

Expertise

Innovation

Performance



Built with Passion for Top Quality



No. 53, Dazun Rd., Shengang Dist.,
Taichung City 42948, Taiwan
TEL: +886-4-25628000 (REP)
FAX: +886-4-25633657
E-mail: sigma.cnc@msa.hinet.net
<http://www.sigmacnc.com.tw>



www.sigmacnc.com.tw



> Expertise, Innovation, Performance

Established in November 2000, SIGMA CNC Technology Machinery Co., Ltd. specializes in design and manufacture of CNC double column machining centers and CNC high precision double column grinding machines. Since its establishment, we have always thoroughly implemented the company's concepts of "Expertise, Innovation, Performance". In addition to presenting newly developed machines to meet the market trends and demands, we also constantly strengthen the company's structure to cope with the challenges of business operation.

Dedicated To Technical R&D Constantly Presenting New Products

At SIGMA CNC, we have a team of professional talent with expertise in various fields and 10 to 20 years of experience. Based on our excellent human resources in combination with the company's support in technical research and development, all developments of new machines can be accomplished in a scheduled period. Moreover, our R&D department also focuses on the developments of advanced machines to meet the precision machining requirement in the high-tech era.

Major Products

- CNC Double Column Machining Center
- CNC Double Column 5-Face Machining Center
- CNC Double Column 5-Axis Machining Center
- CNC Moving Column Horizontal Machining Center
- CNC Horizontal High Speed Machining Center (APC)
- CNC High Precision Double Column Grinding Machine



Tai Po Mei Factory, Chiayi County



S5A Series	P03-04	SCR Series	P11-12
SDV-H Series	P05-06	SSF Series	P13-14
SDV Series	P07-08	SMH Series	P15-16
SVH Series	P09-10	SLG Series	P17-18

CNC Double Column 5-Axis Machining Center

Equipped with European-made Spindle-head.
 Complex and Curved Surfaces Machining in One Setup

▶ **Applicable Industries:**
 Molds, turbine shafts, turbine blades,
 aerospace parts, automotive
 transmission shafts, etc.

S5A series

- Outstanding Features:**
- A high precision, high stability 5-axes machining center.
 - Designed for multi-axes plane and curved surface machining. Entire machining processes can be accomplished in one setup.
 - Three axes are mounted with heavy duty roller type linear motion guide-ways.
 - Spindle ram on z-axis moves on 4 linear guide-ways (patented design) for increasing the rigidity of Z-axis movement and the stability of rapid traverse.
 - Y-axis beam and the saddle of the spindle head employ 3 linear guide-ways (patented design), providing an increase in machining stability and accuracy.
 - Customized specifications and moving beam model are available.
 - Spindle speeds: Depends on customers' requirements.
 - Spindle taper: HSK-A100/A63

Rigid Beam (Y-axis) Construction (Patented)
 The specially design of Y-axis are mounted with 3 roller type linear motion guide-ways combined with horizontal and vertical deployment, that effectively resist cutting forces in two directions while ensuring minimum deformation.

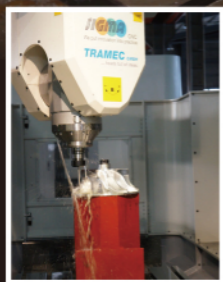


▲ S5A-2015H

* For detailed machine specifications and technical information, please contact our sales department.



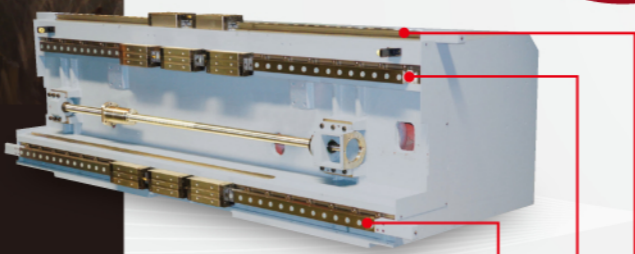
Germany TRAMEC gear type swiveling spindle head
 HSK-A63, 18,000 rpm



Example of propeller machining



Italy TECHNAI DD motor-drive swiveling spindle head
 HSK-A63, 24,000 rpm



Excellent Machining Performance! Your No. 1 Choice in Die & Mold Machining!

Designed and engineered specifically for high speed, high precision machining, the SIGMA SDV-H Series CNC double column machining center not only features the most stable machine structure, but also heavy duty linear motion guide-ways on all three axes. These allow the SDV-H Series to exhibit extraordinary performance in high efficiency machining.

Linear Guide-ways on X, Y, Z-axes Four Linear Guide-ways on Z-axis (Patented)

Rigidity 50% Up

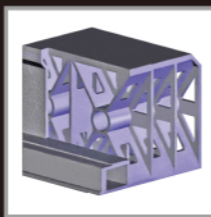
Y-axis is a structure of ladder type beam and equipped with RG65 patented roller type linear guide-ways with horizontal and vertical deployment. The outstanding design leads to a 50% increase of rigidity compared to conventional parallel deployment.

Spindle ram Moves on Four Linear Ways

The spindle ram (Z-axis) employs four SRG45 patented linear guide-ways ensuring better dampening capacity and fine finish on cutting surfaces.

Patented Designs (No. 280682/No. 282769/No. 459057)

- Exclusively designed with three linear guide-ways on Y-axis with horizontal (2) and vertical (1) deployment. This results in increased rigidity between the saddle of the spindle-ram's slide and the beam and improved machining stability (patented)
- Innovative four linear guide-ways for Z-axis structure and spindle ram (patented)



Deformation-free Beam

The beam structure is reinforced by special internal ribbing to achieve high rigidity of structure without deformation.

SDV-H series

CNC High Speed Double Column Machining Center

The SDV-H Series provides automatic head change function (optional for HLA Series) to dramatically upgrade machining automation as well as working efficiency. In addition, this may also eliminate troublesome and time-consuming head change manually. With the use of SIGMA-made milling heads, any complex machining can be completed with only one workpiece setup required.



45° milling head



Swing divided angle milling head



90° milling head



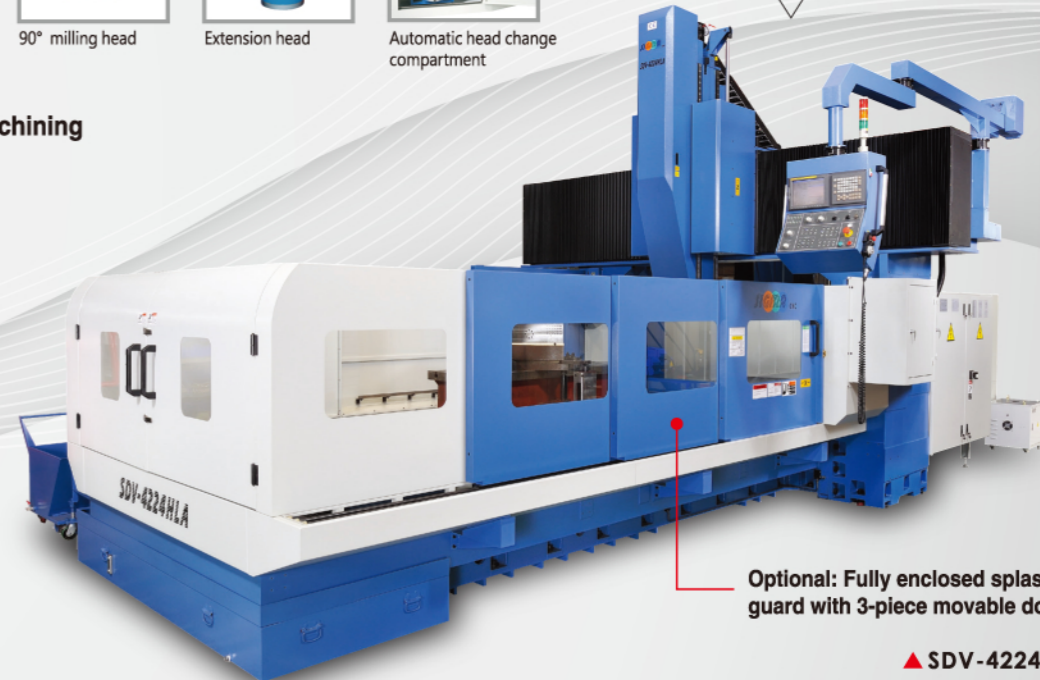
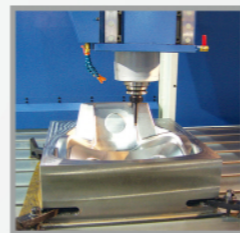
Extension head



Automatic head change compartment

X-axis travel: 1,600 ~ 6,200 mm
Y-axis travel: 1,100 ~ 3,900 mm
Z-axis travel: 760 (1,000/1,200/1,400 mm optional)
Spindle speeds: 4,000, 6,000, 8,000, 10,000 rpm
Optional built-in type high speed spindle: 18,000 ~ 28,000 rpm
Spindle taper: ISO no. 50, BT-50, CAT-50, HSK-A10/A63
Choice of magazine capacity: 24/32/40/60 tools

Example of Die & Mold Machining



Optional: Fully enclosed splash guard with 3-piece movable doors

▲ SDV-4224HLA

Linear Guide-ways on X, Y, Z-axes Two Linear Guide-ways on Z-axis

SDV series

State-of-the-art Structure Design Exhibit Ultra-high Machining Efficiency

The design concept behind the SIGMA SDV Series CNC double column machining center is to enhance material removal rate and optimal stability. The SDV Series will help customers to boost their machining efficiency and create a competitive edge.

Outstanding Structure Design

- For x-axis longer than 3 meters and door width reaches 2.5 meters, the table will be fully supported by three linear guide-ways. In addition, the x-axis ball-screw is equipped with a support device and transmitted through a backlash free gearbox that upgrades the dynamic stability of table, provides great torque output and fast response and increases the service life of the ball-screw and the linear guide-ways.
- The saddle of the spindle ram and beam are ladder construction and Y-axis linear guide-ways are deployed in horizontal and vertical directions that provide 50% increase of rigidity compared to conventional parallel deployment.
- Two linear guide-ways on Z-axis. The use of 85 mm patented extra wide linear guide-ways provide superior rigidity accuracy and stability when Z-axis is performing cutting.
 - Custom specifications with extra-large door width and travel are available.

X-axis travel: 1,600 ~ 6,200 mm
Y-axis travel: 1,100 ~ 3,900 mm
Z-axis travel: 760 mm (1,000 mm optional)
Spindle taper: BT-50, HSK-A100, CAT-50
Choice of magazine capacity: 24/32/40/60 tools

- 6000 rpm self-made gear type spindle, or 8,000 rpm belt type spindle driven by ZF gearbox with two-step.
- Spindle taper: ISO No. 50, BT-50, CAT-50, DIN96871
- Drum type tool magazine. Chain type tool magazine (optional)
- Fully enclosed splash guard with 3-piece movable doors (optional)
- Heavy duty roller type linear guide-ways on all three axes.



▲ SDV-3224

SVH series



Spindle performs side milling in horizontal direction



Spindle performs face milling in vertical direction

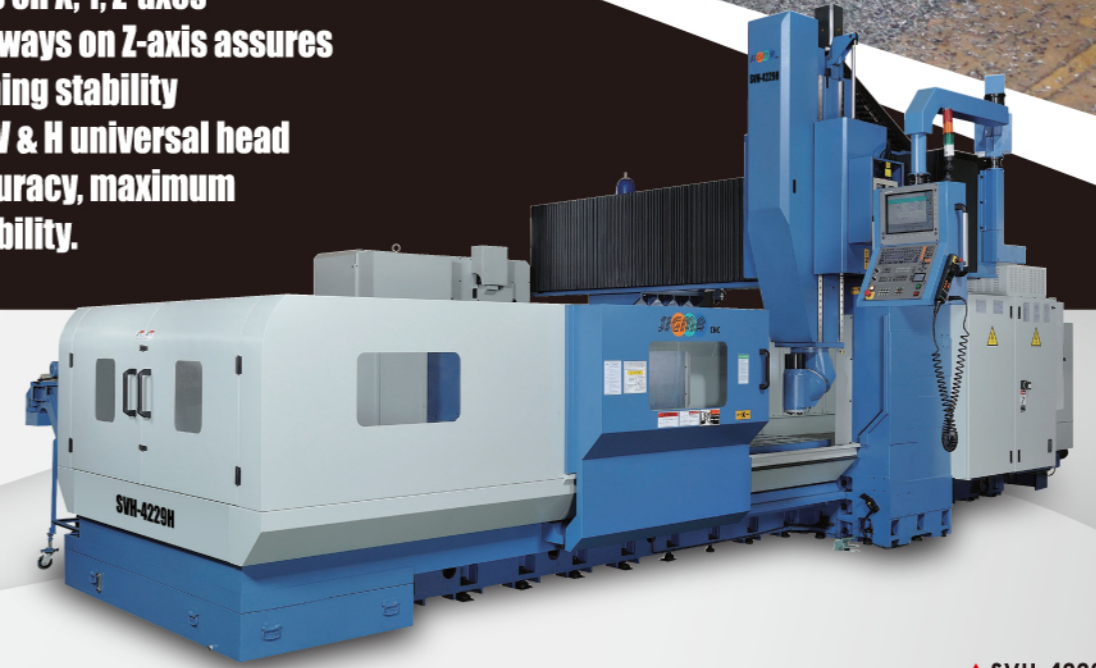


- Linear guide-ways on X, Y, Z-axes
- Four linear guide-ways on Z-axis assures ultra-high machining stability
- SIGMA self-made V & H universal head features high accuracy, maximum durability and stability.

CNC Double Column V & H Head 5-face Machining Center

Self-made V & H universal head permits multiple surfaces machining to be accomplished in one setup.

X-axis travel: 3,200/4,200/5,200/6,200 mm
 Y-axis travel: 2,900/3,400/3,900/4,400 mm
 Z-axis travel: 760 mm (1,000/1,200 mm optional)
 Spindle speeds: Max. 3,500 rpm
 Spindle taper: BT-50, ISO No. 50
 Horsepower & torque output: 26/22 KW, 800N-m
 B-axis: 5° auto indexing, swiveling angle ±180°
 C-axis: 5° auto indexing, swiveling angle ±180°
 Coolant through spindle: 20/30/60 bar (optional)





SCR series

Beam Elevation (W-Axis)

- Beam elevation is drive by an absolute type servo motor combined with a gear reducer for high accuracy positioning.
- Specially designed beam clamping mechanism can avoid automatic slipping down problem, while increasing stability during machining.
- The SCR Series provides various models to select, such as 5-face head model, auto head change model and V & H universal head model.
- Custom model is available.

* For detailed machine specifications and technical information, please contact our sales department.



- Roller type linear guide-ways on X, Y, Z-axes
- Z-axis: Two linear guide-ways for spindle ram, or four linear guide-ways for spindle ram (patented)
- W-axis: Rigid box ways construction to ensure beam moving with stability. Standard travel is 1,400 mm.



CNC Double Column 5-face Machining Center

Accomplish five face machining at one time.
A perfect performer for efficient machining.



High Precision Vertical & Horizontal Spindle 5-face Milling Head

With the SIGMA-made vertical horizontal combination 5-face head, you do not need to change horizontal side milling head saving considerable time in head change.

- The 5-face milling head is Auto. indexing on horizontal spindle is 4 positions (standard). 8, 12, 24, 72 positions (optional)
- X, Y, Z-axes are mounted with heavy duty roller type linear guide-ways.
- Four linear guide-ways for spindle ram on Z-axis (patented)
- The structural parts on S5F Series are all box type construction combined with comprehensive rib reinforcement to achieve outstanding rigidity. The series is designed specifically for heavy cutting for large casting parts or workpieces.

**S5F
series**

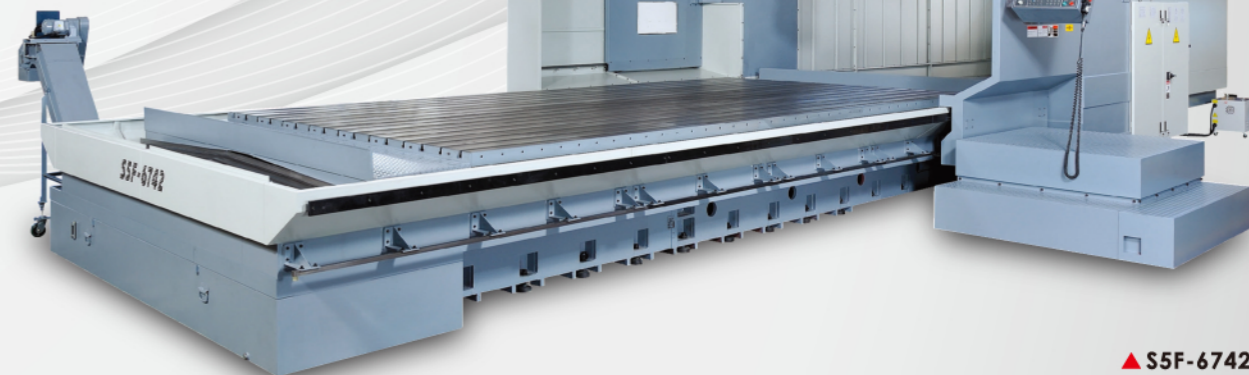


Integrated vertical horizontal
spindle 5-face head
(SIGMA made)



Tool changer mechanism
for horizontal spindle

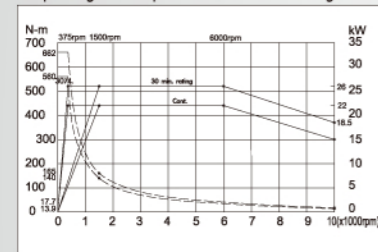
X-axis travel: 3,700 ~ 6,700 mm
Y-axis travel: 3,200 ~ 4,200 mm
Z-axis travel: 1,000 mm (1,200 mm optional)
Spindle speeds: Max. 3,000 rpm
Spindle taper: BT-50, ISO No. 50
Choice of magazine capacity: 40 tools (60/80/120 tools optional)



CNC Horizontal High Speed Machining Center

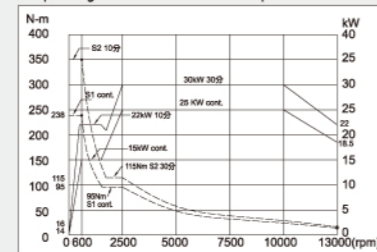
Built for Precision Parts Machining
Your Best Choice in Multi-tasking Operation

Torque diagram for spindle with direct-drive ZF gearbox



26/22 KW, BT 50, 10,000 rpm direct-drive spindle power and torque output diagram. Speed reduction ratio (1:4, 1:1) with ZF direct-drive 2k250 gearbox.

Torque diagram for α 160 LL built-in spindle

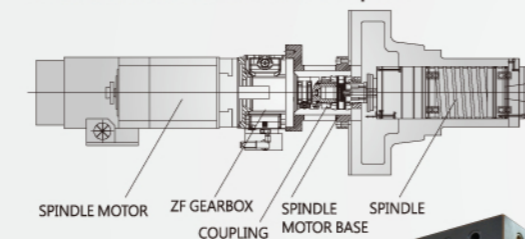


Fanuc α 160 LL/1300iB, BT-50, 10,000 rpm built-in type spindle power and torque output diagram.

Precise & Dependable Spindle Transmission Mechanism

SIGMA direct-drive spindle accommodates BT-50 tool, and provides 26/22 KW power output and 560Nm torque output. The spindle is transmitted through a ZF two-step gearbox, providing great torque output and high speed cutting capability without chattering problem. Also, available to select other types of direct-drive spindle or built-in type high speed spindle. Spindle taper: BT-50, HSK-A100, ISO No. 50

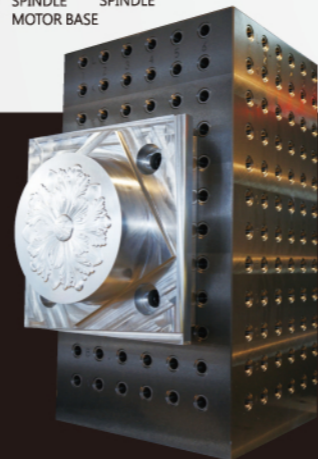
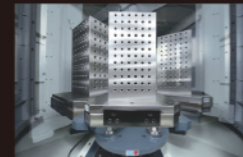
Transmission mechanism of direct-drive spindle



Automatic Pallet Change

Specially designed automatic pallet change requires only about 21 seconds of change time.

Pallet sizes 630 x 630 mm. Max. loading 1,000 kgs.
Pallet sizes 800 x 800 mm. Max. loading 1,500 kgs.



SIGMA CNC SMH SERIES A Combination of Speed, Accuracy and Stability

Designed by advanced concepts and built meticulously, the SMH series horizontal machining center from SIGMA not only features rigid construction. In particular, it exhibits extraordinary performance in high speed and precision machining. It's a winning edge in today's precision machining.

Optimal Structure Design Maximum Stability! Minimum Deformation!

- "T" shaped one-piece casting machine base resists heavy load and features high rigidity without deformation.
- Specially designed "Box In Box" machine structure.
- Roller type linear guide-ways on X, Y, Z-axes.
- X-axis design is transmitted through twin ball screws and is fully supported by backup type. Three linear guide-ways on X-axis (two linear guide-ways and one auxiliary linear guide-way) provide an increase of resisting force, in Z-direction and rigidity resulting in higher machining accuracy.
- Three axes equipped with linear scales ensure high positioning accuracy.



► Applicable Industries:

- Molds
- Precision machine parts
- Aerospace parts
- Auxiliary medical instruments (artificial joints)

SMH-630H/800H

X-axis travel: 1,025/1,350 mm
Y-axis travel: 850/1050 mm
Z-axis travel: 1,100 mm
Spindle speeds: 1,000 rpm
Rapid traverse rate on 3 axes: 36,000 mm/min.
Spindle taper: ISO No. 50, BT-50, HSK-A100



SLG
series

CNC High Precision Double Column Grinding Machine A Customized Grinder for Linear Motion Guide-ways / Blocks

A Special Purpose Grinder for Block and Small Linear Motion Guide-ways

- Choice of single or twin grinding head.
- 36,000 rpm or 50,000 rpm high speed frequency inverted grinding spindle.
- Other grinding spindle speeds and various brands of spindle are available.
- All machine specifications are customized.

X-axis travel: 1,150/1,650/2,500 mm
Y-axis (V-axis) travel: 210 mm
Z-axis (W-axis) travel: 380 mm



▲ SLG-1150

A Special Purpose Grinder for Large Linear Motion Guide-ways

- Choice of twin or three grinding heads.
- 3,600 rpm or 5,000 rpm frequency inverted grinding spindle.
- Other grinding spindle speeds and various brands of spindle are available.
- All machine specifications are customized.

X-axis travel: 2,500/5,100 mm
Y-axis (V-axis) travel: 200 mm
Z-axis (W-axis) travel: 270 mm



▲ SLG-5100