

COMPREHENSIVE CATALOG

SHAWAHED

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02

CNC Lathe

CNC Lathe

شركة شواهد المتقدمة الصناعية
Shawahed Advanced Industrial Co.

OUR SERVICE

FULL SERVICE

pre-sale

Process Optimization
Equipment selection

sale

Tool design
Fixture Design
Turnkey projects
Intelligent Data Acquisition

after sales

Personnel training
Software application
Technical Support

INGENIOUS MANUFACTURING UNIQUE PATENT

1. Integrated gantry structure positive Y-axis power cutting head
2. Inclined bed, stepped, flat rail structure (base)
3. Integrated mechanical arm (truss)
4. Internal waste separation structure of the base (bed)
5. CNC turning and milling composite machine
6. Appearance of CNC lathe

FANUC CNC

Easier to use & more powerful

- Comprehensive design upgrade
- Match with personalized functions
- Equipped with iHMI
- Expand memory capacity
- Equipped with FANUC's latest CNC & servo technology



Ease of Use

Prevent sudden shutdown of machine tools through preventive maintenance

- Abundant fault prediction functions

Easily lock the fault location and shorten the recovery time

- Diagnosis/maintenance functions

High processing performance



Shorten cycle time

- Efficient processing technology

Achieve high-grade processing

- Fine surface treatment technology

High operating rate



Always support various operations on the processing site

- FANUC INMI

Personalized scenes are easier to use

- Standard personalization function

Initiatives in the Internet of Things

- Support rich on-site network

Shawahed Advanced Industrial CO.

SPECIAL TURRET DESIGN FEATURES

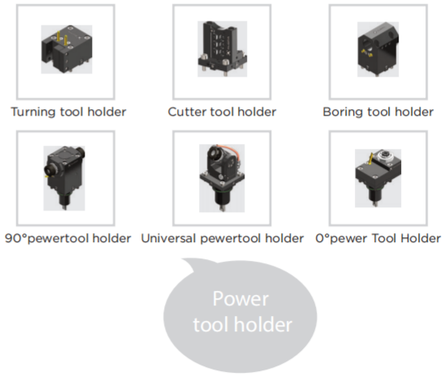
The one-piece positive Y-axis structure belongs to high rigidity, heavy cutting, and its performance is better than interpolation Y-axis

- Single Y-axis movement for heavy cutting is better than interpolation Y-axis, which is perpendicular to the X-axis
- Flat contour processing is smoother and flatter
- More convenient for compound curved surfaces and contour processing

Positive Y" axis turning and milling compound equipment has obvious advantages in processing plane milling compared with "interpolation Y" turning and milling compound equipment. The "positive Y" axis Y axis is perpendicular to the X axis, which is a single-axis movement. The "interpolated Y" Y axis interpolates a straight line through the simultaneous movement of the X axis and Y. The flatness of the milling plane is brighter and smoother than the "positive Y" turning and milling composite.

High rigidity and high precision turret system

3 unparalleled innovations bring you huge efficiency improvements



Independent research and development

100mm



Can withstand 70kg high-pressure hydraulic

Power tool holder adopts BMT interface

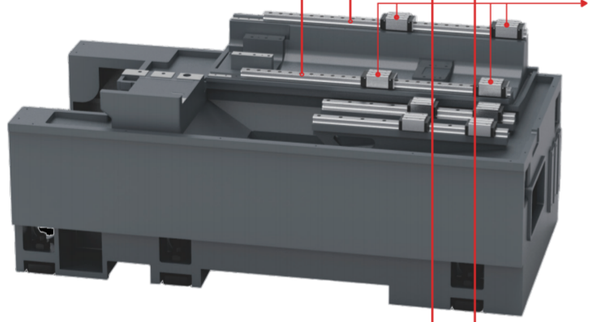
One-piece positive Y-axis /Gantry structure /Super rigid

The HT 300 castings are treated with secondary tempering and several months of natural aging to reduce the amount of deformation of the machine tool, and the large-scale processing machine completes the finishing at one time, so that the accuracy of the bed is more stable and the maintenance time is longer.

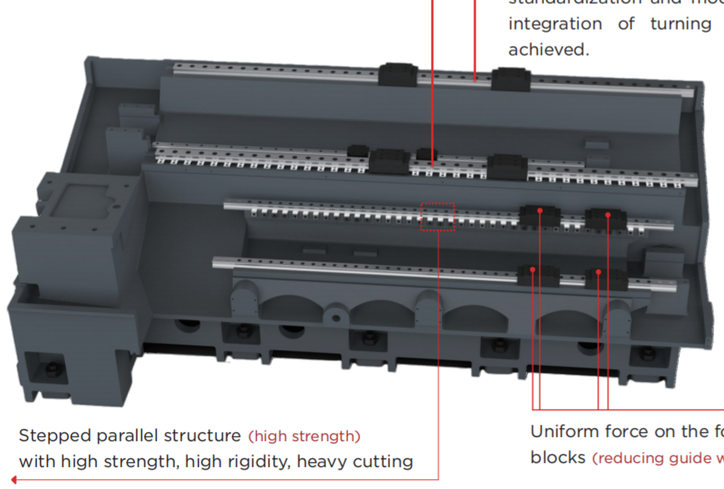
The accuracy and life span are more guaranteed. The stepped flat rail structure design has high strength, high rigidity and is suitable for heavy cutting.

The integrated 30° inclined bed and the four sliders of the inclined saddle bear even force. Make the stroke smoother and reduce the wear of the balls of the guide rail slider, which can withstand long-term wear and prolong the life of precision.

Uniform force on the four sliding blocks (reducing guide wear)



Based on the design concept of standardization and modularization, the integration of turning and milling is achieved.



Stepped parallel structure (high strength) with high strength, high rigidity, heavy cutting

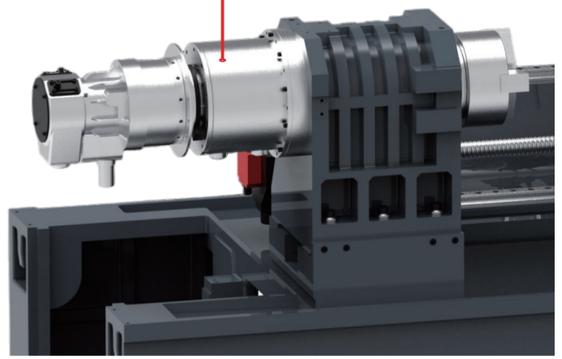
Uniform force on the four sliding blocks (reducing guide wear)

Heavy cast iron base and components

- All main components of the machine tool are made of HT300 with extremely strong shock absorption capability.
  All parts are optimized using finite element analysis (FEA) to reduce distortion and
- The castings of various series of lathes are equipped with reinforcing ribs to enhance the rigidity and thermal stability.
  The compact and symmetrical headstock and tailstock castings further improve the rigidity and ensure high positioning accuracy and repeat positioning accuracy

Direct drive synchronous electric spindle

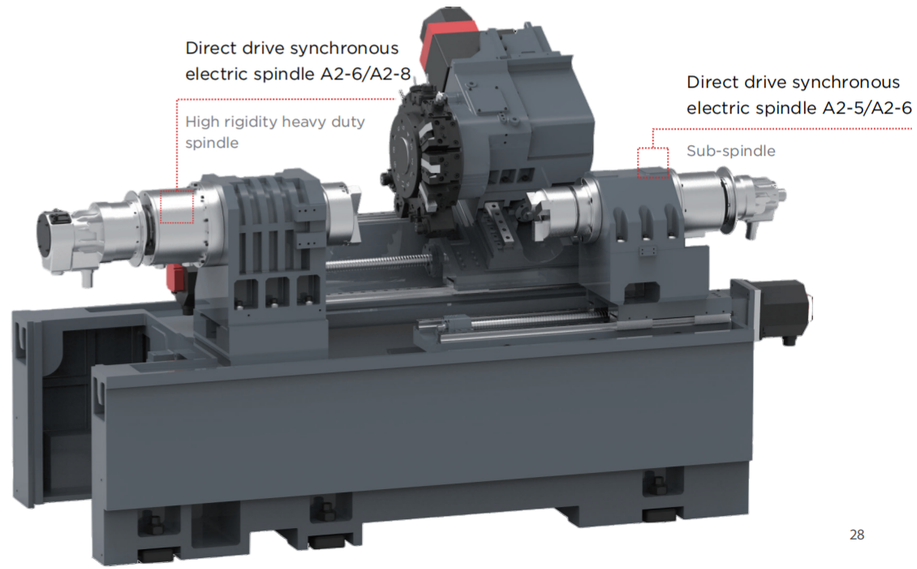
1. High rigidity and high torque
2. More efficient
3. Better finish
4. More accurate index



Features of machine tools equipped with direct drive electric spindle

- Magnetic ring incremental encoder (sine and cosine) positioning accuracy: 20 arc seconds
  C-axis indexing accuracy: 40 arc seconds
- The start-stop response speed is fast, saving machine tool processing time and effectively increasing production capacity.
- Smaller cutting load, energy saving, better protection of machine tools and longer service life
- Effectively eliminate spindle vibration, good balance effect, good finish, and improve the surface finish of the workpiece (Advantages of turning instead of grinding, hard turning performance, surface roughness Ra 0.2Um)

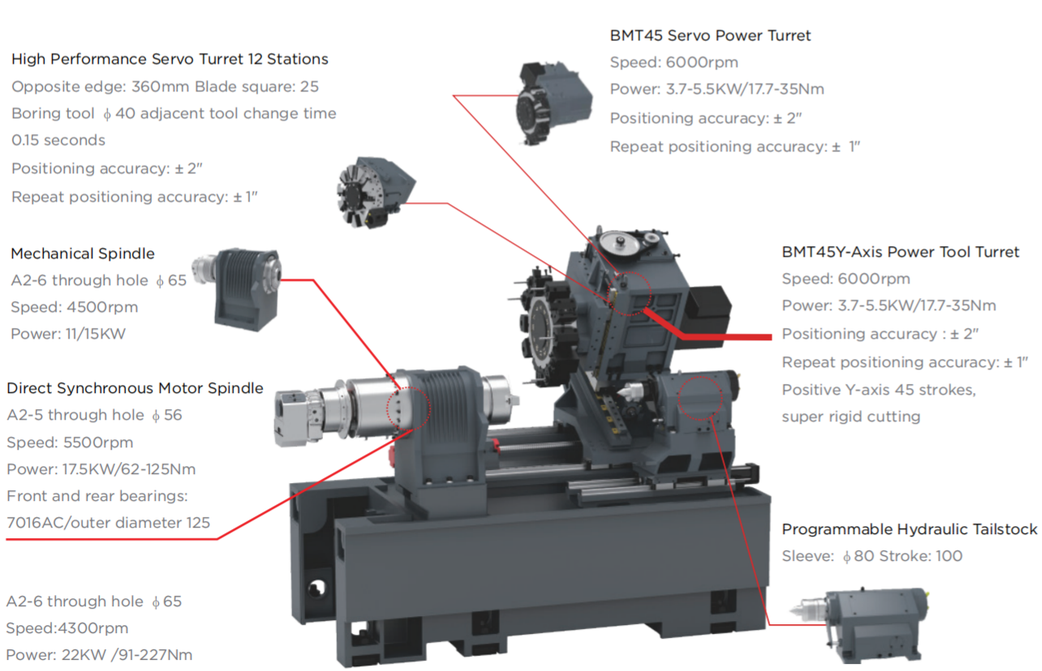
- The spindle motor is equipped with a cooling system to suppress the influence of thermal changes and ensure that the spindle continues to work at a constant temperature (the nose end deflection accuracy is within 0.002mm, ensuring more stable accuracy)
- Rear-mounted straight-body synchronous spindle makes installation and maintenance more convenient
- A2-5:7016AC-front two and back two
- A2-6: front NN3020+100BAR10S, rear NN3018
- A2-8: front NN3024+BT022B*2 rear NN3022



SUPER RIGIDITY/EXCELLENT THERMAL STABILITY

The new generation of turning centers at super high cost performance





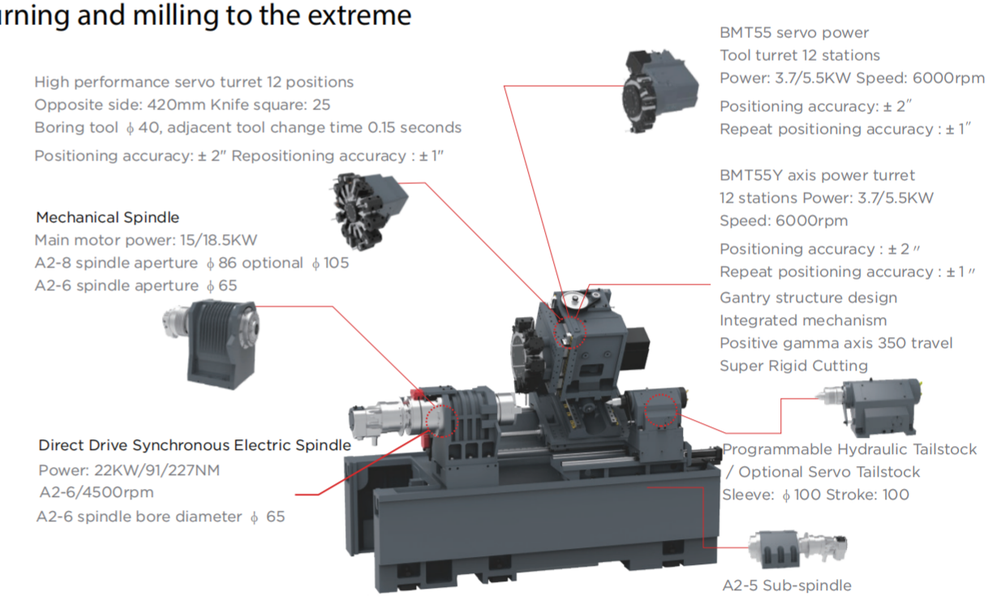
HIGH PRECISION/HIGH COMPOUND

Future high-grade turning and milling machine

Model	106	106M	106MY	108	108M	108MY
Max rotation diameter (mm)	Φ600	Φ600	Φ600	Φ600	Φ600	Φ600
Max processing diameter (mm)	Φ360	Φ300	Φ300	Φ360	Φ300	Φ300
Max processing length (mm)	360	300	220	350	290	210
Spindle nose	A2-5	A2-5	A2-5	A2-6	A2-6	A2-6
Chuck model	6″	6″	6″	8″	8″	8″
Max speed(rpm)	5500	5500	5500	4500	4300	4300
Direct drive synchronous electric spindle power (KW)	17.5	17.5	17.5	11/15	18/22	18/22
Servo Turret	Servo Turret 12T	BMT45	BMT45	Servo Turret 12T	BMT45	BMT45

HIGH-RIGIDITY

Turning and milling to the extreme



Model	208	208M	208MS	208MY	208MSY
Max rotation diameter (mm)	Φ600	Φ600	Φ600	Φ680	Φ680
Max processing diameter (mm)	Φ500	Φ400	Φ350	Φ400	Φ370
Max processing length (mm)	550	400	400	360	400
Spindle nose	A2-6	A2-6	A2-6	A2-6	A2-6
Chuck model	8″	8″	8″	8″	8″
Max speed(rpm)	4300	4300	4300	4300	4300
Direct drive synchronous electric spindle power (kw)	15/18.5	18/22	18/22	18/22	18/22
Servo Turret	Servo Turret 12T	BMT45	BMT45	BMT45	BMT55

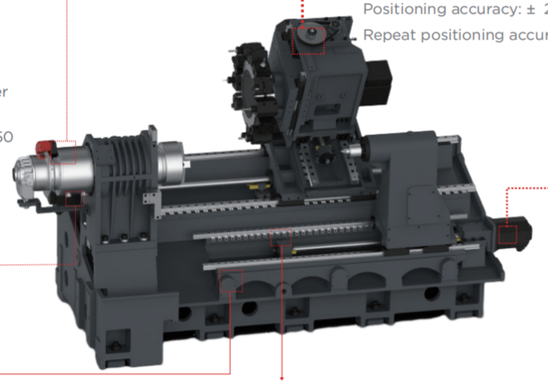
EXCELLENT DESIGN



Direct Drive Synchronous Electric Spindle
A2-6 through hole ϕ65
Speed: 4300rpm
Power:18/22KW
Torque: 91-227Nm
Big trough hole: ϕ79
Front bearing: NN3022+110BAR10S/outer diameter 170
Rear bearing: NN3020/outer diameter 150

BMT55 Servo Power Turret
Power: 37/5.5KW
Speed: 6000rpm
Positioning accuracy: ± 2”
Repeat positioning accuracy: ±1”

Gantry Structural Design
Super rigid cutting
Positive Y axis : ± 60



Program hydraulic tailstock
Optional servo tailstock

With Cooling Device

Hydraulic Steady Rest

1. Stepped parallel structure (high strength).
2. It has high strength, high rigidity and is suitable for heavy cutting.
3. The integrated 30° inclined bed is matched with an inclined saddle, and the four sliders are evenly stressed.
4. The stroke is smoother and the ball wear of the guide rail slider is reduced.
5. It can withstand long-term wear and tear, and its precision and life are more guaranteed.

Model	800	800M	800MS	800MY
Max rotation diameter (mm)	Φ680	Φ680	Φ600	Φ680
Max processing diameter (mm)	Φ600	Φ600	Φ600	Φ600
Max processing length (mm)	770	600	660	600
Spindle nose	A2-6	A2-6	A2-6	A2-6
Chuck model	8″	8″	8″	8″
Max speed(rpm)	4300	4300	4300	4300
Direct drive synchronous electric spindle power (KW)	18/22	18/22	18/22	18/22
Servo Turret	Servo Turret12T	BMT55	BMT55	BMT55

POWERFUL PERFORMANCE

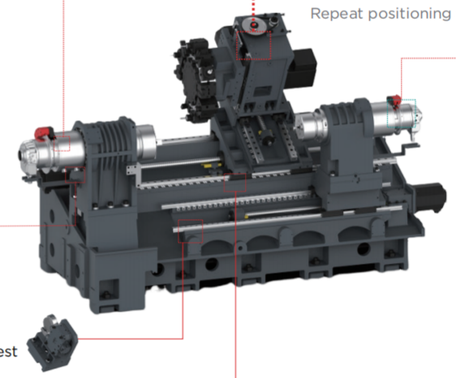


Direct Drive Synchronous Electric Spindle
A2-8 through hole ϕ 120
Speed: 2100rpm
Power: 23KW
Torque: 160-390Nm

BMT65 Servo Power Turret
Power: 7.5KW
Speed: 6000rpm
Positioning accuracy: ± 2”
Repeat positioning accuracy: ± 1”

Gantry Structural Design
Super rigid cutting
Positive Y axis : ± 60

Sub-Spindle
Direct drive synchronous electric spindle
A2-8 through hole ϕ 65
Speed: 4300rpm
Power:18/22KW
Torque: 91-227Nm



With Cooling Device

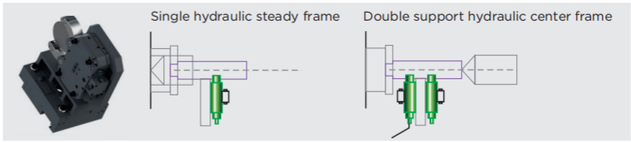
Hydraulic Steady Rest

1. Stepped parallel structure (high strength).
2. With high strength, high rigidity, heavy cutting.
3. The integrated 30° inclined bed is matched with an inclined saddle, and the four sliders are evenly stressed.
4. The travel is smoother.
5. Reduce guide rail slider ball wear.
6. It can withstand long-term wear and tear, and the precision life is more guaranteed.

Model	1200/1600	1200/1600M	1200/1600MY	1200MS	1200MSY
Max rotation diameter (mm)	Φ680	Φ680	Φ680	Φ680	Φ680
Max processing diameter (mm)	Φ600	Φ560	Φ560	Φ560	Φ560
Max processing length (mm)	1100/1500	1000/1400	1000/1400	1000	1000
Spindle nose	A2-8	A2-8	A2-8	A2-8	A2-8
Chuck model	10″	10″	10″	10″	10″
Max speed(rpm)	3000	2100	2100	2100	2100
Direct drive synchronous electric spindle power (kw)	26	23	23	23	23
Servo Turret	Servo Turret12T	BMT65	BMT65	BMT65	BMT65

HIGH RIGIDITY AND HIGH STABILITY STRUCTURE





Hydraulic Steady rest (Optional)

For turning longer parts, various types of hydraulic steady rests are available

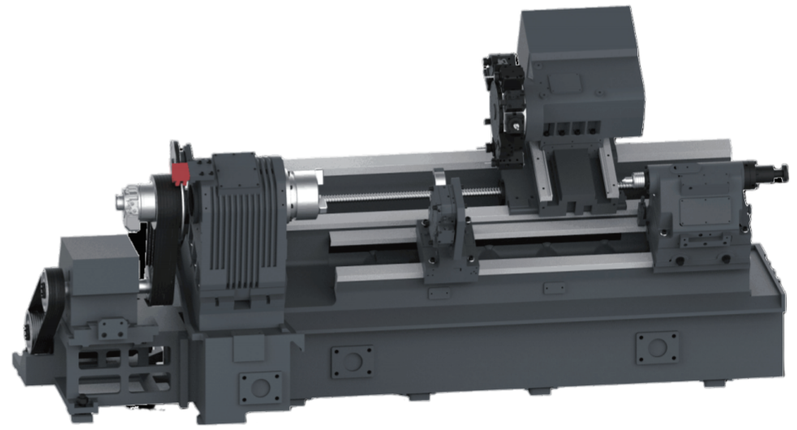
(single, double-support or double)

- Large hard-rail type high-load machine with large-diameter, low-speed and heavy-duty cutting capabilities.
- Highly rigid square rails, the slide surface is designed through professional production procedures and precision oil guide grooves, and the transmission efficiency is excellent.
- The bed has a 30-degree slant integrated box structure, low center of gravity, and stable accuracy.
- The tailstock bed has strong rigidity and good vibration suppression.
- The Z-axis saddle can be driven by program, and the tailstock displacement is automatically controlled by program.
- Optional rotary spindle increases the wearing capacity.

The medium and large horizontal turning center with a maximum processing length of 3m, gear box spindle and full hard rail structure are suitable for heavy-duty cutting!



- PLC control of reducer can automatically change gears
- The high speed gear ratio is 1:1
- The medium gear ratio is 1:4
- The low gear ratio is 1:11
- Reducer to spindle transmission ratio 1:1.4
- 15/18.5Kw and 100-196Nm
- The maximum torque at low speed can be reached; 1540-3018NM



Model	250L10	250LM10	250LMY10	250L15	250LM15	250LMY15	250L20	250LM20	250LMY20	250L30	250LM30	250LMY30
Max rotation diameter (mm)	Φ730	Φ730	Φ900	Φ730	Φ730	Φ900	Φ730	Φ730	Φ900	Φ730	Φ730	Φ900
Max processing diameter (mm)	Φ600	Φ550	Φ600	Φ600	Φ550	Φ600	Φ600	Φ550	Φ600	Φ600	Φ550	Φ600
Max processing length (mm)	1000	930	830	1640	1530	1430	2240	2130	2030	3240	2960	2960
Spindle nose	A2-8	A2-8	A2-8	A2-8	A2-8	A2-8	A2-11	A2-11	A2-11	A2-11	A2-11	A2-11
Chuck model	10″	10″	10″	10″	10″	10″	12″	12″	12″	12″	12″	12″
Max speed (rpm)	2500	2500	2500	2500	2500	2500	1800	1800	1800	1800	1800	1800
Direct drive synchronous electric spindle power (KW)	15/18.5	15/18.5	15/18.5	15/18.5	15/18.5	15/18.5	15/18.5	15/18.5	15/18.5	15/18.5	15/18.5	15/18.5
Servo turret	Servo Turret12T	BMT65	BMT65	Servo Turret12T	BMT65	BMT65	Servo Turret12T	BMT65	BMT65	Servo Turret12T	BMT65	BMT65

EXTREMELY EFFICIENT TURNING CAPABILITIES

High-speed and high-precision

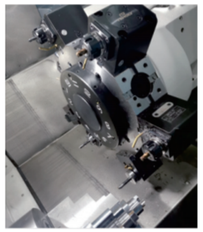


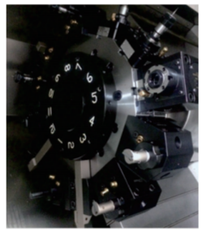
Emphasis on cost-effectiveness, streamlining, and thoroughly meeting customer needs.
High-precision, High-speed, High-gloss

Turning and milling complex workpieces and performing multiple machining operations increases throughput
Reduce manual operations and improve accuracy

The leading quality of seiko

Achieve a quick-tool change of 8s within 1-12 (one rotation), with better torque output. It has a more stable tool clamping method, repeatability/positioning accuracy of ±0.002mm/±0.005mm, and the power tool spindle speed can reach 5000 rpm. The tool turret's open/lock/tool change time is 30s. Select a 12-station power tool turret (only the tool at the working position rotates) to become a turning and milling center, enabling compound processing such as turning, milling, drilling, and tapping.





High-Performance Servo Turret With 12 Positions
Opposite side: 40mm
Tool size: 25
Boring tool: ϕ 40
Adjacent tool change time 0.15 seconds
Positioning accuracy 32″ Repeat positioning accuracy 31



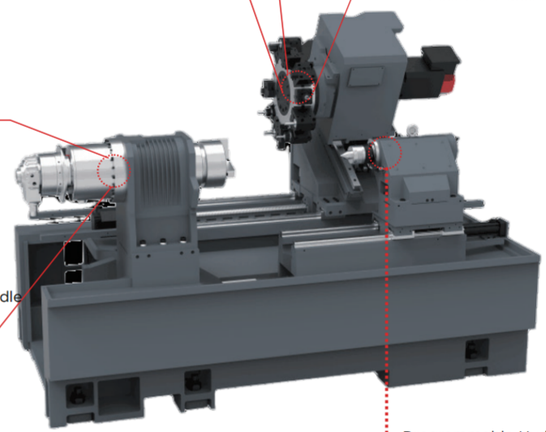
BMT55 Servo Power Turret 12 Stations
Speed: 6000pm
Power: 3.7-5.5KW/17.7-35Nm
Positioning accuracy : ± 2″
Repeat positioning accuracy: ± 1″



BMT55 Y-Axis Work Force Turret
Speed: 6000rpm
Power:3.7-5.5KW/17.7-35Nm
Positive Y-axis travel : ± 50

Mechanical Spindle
A2-6 through hole ϕ 65 optional ϕ 79
A2-8 through hole ϕ 86
Speed: 4500/3000rpm
Power: 11/15/18.5KW





Direct Drive Synchronous Electric Spindle
A2-5 through hole ϕ 56
Speed: 5500rpm
Power: 17.5kW/62-125Nm
Front and rear bearings: 7016AC/outer diameter 125

A2-6 through hole ϕ 65
Speed: 4300rpm
Power: 22KW/91-227Nm
High rigidity heavy duty spindle
Front bearing: NN3020+100BA108/outer diameter 150
Rear bearing: NN3018/outer diameter 95

Big hole diameter ϕ 79
Front bearing: NN3022+110BA10S/ outer diameter 170
Rear bearing: NN3020/outer diameter 150

Programmable Hydraulic Tailstock / Optional Servo Tailstock
Sleeve: ϕ 100 Stroke: 100



A2-5 through hole ϕ 56
Speed: 5500pm
Power: 5KW/62-125Nm
Front and rear bearings: 7016AC/outer diameter 125



Model	200LA	200M	200MY	200MS	200MSY	750LA	750M	750MY
Max rotation diameter (mm)	Φ600	Φ600	Φ600	Φ600	Φ600	Φ580	Φ580	Φ580
Max processing diameter (mm)	Φ500	Φ400	Φ380	Φ300	Φ300	Φ500	Φ400	Φ400
Max processing length (mm)	500	400	400	200	200	750	600	600
Spindle nose	A2-6	A2-6	A2-6	A2-5/A2-6	A2-5/A2-6	A2-6	A2-6	A2-6
Chuck model	8″	8″	8″	6″/8″	6″/8″	8″	8″	8″
Max speed (rpm)	4300	4300	4300	5500/4300	5500/4300	4200	4300	4300
Direct drive synchronous electric spindle power (KW)	11/15(18/22)	18/22	18/22	17.5/(18/22)	17.5/(18/22)	11/15	18/22	18/22
Servo turret	Servo Turret12T	BMT55	BMT55	BMT55	BMT55	Servo Turret12T	BMT55	BMT55

MULTIPLE PERFORMANCES

150MS-II/III
150MSY-II/III

Double spindle, double turret
Multifunctional turning center



The machine is equipped with dual spindles and turrets, and there are 8 tool positions available in the back-end processing space . allowing the total tool capacity of the machine to reach 20T,which can support a variety of different unique processing tool method accurate.

Processing efficiency

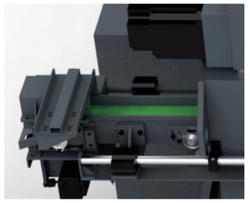
We have built this high-end, high-efficiency turning center machine so that you can complete complex workpiece processing in one piece of equipment with extremely high accuracy.

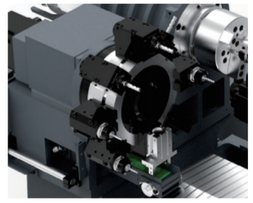
Model	150MS-III	150MS-II	150MSY-III	150MSY-III
Max rotation diameter over bed (mm)	Φ380	Φ380	Φ380	Φ380
Max processing diameter (mm)	Φ100	Φ100	Φ100	Φ100
Max processing length (mm)	150	150	150	150
Spindle nose	A2-5	A2-5	A2-5	A2-5
Chuck model	5″	5″	5″	5″
Max speed (rpm)	5500	5500	5500	5500
Rated power /max torque (kw/Nm)	17.5/125	17.5/125	17.5/125	17.5/125
Spindle servo power turret	BMT45	BMT45	BMT45+Y	BMT45+Y

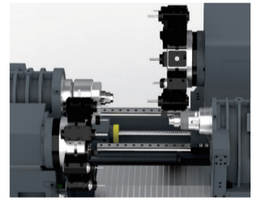
LOWER TURRET

Unloader lower turret clamp (standard configuration) + discharge conveyor belt
Automation of the gripper jaws by the lower turret

Size	Diameter range	mm	15-51
	length range	mm	30-100
	weight range	kg	0.1-1.5



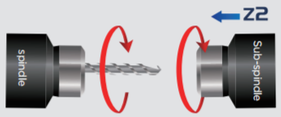




SYSTEM FUNCTIONS

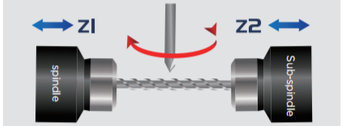
Fast processing, fast debugging, fast programming compound processing machine

Spindle synchronization, same phase



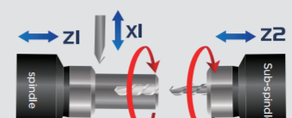
The main spindle and sub-spindle can run synchronously to facilitate the connection of circular or polygonal workpieces.

Servo axis synchronization control



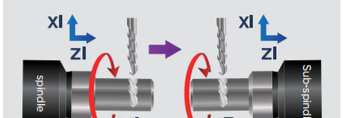
It is used for processing long workpiece clamps, such as turning teeth, just tapping, and knurling.

Servo axis weight tube



When the positive spindle continues to run, the side milling axis can be superimposed on the rigid attack, reducing the spindle stop time.

Mix control



Program instructions can be used to exchange servo axes that control other paths.

AUTOMATED PRODUCTION LINE

Smart Manufacturing Unit



Multifunctional combined production line high-precision three-axis rack manipulator

- After adding truss automation, silo, online cleaning, online detection and other functions, a multi-functional turning production line is formed.
- Remote monitoring and data collection functions can be added to seamlessly connect with the factory's ERP and MES intelligent systems.



- Flexible joint robot hand
- Ground rail traveling axis
- Safety limit to prevent derailment
- Adjustable anchor bolts
- Can meet uneven ground conditions
- Fast moving speed and high precision

What can we provide for customers

A complete set of intelligent flexible processing solutions from blank to finished product



FIXTURE DESIGN



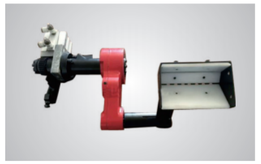
THE MAIN COMPONENTS



Automatic bar feeder (optional)

- The feeder has a heavy-duty, automated design that significantly increases productivity and simplifies turning operations

Simple installation and easy operation



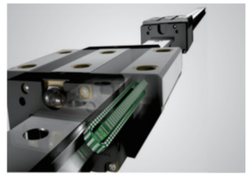
Parts catcher (optional)

- The workpiece catcher is designed with the principle of mechanical linkage, which can quickly pick up the finished product after processing.



Tool setter

- Drop-down tool setter with high precision repetition.
- There are many different sizes to meet various industrial needs.
- A variety of standard specifications can be provided, and can also be customized.
- Steel measuring arm with low expansion coefficient.
- Using solid oxide probe.
- Occupies very little machine space when idle.



THK Roller Linear Guide

- The flexible guide rail has zero clearance, arc cutting and bevel cutting, and the surface texture is relatively uniform. It is suitable for high-speed operation and greatly reduces the driving horsepower required by the machine.
- The flexible guide rail uses rolling instead of sliding, with small friction loss, sensitive response and high positioning accuracy. It can withstand loads in the up, down, left and right directions at the same time, and under load, the track contact surface is still in multi-point contact, and the cutting rigidity will not be reduced.
- The assembly is easy and interchangeable, and the lubrication structure is simple; the wear of the flexible guide rail is very small and the service life is long.



THK ball screw

- Using high-precision ball screw, combined with nut preloading and screw pretensioning, the backlash and temperature rise elongation are eliminated in advance, and excellent positioning and repeatability are exhibited. Drive directly by servo motor to reduce backlash error.



Bearing/oil injection machine