

Delta 6

Delta 8

Delta 12



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Double Column Machining Center

Designed for Boosting Efficiency and Accuracy in Mold for Parts Machining



Heake Machinery Co., Ltd.

## DOUBLE COLUMN MACHINING CENTER



HK-LV1200

Built for small molds and precision parts machining, the high-speed double column machining centers from HEAKE will fully exhibit extra precise machining performance with high efficiency. With the highly rigid double column structure, maximum stability during high speed machining can be achieved. In addition, the series of machines also offers outstanding contour cutting accuracy and extra fine surface finishes on workpieces.



HK-LV600

### HIGH MACHINING ACCURACY

The double column structure is one-piece fabricated by high quality cast iron, and designed with multiple box type structures with internal ribbing, assisting in upgrading the geometric accuracy in high speed machining. The structural castings are stress relieved and aging treated, ensuring lifetime accuracy and stability.

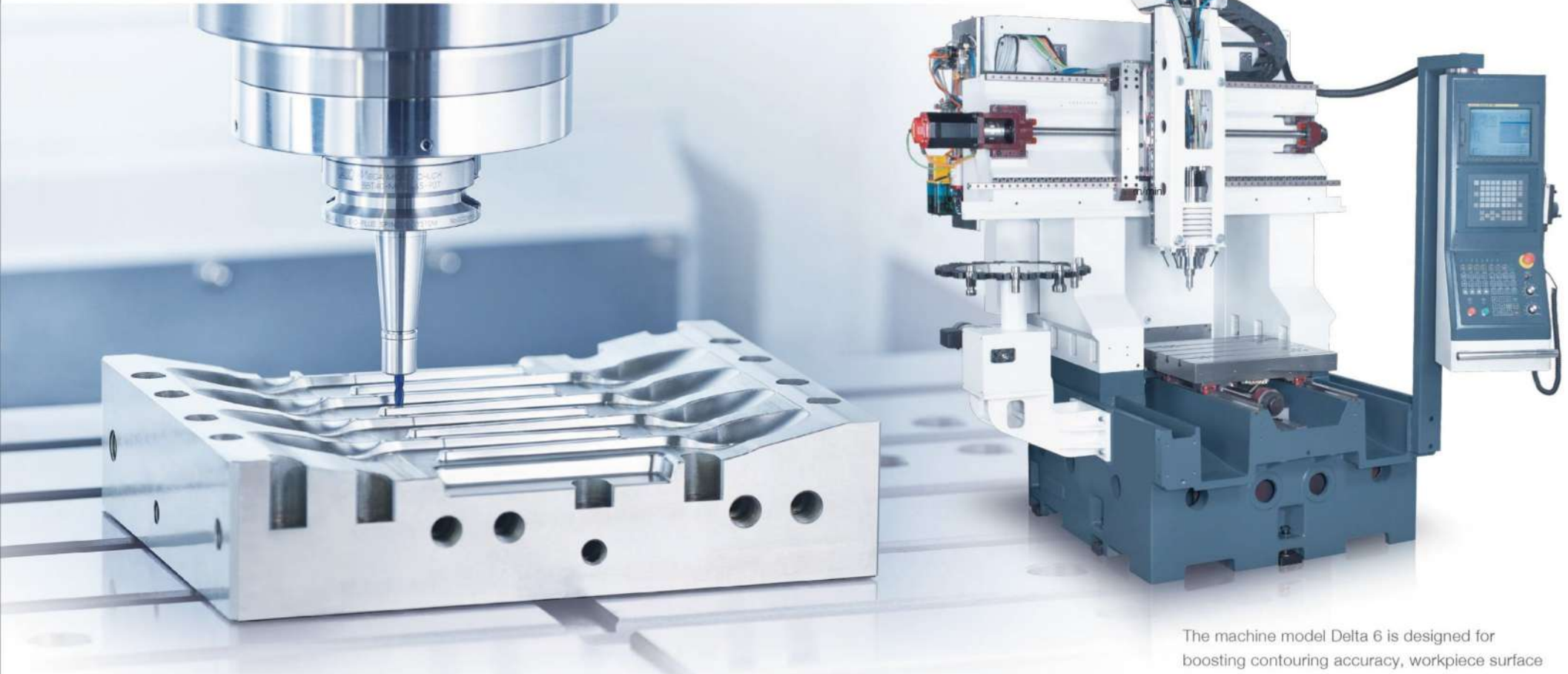
### PERFECT INTEGRATION OF MECHANISM AND ELECTRONICS

The design and assembly of the integrated mechanism and electronics are ergonomic and humanized in operation to achieve optimized performance and parts.



HK-LV800

## BODY STRUCTURE



### HIGHLY RIGID SPINDLE

- Z axis is equipped with 6 blocks that effectively upgrade axis rigidity while minimizing deformation on the Z-axis.
- Stability in high speed machining and contour cutting accuracy.
- Enhanced structural stability and vibration dampening capacity that extends tool life.

### MASSIVE DOUBLE COLUMN STRUCTURE

- The double column structure is one-piece fabricated in combination with the multiple box type structures for extra high rigidity.

### LINEAR WAYS ON Z AXIS

- Z-axis linear ways are fully supported through the entire travel, solving the problem of insufficient rigidity that often occurs on general double column machining centers.
- Extra wide span between linear ways provides an increase of machining stability.

### EXTRA STABLE BASE

- The machine base is supported at 3 points to form an extra stable foundation, providing solid support for the entire machine.
- The M-shaped rib reinforcement in the base provides a dramatic increase in stability when performing high speed machining

The machine model Delta 6 is designed for boosting contouring accuracy, workpiece surface finish, and production efficiency. Both high speed milling and high speed machining can be performed with this machine. It is excellent for optical, electronic, medical, and aerospace industries.

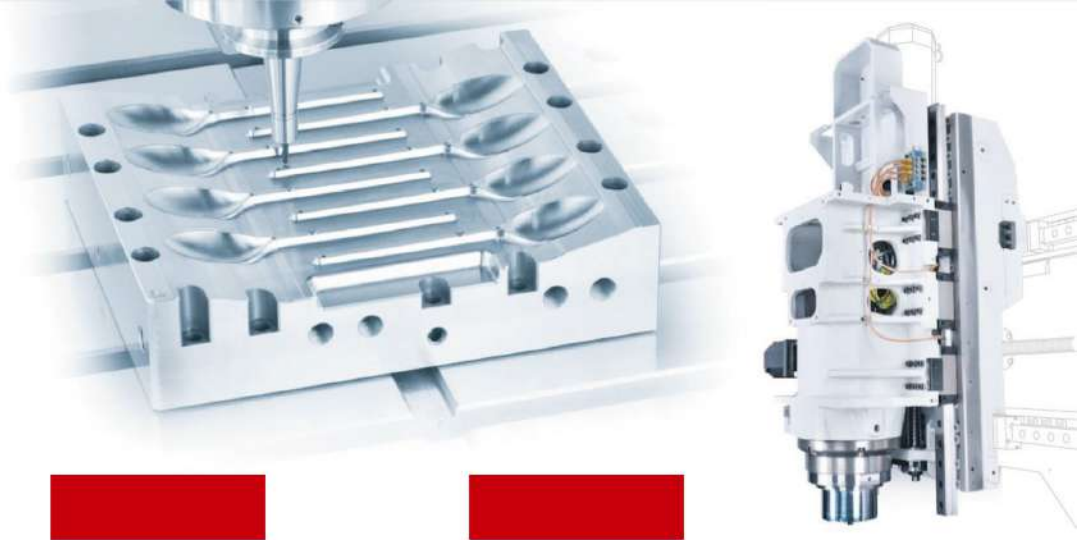




## SPINDLE FEATURES

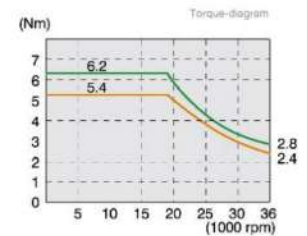
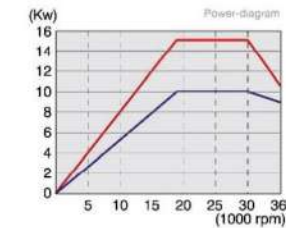
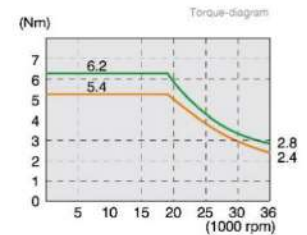
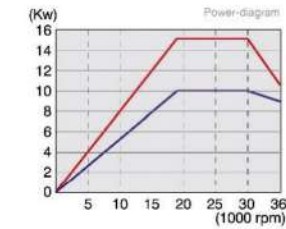
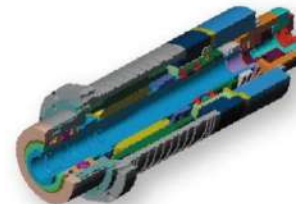
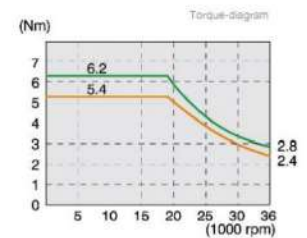
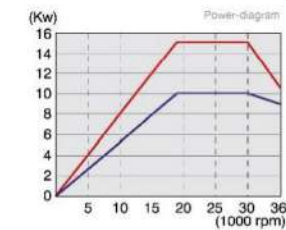
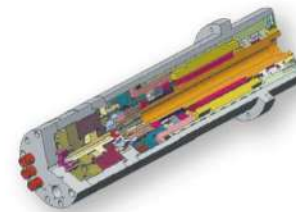


- The spindle is designed with closed loop control, providing feedback on motor status immediately for various machining conditions. This enables the spindle to provide high torque output at low speed running and low vibration at high speed running.
- Provides rigid tapping function.
- Oil mist lubrication allows for long-term high speed machining.
- The oil mist lubrication system of the spindle and controller work closely. Spindle lubrication is used together with the spindle temperature growth compensation for various machining and speeds, ensuring optimum stability.
- After the spindle has stopped for 30 minutes, the oil supply system and the air curtain also stop. This can help to reduce air consumption, extend the life of filter system, and avoid oil dripping problems.
- The spindle is manufactured from Chrome Molybdenum alloy steel, hardened and sub-zero treated, enabling the spindle to maintain long-term rigidity and a high precision condition.
- The spindle equipped in this series of machines employs a Japanese Big Plus BBT two-face binding structure with higher precision and accuracy. It is excellent for high precision machining.
- The structure of the triangular saddle is reinforced to reduce the distance between the spindle head and the column. This feature not only reduces spindle head deflection, but also increases rigidity and accuracy on Z-axis.
- The proper saddle height design provides a reasonable travel for tool change. As such, the column height can be reduced to enhance machining stability.
- The spindle connecting device is equipped with a second coolant circulation for double cooling efficiency. Through the spindle temperature control during high speed running, spindle elongation is minimized and the spindle head deformation due to long time operation can be controlled.
- One-piece structure of spindle connecting device.



BUILT-IN TYPE SPINDLE

SPINDLE POWER & TORQUE CHART

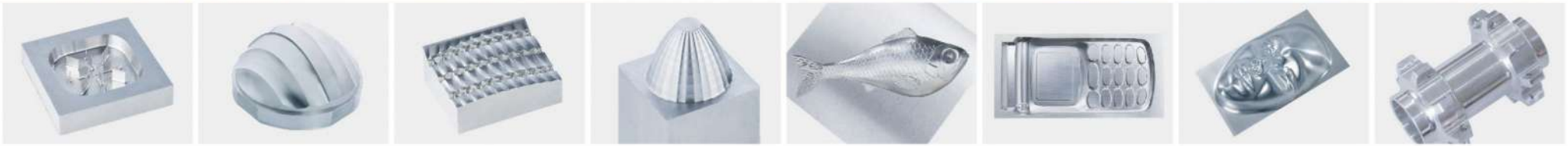




EXCELLENT FOR PRECISION PARTS MACHINING



ADVANCED CONTROL FOR USER-FRIENDLY OPERATION



EFFICIENT MACHINING CAPACITY



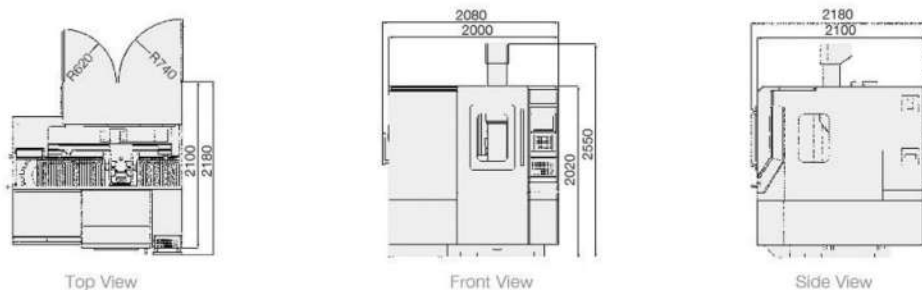
Face Milling	End Milling	Drilling	Tapping
MATERIAL REMOVAL: 375 cc/min Tool: 63 mm Material: S45C Steel Cut: 50 mm x 4 mm Feed Rate: 1875 mm/min Spindle Speed: 1500 rpm	MATERIAL REMOVAL: 189 cc/min Tool: 63 mm Material: S45C Steel Cut: 25 mm x 4 mm Feed Rate: 1890 mm/min Spindle Speed: 1800 rpm	MATERIAL REMOVAL: 282 cc/min Tool: 40 mm Material: S45C Steel Diameter Cut: 40 mm Feed Rate: 225 mm/min Spindle Speed: 1500 rpm	Tool: 30 x 3.5 mm Material: S45C Steel Width Cut: 30 mm Feed Rate: 348 mm/min Spindle Speed: 128 rpm

\* BT40 Direct drive spindle (all 12/12000)

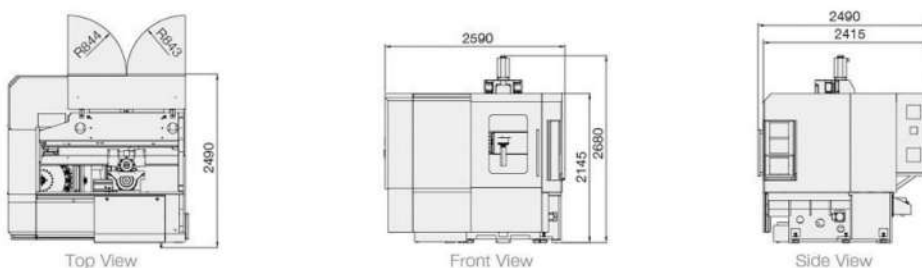


## MACHINE DIMENSIONS

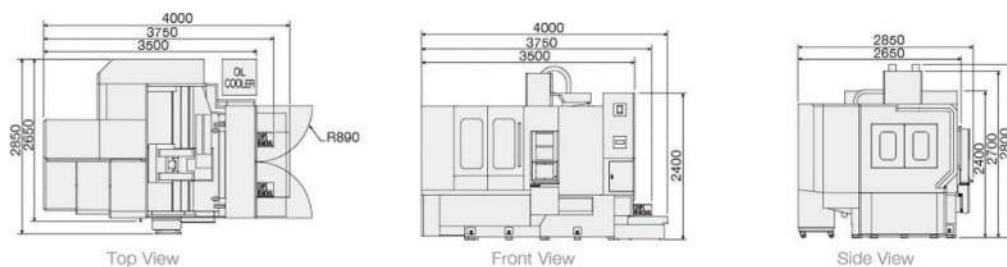
### HK-LV600



### HK-LV800



### HK-LV1200



## SPECIFICATIONS

MODEL	UNIT	HK-LV600	HK-LV800	HK-LV1200
TRAVEL & TABLE				
Table sizes (No. x W x dist.)	mm/mm	600 x 550	950 x 660	1,300 x 850
T-slot size	kgs	4 x 14 x 100	18 x 6 x 100	18 x 8 x 100
Max. table load	mm	300	600	1000
X-axis travel	mm	600	850	1200
Y-axis travel	mm	550	700	850
Z-axis travel	mm	360	480	480
Dist. from spindle nose to table surface	m/min	130 – 510	150 – 630 / 180 – 660	
FEED RATE				
Feed rates	m/min	30 / 30 / 24	36 / 36 / 36	
Cutting feed rate	m/min	20	20	
SPINDLE				
Max. spindle speed (std.)	m/min	24,000	16,000	16,000
Max. spindle speed (opt.)	rpm	30,000 / 36,000	20,000 / 24,000 / 30,000	
Spindle nose taper	rpm	HSK-E40	BBT40 / HSK-A63 (24K rpm) / HSK-E50 (30K rpm)	
Spindle motor	kw	10 / 15	BBT40: 15 / 18.5 (16K rpm)	
			BBT40: 18 / 23 (20K rpm)	
			HSK-A63: 18 / 23	
			HSK-E50: 11/18.5	
AUTO TOOLS CHANGER (ATC)				
Tool shank type		HSK-E40	BBT40 / HSK-A63 / HSK-E50	
Tool loading capacity		20	20	
Max. tool length	mm	150	250	
Max. tool diameter	mm	20	80	
Max. tool weight	kgs	3	7	
3 AXES MOTOR POWER	kw	1.6 / 1.6 / 1.6	4 / 4 / 4	
POSITIONING ACCURACY	mm	0.005	0.005	
REPEATABILITY	mm	0.004	0.004	
MACHINE DIMENSIONS				
Width	mm	2,080	2,590	4,000
Length	mm	2,180	2,490	2,850
Height	mm	2,550	2,680	2,800
Machine weight	kgs	4,000	8,500	11,000

\* We reserve the rights to change the product specifications, appearance, accessories or advise no longer in use.

### STANDARD EQUIPMENT

- Fanuc Oi-MF controller
- 20T carousel type magazine
- Fully enclosed splash guard
- Grease lubrication system
- Warning lamp
- Working light
- Spindle oil cooler
- Heat exchanger for electrical cabinet
- MPG handwheel
- Chip auger
- Rear chip flushing device

### OPTIONAL EQUIPMENT

- Fanuc 3li-MB controller
- Contact type auto tool length measurement device
- Laser device for tool length measurement
- Workpiece measurement device
- Coolant through spindle device
- Linear scales on 3 axes
- Oil mist collector
- Oil mist cutting device
- Link chain type chip conveyor
- Scraper type chip conveyor
- Graphite machining