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Web



# VERTICAL MACHINING CENTER



**HK-LV series**  
Roller Linear Guideway Series  
3 Axis + 5 Axis

# RUGGED CONSTRUCTION PLUS EXTRAORDINARY DESIGN CONCEPTS

Reducing production costs while increasing productivity is the only way to keep an enterprise competitive. With the Heake HK-LV series of Vertical Maching Center, you can obtain a competitive edge. These ruggedly built, high precision machining centers integrate many extraordinary features with unmatched performance. An oversized column enhances stability in heavy cutting. The extra long base eliminates overhang problems on the X and Y axes. Roller type linear ways are on three axes... and the machine still offers much more.



## WIDE RANGE CUTTING CAPACITY



## APPLICABLE INDUSTRIES

- Machine parts machining
- Automotive and motorcycle
- Mold and die machining
- Aerospace



# HK-LV series

VERTICAL MACHINING CENTER  
LINEAR GUIDEWAY SERIES

850 / 960 / 1160 / 1265 / 1377 / 1577 / 1677  
1688 / 1888 / 2010 / 255U(L) / 320U(L) / 410U(L)

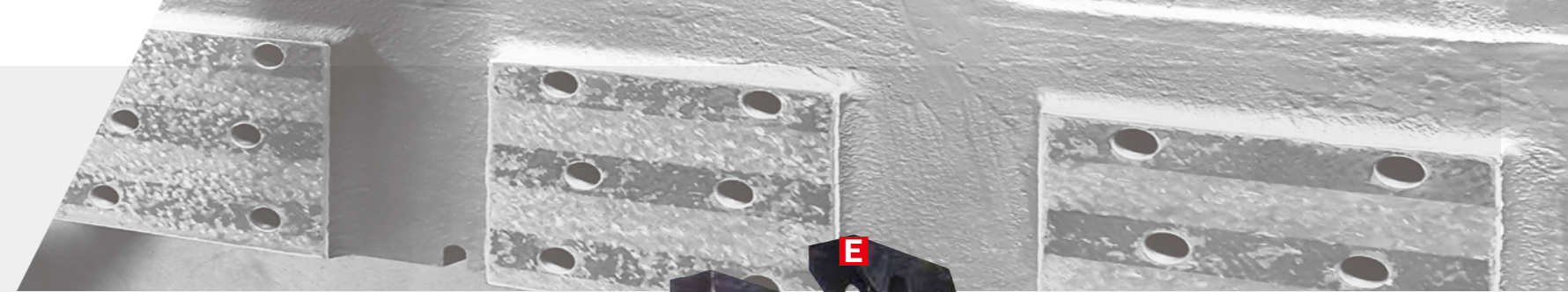
**YOUR NO. 1 CHOICE IN HEAVY, EFFICIENT  
AND HIGH PRECISION MACHINING !**

Based on years of experience in after-sales service, the Heake engineering team fully understands general machining accuracy problems due to defects of machine structure design.

Heake HK-LV series vertical machining centers are designed to ameliorate frequently occurring machining problems, so as to build a machine with maximum dependability in operational performance and cutting capabilities.



# UNIQUE ONE-PIECE DESIGN T-BASE STRUCTURE



## A / EXTRA-LARGE BALL SCREW

- Three axes feeds are transmitted through Ø50 mm large ball screws.
- Ball screws are preloaded to effectively suppresses thermal deformation while ensuring high feed accuracy.

## C / ULTRA RIGID BASE WITH ARCH SHAPED RIBS

Additional ribs are provided in front of the jointing position between the base and column, that fully eliminates the base deformation problem.  
**(New type patent No. 504654 in R.O.C)**



## E / The air cylinder is equipped with an universal joint to ensure stability when the air cylinder is moving.

## G / PRECISION HAND-SCRAPING & WITHOUT PAD ATTACHED

Sliding surfaces are precisely scraped to achieve the best surface mating effect. No pad attached on 3 axes ensures better flatness of mating surfaces.



## B / CHIP AUGERS LAYOUT

The twin chip augers are fitted in the channels of the base casting, located at the front and rear side of the base

## D / DOUBLE AIR-CYLINDER COUNTER-BALANCE ON Z-AXIS (STANDARD)

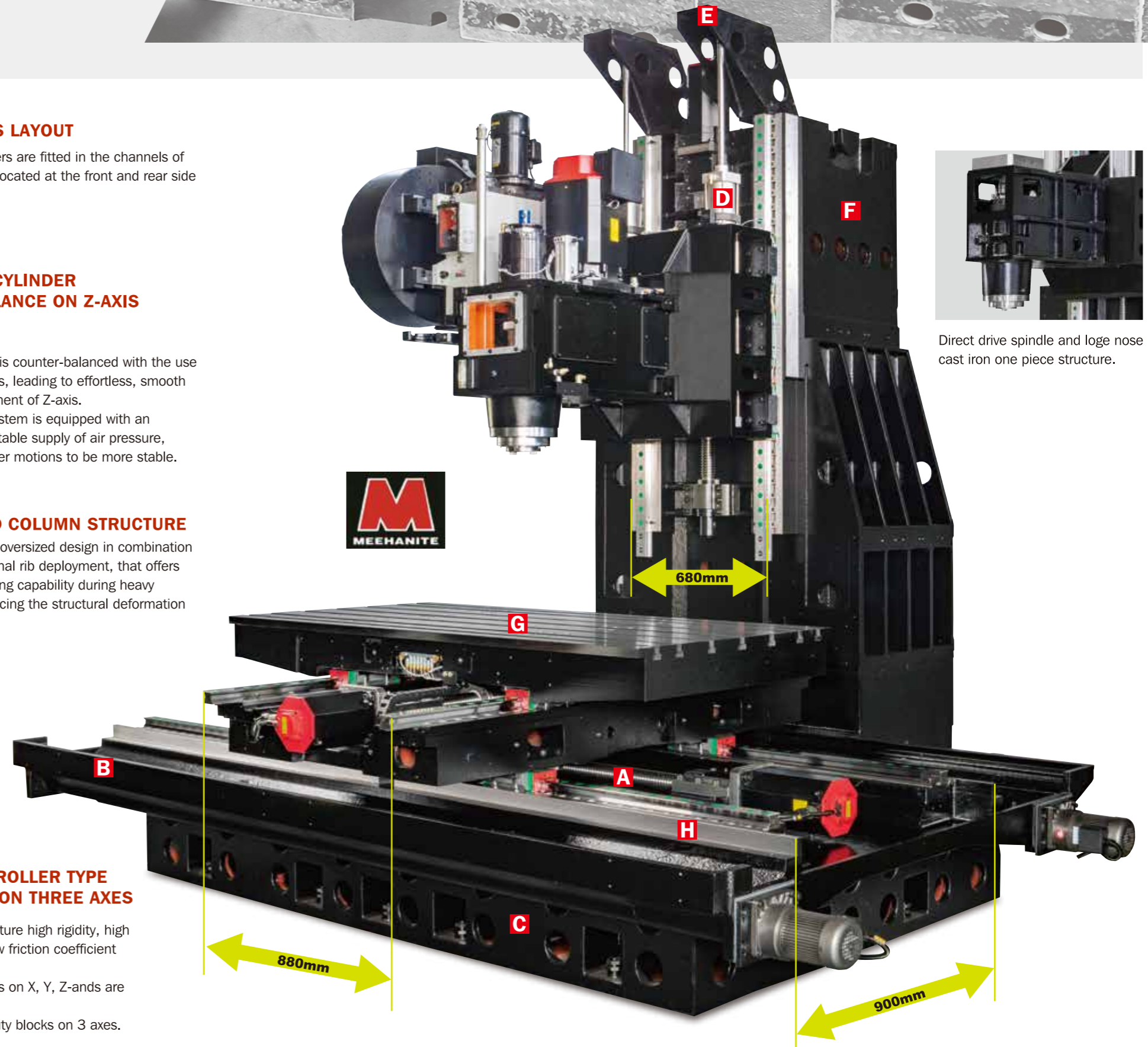
- Z-axis movement is counter-balanced with the use of two air cylinders, leading to effortless, smooth and stable movement of Z-axis.
- The pneumatic system is equipped with an accumulator for stable supply of air pressure, allowing air cylinder motions to be more stable.

## F / REINFORCED COLUMN STRUCTURE

The column is an oversized design in combination with optimal internal rib deployment, that offers the best dampening capability during heavy cutting while reducing the structural deformation to a minimum.

## H / LARGE SIZED ROLLER TYPE LINEAR WAYS ON THREE AXES

- The linear ways feature high rigidity, high load-resistance, low friction coefficient and low noise.
- Rapid traverse rates on X, Y, Z-axes are 18M/min.
- Extra long heavy duty blocks on 3 axes.

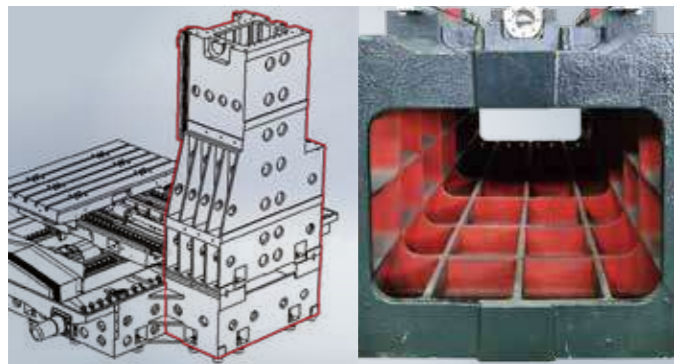


Direct drive spindle and loge nose cast iron one piece structure.

Model photo: HK-LV-1688 (Gear Spindle)

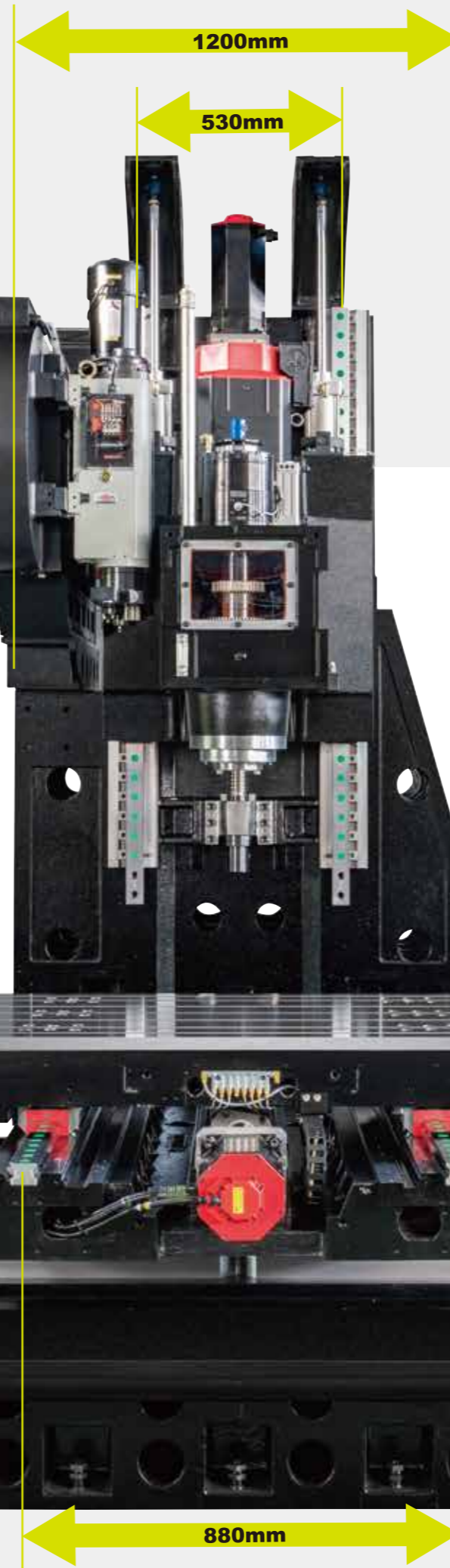
# STRUCTURAL RIGIDITY AND STABILITY DRAMATICALLY SURPASSES COMPETITIVE MODELS !

The design concept behind Heake LV series vertical machining centers is to enhance our exceptional heavy cutting capacity and increase machining efficiency as well. In particular, the column and base are exclusively designed to perform exceptional structural strength and machining stability.



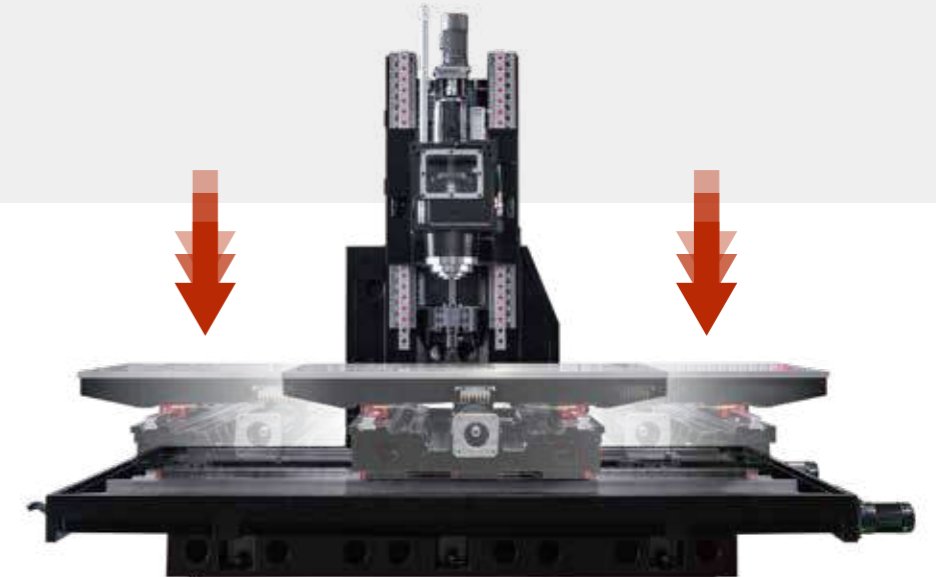
## EXTRA LARGE COLUMN

The column is a box type construction, which is specially designed with reinforcement at the column bottom. This is combined with optimal internal ribbing with unique structural strength and rigidity to surpass conventional competitive models.



## MASSIVE BASE

The base is an extra large structure, providing solid support for heavy loads. It is optimally rib reinforced, featuring no distortion for heavy loads.



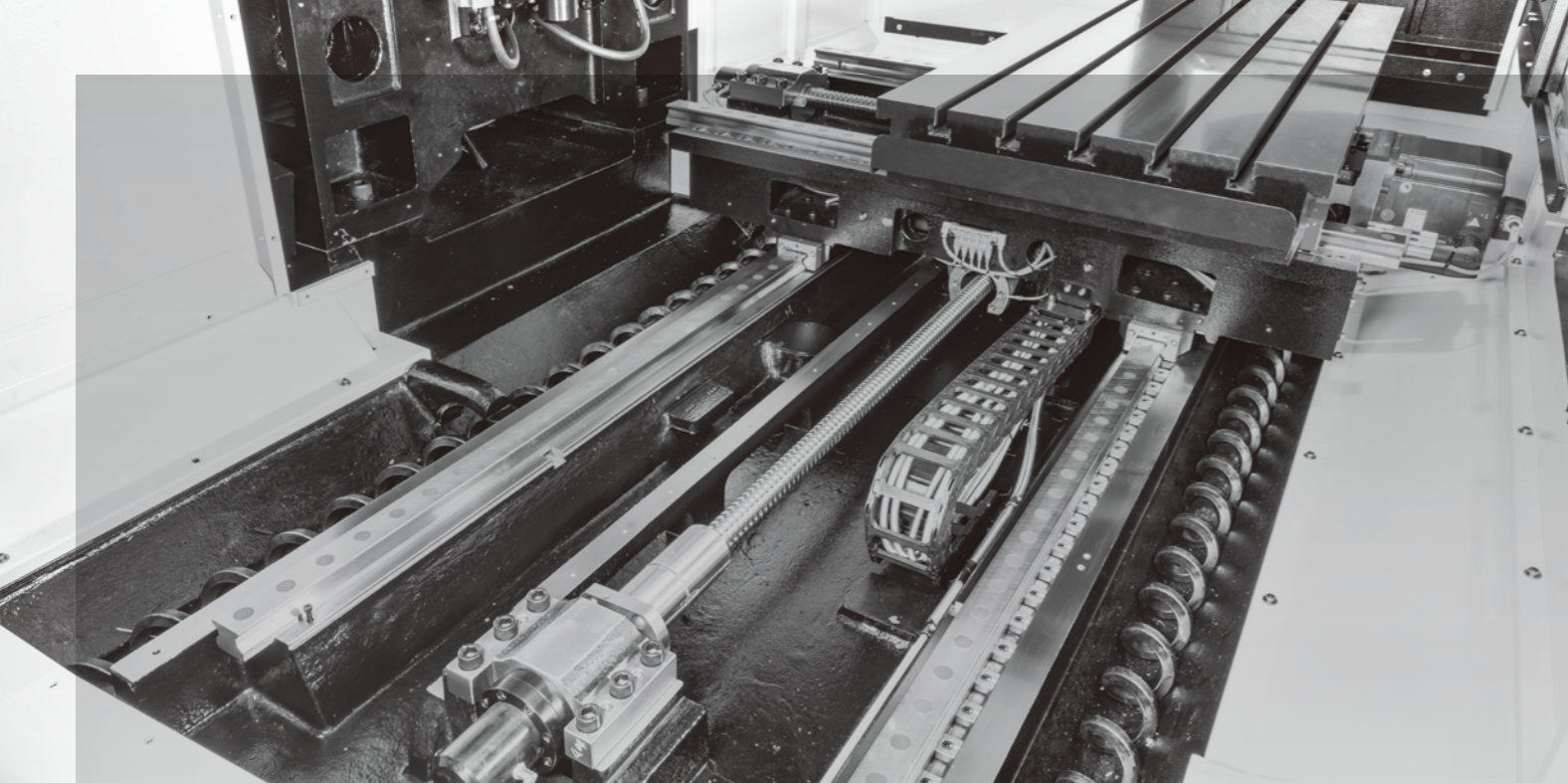
## OVERHANG-FREE TABLE

The specially designed base with increased length and width allows the saddle to move the full stroke on X-axis, and large-spanned saddle carries Y-axis to entirely support the table movement, eliminating overhang problems for the table.

## BASE LENGTH 58% GREATER UP

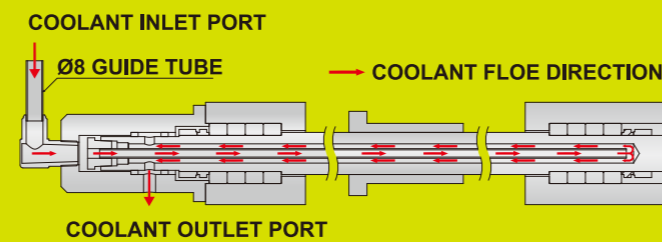
Compared to conventional machines the base length is 58% longer, and is the longest in its class. This leads to a higher level of stability.

Model photo: HK-LV-1677 (Gear Spindle)



### COOLING THROUGH BALL SCREW (OIL/AIR)

By employing cooling through X, Y, Z axis ball screws, the thermal expansion of the ball screws is minimized, helping to maintain high machining accuracy and stability of axial movement. **(NEW TYPE PATENT NO. M502117 IN R.O.C.)**



## HIGHLY RIGID THREE AXES PROVIDE FAST FEED



### SP CLASS ROLLER TYPE LINEAR GUIDE WAYS ON THREE AXES

- The X, Y, Z-axis are all mounted with heavy duty linear ways together with great span between linear ways, featuring high rigidity, low friction coefficient and outstanding dampening capability.
- Each linear way is equipped with extended extra heavy duty blocks for upgrading loading capacity and dynamic stability.



Model	Linear ways & blocks
HK-LV850	<ul style="list-style-type: none"> <li>· X-axis 45mm x 4 extended blocks</li> <li>· Y-axis 35mm x 4 extended blocks</li> <li>· Z-axis 45mm x 6 extended blocks</li> </ul>
HK-LV960~HK-LV1265	<ul style="list-style-type: none"> <li>· X, Y-axis 45mm x 4 extended blocks</li> <li>· Z-axis 45mm x 6 extended blocks</li> </ul>
HK-LV1377~HK-LV2010	<ul style="list-style-type: none"> <li>· 3 axes 55mm x 6 extended blocks</li> </ul>



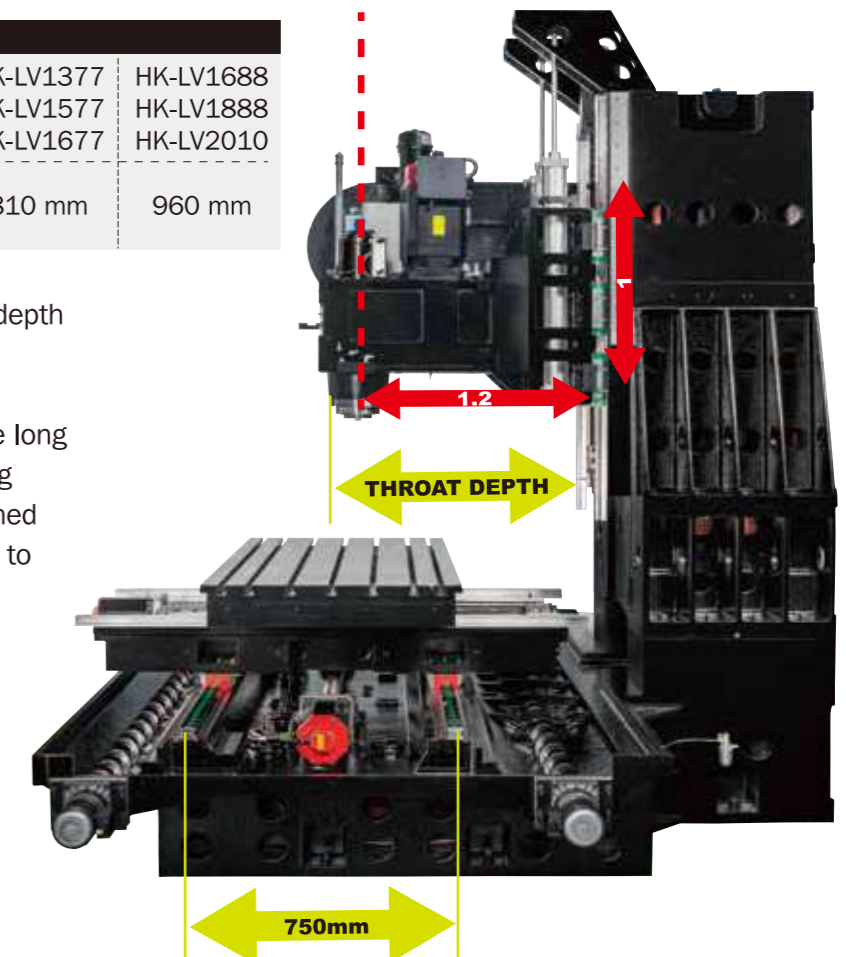
## AUTOMATIC TOOL CHANGER

The tool magazine is independently mounted on the machine without a direct contact with the column, which eliminates vibration of the column while ensuring machining accuracy. The twin tool-change arm allows the operator to adjust the tool change speed for various tools. Besides, HEAKE also provides tool life management, big tool management and tool length measurement functions to ensure accuracy and dependability.

## LONG THROAT DEPTH CREATES MORE WORKING SPACE

Throat Depth on Each Model				
<b>Model</b>	HK-LV850	HK-LV960 HK-LV1160 HK-LV1265	HK-LV1377 HK-LV1577 HK-LV1677	HK-LV1688 HK-LV1888 HK-LV2010
<b>Throat depth</b>	640 mm	700 mm	810 mm	960 mm

The golden ratio 1.2 : 1 of the throat depth to the height of spindle head strongly supports the spindle for heavy cutting without tilting problems. Moreover, the long throat depth provides ample machining space for parts. HEAKE has strengthened the vertical rigidity of the spindle head to assure machining accuracy.



# HIGH SPEED / HIGH RIGIDITY SPINDLE

## DIRECT-DRIVE SPINDLE

- With the motor directly driving the spindle, backlash, vibration, and noise are reduced.
- High efficiency of motor power transmission.
- The spindle runs on lightweight ceramic bearings that feature low centrifugal force and low thermal expansion coefficient.
- The spindle oil cooler reduces thermal expansion, improves machining accuracy, and extends spindle bearing life.



**HK-LV850  
SPECIFIC USE SPINDLE  
(SPECIALLY MADE)**

BBT40 ( $\alpha$  I 8/12000)  
12,000 rpm is standard.  
12,000 / 15,000 rpm with oil mist lubrication(optional)



## DIRECT-DRIVE SPINDLE

BBT50 ( $\alpha$  I 15/12000)  
8,000 rpm is standard.  
10,000 rpm is optional.



## DIRECT-DRIVE SPINDLE

BBT40 ( $\alpha$  I 12/12000)  
12,000 rpm is standard.  
15,000 / 18,000 rpm is optional.

## GEAR-DRIVE SPINDLE

- Motor power is transmitted through a two-step gearbox to the spindle, making the machine ideal for heavy cutting.
- The spindle runs on ceramic bearings that minimize spindle deformation and ensure high accuracy of the spindle.
- The spindle at low speed can reach a high torque of 607 Nm (HK-LV960 ~ HK-LV2010).
- The spindle runs on lightweight ceramic bearings that feature low centrifugal force and low thermal expansion coefficient.
- The spindle with 100mm diameter runs in 5 rows of 7020 bearings, ensuring outstanding stability in heavy cutting.
- The use of Japanese made gears features superior rigidity and stability.

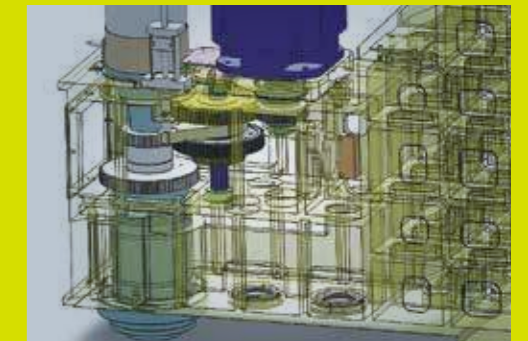


## GEAR-DRIVE SPINDLE

BBT50 ( $\alpha$  I 15/8000) for HK-LV960~HK-LV2010  
4000 rpm is standard (gear ratio 1: 5.15)  
6000/8000 rpm is optional (gear ratio 1:3.02)

# GEAR-DRIVE SPINDLE HEAD

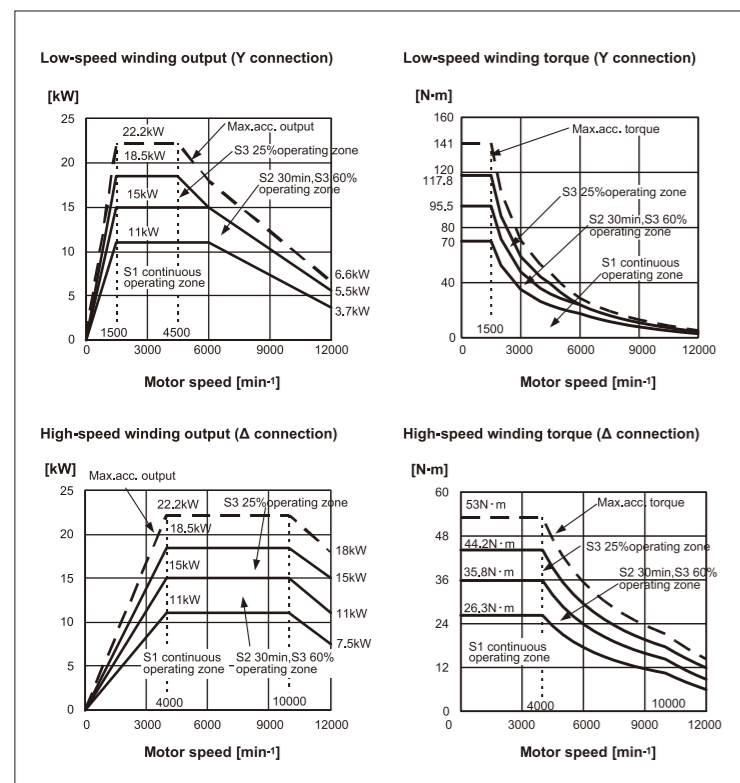
- The gear-drive spindle head features high / low two-step speed ranges. The low speed range provides high torque output for heavy cutting. The high speed range is ideal for fine machining and creates fine finish on machining surfaces.
- The gearbox is oil bath lubricated.
- Available to equip with a spindle oil cooler, allowing the gearbox to maintain a constant temperature to prevent the spindle from thermal deformation.



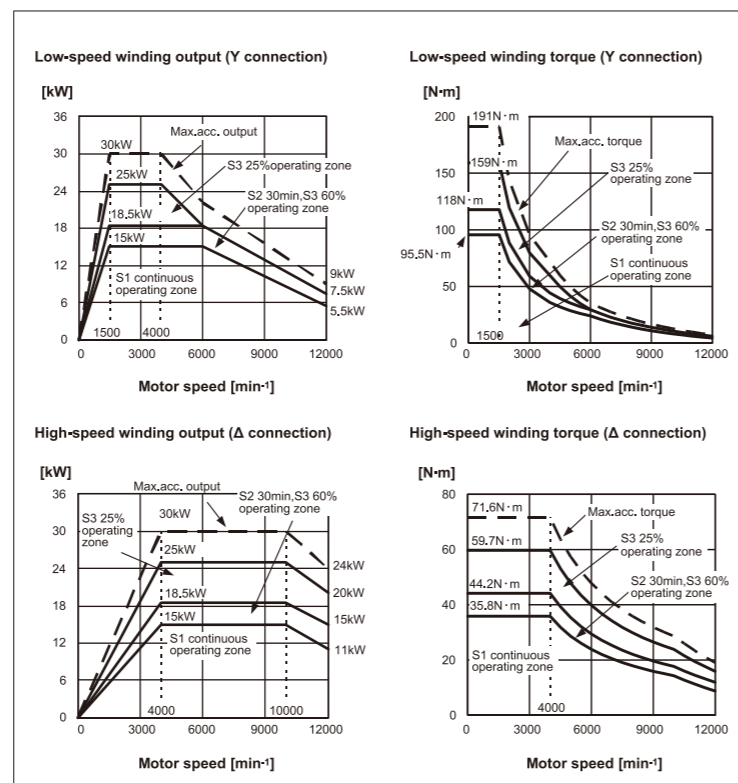
Model: HK-LV960~HK-LV2010

# SPINDLE TORQUE DIAGRAM

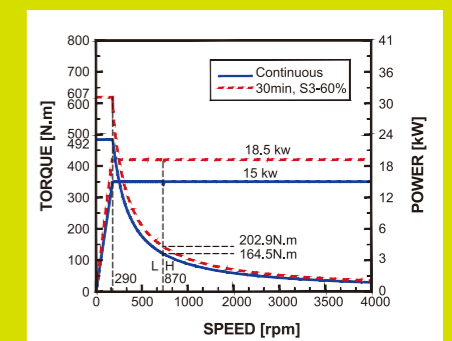
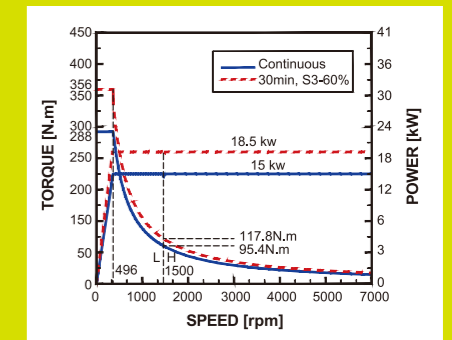
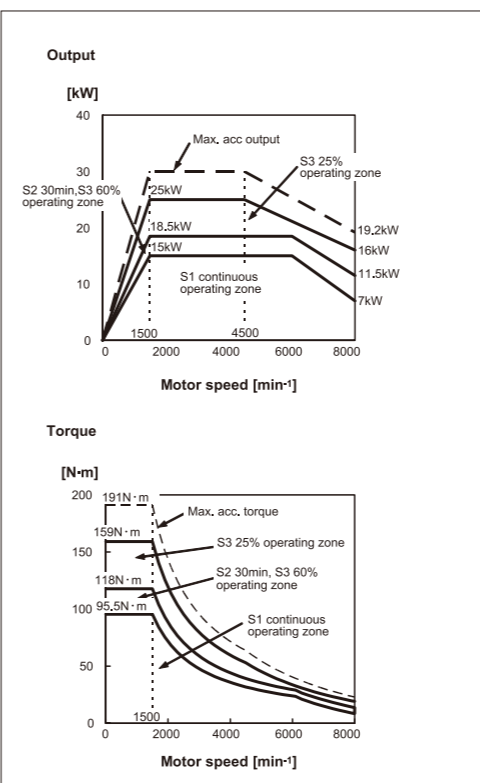
## FANUC $\alpha$ I 12/12000



## FANUC $\alpha$ I 15/12000



## FANUC $\alpha$ I 15/8000



# MACHINING CAPACITY



## FACE MILL

### BBT 40 Direct-drive Spindle (oil 12/12000)

#### 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

### BBT 50 Gear-drive Spindle (oil 15/8000)

#### MATERIAL REMOVAL:

**684 cc/min**

- Tool : **100 mm**
- Material: S45C Steel
- Cut: 80 mm x 4.8 mm
- Feed Rate: 1780 mm/min
- Spindle Speed: 1460 rpm



## END MILL

#### 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:

**338 cc/min**

- Tool : **63 mm**
- Material: S45C Steel
- Cut: 45 mm x 4 mm
- Feed Rate: 1880 mm/min
- Spindle Speed: 1710 rpm



## DRILL

- Tool : **40 mm**
- Material: S45C Steel
- Diameter Cut: 40 mm
- Feed Rate: 225 mm/min
- Spindle Speed: 1500 rpm

- Tool : **60 mm**
- Material: S45C Steel
- Diameter Cut: 60 mm
- Feed Rate: 190 mm/min
- Spindle Speed: 1180 rpm

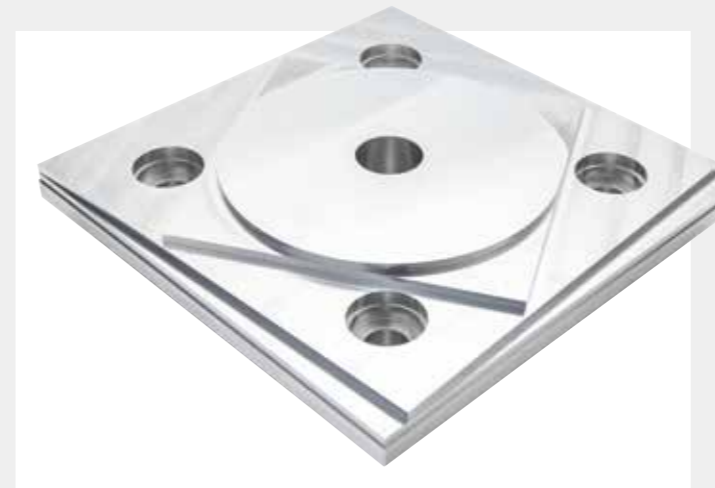


## TAP

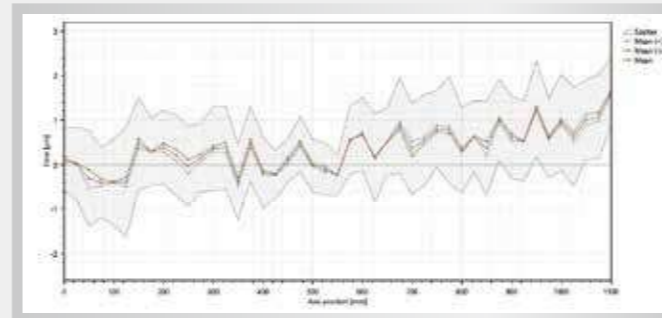
- Tool : **M30 x 3.5 P**
- Material: S45C Steel
- Width Cut: 30 mm
- Feed Rate: 448 mm/min
- Spindle Speed: 128 rpm

- Tool : **M42 x 4.5 P**
- Material: S45C Steel
- Width Cut: 42 mm
- Feed Rate: 855 mm/min
- Spindle Speed: 190 rpm

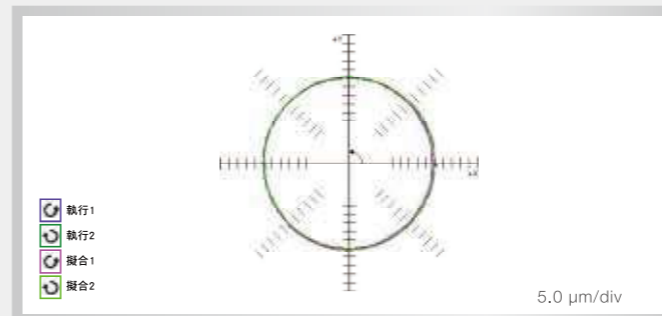
# ACCURACY



HEAKE performs cutting tests in circle, square and diamond shapes to ensure a maximum tolerance under 0.005 mm.



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



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

Linear X - Analysis features	VDI 3441
Name	Value (μm)
Maximum reversal (U max)	0.4
Maximum scatter (Ps max)	2.3
Positional uncertainty (P)	<b>4</b>
Positional deviation (Pa)	2
Mean reversal	0.1
Mean scatter (Ps mean)	1.6

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

20% Reversal spike Y	↑ 1.2 μm ↓ 1.2 μm
17% Reversal spike X	↑ 0.1 μm ↓ -1.1 μm
12% Backlash Y	↑ 0.1 μm ↓ -0.7 μm
8% Straightness	1 μm

Circularity 3.9 μm

### LASER INSPECTION

In addition to be subjected to rigorous in section, HEAKE machines are also inspection by using a sophisticated laser instrument. This allows us to inspect and calibrate pitch error of ball screw, backlash, positioning accuracy and repeatability accuracy on X, Y, Z-axis.

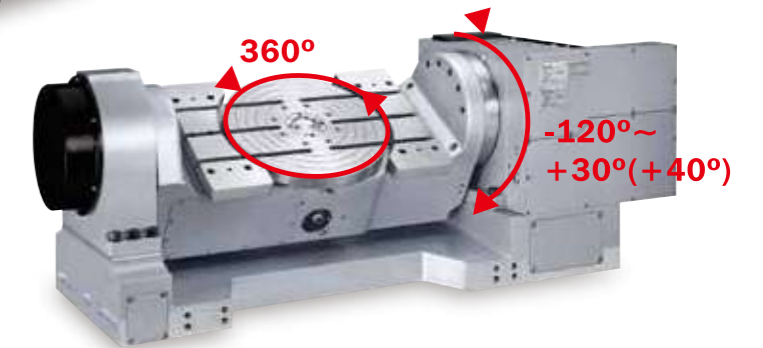
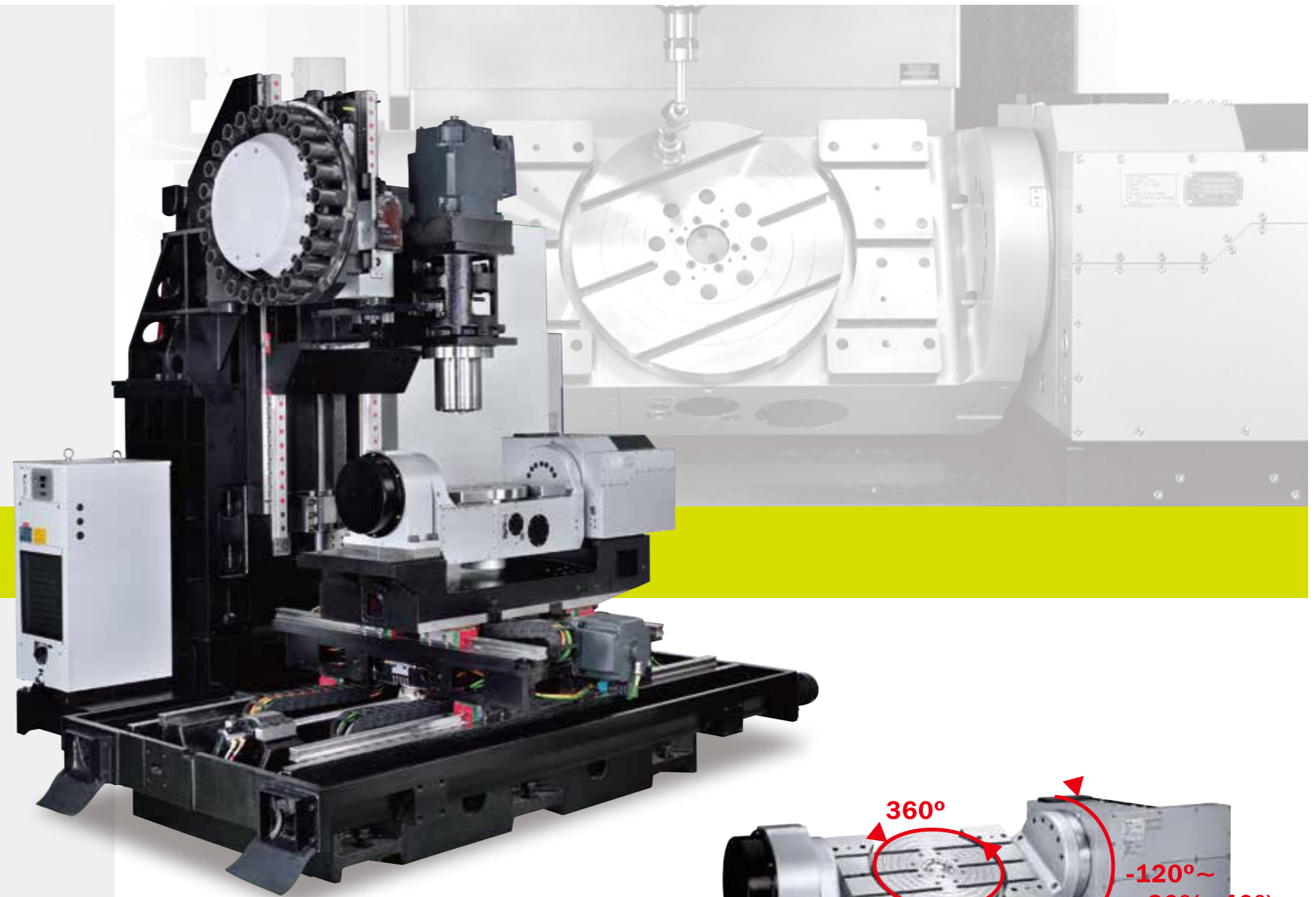
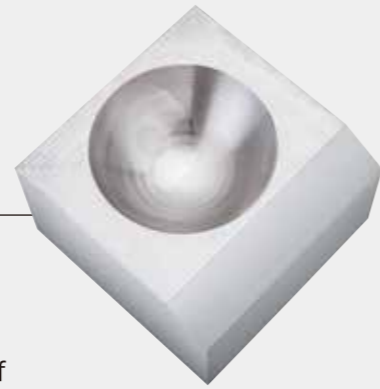




# 5-AXIS VERTICAL MACHINING CENTER

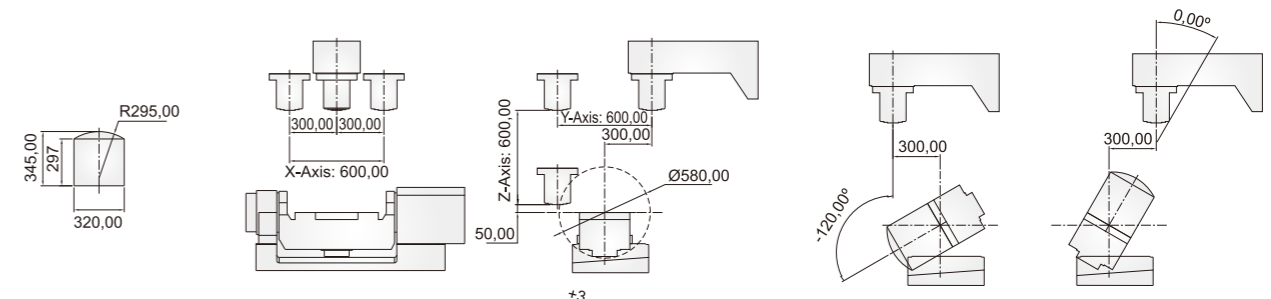
## MACHINE FEATURES

- The 5-axis machining centers are designed for precision machining on complicated parts with only a single setup of workpiece.
- The integrated rectangular table with the tilting rotary table makes the machine suitable for large workpieces.
- The rotating axis and tilting axis are pneumatically clamped.
- 12,000 RPM spindle speed is standard.  
15,000 RPM built-in type spindle is optional.
- Indexing accuracy on rotary table can reach 20 sec., with repeatability of 6 sec.
- Choice of Fanuc, Siemens, Heidenhain controller with 5 axis or 4 axis simultaneous control.
- Rugged machine construction ensures maximum stability during high speed cutting.
- 40 tool magazine is standard.  
60 tool magazine is optional.



## HK-LV320UL INTEGRATED RECTANGULAR TABLE WITH TILTING ROTARY TABLE

- The integration of a rectangular table and an embedded tilting rotary table enables the machine to cut large workpieces.
- Tilting degree:  $-120^{\circ} \sim 30^{\circ}$   
Rotating degree:  $360^{\circ}$



# 3-AXIS MACHINE SPECIFICATIONS

MODEL	UNIT	HK-LV850	HK-LV960	HK-LV1160	HK-LV1265	HK-LV1377	HK-LV1577	HK-LV1677	HK-LV1688	HK-LV1888	HK-LV2010	
<b>FANUC 0iMF PLUS Controller</b>												
<b>TABLE</b>												
Table Size	mm	900 x 550	1000 x 600	1200 x 600	1300 x 600	1400 x 780	1700 x 780	1700 x 780	1700 x 930	1900 x 950	2000 x 1000	
T-Slot (No. x Width x Pitch)	mm	5 x 18 x 100				5 x 18(22) x 125			7 x 22 x 150		7 x 22 x 150	
Max. Table Load	kg	500	600	1000	1200	1500	2000	2300	2500	3300	3600	
<b>TRAVEL</b>												
X Axis	mm	800	950	1100	1200	1350	1500	1600	1650	1800	2000	
Y Axis	mm	530	600		650	710 (750) (※2)			880 (1000)		880 (1000)	
Z Axis	mm	560 (710)	610 (810)		610 (810)	720 (※2)			820	850	840	
Spindle Nose to Table Surface	mm	120-680 (830)	130~740 (940)			150~870			150~970	250~1100	250~1090	
Spindle Center to Column Cover	mm	577	655			795			935		935	
<b>SPINDLE</b>												
Spindle Taper		BBT (Taper Dual Contact)				BBT (Taper Dual Contact)			BBT (Taper Dual Contact)			
Spindle Speed & transmission	rpm	#40: 12000 direct drive (11/15 kw), LV-850 (7.5/11kw) #50: 5000 gear drive (15/18.5 kw)				#40: 12000 direct drive (11/15 kw) #50: 4000 gear drive (15/18.5 kw)			#50: 10000 direct drive (15/18.5 kw) #50: 4000 gear spindle (15/18.5 kw)			
<b>FEED</b>												
Rapid Feed Rate - X/Y/Z axis	m/mim	40 / 40 / 40	#40: 36 / 36 / 36 #50: 24 / 24 / 24	#40: 32 / 32 / 30 #50: 24 / 24 / 24	30 / 30 / 24	#40: 24 / 24 / 20 #50: 20 / 20 / 20			#50: 15 / 15 / 15			
Cutting Feed Rate - X/Y/Z axis	m/mim	15 / 15 / 15				15 / 15 / 15			15 / 15 / 15			
<b>ATC</b>												
Tool Storage Capacity		#40: 24T #50: 24T				#40: 24T #50: 24T			#50: 24, 30/40/60 (Opt.)		#50: 24 30/40/60 (Opt.)	
Tool Shank Type		BBT40				BBT40			BBT50		BBT50	
Max. Tool Diameter x Length	mm	#40: 75 x 250, #50: 125 x 300				#40: 75 x 250, #50: 125 x 300			#50: 125 x 300		#50: 125 x 400	
Without Adjacent Tool (diameter)	mm	150				150			150		210	
Max. Tool Weight	kg	7				7/15			15		15	
<b>ACCURACY</b>												
ISO 230-2		A: 0.006 ; R: 0.005				A: 0.008 ; R: 0.006			A: 0.01 ; R: 0.006		A: 0.012 ; R: 0.007	
ISO 10791-2		A: 0.006 ; R: 0.005				A: 0.008 ; R: 0.006			A: 0.01 ; R: 0.006		A: 0.012 ; R: 0.007	
VDI 3441 (※1)		P: 0.008 / PS: 0.004				P: 0.009 / PS: 0.005			P: 0.012 / PS: 0.006		P: 0.014 / PS: 0.008	
<b>PERIPHERAL</b>												
Power Requirement	KVA	25	#40: 30, #50: 35			35			40	45		
Pneumatic Supply	Mpa,1/min	0.6				0.6			0.6			
Coolant Tank Capacity	L	380	390			480			540		600	
Foot Print Size ( W x D)	mm	3650 x 3335				4200 x 3715			4590 x 3975		4870 x 4225	
Machine Net Weight	kg	6200	9050	10800	11500	13950	15800	16280	16850	18600	19600	

NOTE 1: The VDI 3441 employs statistics method by using 5 standard deviations, which can achieve 99.5% of quality assurance level.

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

NOTE 2: HK-LV1377/1577/1677, if Y/Z-axis travel change to 700/680 mm, it can be packed into 40" HQ coneainer.

## CONTROLLER FUNCTION

### STANDARD FUNCTIONS :

- \* 15" colorful LCD screen and Manual Guide I with IHMI touch panel with dual system interface
  - Develop proprietary machining/tool management intelligent interface independently by HEAKE.
  - Customize standalone app system.
- \* Program operation on large capacity memory
- \* Dynamic graphic display
- \* Max total control axes / 2 path system
- \* Fine Surface Machining
  - Look-ahead block 200 (400 is optional)
  - AI contour control II
  - Smooth tolerance control
  - Jerk control
  - Machining quality level adjustment function
- \* PMC powerful system
  - Rapid scan cycle
  - Expandable ladder diagram functionality
- \* DCS Dual check safety (OP)

## STANDARD & OPTIONAL EQUIPMENT

MODEL	HK-LV850		HK-LV960~1260		HK-LV1377~1677		HK-LV1688~2010	
	Direct-drive	Gear	Direct-drive	Gear	Direct-drive	Gear	Direct-drive	Gear
Spindle oil cooler	●	●	●	●	●	●	●	●
Coolant nozzles around spindle	●	●	●	●	●	●	●	●
Automatic lubrication system (oil volumetric type)	●	●	●	●	●	●	●	●
Automatic lubrication system (grease volumetric type)	○	○	○	○	○	○	○	○
No counter-balance on Z-axis (brake motor)	●	○	○	○	○	○	○	○
Side flushing device	○	○	○	○	○	○	○	○
Cutting air blast / Spindle unclamp air blast / Spindle positive air pressure	●	●	●	●	●	●	●	●
Air blast through spindle function	—	●	—	●	—	●	—	●
Coolant through spindle function	○	○	○	○	○	○	○	○
Spindle side flushing device	●	●	●	●	●	●	●	●
Big flow coolant pump	○	○	○	○	○	○	○	○
Coolant gun & air gun	●	●	●	●	●	●	●	●
Fully enclosed splash guard	●	●	●	●	●	●	●	●
Rigid tapping	●	●	●	●	●	●	●	●
Automatic two-step power off function	●	●	●	●	●	●	●	●
Three-color warning lamp	●	●	●	●	●	●	●	●
Fluorescent light	●	●	●	●	●	●	●	●
Leveling blocks & bolts	●	●	●	●	●	●	●	●
Chip augers	●	●	●	●	●	●	●	●
Cooling through 3 axes ball screws	●	○	●	○	●	○	●	○
Side-mount link chain type chip conveyor	○	○	○	○	○	○	○	○
Heat exchanger for electric cabinet (heater type)	●	●	●	●	●	●	●	●
Heat exchanger for electric cabinet (refrigerant type)	○	○	○	○	○	○	○	○
Auto tool measurement device	○	○	○	○	○	○	○	○
Machine and control operation manual	●	●	●	●	●	●	●	●
Heidenhain 3 axes linear scales (0.1 um) with air blast device	○	○	○	○	○	○	○	○
4th axis rotary table with tailstock	○	○	○	○	○	○	○	○
Oil mist coolant device	○	○	○	○	○	○	○	○
Oil mist collector	○	○	○	○	○	○	○	○
Disk type oil skimmer	●	●	●	●	●	●	●	●
Built-in type spindle (#40 related spindles)	○	—	○	—	○	—	○	○
Transformer (depends on customer's req. voltage)	○	○	○	○	○	○	○	○
Volt stabilizer	○	○	○	○	○	○	○	○

— N.A      ○ Optional Equipment  
● Standard Equipment

## MACHINE SPECIFICATION

MODEL	UNIT	HK-LV255U(L)	HK-LV320U(L)	HK-LV410U(L)
<b>ROTARY TABLE</b>				
Size of rotary table	mm	Ø255	Ø320	Ø400
Max. swing diameter (horizontal)	mm	Ø510	Ø590	Ø690
T-slot size	mm	14	14	14
Sub table		HK-LV255UL	HK-LV320UL	HK-LV410UL
Max. rotating speed of rotating axis	min <sup>-1</sup>	22	25	16.6
Degree of tilting axis	deg.	-120 ~ +40	-120 ~ +30	-120 ~ +30
Max. rotating speed of tilting axis	min <sup>-1</sup>	16.6	16.6	11.1
Max. table load	Horz.	kg	100	200
	Tilt	kg	75	100
Rotating / Tilting axis clamping method / Pressure		Pneumatic / 0.55~0.7MPa	Pneumatic / 0.55~0.7MPa	Pneumatic / 0.55~0.7MPa
Indexing accuracy	sec.	20"	20"	15"
Repeatability	sec.	6"	6"	6"
<b>3 AXES TRAVEL</b>				
X-axis travel	mm	500	600	700
Y-axis travel	mm	600 (650)		
Z-axis travel	mm	600 (700)		
<b>SPINDLE</b>				
Dist. from spindle to table surface (horizontal)	mm	50~650	50~650	50~650
Spindle nose taper		BBT40(ST) · HSK-A63(OP)		
Pull stud of spindle		BT(ST) · DIN(OP) · HSK(OP) · MAS BT(OP)		
Max. spindle speed	RPM	12000(ST) · 15000(OP)		
<b>SPINDLE / SERVOMOTORS</b>				
Spindle motor	KW	11/15KW(ST) · 15/18.5KW(OP) / Built-in spindle		
3 axes (X/Y/Z) motors	KW	4 / 3 / 4		
3 axes (X/Y/Z) rapid traverse rates	M/min	30 / 30 / 24		
Max. feed rate of cutting	mm/min	15000		
<b>3 AXES SPECIFICATIONS</b>				
3 axes (X/Y/Z) linear ways	mm	45 / 45 / 45 (6/8 blocks on Z-axis)		
Block type of linear way		Roller type linear way HIWAN SP Class / Schneeberger P Class		
3-axis transmission		D40mm / P10 screw transmission C3+ class		
<b>ATC (AUTO TOOL CHANGER)</b>				
Tool loading capacity		40T(ST) / 48T / 60T(OP)		
Max. tool diameter	mm	#40-70 · HSK-A63-70		
Max. tool weight	KG	#40-7 · HSK-A63-7		
Max. tool length	mm	#40-300 · HSK-A63-300		
<b>OTHERS (Below data are obtained when the machine is under well air conditioned and stable operating conditions)</b>				
Positioning accuracy	mm	0.008		
Repeatability	mm	0.006		
Power source required	KVA	35	35	40
Air source required	Mpa	0.65 ±10%		
Machine weight	Ton	9.8	10.5	11.2

\* The series of machines can be equipped with 5 axes or 4 axes simultaneous controller (Fanuc, Siemens, Heidenhain)

\* As the machine manufacturer continuously conducts research and innovation on the machine structure and specifications, the above specifications are subject to change without prior notice.

# MACHINE DIMENSIONS

## CHAIN TYPE CHIP CONVEYOR (OPTIONAL)

The chip conveyor and coolant tank are integrated and mounted at the left side of the machine for saving space.



## TWIN CHIP AUGERS

- There is one set each of chip auger mounted at the front and rear side of the base, which can deliver chips generated during cutting to the chip conveyor at the back side of the machine.
- The chip augers may prevent thermal effect due to the deposited chips, and keep the machine interior clean at all times.



## SPINDLE OIL COOLER

- The spindle oil cooler provides high efficiency cooling effect to the spindle and gearbox, enabling the spindle to maintain a constant temperature condition even when the machine performs long time continuous machining operations.
- It can avoid spindle thermal deformation and ensure machining accuracy as well as extend the spindle service life.



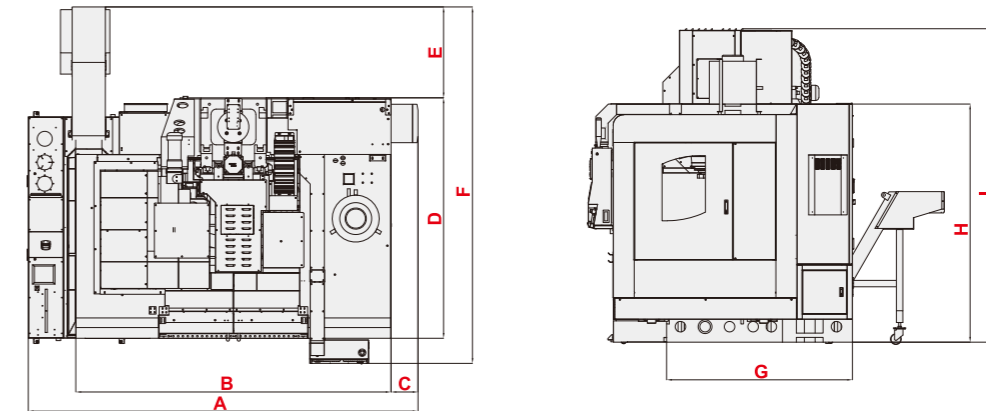
## COOLANT NOZZLES AROUND SPINDLE

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



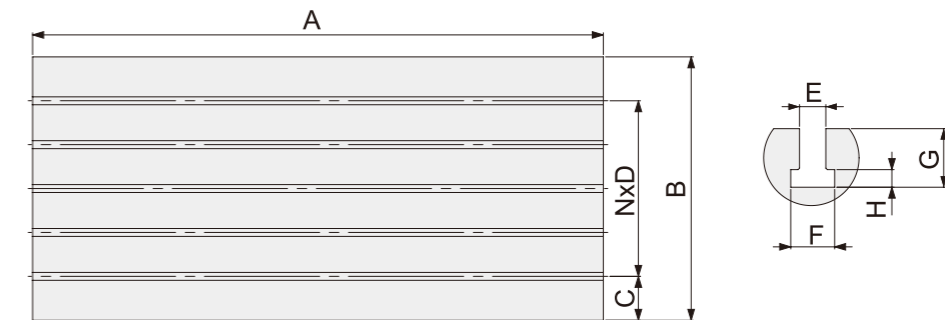
## COOLANT THROUGH SPINDLE DEVICE (OPTIONAL)

- 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 save machining time.



Unit: mm

MODEL	A	B	C	D	E	F	G	H	I
HK-LV2010	4870	4540	-	3310	610	4225	2413	2700	3785
HK-LV1888	4590	4260	-	3060	610	3975	2413	2700	3785
HK-LV1688	4590	4260	-	3060	610	3975	2413	2700	3785
HK-LV1677	4200	3610	125	2754	655	3715	2138	2430	3075
HK-LV1577	4200	3610	125	2754	655	3715	2138	2430	3075
HK-LV1377	4200	3610	125	2754	655	3715	2138	2430	3075
HK-LV1265	3650	2950	255	2250	855	3335	1750	2230	2935
HK-LV1160	3650	2950	255	2250	855	3335	1750	2230	2935
HK-LV960	3650	2950	255	2250	855	3335	1750	2230	2935
HK-LV850	2850	2280	-	2630	480	3150	1610	2180	2850



Unit: mm

MODEL	A	B	C	N	T-SLOT	D	E	F	G	H
HK-LV2010	2000	1000	200	4	5+2(NOTE: 1)	150	22	37	40	16
HK-LV1888	1900	950	175	4	5+2(NOTE: 1)	150	22	37	40	16
HK-LV1688	1700	930	165	4	5+2(NOTE: 1)	150	22	37	40	16
HK-LV1677	1700	780	140	4	5	125	18	30	40	12
HK-LV1577	1600	780	140	4	5	125	18	30	40	12
HK-LV1377	1400	780	140	4	5	125	18	30	40	12
HK-LV1265	1300	600	100	4	5	100	18	30	40	12
HK-LV1160	1200	600	100	4	5	100	18	30	40	12
HK-LV960	1000	600	100	4	5	100	18	30	40	12
HK-LV850	900	550	100	4	5	100	18	30	40	12

- NOTE: 1. One each of T-slot is added to the right and left side.  
Side distance 200 / 175 / 165 for model LV-2010 / LV-1888 / LV-1688.  
2. T-slot specifications can be specified by customers.