gamma® CNC
Machining Center

LV Series

High-performance Economical
Vertical Machining Center

ALWAYS STAND WITH YOU!

High-performance Economical Vertical Machining Center

The high-rigidity machine structure realizing the high-speed machining application with high-speed spindle and fast feed has high machining efficiency in combination with the direct-link high-speed spindle. It is particularly suitable for high-speed machining, 3C products, optoelectronics, auto parts, communication products, etc. It is also suitable for copper electrodes, dies and other applications.

LV-600/800/1000L
BT40-10000/12000/15000rpm

Direct-link spindle
Travel: 600*500*500
800*500*500
1000*600*500

LV-600/800L
BT30-20000rpm

Direct-link spindle
Travel: 600*500*500
800*500*500

LVA-600L(change table)
BT40-12000rpm

Direct-link spindle
Travel: 600*500*500

LV-600/800/1000L

Steady Triangular Structure Casting

★ Test and analyze by using the most advanced finite element method and utilizing the pressure distribution of the computer simulation structure, the vibration source analysis and design changes, the structure location and other important mechanical and physical change factors in order to ensure that the design of all mechanical parts is improved to the optimum.

★ Although the cost of iron castings is higher, Gamma adheres to use of the iron castings to manufacture the main components as the damping capacity of the iron castings is ten times higher than the steel castings. The reinforcing ribs are also arranged in Gamma iron castings in order to minimize the distortion and maximize the damping capacity. In addition, all Gamma iron castings are thoroughly inspected to ensure there is no crack before and after machining.

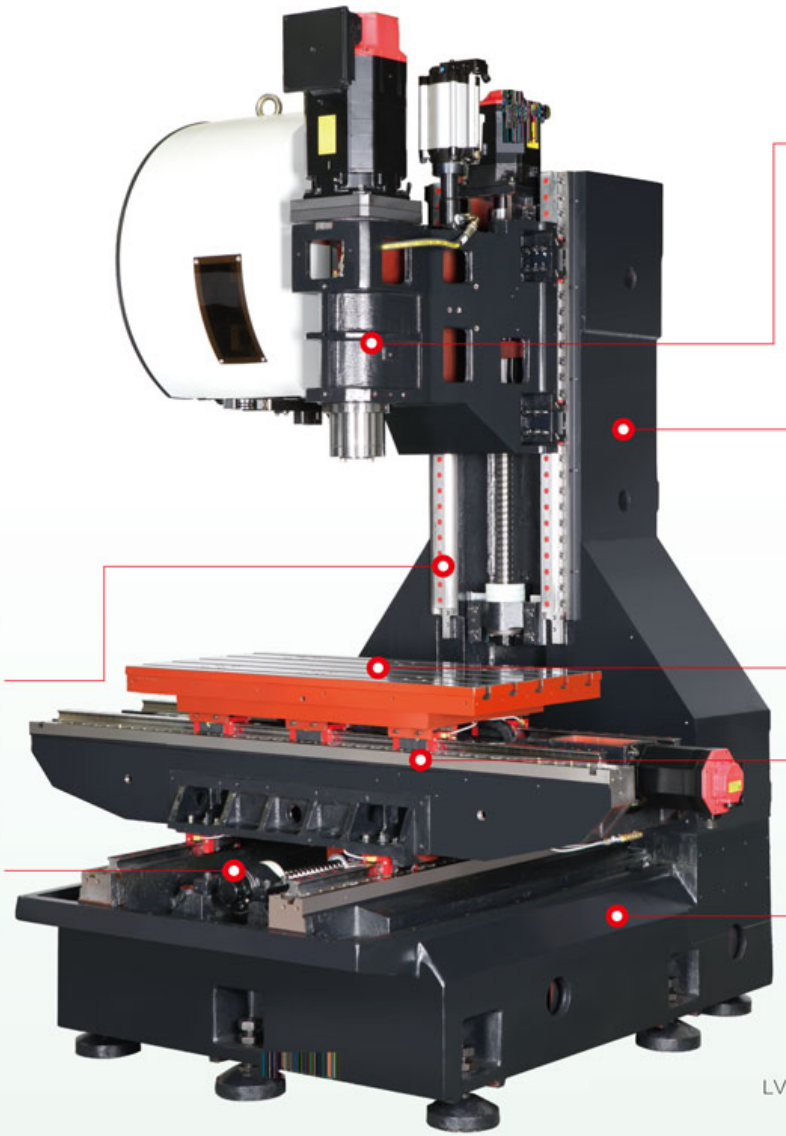
★ The high-rigidity ultra-wide base and the chevron column are made of unibody HT300 cast iron to enjoy good stability, high rigidity and fine firmness and provide the most stable heavy load supporting force, and the table is not overhung and has excellent rigidity and stability in combination with the strengthened design of all shafts.

High Precision Guideway

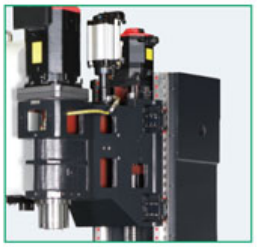
Each linear guideway uses the quenched steel linear guideway, which is preloaded to achieve the zero clearance and the full load capacity in each direction. X-axis, Y-axis and Z-axis precision linear roller guideways

High Precision C3 Ball Screw

The back clearance free, low noise and steady temperature rising control high-precision screw rod is used and is parallel to the guide guideway through the precision measurement. The preloaded precision nut eliminates the back clearance.



LV-800L



1. Head Stock

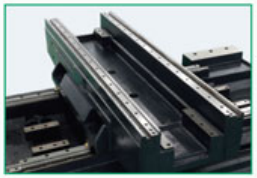
The direct-link spindle is matched with the head Stock with the rib strengthening design, featuring high sensitivity, no belt noise, low shock and no back clearance. The proportion of contact length between the spindle head and the column is proper, being golden proportion, providing steady support for the spindle, greatly improving the supporting area of the head Stock and having very good machining stability.

2. Chevron column

High-strength column structure design is adopted to bear heavy cutting and high-speed running without deformation. You will feel true powerful force. You will feel true powerful force. With the supporting of ultra-large and ultra-wide column, the internally reinforced layout and the grid intersecting arrangement of rib plates, the anti-torque ability is strong, so that the product is suitable for heavy cutting .

3. Table

The ultra-thick and ultra-large table is arranged on X-aixs flatwise, the weight is distributed uniformly on the table, and the rigidity and the bearing capacity are ultra-strong to ensure that the guide guideway of the machine tool is durable and holds precision for a long time.



4. Saddle

The double-T ultra-wide structure extends the contact span of the saddle, enhances the torsional strength, strengthens the dynamic stability and ensures speediness and stationarity.

5. Heavy cast iron base

With the ultra-wide supporting anchor, the supporting area is large; with the supporting of box structure, strong stability and good rigidity, the product is suitable for heavy cutting machining.

Direct-link Spindle

1. In combination with the oil temperature control system, the spindle can effectively produce constant temperature effect in the high-speed running to effectively control the thermal distortion of the spindle and ensure the high speed and high precision of the spindle.
2. The spindle air seal protection system effectively controls the vacuum collected dust generated due to high-speed running to ensure the spindle precision and extend the service life of the spindle.
3. The motor is connected with the high-rigidity zero clearance coupling of the spindle to reduce the loss of motor output power, so that the mechanical efficiency is high.

BT40-10000rpm

BT40-12000rpm

BT40-15000rpm

BT30-20000rpm

The precision spindle has the characteristics of light mass, low expansion factor, high hardness, etc., greatly reduces the temperature rise and the high speed centrifugal force, and greatly extends the spindle life.

★ Annular water discharge of spindle -- the annular water spray device distributed around the spindle ensures that the workpieces and the tools have the best cooling effects;

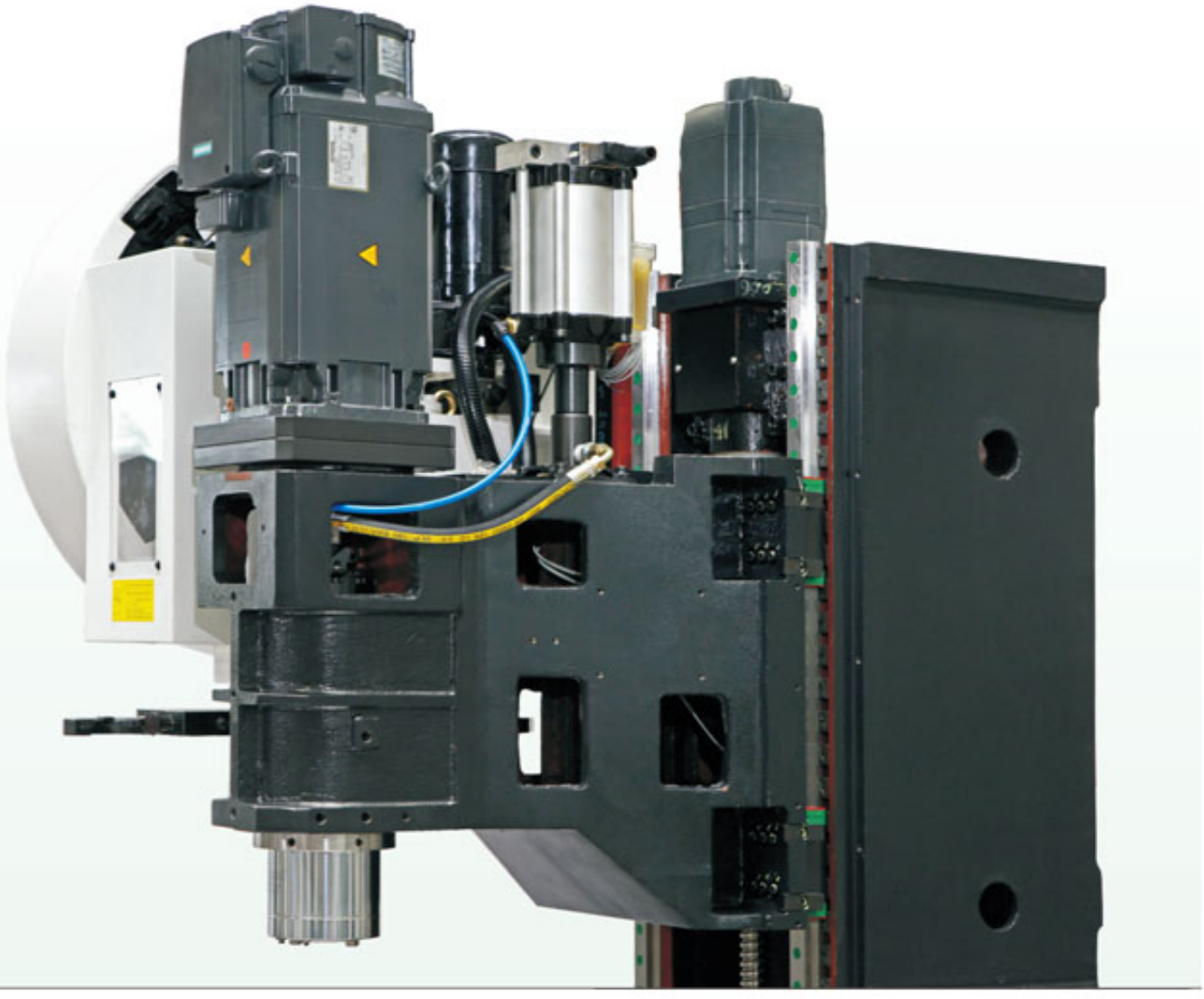
★ Dynamic balance correction -- correct the dynamic balance of the spindle, and ensure that there is no resonance phenomenon in the high-speed operation to ensure the machining precision;

★ The spindle air seal and the external oil cooler reduce the spindle temperature, and the floating tool grinding system ensures the spindle precision and extends the service life of the spindle.

Types of tool holders: BT, BBT, KM, ISO

For BT40 spindle, the internal diameter of the bearing is Φ 60 mm, and the external diameter of the bearing is Φ 95 mm.

For BT30 spindle, the internal diameter of the bearing is Φ 45 mm, and the external diameter of the bearing is Φ 75 mm.



CONTROL SYSTEM

SIEMENS 828D BASIC

- Number of simultaneously controlled shafts: 3
- 10.4" TFT color display
- 80-digit floating-point number nanometer computing accuracy
- Tool management function
- Integrated automatic servo optimization function
- Two-dimensional graphic machining simulation
- Look-ahead blocks 50
- 1MB CNC user memory
- Memory extended through USB device or by inserting the user's CF card from the front interface
- On-line ISO language compiler
- Acceleration control
- Machine tool option management (Easy Extend)
- Program GUIDE circulating programming support
- On-line help system
- SINUMERIK Operate graphic user interface with animation support, automatic position calculation and program segment searching of machining functions

Option functions

- Advanced extension process cycle
- Extended operation function
- Shop mill step programming
- Detection and removal of residual materials by contour machining
- SMS function (Easy Message)
- TRANSMIT/cylinder conversion
- Network drive management
- Tool replacement management
- Spline interpolation
- Contour handwheel
- 3D simulation machining
- Real-time machining simulation

SIEMENS 828D (optional)

- Number of simultaneously controlled shafts: 3
- 10.4" TFT color display
- 80-digit floating-point number nanometer computing accuracy
- Tool management function
- Integrated automatic servo optimization function
- Two-dimensional graphic machining simulation
- Look-ahead blocks 100
- 3MB CNC user memory
- Memory extended through USB device or by inserting the user's CF card from the front interface
- On-line ISO language compiler
- Acceleration control
- Machine tool option management (Easy Extend)
- Program GUIDE circulating programming support
- Advanced extension process cycle
- On-line help system
- SINUMERIK Operate graphic user interface with animation support, automatic position calculation and program segment searching of machining functions

Option functions

- Extended operation function
- Shop mill step programming
- Detection and removal of residual materials by contour machining
- SMS function (Easy Message)
- TRANSMIT/cylinder conversion
- Network drive management
- Tool replacement management
- Spline interpolation
- Contour handwheel
- 3D simulation machining
- Real-time machining simulation

Operation cabinet (operation panel)

- Humanized man-machine operating interface.
- The operation panel conforms to the safety specifications and is rotatable, being easy to operate and conforming to the best somatological visual height.
- The fault warning signal is display on the screen to facilitate troubleshooting.
- It adopts the 90-degree rotation design, being convenient to operate.
- With touch keys as well as graphic and text display, it is simple to operate.
- The important keys of the panel are additionally provided with the protective caps. Execute after conformation to avoid malfunction.
- The red lamp is turned on for warning to facilitate troubleshooting if the machine is abnormal.
- The movable handwheel is adopted to facilitate machine testing.

FANUC

- The number of simultaneously controlled shafts is 4.
- Maximum look-ahead blocks 400
- Program protection and background editing functions.
- BI and AI series motors can be connected.
- The alarm and the alarm history are displayed to facilitate maintenance and repair.
- The working hours and the number of parts are displayed to facilitate production control.
- The standard embedded Ethemet provides 512kb memory to realize the connection with the personal computer and transmit NC program and the machine related data.
- The standard front Cf slot can realize the system backup, the program storage and DNC machining.
- It supports the traditional RS232 transmission mode.
- It supports ISO/EIA programming language.
- It supports servo Guide mate function.
- It supports CF card on-line editing.
- Standard 8.4" color LED display unit.
- FSSB high-speed rigid tapping.
- PLC ladder diagram display, on-line editing and password setting.
- AICCI high-speed high-precision control mode.
- Large capacity look-ahead blocks 40
- Feedforward control and acceleration overshoot limit.
- HRV + high-speed high precision servo control.
- Graphic display function.
- Bell acceleration and deceleration before interpolation.
- Automatic data backup.

Option functions

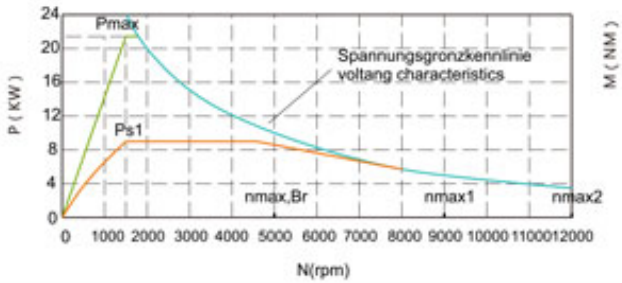
- The data server can extend the program storage space and realize the connection between the machine and the personal computer.
- AICC2 look-ahead blocks 200
- Look-ahead blocks 400
- Support preparation before machining (automatic centring).
- Rapid program restarting.
- Manual Guide function is realized.
- High-speed high-precision machining package:
    a. AICCII high-speed high-precision control function
    b. Smooth tolerance control
    c. JERK control
    d. Machining quality level adjustment function

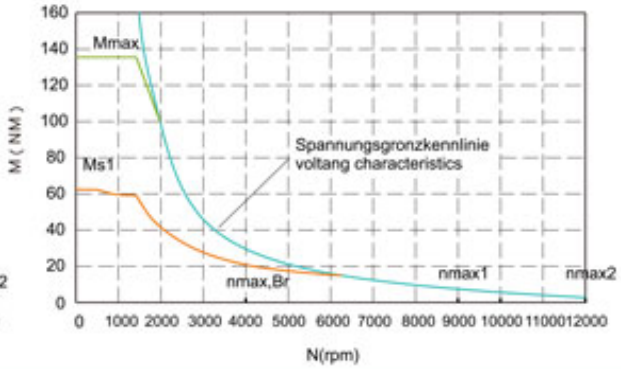
Operation cabinet (operation panel)

- Humanized man-machine operating interface.
- The operation panel conforms to the safety specifications and is rotatable, being easy to operate and conforming to the best somatological visual height.
- The fault warning signal is display on the screen to facilitate troubleshooting.
- It adopts the 90-degree rotation design, being convenient to operate.
- With touch keys as well as graphic and text display, it is simple to operate.
- The important keys of the panel are additionally provided with the protective caps. Execute after conformation to avoid malfunction.
- The red lamp is turned on for warning to facilitate troubleshooting if the machine is abnormal.
- The movable handwheel is adopted to facilitate machine testing.

Direct-link spindle motor power and torque diagram (BT40-12000/15000) (1PH8107)

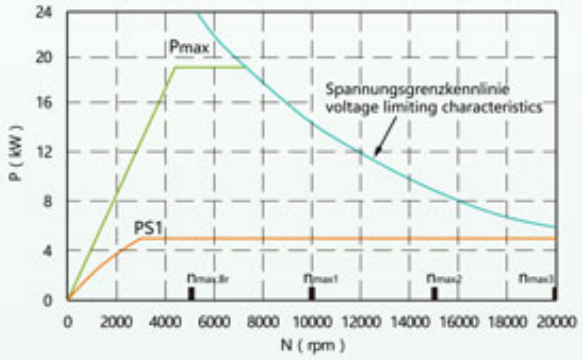
n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max.Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	9.0	57	23.5	9000	12000	—	5000	4500	135	54	63	25

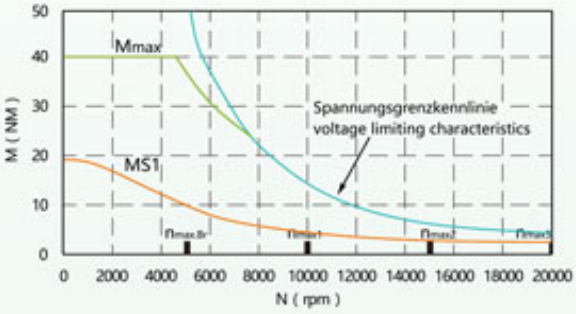




Direct-link spindle motor power and torque diagram (BT30-20000) (1PH8083)

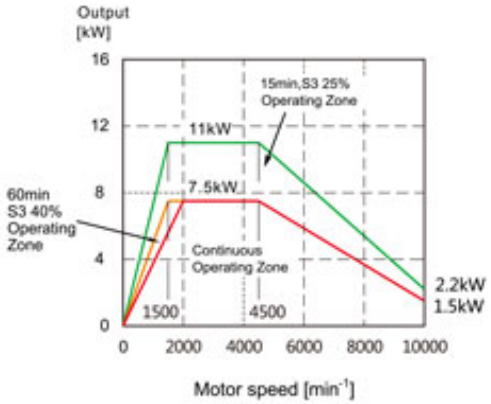
n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max.Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4500	4.8	10	17.0	10000	15000	20000	5000	20000	40	41	19	23

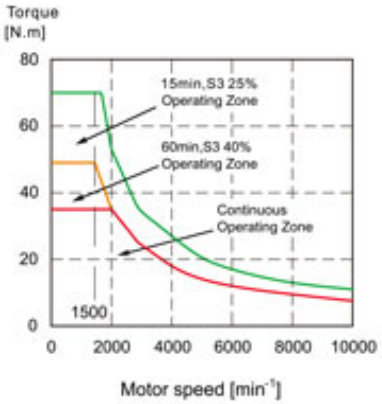




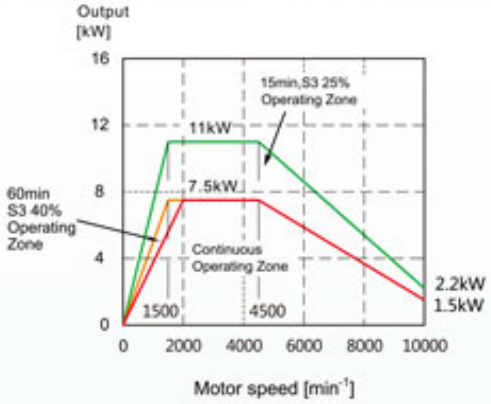
Precision
High
efficiency

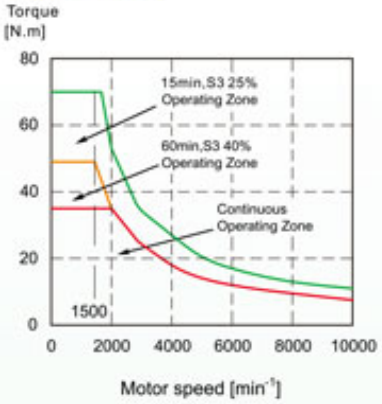
Direct-link spindle motor power and torque diagram (BT40-10000) (βil 8/10000)



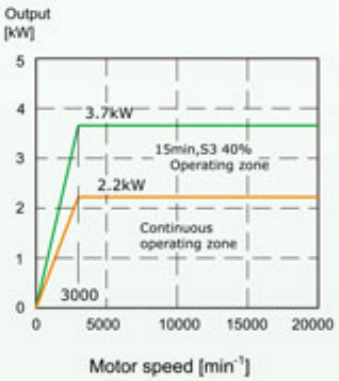


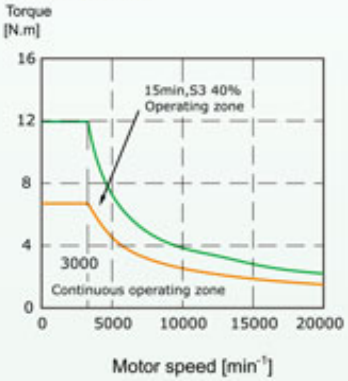
Direct-link spindle motor power and torque diagram (BT40-12000) (βil 8/12000)





Direct-link spindle motor power and torque diagram (BT30-20000) (αil 2/20000)

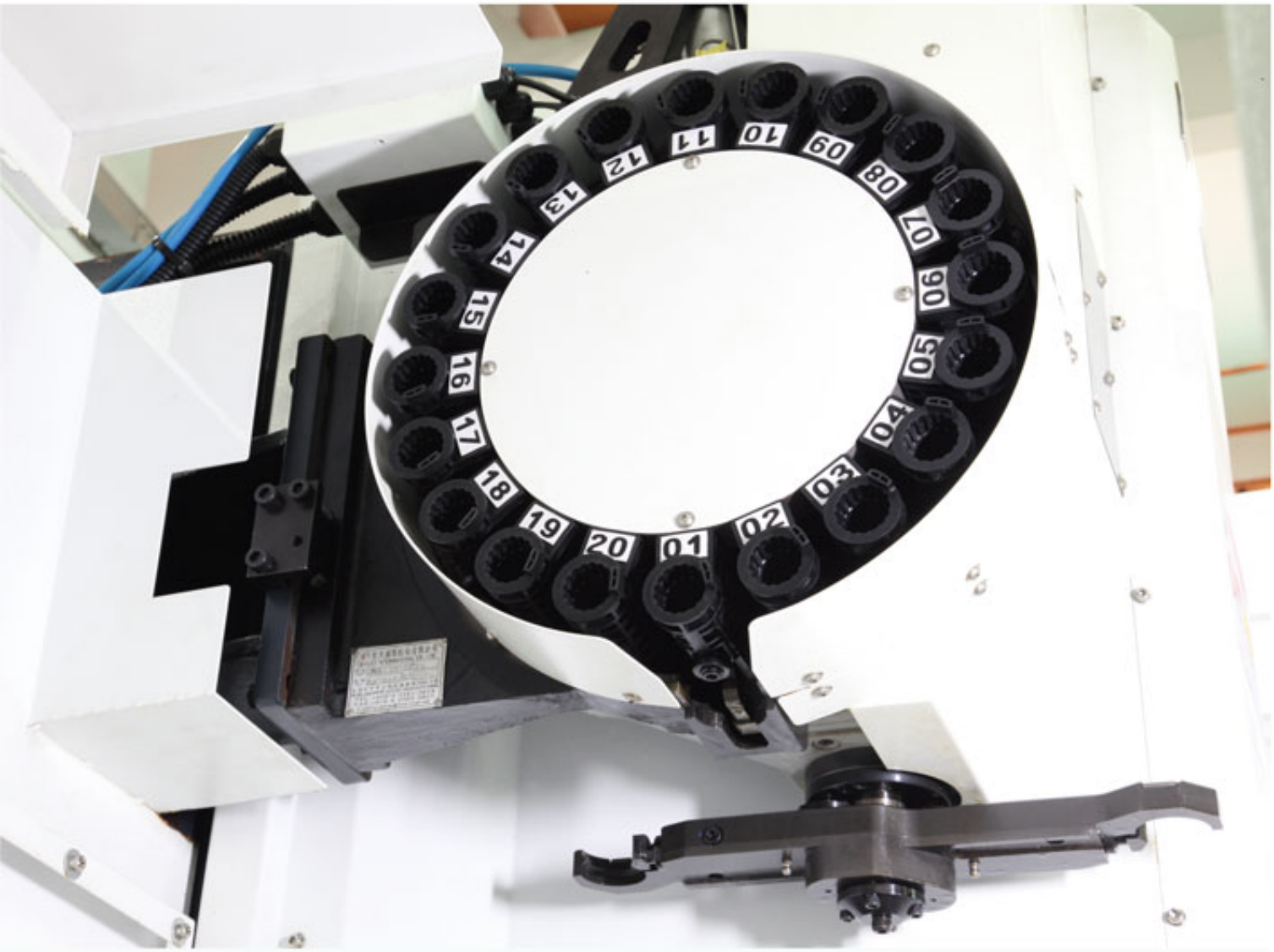




BT 40 / 24 tools

Tool changing time
Tool to tool (T1→T2): 2.4 sec (BT40)
1.8 sec (BT30)

- ★ The innovative ball cam mechanism is adopted, its partitioning precision is high, and the running speed is only second to that of the servo tool disc;
- ★ The separating tool holder is supported with the tool disc to keep the verticality and clearance of the tool holding bar for a long time, and the tool removal action is smooth;
- ★ The air compressor cylinder is located on the outside of the slide bar, and is convenient for the speed adjustment and repair of the cylinder;
- ★ The tool disc is tightly mated with the sheet metal, and the underside chip-proof ratio is higher than 90%;
- ★ The magazine is supported by the imported linear bearing to ensure smooth and steady sliding;
- ★ The magazine is made of light-weight composite materials and has the characteristics of high rigidity, light weight, strong tenacity, etc.



BT 30 / 20 tools

Item/specification		BT40	BT30
Max. Tool weight (kg)		8	4
Max. Tool length (mm)		350	300
Max.Tool Diameter (mm)	Full tool	Φ80	Φ80
	Adjacent tool	Φ150	Φ150

DETECTION DEVICE

1 Correction of Z-axis screw rod

2 Parallelism correction of linear guideway

3 Correction of Y-axis screw rod

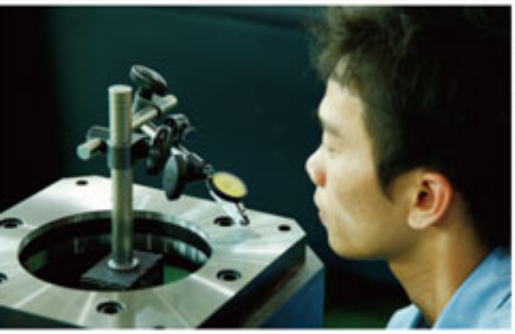
In order to ensure 100% pass of finished products, GAMMA provides the international first-class detection device to finish the comprehensive and systematic detection for each machine.

1. The parallelism and flatness of the Z-axis screw rod shall be corrected within 0.01 mm.
2. The parallelism and flatness of the linear guideway shall be corrected within 0.01 mm.
3. The parallelism and flatness of the Y-axis screw rod shall be corrected within 0.01 mm.

Laser testing

Strictly control each assembly detail.

Precision
High efficiency



4 Flatness correction of spindle plate

5 Harness detection of casting

6 Out of roundness testing of ballbar

4 The flatness of the spindle plate shall be corrected within 0.005 mm.

5 The hardness measurement of the casting shall be up to HB200+20.

6 The out of roundness of the ballbar shall be within 0.01 mm at 300mm.

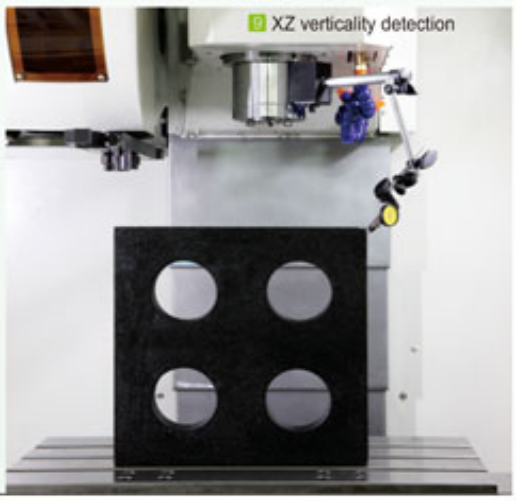
7 The flatness of the table shall be within 0.015 mm.

8 XY verticality shall be within 0.005 mm.

9 XZ verticality shall be within 0.01 mm.

7 Flatness detection of table

8 XY verticality detection



9 XZ verticality detection

Three-dimensional detection

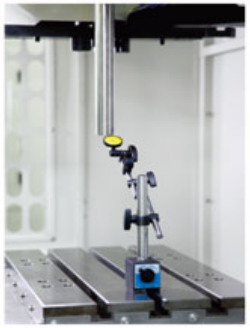
The main workpieces are three-dimensionally detected to ensure product precision.

1 Spindle pulling force test

2 Spindle shock test

3 Spindle temperature test

4 Spindle deflection test



1 The spindle pulling force test is used for testing the tool pulling force.

2 Spindle shock test: the shock displacement is less than 3 μm at each speed.

3 Spindle temperature test: whether the spindle temperature is abnormal after the spindle runs for 24 hours.

4 Spindle deflection test: the spindle deflection shall be within 0.005 mm at 300 mm.

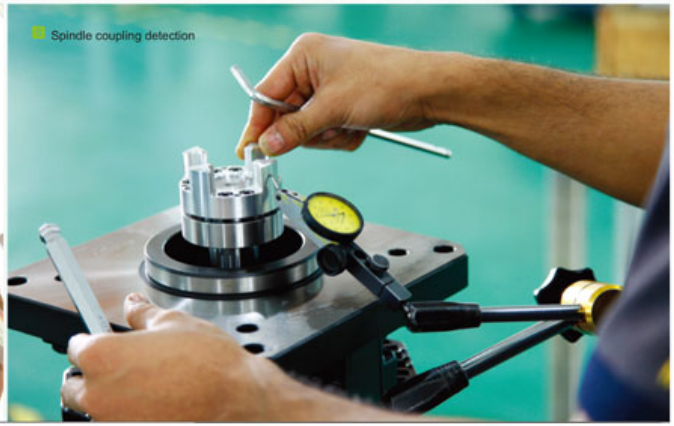
5 Magazine load test: test the maximum load of the magazine and whether there is no no abnormality within 24 hours after tool changing.

6 Spindle coupling test: the concentricity shall be within 0.005 mm.

PRODUCT TESTING WITH METICULOSITY

5 Magazine load test

6 Spindle coupling detection



STANDARD

High-pressure backward flushing

Two vertical motors are installed, one is used for backward flushing on two sides, and the other is used for the machine to directly cool the machined workpieces. The new backward flushing chip removal design is adopted to rapidly and thoroughly remove the chips attached to the inside of the machine. The high-pressure backward flushing chip removal system mainly carries away the machining heat generated in the chips to ensure the machining precision and the surface smoothness of the workpieces as well as the machine precision.

High-efficiency screw rod chip removal

The strip, block and particle chips cut from the metallic and non-metallic materials can be effectively removed, and the internal chips can be cleared in the machine.

Movable handwheel

The movable handwheel device is used, being convenient to operate and set.

Heat exchanger

The heat exchanger is used in the electrical box to ensure that the heat in the electrical box is extracted rapidly to maintain the temperature in the box and stabilize the operation of control system.

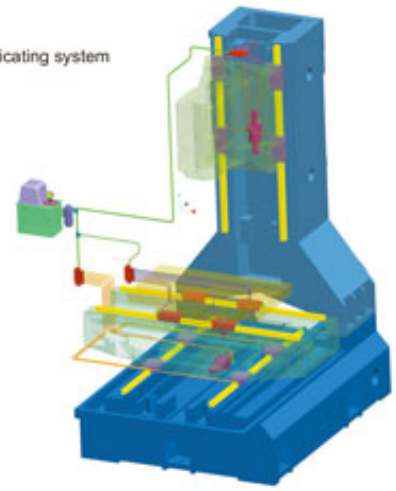
High-efficiency oil cooler

The high-efficiency oil cooler for the spindle effectively utilizes the recycling oil to take away the heat energy generated by the spindle running from the spindle through the refrigerating unit, so the spindle keeps operating at the normal temperature, thereby improving the machining precision, and ensuring the service life of the spindle.

Tricolour light

The tricolour light is arranged at the conspicuous position of the machine. When the machine is out of order, the tricolour light gives warning to the operator.

Automatic lubricating system



Automatic lubricating system

The positive displacement point-to-point lubrication is used to ensure that the lubricating oil is filled into each oil inlet and uniformly distributed on the machine.

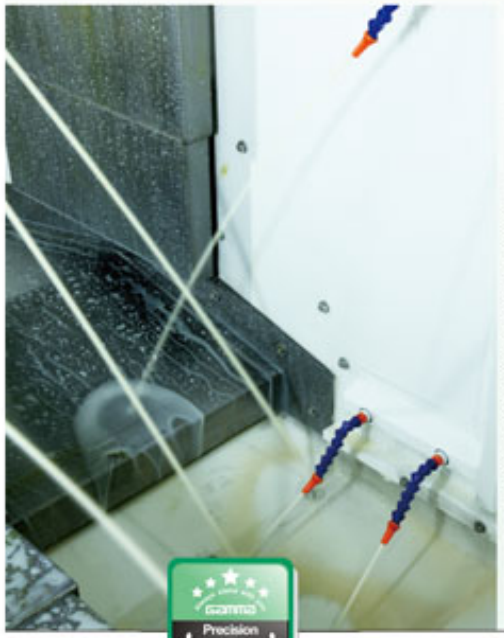
Warm and soft daylighting

One explosion-proof light is reasonably arranged on the two sides of the machine to fully ensure adequate lighting and protect the eyes from strong light.

Oil-water separator

The oil-water separator separates the oil from the mixture in the event of oil-water mixing, and ensures the quality of cutting fluid. The recovered oil can be reused to save the cost.

High-pressure backward flushing



High-efficiency screw rod chip removal

Movable handwheel

Precision High efficiency

Oil-water separator

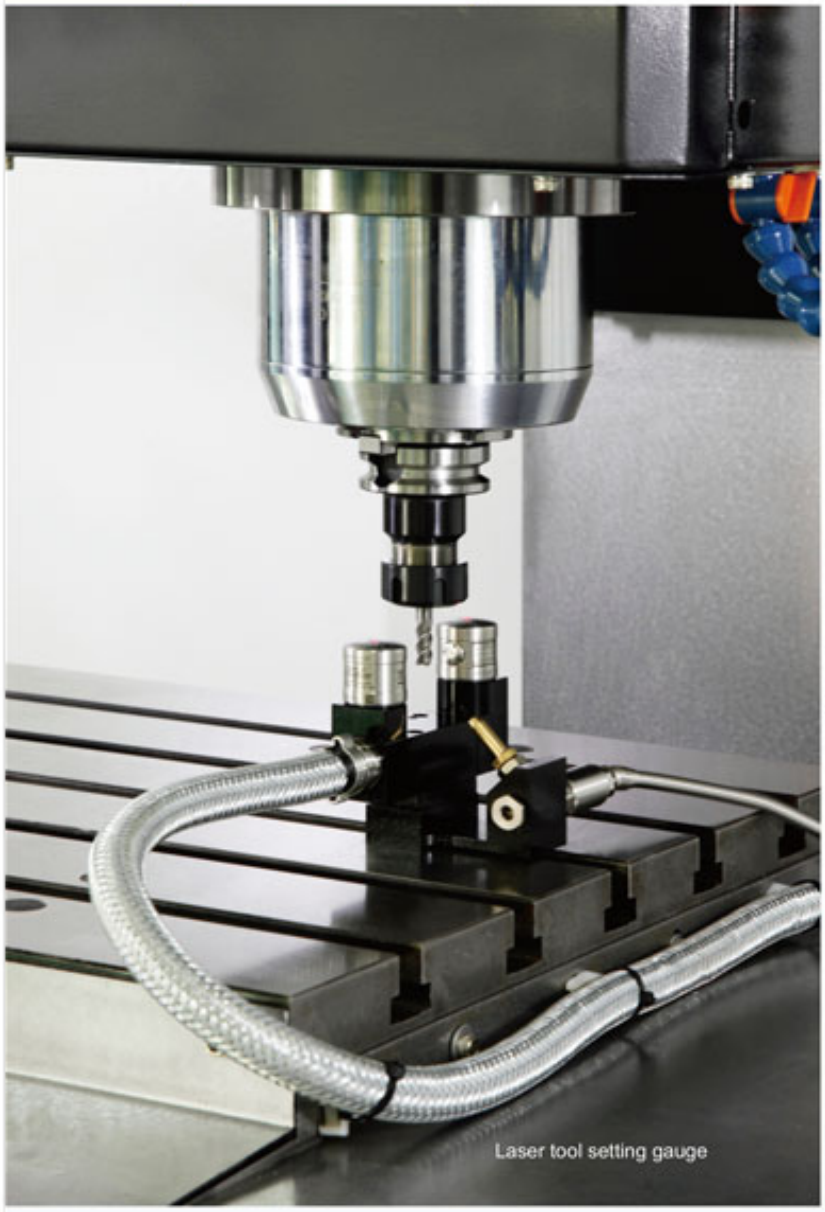
Heat exchanger

High-efficiency oil cooler

Tricolour light

Warm and soft daylighting

OPTIONAL



Laser tool setting gauge

Manual tool setting gauge

On-line measuring apparatus

Renishaw measuring contact

Laser tool setting gauge

The laser tool setting gauge can measure and detect the tool with the diameter as small as 0.003 mm at any point of the laser beam; the repeated accuracy can be ±0.1 μm in the specific environment; the level of protection is IP*8 in the rapid tool setting and breakage detection. (Continuous dive test)

Manual tool setting gauge

High precision The manual tool setting gauge has the repeated positioning precision of 1 μm, the direct driving contact mode and high parallelism, and can measure the small diameter tool.

High leakproofness The manual tool setting gauge has the level of protection of IP67, is waterproof, oilproof and cutting fluid resistant, has good leakproofness and keeps high precision for a long time.

Ultra-long life The tool setting operation can be performed for 3 million times, its tool setting surface is a replaceable contact surface, and the manual tool setting gauge can be ground, polished and titanized to extend the service life of the gauge.

On-line measuring apparatus

360-degree infrared transmission
Level of protection: IP*8
One-way repeated accuracy: 1.0 μm
In the machine detection process, 90% non-cutting time is saved, and the process control is improved, so that the non-benefit tool setting and workpiece aligning time is shortened. The workpiece scrapping caused by the aligning error is eliminated. The workpiece is accurately detected to reduce the offline detection non-cutting time after machining.

Precision
High efficiency

Energy-saving and environmentally friendly oil mist collector

Cutting fluid cooling system

Fourth axis

Air conditioner cooler for electrical cabinet

Energy-saving and environmentally friendly oil mist collector

It has high filter efficiency and statically filters; it is stable and reliable, and has high maintenance cost and low noise; it has high safety, no spark, no high voltage risk and vulnerable components; it can rapidly collect and capture the oil mist and dust and greatly improves the working quality of the machine.

Cutting fluid cooling system

It prevents the cutting fluid from being deteriorated, and effectively controls the cutting fluid to make up the requirement of the machine at the specified constant temperature to greatly improve the machining precision.

Air conditioner cooler for electrical cabinet

The installation of air conditioner cooler can keep the temperature in the electrical cabinet constant to effectively stabilize the operation of control system.

Optical ruler

Absolutely reciprocating detection optical ruler powerful in the high precision positioning. (it can be installed on X/Y/Z-axis)

Optical ruler

Automatic safety lock

The safety door interlocking device adopts the individualized design to protect the personal safety to the maximum extent and prevent the moving parts from causing injuries to the users.

Fourth axis

It uses the high-precision gear for positioning to ensure that the partitioning precision is ±5 seconds. It has a precision structure assembled coupler not to float when partitioning.

In combination with the fourth axis, it can machine multiple surfaces and reduce the non-machining time when the workpieces is loaded and unloaded.

Fourth axis			
Item/model	CNC-170R	CNC-250R	CNC-320R
Disc diameter (mm)	170	250	320
Vertical center height (mm)	135	160	185
Air pressure braking resistance (kg*m)	25	25	47
Oil pressure brakin(kg*m)g resistance	50	50	94
Maximum workpiece load (kg)	75	100	125

Automatic safety lock

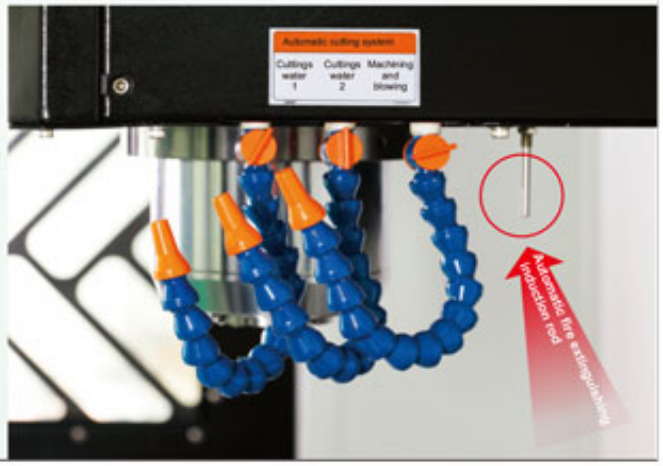
Automatic fire extinguishing device

It has three start modes: automatic start, manual start and mechanical forced start. For the special fire extinguishing requirement in the enclosed space of the machine, the new automatic fire extinguishing device realizes the automatic fire detection and the automatic fire extinguishing for the machine and has working stability, reliability and safety.

Automatic fire extinguisher nozzle

Carbon dioxide fire extinguisher

Automatic fire extinguishing induction rod



LV-600/800/1000L

BT40-10000/12000/15000rpm

Highlights:

- ★ Ultra-wide base: With the unibody casting, it has the characteristics of stability, high rigidity and firmness and provides the most stable heavy load supporting force, and the table is not overhung and has excellent rigidity and stability.
- ★ The black and white sheet metal integrated design shows the style and features; the integrity and leakproofness are good.
- ★ The speed of the precision spindle can be up to 12000 rpm, so the product has the characteristics of light mass, low expansion factor, high hardness, etc.
- ★ The unique oil-water separating mechanism makes the oil separated from the mixture in the event of oil-water mixing, and ensures the quality of cutting fluid. The recovered oil can be reused to save the cost.
- ★ The powerful backward flushing is combined with the screw rod chip removal to achieve the rapid chip removal.
- ★ The ultra-large and ultra-low door width design is adopted, and the double doors are used to facilitate the users to operate and hoist the workpieces.
- ★ It is suitable for massively manufacturing the high-efficiency electronic products, the high-precision aerospace and auto parts, the high-precision mechanical parts and the precision moulds.

Direct-link spindle

LV-600/800/1000L BT40-10000/12000/15000rpm

Spindle Speed	Spindle Motor	Spindle Type	Travel
10000rpm 12000rpm 15000rpm	11/7.5kW 11/7.5kW 7/15kW	Direct-link BT40	600*500*500 800*500*500 1000*600*500

Tool Magazine	Fast Feed Speed	Table Size	Table Load
BT40-24	48/48/48 48/48/48 36/36/36	750*500 1000*500 1160*600	400kg 400kg 500kg

Precision High efficiency

LV-600/800L

BT30-20000rpm

Highlights:

- ★ The speed of the direct-link spindle BT30 can be up to 20000 rpm, so the product has the characteristics of light mass, low expansion factor, high hardness, etc.
- ★ The spindle is a short nose type spindle with ultra-strong torsion and can be used for powerful machining.
- ★ The compact ultra-fast (BT30 -- 20 tools) magazine has the tool changing time of 1.8 sec.
- ★ It is suitable for massively manufacturing the high-efficiency electronic products, the high-precision aerospace and auto parts, the high-precision mechanical parts and the precision moulds.

Direct-link spindle

LV-600/800L BT30-20000rpm

Spindle Speed	Spindle Motor	Spindle Type	Travel
20000rpm	3.7/2.2kW	Direct-link BT30	600*500*500 800*500*500

Tool Magazine	Fast Feed Speed	Table Size	Table Load
BT30-20	48/48/48	750*500 1000*500	400kg

LVA-600L

BT40-12000rpm

Highlights:

- ★ Two tables alternatively work, greatly improving the production efficiency, which can be increased by 3 times.
- ★ The sheet metal integrated design shows the style and features and has no eye fatigue caused by the intense colors of other brands; the integrity and leakproofness are good.
- ★ The product covers a small floor area, being compact.
- ★ The machine adopts the backward chip removal design, so that the forward width of the complete machine is reduced, and the distance between the machine tools is greatly shortened.
- ★ It only spends 3.5 seconds for two rotary tables to finish alternation, so that the product is rapid, steady and reliable.
- ★ It is suitable for massively manufacturing the high-efficiency electronic products, the high-precision aerospace and auto parts, the high-precision mechanical parts and the precision moulds.

Direct-link spindle

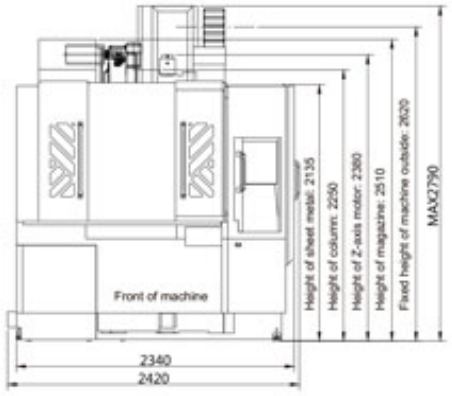
LVA-600L BT40-12000rpm

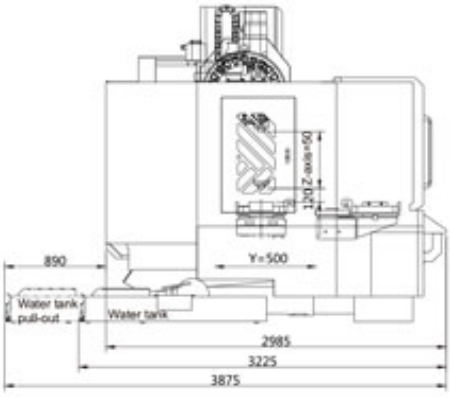
Spindle Speed	Spindle Motor	Spindle Type	Travel
12000rpm	11/7.5kW	Direct-link BT40	600*500*500

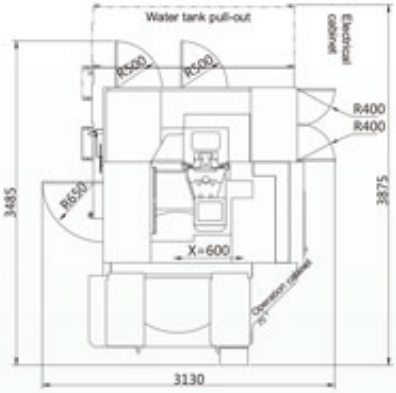
Tool Magazine	Fast Feed Speed	Table Size	Table Load
BT40-24	48/48/48	560*400	200kg single table

Precision High efficiency

LVA-600L Outline Drawing







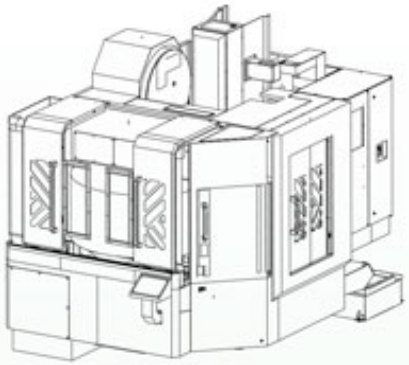
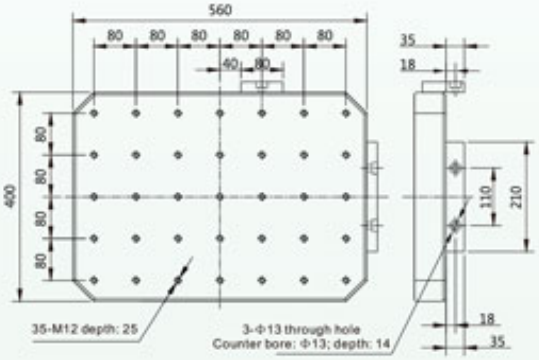
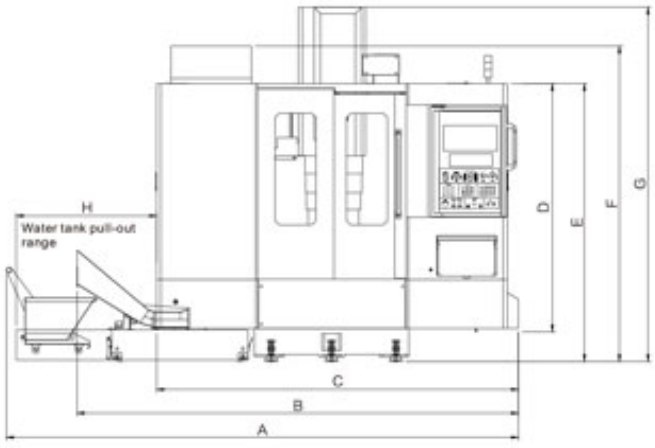
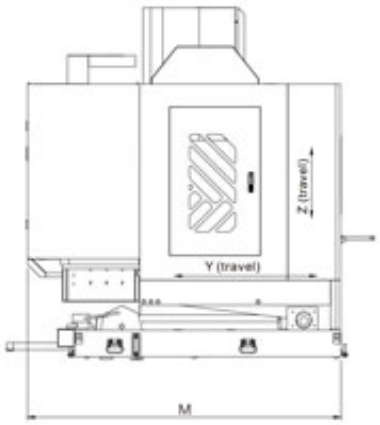


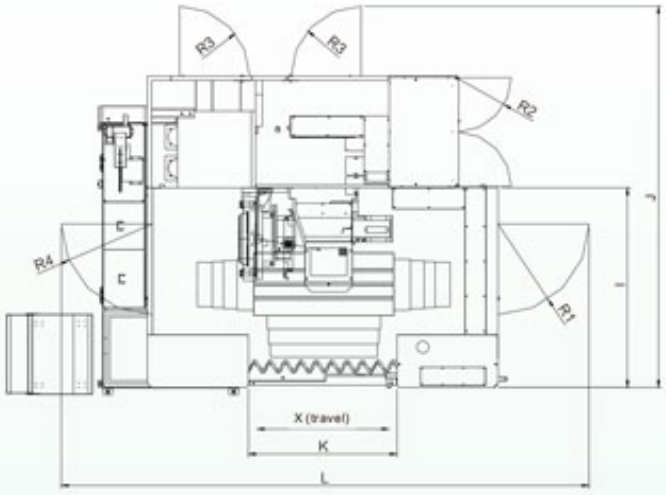
Table Dimension

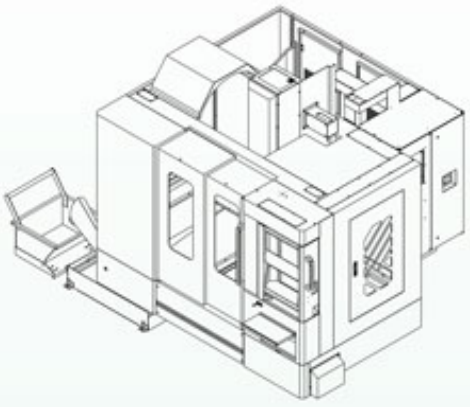


LV-600/800L Outline Drawing



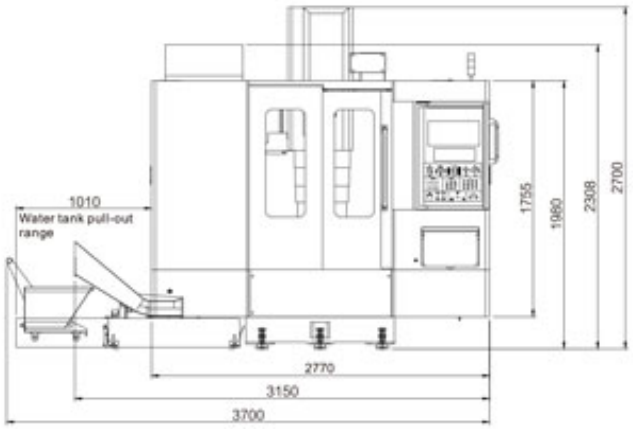


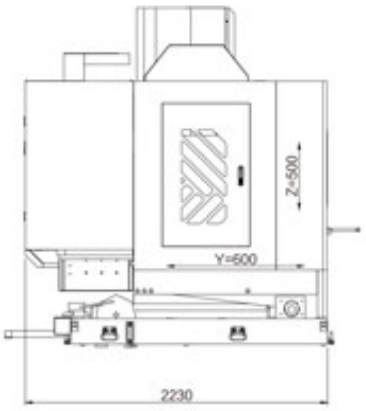


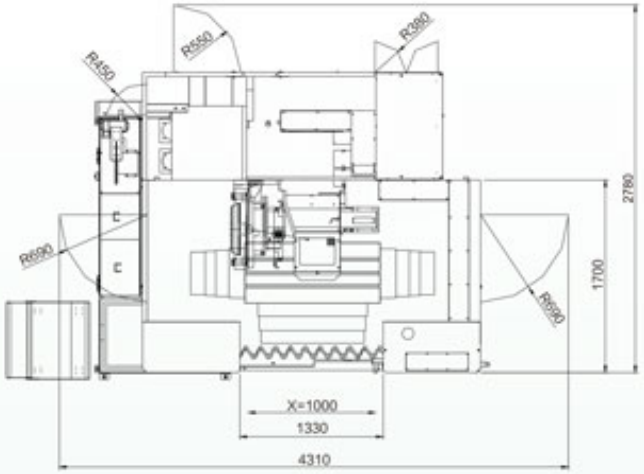


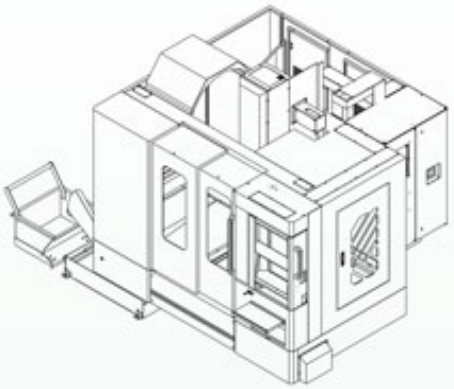
MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	R1	R2	R3	R4	X	Y	Z
LV-600L	3230	2677	2200	1755	1950	2275	2625	835	1535	2780	960	3380	2285	630	390	495	630	600	500	500
LV-800L	3550	2967	2510	1755	1950	2340	2625	1010	1535	2780	1060	3690	2285	630	390	495	630	800	500	500

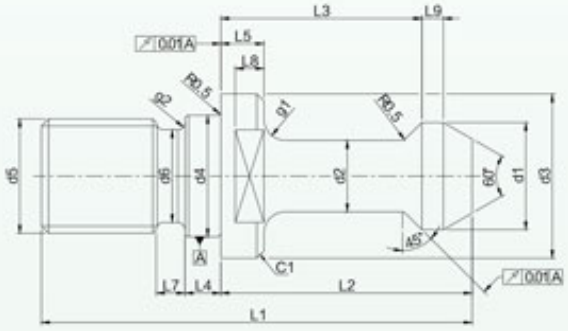
LV-1000L Outline Drawing











Note: rivet bolt

MODEL	L1	d4	d5	d6	e2	g2	L4	L7	d3	g1	L5	L6	S	d1	d2	L2	L3	L9
BT-30	43	12.5	M12	9.5	1.75	1	4	3	16.5	2	5	3.5	13	11	7	23	18	2.5
BT-40	60	17	M16	13	2	1	5	4	23	3	6	4	19	15	10	35	28	3

Product Model	LV-600L				LVA-600L	LV-800L				LV-1000L		
Travel (XYZ)	600*500*500				600*500*500	800*500*500				1000*600*500		
Table size (mm)	750*500				560*400*2 tables	1000*5000				1160*600		
Spindle nose to table (mm)	120-620			150-650	120-620	120-620			150-650	120-620		
Control system	FANUC		SIEMENS 828D	FANUC	SIEMENS 828D	FANUC	FANUC	SIEMENS 828D	FANUC	SIEMENS 828D	FANUC		SIEMENS 828D
Display	8.4" color display		10.4" color display	8.4" color display	10.4" color display	8.4" color display	8.4" color display	10.4" color display	8.4" color display	10.4" color display	8.4" color display		10.4" color display
Spindle motor	bil8 /12000 (7.5/11KW)	ail8 /15000 (9/15KW)	1PH8107 (9/15KW)	αil 2 /20000 (2.2/3.7KW)	1PH8083 (4.8/18KW)	bil 8/12000 (7.5/11KW)	bil 8/12000 (11/7.5KW)	ail8 /15000 (9/15KW)	1PH8107 (9/15KW)	αil 2 /20000 (2.2/3.7KW)	1PH8083 (4.8/18KW)	bil 8/12000 (11/7.5KW)	ail8 /15000 (9/15KW)	1PH8107 (9/15KW)
Axis servo motor	XY:bis 12/3000 (1.8KW) Z:bis 22/3000 B (3.0KW)		XY:1FK7063 (2.3KW,3000RPM) Z:1FK7083 (3.3KW,3000RPM, With band-type brake)	XY:αiF 8/3000 (1.6KW) Z:αiF 22/3000 B (4.0kw)	XY:1FK7063 (2.3KW,3000RPM) Z:1FK7083 (3.3KW,3000RPM, With band-type brake)	XY:bis 12/3000 (1.8KW) Z:bis 22/3000 B (3.0KW)	XY:bis 12/3000 (1.8KW) Z:bis 22/3000 B (3.0KW)		XY:1FK7063 (2.3KW,3000RPM) Z:1FK7083 (3.3KW,3000RPM, With band-type brake)	XY:αiF 8/3000 (1.6KW) Z:αiF 22/3000 B (4.0kw)	XY:1FK7063 (2.3KW , 3000RPM) Z:1FK7083 (3.3KW,,3000RPM, With band-type brake)	XY: bis 22/3000 (3.0KW) Z: bis 22/3000 B (3.0KW)		XY:1FK7084 (3.25KW,3000RPM Z:1FK7084 (3.25KW,3000RPM, With band-type brake)
Spindle	**BT40**			**BT30**	**BT40**	**BT40**			**BT30**		**BT40**		
Max speed (RPM)	12000	15000	12000/15000	20000	12000	12000	15000	12000/15000	20000		12000	15000	12000/15000
Drive system	Direct-link					Direct-link					Direct-link		
Spindle water discharge type	Annular water discharge					Annular water discharge					Annular water discharge		
Diameter of spindle bearing (mm)	Φ60/120			Φ45/110	Φ60/120	Φ60/120			Φ45/110		Φ60/120		
Spindle air seal	Protect spindle lubrication, extend spindle life					Protect spindle lubrication, extend spindle life					Protect spindle lubrication, extend spindle life		
Max weight on table (kg)	400					400					500		
Rapid (X/Y/Z) (M/min)	48/48/48					48/48/48					36/36/36		
Max cutting (mm/min)	1-15000					1-15000					1-10000		
Ball screw Φ/ pitch	Φ32 P16 , C3					Φ40 P16 , C3					Φ40 P12 C3 elite		
Ball screw support type	Precision bearing					Precision bearing					Precision bearing		
Slide way type	X-axis, Y-axis, Z-axis: linear roller guideway 35 precision					X-axis, Y-axis, Z-axis: linear roller guideway 35 precision					X-axis, Y-axis, Z-axis: linear roller guideway 35 precision		
Tool magazine	**Gifu/Sanjet**					**Gifu/Sanjet**					**Gifu/Sanjet**		
Specification	BT40			BT30	BT40	BT40			BT30		BT40		
Tool changing time (T-T) (sec)	2.4			1.8	2.4	2.4			1.8		2.4		
Tool changing type	Tool arm type					Tool arm type					Tool arm type		
Capacity	24 tools			20 tools	24 tools	24 tools			20 tools		24 tools		
Max. tool weight (kg)	8			4	8	8			4		8		
Max.tool Dia.(adjacent empty tool)	150mm					150mm					150mm		
Balance system	No balance weight / servo motor direct drive					No balance weight / servo motor direct drive					No balance weight / servo motor direct drive		
Spindle oil cooling system	Body homothermic type spindle oil cooler, sensing the temperature at any time and being automatically adjusted					Body homothermic type spindle oil cooler, sensing the temperature at any time and being automatically adjusted							
Auto lubrication system	Pressurized positive displacement automatic oiler, automatically distributing the lubricating oil on average					Pressurized positive displacement automatic oiler, automatically distributing the lubricating oil on average							
High pressure cooling system	High-pressure flushing chip removal					High-pressure flushing chip removal					High-pressure flushing chip removal		
Chip removal machine	Spiral chip removal					Spiral chip removal					Spiral chip removal		
Power required (Kva)	20					20					20		
Air required (Kg/cm²)	6					6					6		
Dimensions L×W×H (mm)	3230*2285*2625				2420*3225*2620	3550*2285*2625					3700*2230*2700		
Machine weight (Kg)	4500				5200	5100					5200		

Remarks:

*1. LVA-600L uses the alternative tables, and the table alternation time is 3.5 seconds. (The table drives AC servo motor in a rotary way).

*2. If the speed of LVA-600L(H) is 24000 rpm, the suggested tool diameter is within Φ10, and the suggested dynamic balance is within G2.0.

*3. The specifications will be changed for the continuous improvement of models without prior notice; our company reserves all the right for the final explanation.

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DMN series
High Speed Drill Tapping Machining Center

HV series
Heavy Cutting Vertical Machining Center

HE series
Horizontal Heavy Cutting Machining Center

GV series
Super High Speed Double Column Machining Center

LV series
High Speed Vertical Machining Center

BN series
High-performance Vertical Double Column Machining Center

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