

MiCROCUT



V-20/5

5-Axis & 5-Face High Speed Machining Center



National Award
of Outstanding



ISO 9001:2015
FM 538421



ISO 14001:2015
EMS 546518



ISO 50001:2011
ENMS 642457

Designed specially for complex multi-sided parts

V-20/5 high speed machining center manages to machine difficult angles in a single setup which not only increases efficiency but also maintains parts conformity.

The high-tech V-20/5 features both sides opening doors for easier operation. This newly-developed trunnion VMC model offers either torque motors for both A and C axes or torque motor for C-axis and worm gear driven unit for A-axis. The machine turns perfectly by means of the combination movements of the A-axis and C-axis and performs full 5-axis milling simultaneously.

The superior design gives optimal vertical traverse with shorter tool length, creating the best tool life and surface finish with high accuracy performance.



Machine Highlights

- 5-axis simultaneous Milling/Facing/Drilling/Tapping or 5 faces machining
- High reliability and high loading capacity built-in tilted trunnion rotary table
- Wide selection of spindles: In-line spindle 12000rpm/15000rpm ;
- Motorized spindle 18000rpm/24000rpm
- Roller type linear guideways ensure the rigidity and reliability
- High precision encoders on A-axis and C-axis provide high tolerance
- Auto lubrication timing control prolongs machine lifetime
- Fully enclosed guarding provides a safe working station.

Machine Features



Side-mounted 24 or 32 tool ATC
for quick tool change.
24 tool ATC comes as standard.

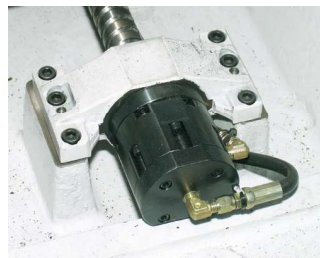
Various spindle speed selection
12000rpm or 15000rpm in-line spindle
speed or 18000rpm or 24000rpm
motorized spindle speed



**Trunnion table instead of
plane table**
320 mm diameter Trunnion table offers rapid
traverse speed of 25 rpm in A-axis and C-axis,
with max loading of 100 kg

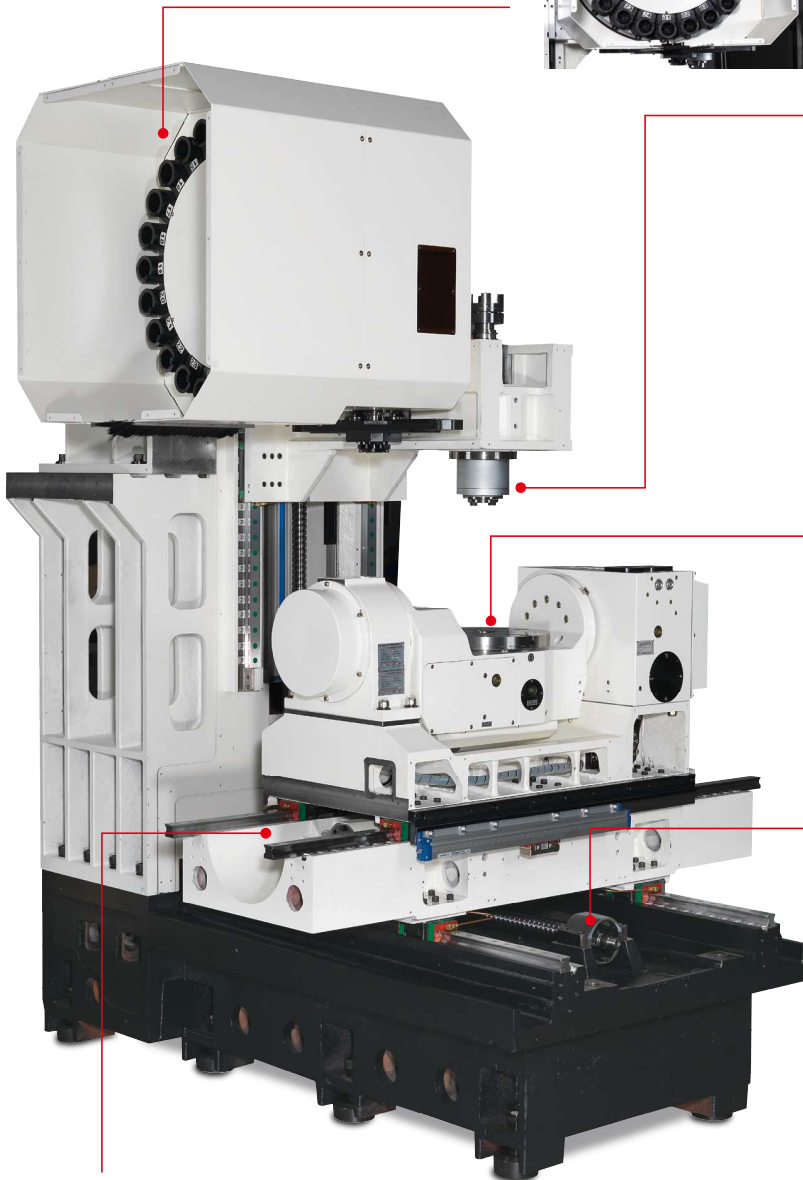
**High precision hollow-cooled
ballscrews**

Precision C3 class precision ballscrew with
preloaded double-nut device which allows
high tolerance and low backlash capability.
Hollow shaft ballscrew with internal cooling
system enables the machine to run at stable
environment temperature



Roller type linear guideways

Roller type linear guideways provide high rigidity and accuracy,
the device provides a rapid traverse up to 48m/min
and fast acceleration/deceleration speed



Excellent Operability & Productivity



Bringing into the automatic solution and create a smarter and high-efficient production line!

MICROCUT Loader is an automatic loading system suitable for considerable number of workpieces, featuring the maximum of 60 stations and up to 25kg weight capacity.

Loader-60 (optional)



Tool setter

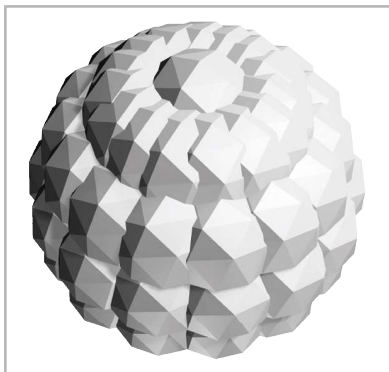


Workpiece touch probe



Applications

The continued research ensures machines to satisfy all requirements in various industries, including Die & Mold industry, Aerospace industry, Mechanical engineering, Medical engineering, Motor sport, and Subcontract industries.



Ergonomic Design

Easy access to work area, tool management and maintenance!

- **Large windows design**

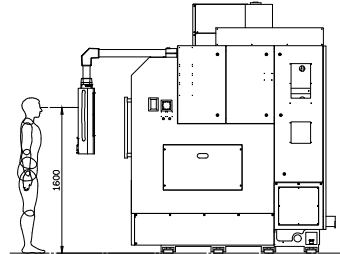
Large windows allow cutting condition checking during the distribution of elements with safety condition approved.

- **Ergonomic swiveling CNC panel design**

The eye-level monitor provides an optimum approach and minimizes physical fatigue. The double-joint mobile panel creates intelligent workplace.

- **Fully-enclosed guarding**

Splash-guard keeps the working area clean by preventing chips from splashing out, and ensures safety work environment



Features



- **Roller type linear guideways on 3 axes**

With rapid traverse speed up to 48 m/min and acceleration up to 6 m.s⁻². The sturdy cross-slide design is an additional guarantee for the highest manufacturing precision.



- **C3 double-nuts high precision ballscrews**

All the ballscrew nuts are preloaded to prevent tension deformation. Ball screws are pre-tensioned for thermal compensation.



- **Trunnion VMC**

Superior combination of swivel rotary table with rapid traverse speed of 25 rpm for the A-axis and C-axis.

Spindles

A wide range of high speed spindles with unbeatable precision and dynamic machining are provided for selection!

The motorized 18000 & 24000 rpm spindle is a high power built-in electronic motor spindle. Spindle housing diameter 170 mm with front bearing diameter 70 mm is lubricated. The cutting tools are securely drawn into the spindle by the preloaded spring package of the integrated power drawbar.

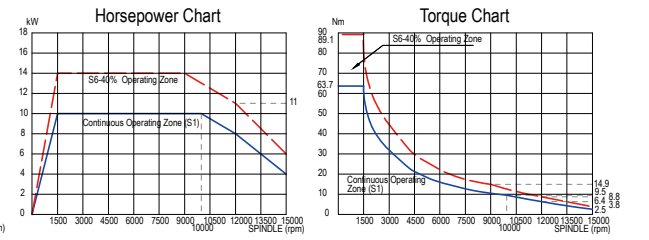
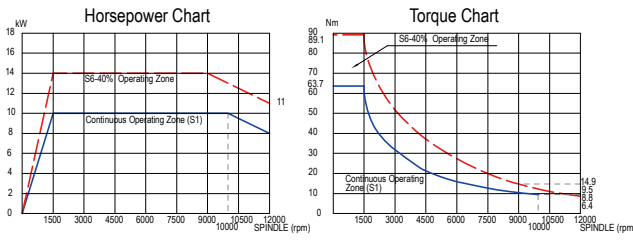
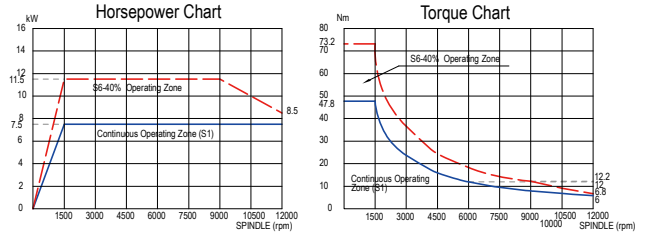
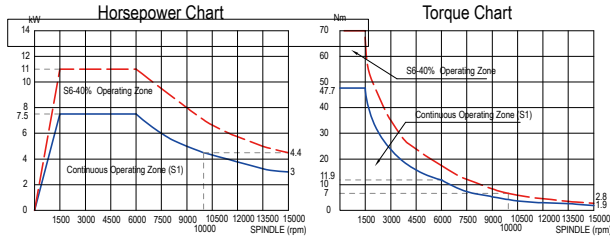
The 18000 & 24000 rpm high speed spindle is widely used for the steel mold industry.

High pressure 20 bar through-spindle coolant device is provided as standard, which ensures longer tool life, allowing higher efficiency of drilling and milling, and great benefit in removing chips during deep-hole drilling and blind pocket milling.

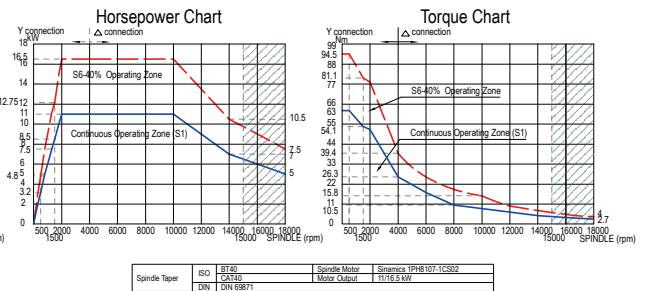
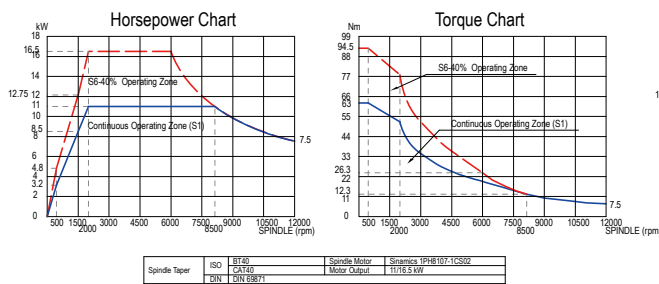
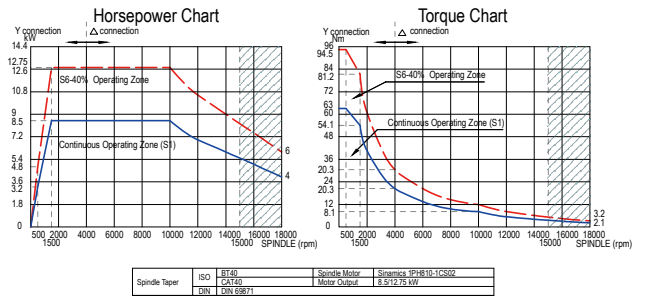
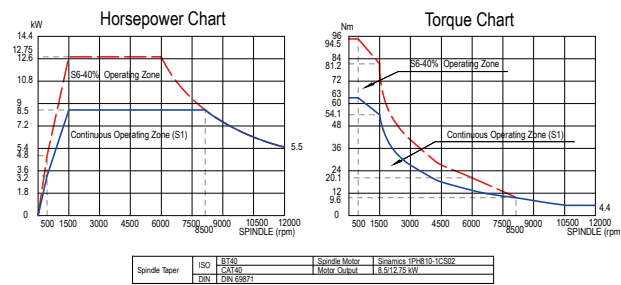


Spindle Power & Torque Charts

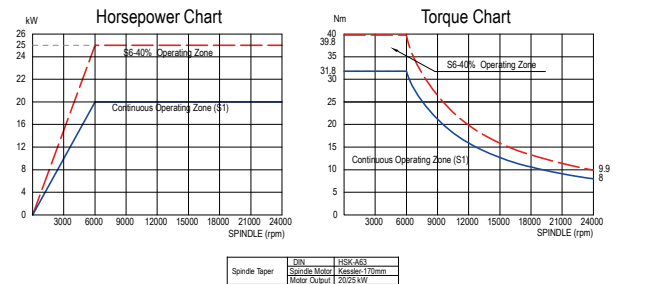
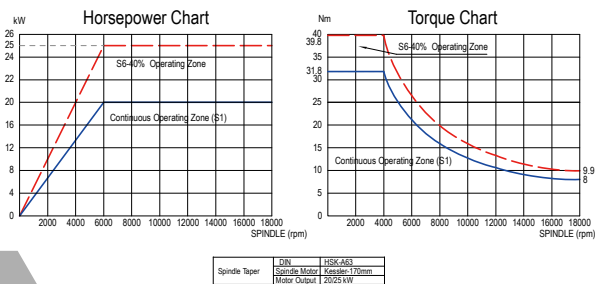
In-line Spindle 12000rpm (Std.)



In-line Spindle 15000rpm (Opt.)



Built-in Spindle 18000/24000rpm (Opt.)



Main specification

Description	Unit	V-20/5	
High dynamic table			
Rotary table top diameter	mm	320	
Tilting axis A	degree	+120 / -30	
Rotary axis C	degree	360	
T-slots (number x width x pitch)	mm	12H7	
Max. weight on table	kg	100	
Linear travels			
X axis	mm	400	
Y axis	mm	560	
Z axis	mm	400	
Spindle			
Spindle taper		ISO40	
Spindle speed	rpm	12000 (std.) / 15000 (opt.)	
Spindle motor output	kW	7.5/13(Fagor) ; 11/16.5(Siemens) ; 7.5/11.5(Heidenhain)	
Distance from spindle nose to rotary table clamping surface	mm	100-500	
Transmission			
X axis Ballscrew		Ø40 x P16 x C3	
X axis Transmission		Direct	
Y axis Ballscrew		Ø40 x P16 x C3	
Y axis Transmission		Direct	
Z axis Ballscrew		Ø40 x P16x C3	
Z axis Transmission		Direct	
Guideway			
X-axis linear guideway type		35mm(roller)	
X guideway distance	mm	360	
Y-axis linear guideway type		35mm(roller)	
Y-axis guideway distance	mm	700	
Z-axis linear guideway type		35mm(roller)	
Z guideway distance	mm	400	
ATC system			
ATC type		Arm	
Magazine capacity		24 (std.)	32 (opt.)
Tool shank		BT/CAT/DIN 40	
Max. tool length	mm	300	
Max. tool diameter	mm	ø80	ø75
Max. tool diameter - adjacent stations empty	mm	ø125	
Max. tool weight	kg	8	7
Max. loading weight	kg	192	224
Feed rate			
Rapid traverse X/Y/Z	m/min	48	
Max. speed - A/C axis	rpm	25	
Accuracy(X/Y/Z axes)- VDI/DGQ 3441 standard			
Positioning accuracy	mm	0.01/300	
Repeatability	mm	+/- 0.01	
Pneumatic system			
Air operating pressure	bar	6	
Tool cooling system			
Max. tank capacity	L	370	
Machine data			
Length	mm	2260	
Length(with chip conveyor)	mm	3110	
Width	mm	3215	
Height	mm	3000	
Weight	kg	5000	
Floor space	mm	2260 x 3215	

*Specifications are subject to change without notice.

Standard accessories

- CTS spindle
- ISO40 direct spindle (12000rpm)
- Side mounted arm type ATC 24 tools
- Chip auger
- Rear chip flash system
- Chip conveyor
- Spindle oil cooler for in-line spindle
- Coolant through spindle with high pressure pump 20 bar (built-in type)
- Oil cooler for 3 axes
- Heat exchanger

Optional accessories

- ISO40 direct spindle(15000rpm)
- Built-in spindle(18000/24000rpm)
- Linear scales for 3 axes
- Coolant through spindle with high pressure pump (20/70 bar) (built-in type)
- ATC 32 tools
- Oil skimmer device
- Air conditioner
- Workpiece setting probe
- Tool setting probe

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