#40: 250, #50: 300, HSK: 250					
Max. tool length (without adjacent tool)	mm	#40: 120, #50: 200, HSK: 120					
Max. tool weight	kg	#40: 7, #50: 15, HSK: 7					
<b>ACCURACY</b>							
Positioning accuracy	mm	0.016					
Repeatability	mm	0.008					
<b>OTHER</b>							
Power requirement	KVA	4150~6150(40KVA), 7150~8150 (45KVA)					
Air source required	Mpa	0.65					
Coolant tank capacity	L	660~880					
Machine dimensions (footprint size) (W x D)	mm	X axis: 4150mm, 8600 x 4500mm ; X axis: 5150mm, 9600 x 4500mm ; X axis: 6150mm, 10600 x 4500mm ; X axis: 7150mm, 11600 x 4500mm ; X axis: 8150mm, 12600 x 4500mm					
Machine weight	kg	23000 / 25000 / 27000 / 29000 / 31000	24000 / 26000 / 28000 / 30000 / 32000	25000 / 28000 / 31000 / 33000 / 35000	27000 / 30000 / 33000 / 35000 / 37000		

\*As the machine manufacturer constantly conducts machine research and improvements, the machine specifications are subject to change without prior notice.

#### STANDARD EQUIPMENT

- 32 Tool carousel type tool magazine with fast tool selection
- High efficiency machining mode
- Heidenhain linear scale on X-axis
- Heat exchanger for electric cabinet
- Circular coolant jets system
- AICC (Pre-read single block 200) (Fanuc)
- Oil fluid separator
- LED projection lights at both sides of spindle head
- X-axis is driven by twin motors with rack transmission and German made speed reducer
- Environment-friendly grease lubrication system
- Foundation blocks
- Three-color warning lamp
- Working light

### HEAKE MACHINERY CO., LTD.

#### Taiwan Head Office:

No. 44-8, Shuimen Rd., Houli Dist., Taichung City 421017, Taiwan

TEL: +886-4-2557-8080 FAX: +886-4-2557-9090

E-mail: sales@heake.com.tw

[www.heake.com.tw](http://www.heake.com.tw)



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## TRAVELING COLUMN

**HK-L** series  
Vertical Machining Center



# TRAVELING COLUMN VERTICAL MACHINING CENTER

## The Best Choice in Large Parts Machining

Designed for machining large or long workpieces, the Heake traveling column machining center features high efficiency and high rigidity. The table is fixed, while the machine body is designed with a traveling column, so that the workpiece weight does not affect machining efficiency and accuracy. The multi-section table makes the machine suitable for long workpiece machining, high volume machining for short workpieces, and multiple-process machining.

### VERSATILE MACHINING APPLICATIONS



This machine is designed specifically for machining long workpieces. In addition, it is also ideal for other types of machining such as multi-section machining and 4th/5th axis machining.





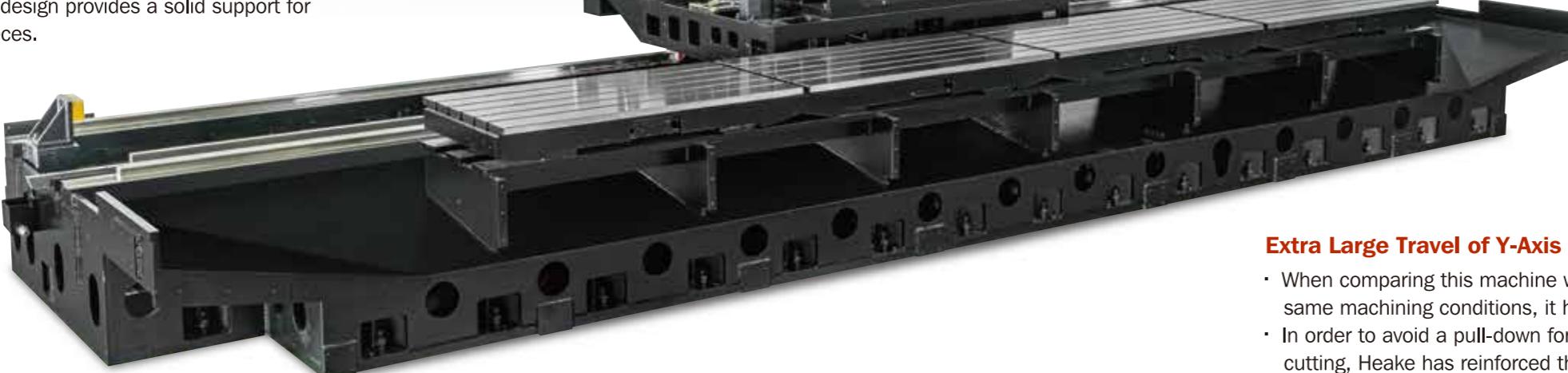
## TRAVELING COLUMN

The column moves in the direction of the X-axis and the table is fixed. This means that the workpiece weight does not affect the axial transmission system and dynamic machining accuracy, thus higher machining efficiency can be achieved.



### One-Piece Fabricated Structural Parts

- The base and table support are one-piece fabricated, assisting to upgrade the structural rigidity and stability of the machine.
- This structure design provides a solid support for heavy workpieces.



### Extra Large Travel of Y-Axis

- When comparing this machine with a double column milling machine under the same machining conditions, it has a smaller footprint and high accuracy.
- In order to avoid a pull-down force caused by the throat depth when the spindle is cutting, Heake has reinforced the thickness and structure of the column. In addition, each linear way on Y-axis is mounted with four blocks (total of 8 blocks). The blocks are deployed as three pieces at the front and one piece at the rear to enhance rigidity.

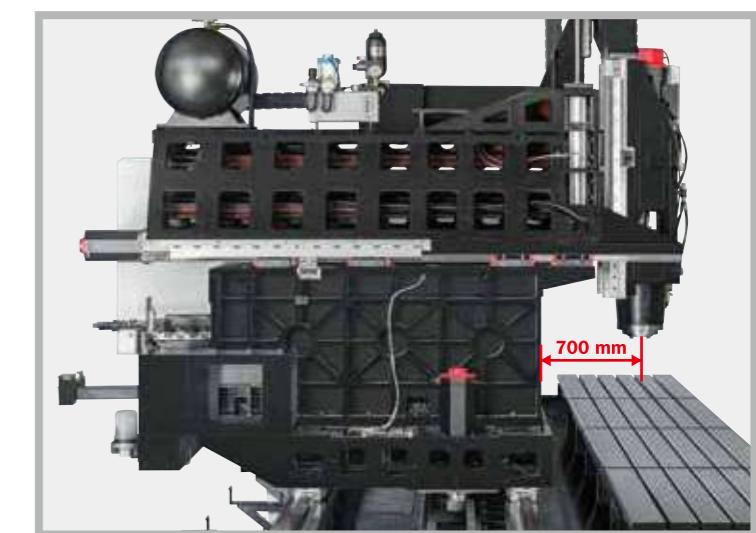


### A Rack Transmission on X-Axis

- X-Axis power is transmitting through the German racks, which feature outstanding transmission efficiency of axis feed. Additionally, X axis is equipped with linear scales (standard accessories), which ensures positioning and repeatability accuracy is not affected by thermal expansion.

### B Roller Type Linear Ways on Three Axes

- Three axes are mounted with SP class roller type linear guideways, featuring high load resistance, high rigidity, low friction coefficient, and outstanding dampening capability.
- Each linear guideway is equipped with extended extra heavy-duty blocks for upgrading loading capacity and dynamic stability.
- Three axes are direct-drive to eliminate backlash, vibration, and noise, while providing great power output.
- Adopts class C3 ballscrews.



- The specially designed Y-axis travel can reach up to 700mm, providing an increased machining range.
- Equipped with a highly rigid square ram type spindle head which increases the head rigidity by at least 50%.

# GREAT MACHINING CAPACITY

\* MATERIAL: S45C

## Motor: 18.5HP / 22kw



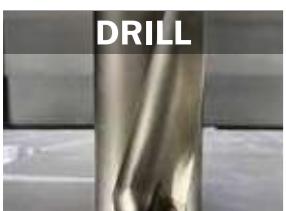
### FACE MILL

- Tool : Ø160 mm
- Spindle Speed: 320 rpm
- Feed Rate: 1080 mm/min
- Cut: 140 mm x 4 mm
- Material Removal: 604 cc/min



### END MILL

- Tool : Ø40 mm
- Spindle Speed: 1200 rpm
- Feed Rate: 425 mm/min
- Cut: 40 mm x 5.5 mm



### DRILL

- Tool : Ø75 mm
- Spindle Speed: 645 min<sup>-1</sup>
- Feed Rate: 100 mm/min

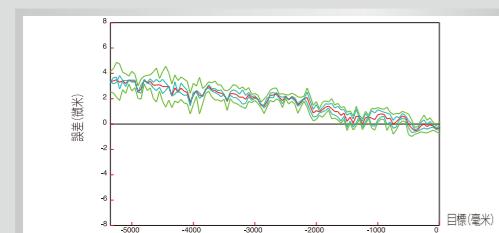


### TAPPING

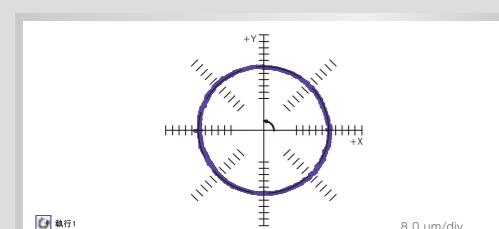
- Tool : M48 x P5 top
- Spindle Speed: 28 rpm / min
- Feed Rate: 140 mm/min
- Load: 84%

## Motor: 22HP / 26kw

## ACCURACY



E.g. X Axis Laser Compensation under 5 microns.



E.g. XY Double Ball Bar Test Results under 5 microns.

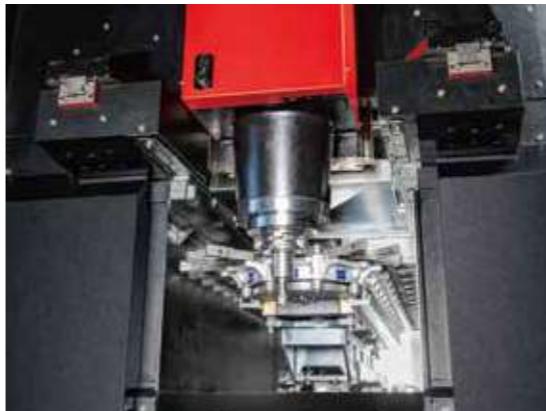
HEAKE performs cutting tests in circle, square and diamond shapes to ensure a maximum tolerance under 0.009 mm.

### Linear X - Analysis features

Name	Value (µm)
Maximum reversal (U max)	1.2
Maximum scatter (Ps max)	2.677
Positional uncertainty (P)	<b>5.855</b>
Positional deviation (Pa)	4.033
Mean reversal	0.434
Mean scatter (Ps mean)	0.787

### Ball Bar - Diagnostics (XY 360 degree 15 mm)

20% Reversal spike Y	↑ 2.7 µm ↓ 2.6 µm
17% Reversal spike X	↑ 1.4 µm ↓ -2.1 µm
12% Backlash Y	↑ 0.9 µm ↓ -1.3 µm
8% Straightness	2.2 µm
Circularity	<b>7.7 µm</b>



### 32/40-Tool Armless Type Tool Magazine

- Tool loading capacity of #40 magazine: 32 tools (standard) 40 tools (optional).
- Tool loading capacity of #50 magazine: 32 tools (standard) 40 tools (optional).
- The tool magazine is installed in the column for fast tool change.



### Coolant Jets Around Spindle

The function of the coolant jets around the spindle is to quickly remove heat from the cutting tool and workpiece during cutting, so as to upgrade machining accuracy and extend the tool life.



### BT#40 (Standard: αiI 12/12000)

### 8000/12000 RPM Direct-drive Spindle

- BT40, 12000 RPM direct drive spindle is standard.
- BT50, 8000 RPM direct drive spindle is standard.
- With motor directly driving the spindle, backlash, vibration, and noise can be reduced to a minimum.
- High efficiency of motor power transmission.
- The spindle runs on ceramic bearings that are lightweight, with low centrifugal force and low thermal expansion coefficient.



### 4th/5th Axis Machining

- This machine can be mounted with a tilting rotary table, allowing it to perform 4th/5th axis machining.
- It is especially ideal for high-precision machining on complex parts, which can be accomplished with only a single setup of workpiece.



### Coolant Through Spindle Device (Optional)

- The coolant through spindle device employs a high pressure and high flow rate pump that discharges cutting fluid to the cutting position.
- Especially when performing high speed machining, deep drilling, and deep milling, the coolant through spindle device helps to remove chips quickly, so as to upgrade machining accuracy and reduce machining time.