HOTMAN®

HOTMAN INTELLIGENT MACHINE CO., LTD.

Produce Products Beneficial To The Progress Of The World !

2018 06

www.gdhotman.com

GRINDINGER LIST

Each machine,
We have set up special technology and service partners to dock with you!

High Precision Central Type
Step Grinding Machine
H3
P19

Step Grinding

High Precision Traditional
Cylindrical Grinder
FX27-60
P03

Wholesale Price

High Precision CNC
Cylindrical Grinder
FX27P-60CNC
P05

High Precision CNC
Cylindrical Grinder
FX32P-100CNC
P05

High Precision CNC
Cylindrical Grinder
FX25A-50CNC
P09

High Precision CNC
Cylindrical Grinder
FX32A-75CNC
P09

Cylindrical Grinding

Internal Grinding

High Precision CNC
Internal Grinder
IG150
P13

Wholesale Price

Customizable machine color matching scheme:

Creamy White	Ink Black	Indigo	Sky Blue	Chinese Red
Main Color	Main Color	Main/Decorative Colors	Main/Decorative Colors	Decorative Color

1 2 3 4 5 6

Always Have One To Satisfy You !

Compound Grinding

High Precision
Compound Grinder
CG45
P15

High Precision
Compound Grinder
CG32
P15

High Precision
Compound Grinder
CG15
P17

Centerless Grinding

High Precision
Centerless Grinder
FX-12S
P27

Wholesale Price

High Precision CNC
Centerless Grinder
FX-12CNC
P27

High Precision
Centerless Grinder
FX-18S
P28

High Precision CNC
Centerless Grinder
FX-18CNC-4
P28

Special Shape Grinding

Precision CNC Special
Shape Grinder
SOD31
P11

Upgrade Products

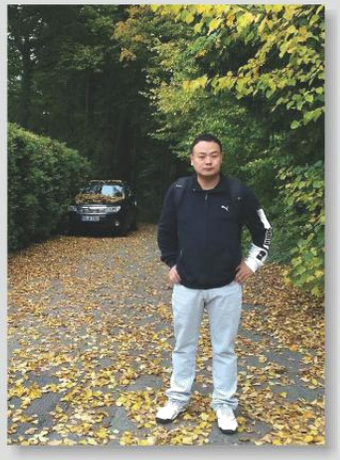
Precision CNC Special
Shape Grinder
SOD54
P12

Upgrade Products

Preface

Hotman Intelligent Machine Co., Ltd. was founded in 2003. Specializing in the development and manufacture of hardware machinery.
Excellent manufacturing technology and high production efficiency, those make our company become a rising star of hardware machinery industry.
At present, the quality of our company has become one of the best of this area and is committed to building a leading brand in China's hardware machinery manufacturing industry.

As a basic industry,Hotman are dedicated to providing the industry with the best machining equipment at the most ideal price, With its ability to enhance the overall industry quality, to let China's mechanical equipment, mold parts, machinery processing industry to surpass the rest of the world.



Zengjun **Chairman**
The morality of the leader must be better than the talent

Vision
Produce products that are good for the world's progres

Mission
Leading the improvement of the relevant industries in China

Responsibility
Let China's high-precision equipment surpass all countries in the world

THE HISTORY OF ENTERPRISES

2003 2017

2003
Established Dongguan Fuxincheng Hardware Machinery Co., Ltd. And established the first R&D and production base in Dongguan, Guangdong Province. At the beginning of its establishment, we successfully developed the FX-01-08SP series of grinders(grinding machines), which fills the gap of independent research and production of traditional machinery and equipment by private enterprises in China. So far, the company has sold more than 6,000 units worldwide.

2004
Successfully developed the FX-125 high-precision centerless grinding machine and it is the first truly high-precision centerless grinding machine in China.

2005
Developed and produced FX27-55CNC CNC cylindrical grinding machine,For the first time, automation and intellectualization of traditional machinery and equipment are realized.The FX-01 precision micro-outer grinder and FX-025P precision micro-inner grinder are exported to Malaysia and established an office there. Which is successfully opening the international market.

2006
Researched, developed and produced of IG15 and OD15 high-precision three jaw automatic internal and external diameter grinding machine. In the same year, CG15 high precision grinding machine was introduced, forming a series of CNC (Computerized Numerical Control) products with high precision and intelligence as the core characteristics.Established Dongguan Hotman Hardware Technology Co., Ltd. and the original Fuxincheng Hardware Machinery Co., Ltd. merged with the new company in 2010.

2008
We successfully developed and manufactured high-precision centerless grinder for hydrostatic guideway and hydrostatic spindle.It is another major technological breakthrough in China's grinder area.In the same year, the FX32P-100CNC high precision cylindrical grinder was introduced based on this technology. The first FX-125 high precision centerless grinder was exported to Thailand,
and a Thai office was established to continue to expand international business.

2009
Researched and producted Fx.18CNC multi-axis CNC centerless grinder, Truly realize automatic pipelining and high efficiency machining, meanwhile completing FX-20S/24S series Centerless Grinder research and development and production, and launched China's first independently designed H-series precision differential grinder, has made great contributions to China's cutting tool industry equipment. In the same year, Hotman invested in the construction of cement highway around Fuxincheng Primary School in Gushi County, Henan Province, with a construction mileage of 5 km.

2010
R & D and production of high-precision surface grinder, gantry surface grinder, FX20p-50CNC and FX25A-50CNC straight forward, oblique-entry CNC cylindrical grinding machine, further improving the market demand-oriented product line;Established the "Five Guaranteed Households Poverty Alleviation Fund" in Gushi County, Henan Province to support local poverty alleviation

2011
Developed and produced CG45 high-precision composite grinding machine, which completed the automatic rotation of the working head, and launched the H3 high-precision walking-type step grinding machine in the same year， which has become the first automatic-type segment grinder in China.

2012
Hotman passed the GB/T19001-2008/ISO 9001:2008 quality system certification; GB/T24001-2004/ISO14001:2004 environmental management system certification; GB/T28001-2011/OHSAS 18001-2007 occupational health and safety management system certification; Officially became the director of Dongguan Hardware Machinery Mould Industry Association and has been awarded the title of employee satisfaction for ten consecutive years.

2014
Successfully developed and produced high-precision CNC lathes to achieve further development of the company's product line.

2015
In order to cooperate with the "Made in China 2025" national manufacturing development strategy and seize the historic opportunity of China's manufacturing transformation and upgrading, combined with the company's business development status,we changed the company's name from "Dongguan Hartmann Hardware Technology Co., Ltd." to "Guangdong Hotman Intelligent Machine Co., Ltd.".We also plans to invest 100 million yuan to prepare for the construction of a new production base in Guangdong. Meanwhile the company has increased investment in production environment, operation management, technology research and development, etc., supporting our companyto complete historical breakthrough of the grinding machine series from "high precision" to "ultra precision".

2016
In order to meet the rapid increasing trend of market size,Guangdong R&D base was moved from Chang'an Town to Houjie Town of Dongguan City and the area of the factory was doubled. The assembly capacity of the new factory can meet the annual output value of 300 million RMB.

2017
Hotman has become a national high-tech enterprise.The first project in Dongguan has been approved, and the technical and practical value of our products is at the leading level in China.

Company

Impression

Guang Dong Hotman Intelligent Machines Ltd.

The factory in Dong Guan
Officially put into use in October 201

02

05

06

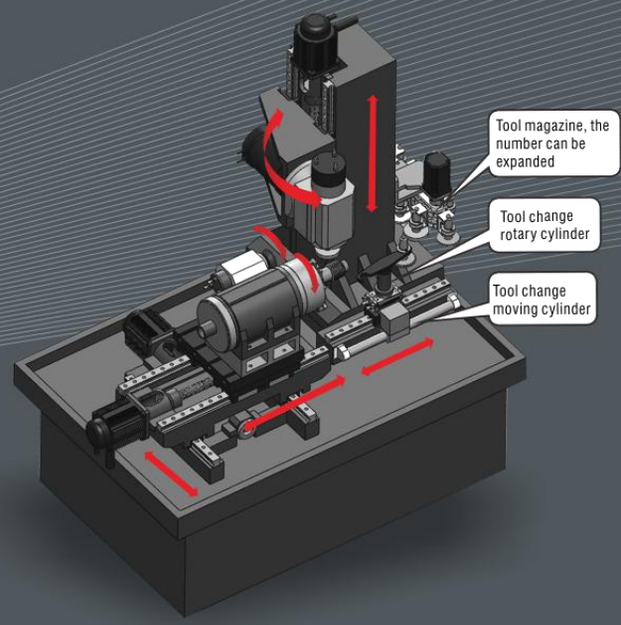
01 Company Panorama
02 Machine Tool Assembly Shop
03 Machine Tool Design Institute
04 Company Lobby
05 Primary Assembly Shop
06 Advanced Assembly Shop

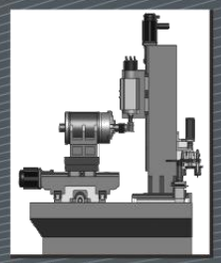
Life is a team, the slow paced man found the team walking too fast, and he walked out of the team. The fast-paced person found that the team was walking too slowly, and he also walked out of the team.

Introduction of new products 1

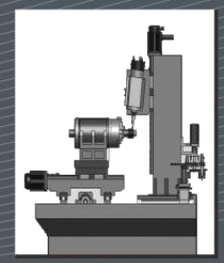
LATHING, MILLING, GRINDING, HOBBING COMPOUND CENTER

Drilling, tapping, deburring, milling, Outside and inside diameter grinding, profile grinding, grinding gear, etc.

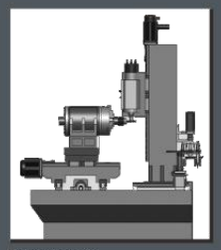




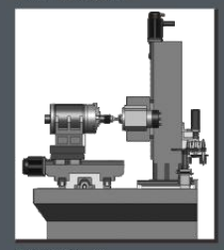
Function 1:
Hobbing (0.25m-1.5m)



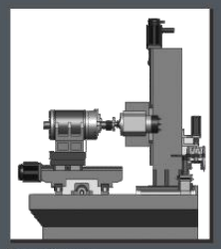
Function 2:
Milling gear, milling keyway, Milling square



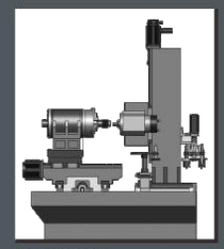
Function 3:
Gear grinding



Function 4:
Inside diameter grinding



Function 5:
Outside diameter grinding,
Profile grinding,
End face grinding

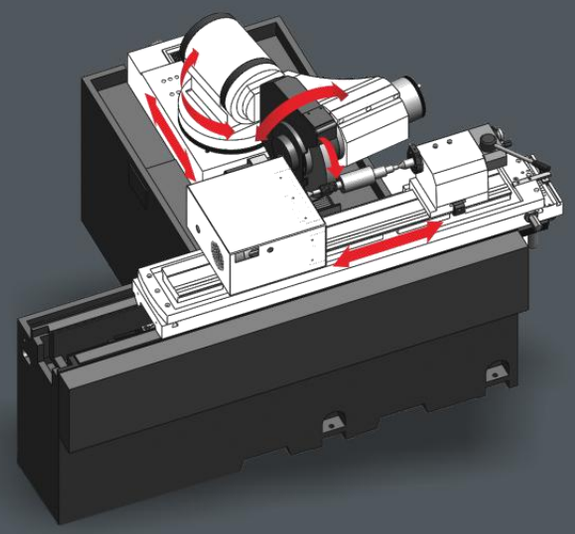


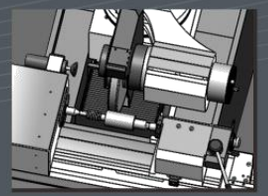
Function 6:
Lathe function with cnc

Introduction of new products 2

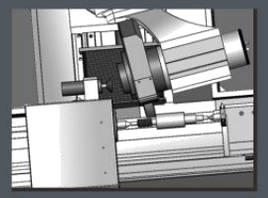
HIGH PRECISION UNIVERSAL OUTSIDE DIAMETER GRINDER

- Outside diameter grinding
- End face grinding
- Thread grinding
- Gear grinding

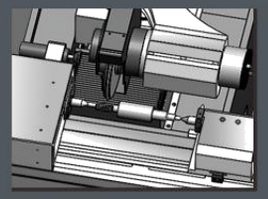




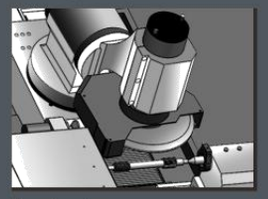
Function 1:
Outside diameter grinding



Function 2:
Rotating the b-axis for double-face
Grinding without turning the head



Function 3:
Thread grinding

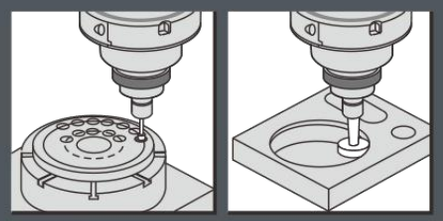


Function 4:
Gear grinding

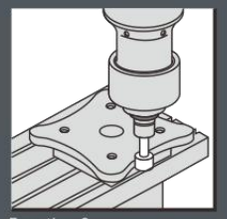
Introduction of new products 3

HIGH PRECISION COORDINATE GRINDER

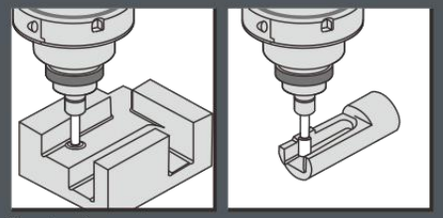
- Outside and inside diameter grinding
- Profile grinding
- Groove grinding



Function 1:
Outside and inside diameter grinding



Function 2:
Profile grinding



Function 3:
Groove grinding

DEAR HOTMAN'S CUSTOMERS

Hotman has a total of ten series of precision grinding machines, providing individualized grinding and automated production line solutions. In addition, we provide a full range of efficient, reliable and customer-friendly customer care services.

Our service projects.

Our equipment will work reliably to meet the needs of our customers. From project start-up to "machine tool modify" or "machine tool upgrades", Hotman's highly experienced service team will serve you throughout the life of the machine.

- We respond quickly and provide you with timely technical support.
- We help you increase your productivity.
- We provide professional solutions to solve your problems.

始终

BASED
ON CUSTOMER

PROJECT BEGIN

Our installation and commissioning service team will ensure that your machine is successfully put into operation in time.

Installation And Commissioning

When commissioning your machine, we will thoroughly verify all functions and integrate the options and accessories as needed, and guide you to the proper installation of water, electricity and gas. We will provide training and guidance to your operators. And will consider your special needs, and can also grind a workpiece specified by you according to your requirements, and test one by one according to the technical agreement. Make sure the machine is ready for production.

What you can benefit from it

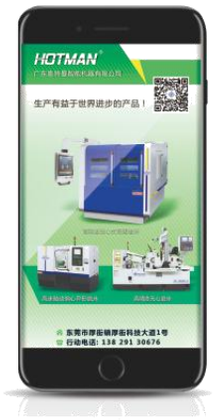
- Successfully start production
- Leading professional basics
- Trained staff

Extended Warranty

The quality of your machine is trustworthy. You can extend your warranty by 12 or 24 months on very favorable terms. Service content includes all repairs and required original parts but does not contain quick-wear part.

What you can benefit from it

- Planability, industrial sustainability
- Maximize the use of machine tools to achieve economic security at a very low additional cost.



PARTS SUPPORT

Our spare parts supply system is ready to meet all your machine needs.

Spare Parts

We have enough original accessories for you in the warehouse, and the spare parts team is responsible for checking and sending the accessories you need. These accessories are in line with the quality standards of hotman. Even if your grinding machine is old, we will meet your parts ordering requirements. For the replacement of key components, we will provide on-site installation and commissioning services.

What you can benefit from it

- Quickly and flexibly respond to your needs
- Original accessories ensure mating accuracy and process reliability
- Maintain high precision of the machine

Exchange Piece

We choose certain accessories as an exchange: after the parts are exchanged, we will get professional repairs in our overhaul department and then re-enter the sales. You can choose to order new accessories or cheaper exchanges, and we also offer a comprehensive warranty.

You can benefit from it

- Lower cost of purchasing exchanges
- Quickly provide solutions
- High precision machine tools are maintained
- The accuracy of the exchange will be guaranteed

Accessories

From dressing tools to measuring probes, we have a full range of accessories to choose from to solve your worries.

What you can benefit from it

- Meet the individual needs of your machine
- Accessories have unmatched precision

始终

BASED
ON CUSTOMER

PREVENTIVE SERVICE

It is equipped with the "Machine Maintenance Manual", which aims to provide preventive maintenance guidance, avoid machine failure and maintain good working condition and stable precision of the machine, and will extend the service life of your machine.

Maintenance

We will systematically perform maintenance work according to the checklists listed in the 《Grinding Machine Maintenance Manual》, which are generally divided into daily maintenance and cycle maintenance. All maintenance work mainly includes:

- inspection of exposed equipment parts
- Check electronic components and control systems
- Replace consumables
- Change oil if necessary (such as hydraulic oil and lubricating oil, make sure to use genuine)
- Comprehensive functional check
- Back up current device data
- Standardize the maintenance report for traceability

What you can benefit from it

- Eliminate the Unpredictable failure of the grinding machine to the maximum extent, reduce the Downtime rate, and make the grinding machine operate normally.
- Make production quality higher and more stable
- Really reflect the condition of the grinding machine
- Minimize grinding machine maintenance costs

Grinding Machine Inspection

We will use tools to check your key parts of the grinders, our service technicians will provide a detailed checklist, and then evaluate them item by item with you, along with a future grinder maintenance proposal. This way, you can have a clear understanding of the condition of the grinding machine.

What you can benefit from it

- Find problems early
- Make service work better planable
- Reduce the Downtime rate and make the grinding machine work properly

SKILL IMPROVEMENT

Our professional training improves the skills of your staff and ensures that your machine is used efficiently.

Technical Training

We offer you a personalized customer training service, which is carried out on-site at the machine side of your factory. Our training courses include routine grinding, operation and programming, and special courses. After putting into use, the intimate customer service partner will provide you with any relevant technical guidance in time.

What you can benefit from it

- Learning operating procedures based on actual conditions
- Professionally trained and motivated employees
- More efficient work
- Reduce the risk of machine failure due to incorrect operation

Production Support

We will support your technicians and machine operators in the on-site production process. We are happy to advise you on process and production cycle optimization or special Operating procedures (such as testing the control system, new work piece or grinding wheels assembly). The focus of technical support and the length of service are up to you.

What you can benefit from it

- Increase your company's proprietary skills
- Our experts will support your production team
- Increase productivity

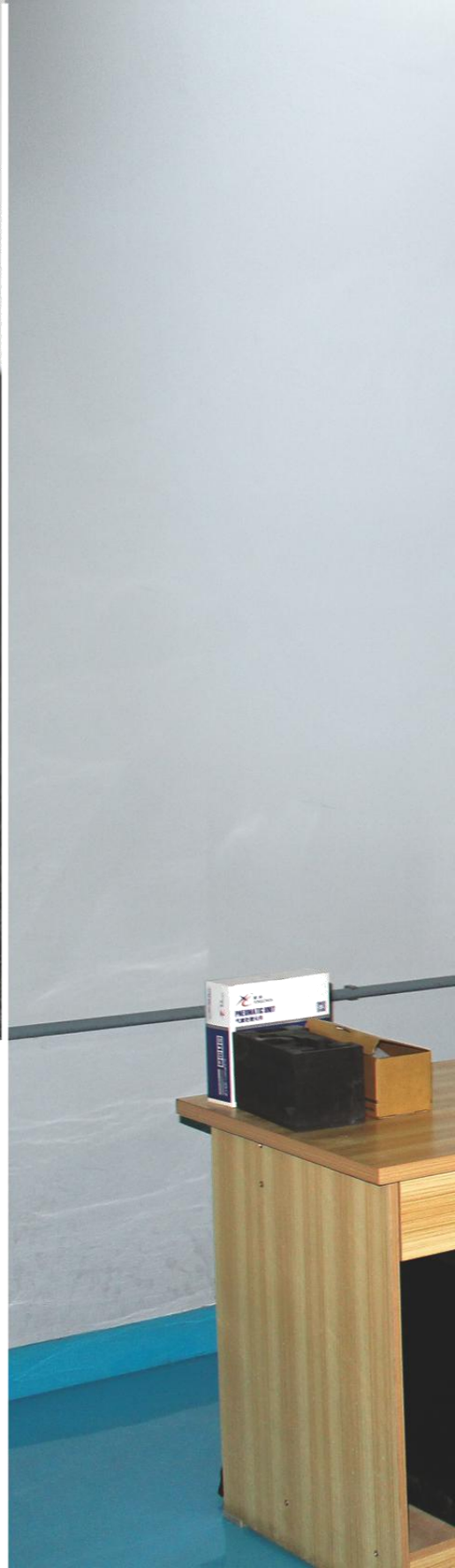
始终

BASED
ON CUSTOMER

SOLVE THE PROBLEM AT THE FOREFRONT

Precision inspection instrument
Implement comprehensive quality control

The machinery that provides the best performance is the consistent belief of “Hotman”. The quality of manufacturing process of each “Hotman” grinding machine is fully controlled, and the machine must undergo rigorous performance testing before leaving the factory. “Hotman” quality control department has a number of precision test instruments, the professional quality management staff will inspect parts and machine.



始终

BASED
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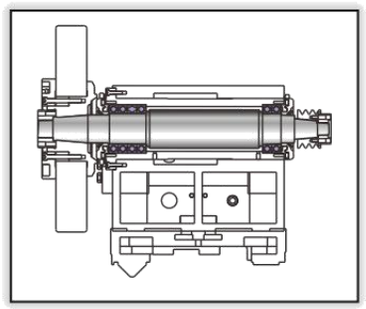
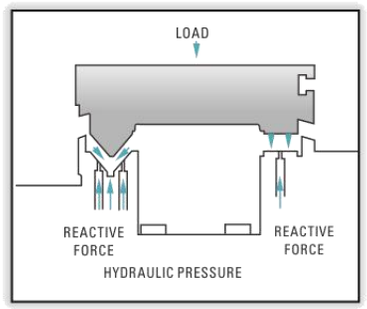
Cylindrical Grinder Series

High Precision Traditional Cylindrical Grinder

Precision Mechanism





Precision Spindle

The main shaft of the grinding wheel is the front part 4 and back part 2 bearing structure. The linear speed can be adjusted from 35m/s to 60m / s with the frequency converter installed. It has a great efficiency in grinding ultra-hard parts such as tungsten steel and ceramics.

Guide Rail

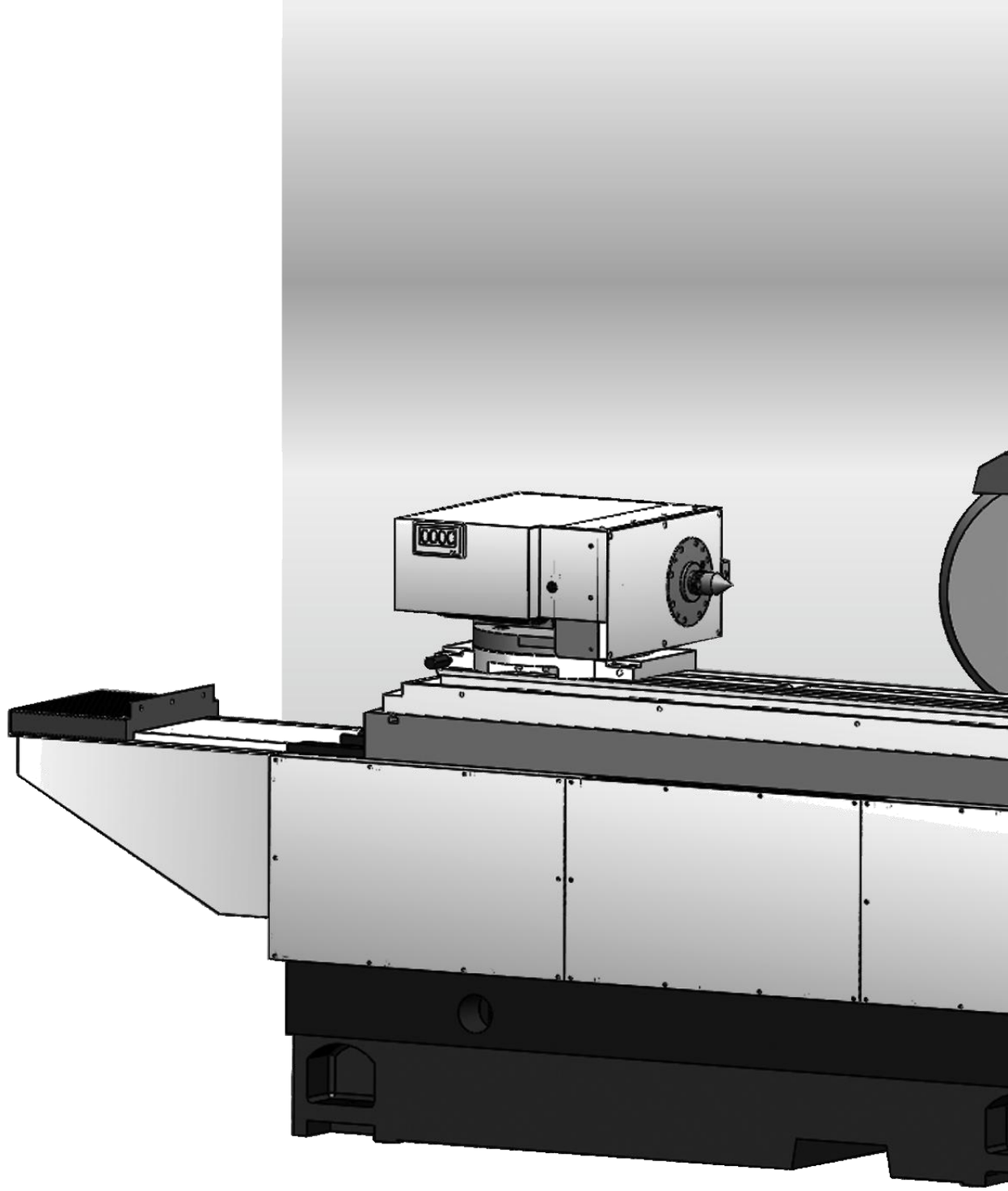
The guide rail contact surface diameter is precision hand shovel, and the lubrication system reduces metal friction to ensure high precision and axial movement wear resistance. With a lubrication system with independent time control, the bed friction coefficient is minimized.

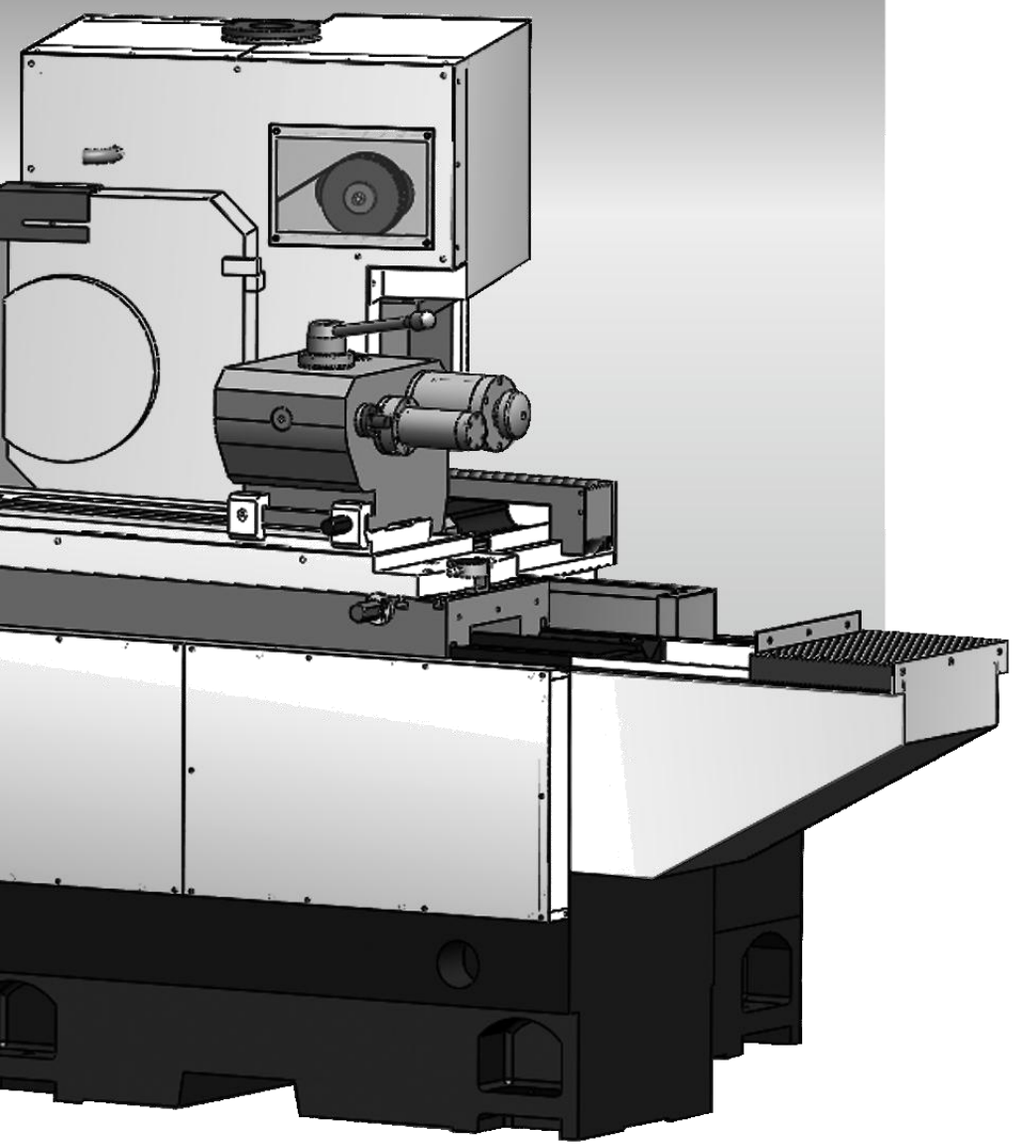
New Design Concept Of Machine Structure

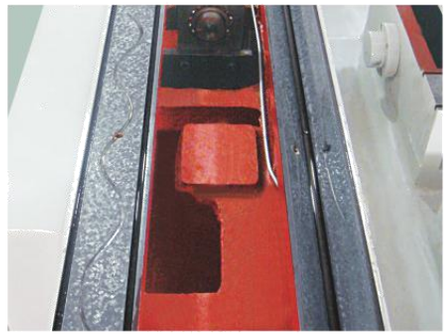
The frame structure is made of Meehanite cast iron and has a low center of gravity design. With the latest finite element computer-aided analysis, the rigid design is above 108N / m, and the lowest natural frequency is designed above 150Hz. This outstanding structural design makes the machine fully shock-proof and shock-absorbing, ensuring its high rigidity and maximum damping performance, thus extending the life of the machine.

Operating Plate Displacement And Feed Mode

- The left and right displacement of the operating plate and the grinding wheel head are all manually operated.
- The operating plate is driven by the oil pressure, and the grinding wheel head is fed manually.
- The operating plate is driven by the oil pressure, the grinding wheel head is fast forwarded and fast-returned, and the feed is manually operated.
- The operating plate is driven by the hydraulic pressure, the grinding wheel head is fast forwarded and fast-returned, and the feed is automatically operated.
- Install automatic positioning device.

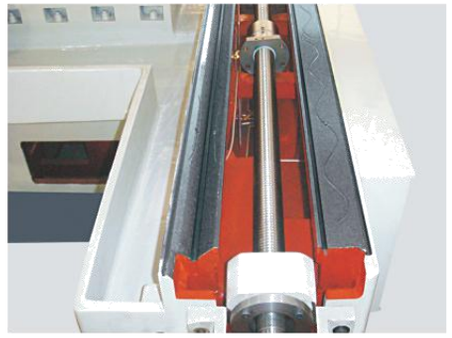






Guide Rail

V and flat guide rail combined design, make sure the machine run stable.

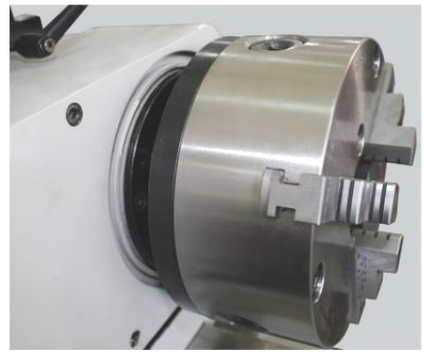


C3 Ball Screw

Due to the static pressure lubrication, the frictional interaction can be reduced, and the rigidity and positioning accuracy can be increased. The minimum feed is within 1micron meter. (CNC model)

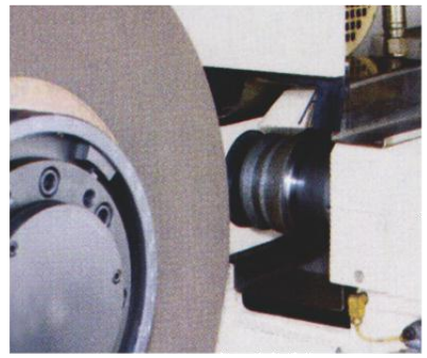
Hand Shovel

The rail contact surface is protected by precision hand shovel and the lubricating oil system reduces metal friction to ensure high precision and axial movement.



Spindle Head (special Accessories)

Three-jaw chucks can be installed and can be used with different fixtures to facilitate the grinding of different tools. The spindle has a centering and simultaneous compound function, allowing the user to perform fast conversions in the centering and three-jaw clamping.



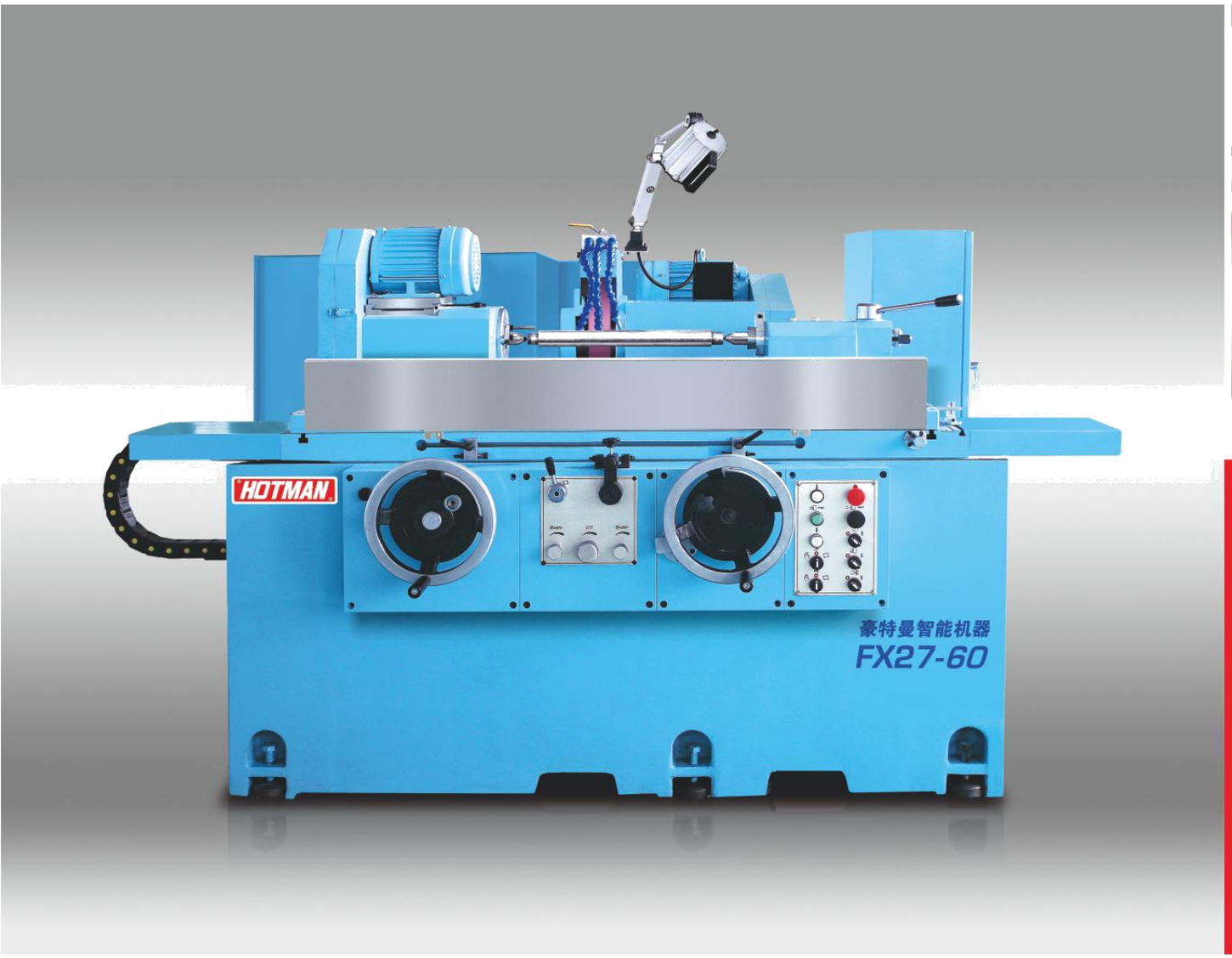
Roller grinding wheel corrector
(CNC Series Optional)

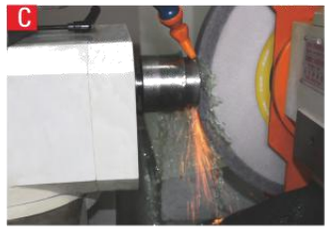
Cylindrical Grinder Series

High Precision Traditional Cylindrical Grinder

· FX27-60
· FX32-100

Hydraulic Semi-automatic





A Straight Grinding
In small production, the automatic feed is combined with the non-sparking timer for good grinding quality. In the case of mass production, the automatic outer diameter measuring device (special accessory) is installed to provide the best output and grinding effect (CNC model)

B Cross-grinding
The automatic intermittent feed and hydraulically driven table allow the workpiece to be effectively ground.

C Face Grinding
Remove the rotating cover of the working spindle head and replace it with a three-jaw or four-jaw chuck. Change the position of the positioning tip to rotate the chuck and fix it at 90 degrees for end grinding.

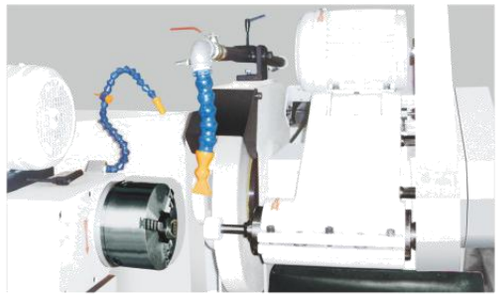
D Shoulder Grinding
When the outer diameter of the workpiece and its shoulder need to be finished once, the workpiece is supported by two centerings and the grinding wheel is modified to the right of the grinding wheel head and rotated at an angle to grind.

E Slope Grinding
The work object can be supported by the chuck or the two centerings, and the work bench and the grinding wheel head can be rotated and adjusted easily

F Inner Diameter Grinding
Grinding the inner diameter of the inner diameter grinding attachment (special accessory), as long as the inner diameter grinding spindle is pulled down and fixed in the grinding position, it can be ground.

Specially Designed Grinding Wheel Spindle

The line speed can be adjusted from 35m/s to 60m/s in the case of adding a frequency converter. It has a great efficiency in grinding ultra-hard parts such as tungsten steel and ceramics.



Inner Hole Grinding Device (optional)

Speed	Inner diameter range	Max. depth
20,000rpm	Φ25~45mm	100mm
30,000rpm	Φ12~25mm	60mm

Machine Specification

Project		Unit	FX27-60	FX32-100
Processing capacity	Bench Rotation	mm	270	320
	Spacing Between Two Centers	mm	600	1000
	Max. Weight Of The Workpiece (With Thimble)	kg	60	150
	Max. Weight Of The Workpiece (Single Work Head)	kg	20	40
Grinding wheel and feed	Angle Of Rotation (Left/Right)		±15°	±30°
	Standard Grinding Wheel Size (Outer Dia. * W * Inner Dia.)	mm	405×32-50×127	510×50-80×127
	Special Grinding Wheel Size (Outer Dia. * W * Inner Dia.)	mm	355×32-50×127	610×60-100×203
	Grinding Wheel Shaft Speed	R.P.M	1650/1850/2100	1570/1742
	Moving Distance	mm	270	320
	Rapid Feed Stroke (Hydraulic Automatic)	mm	40	40
	Spindle Stroke (Feed Per Revolution)	mm	20	20
	Spindle Stroke (Per Differential Feed)	mm	0.005	0.005
Head frame	Spindle Rotation Mode		Movable/fixed spindle	Movable/fixed spindle
	Worker Rotation Angle		30°	30°
	Angle Of Rotation Of The Grinding Wheel		90°	90°
	Spindle Speed	R.P.M	50~300	10~500
	Thimble Taper		MT-4	MT-5
	Diameter Of Spindle Through Hole	mm	25	30
Tailstock	Spindle Travel	mm	32	32
	Taper Thimble		MT-4	MT-4
Workbench	Work Rotation Angle		6°	4°
	Angle Of Rotation Of The Grinding Wheel		9°	9°
	Handwheel Per Revolution Feed	mm	12.5	12.5
	Automatic Feed Rate	mm/min	50-4000/min	50-3000/min
Internal control grinding device	Spindle Speed	R.P.M	20,000(30,000)	20,000(30,000)
	Motor	KW(HP)	0.75(1)	0.75(1)
Motor	Grinding Wheel Shaft	KW(HP)	3.75	5.5
	Work Head Spindle	KW(HP)	0.75	1.5
	Hydraulic Power Circulation Pump	KW(HP)	0.75	1.5
	Static Pressure Spindle Oil Pump(optional)	KW(HP)	1.5	1.5
	Grinding fluid pump	KW(HP)	0.37	0.37
Box capacity	Static Pressure Spindle Tank (optional)	L	120	120
	Hydraulic Power Circulation Tank	L	70	70
	Grinding Fluid Tank	L	200	200
Others	Mechanical Device Space (L * W * H)	mm	2700×1520×1650	4200×2330×1950
	Net Weight	kg	2500	5000

Standard Accessories

- Wheel remover (1 pcs)
- Wheel balance bar (1 pcs)
- Wheel balancer (1 pcs)
- Tungsten carbide full dome needle (2 pcs)
- Lubricating oil device (1 set)
- Wheel trimming device (1 set)
- Bench rotation angle (1 set)
- Hand tools and toolbox (1 set)

A. Percentage scale(1 pcs)
B. Oil can(1 pcs)
C. Flat screwdriver(1 pcs)
D. Cross screwdriver(1 pcs)
E. Combination wrench(1 pcs)
F. Open end wrench(6 pcs)
G. Hexagonal wrench(10 pcs)
H. Diamond trimming knife (1 pcs)

- Standard grinding wheel and flange(1 set)
- Standard grinding fluid supply device(1 set)
- Waterproof board(1 set)
- Operation manual, parts manual, inspection report(1 set)

Special Accessories

A. Two-point stable support
B. Three-point stable support
C. Three-jaw chuck and face plate
D. Magnetic chuck and face plate
E. Magnetic grinding fluid dust removing device
F. Electromagnetic paper bag two-stage filter device
G. Grinding wheel angle trimming device
H. Grinding wheel arc trimming device
I. Spare wheel flange
J. Tungsten carbide half dome thimble
K. Automatic puller (6/group)
L. Workpiece support (2/group)

Cylindrical Grinder Series

High Precision CNC Cylindrical Grinder

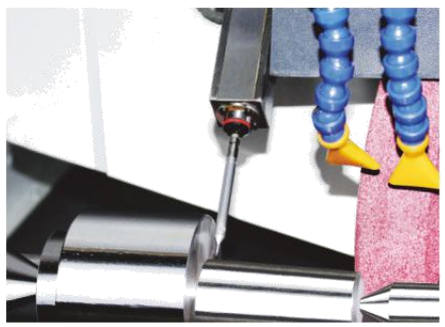
· FX27P-60CNC

- The grinding wheel trimming device can be selected to achieve precise CNC trimming, adapting to the ordinary outer circular surface, tapered surface, forming outer circular surface, R surface and groove grinding.
- The imported or domestic online measuring device is configured to realize the full closed-loop control of the grinding process.
- Comprehensive control capabilities such as fault self-diagnosis and abnormal alarm
- A robotic automation system can be added to achieve fully automated flow.

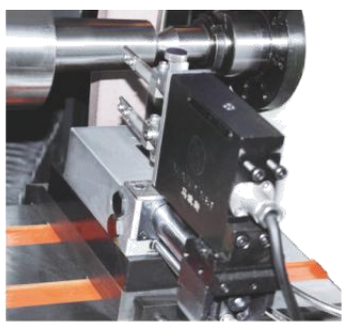
· FX32P-100CNC

- It is easy to grind and process the shaft workpiece within the length of 1000mm, it can achieve multi-step high-precision grinding by program setting.
- Equipped with imported or domestic online measuring device to achieve full closed-loop control of grinding process
- All-round control functions such as fault self-diagnosis and abnormal alarm.

FANUC System



Automatic end face detection device (optional)



Automatic outer diameter measuring device (optional)

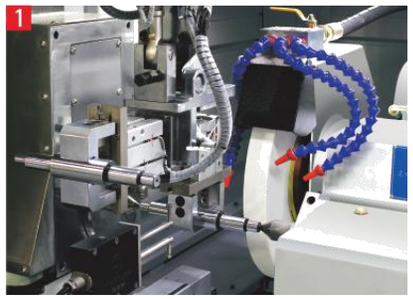
Machine Specification

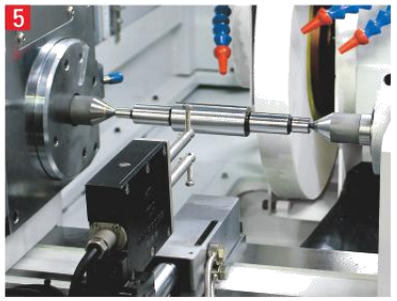
Project		Unit	FX27P-60CNC	FX32P-50CNC	FX32P-75CNC	FX32P-100CNC
Processing Capacity	Worktable maximum diameter	mm	270	350	350	350
	The longest distance between two thimbles	mm	600	500	750	1000
	Maximum grinding diameter	mm	270	320	320	320
	Maximum load between two thimbles	Kg	60(with thimble)/20(only work head)	150	150	150
	Grinding wheel size (diameter * width * aperture)	mm	405×32～50×127	510×50×203.2/610×100×203.2	510×50×203.2/610×100×203.2	510×50×127/610×100×127
	Wheel speed	rpm	1650/1850/2100	1685/1410	1685/1410	1570/1742
	Maximum line speed	m/s	35	45	45	45
Grinding Wheel Head	Feed angle	Deg	90	90	90	90
	X-axis feed rate	m/min	6	6	6	6
	Feed stroke	mm	270	320	320	320
	X axis minimum setting unit	mm	0.001	0.001	0.001	0.001
Head Frame	Spindle speed	rpm	50～500	50～750	50～750	10～500
	Spindle form		Synchronization or centering	Synchronization or centering	Synchronization or centering	Synchronization or centering
	Thimble		M.T4	M.T5	M.T5	M.T5
Tailstock	Automatic telescopic distance	mm	40	40	40	40
	Thimble		M.T4	M.T4	M.T4	M.T4
Workbench	Z axis fast moving speed	m/min	8	8	8	8
	Z axis minimum setting unit	mm	0.001	0.001	0.001	0.001
	Maximum stroke	mm	550	500	750	1000
	Rotation angle	Deg	+6/-9	+7/-3	+7/-3	+7/-7
Motor	Wheel spindle motor	KW	3.75/5.5	7.5/11	7.5/11	7.5/11
	X-axis feed motor	KW	2.2	3.5	3.5	3.0
	Z-axis feed motor	KW	2.2	3.5	3.5	3.0
	Headstock spindle motor	KW	0.75	1.3	1.3	1.5
	Cooling water motor	KW	0.75	0.75	0.75	0.75
	Tailstock pump motor	KW	0.75	0.75	0.75	0.75
	Lubricating oil pump	KW	1/4	1/4	1/4	1/4
Other	Machine net weight	Kg	3200	7200	7500	7500
	Gross weight	Kg	3500	8250	8500	8500
	Package dimensions	mm	2800×2000×2000	4000×3500×2500	4500×3500×2500	4800×3800×3000

Cylindrical Grinder Series

High Precision CNC Cylindrical Grinder

With Manipulator





01 Loading and unloading mechanism of manipulator
02 Semi-finished warehouse
03 Handheld Terminal of Siemens Control System or Manipulator
04 Finished product feeding tray
05 On-line measurement mechanism

Manipulator System

- This equipment is a fully automatic CNC machining form integrating external cylindrical grinding machine and a robot. It can automatically load and unload in the grinding process, realize one-person multi-machine management mode, minimize labor cost and realize the establishment of industrial production line.
- The Siemens system controls the whole machine operation, including online measurement, and abnormal warning. The robot system can adapt to the processing of workpieces of different shapes, it can effectively control the precision and consistency of the workpiece.
- The 90-degree rotary robot minimizes the cumbersome loading and unloading, redundant movements, and full monitoring of the workpiece to prevent the product from colliding with the machine and ensuring the safety of the operator.
- The overall structure of the grinding system is compact, maximizing the use of workshop space and excellent overall cost performance.

The Robot Has Multiple Drive Modes According To Actual Needs.

- Built-in rocker arm type: loading and unloading are completed by two rocker arms
- External type: The external type can advance and retreat from the top, side and front. According to the height of the grinding machine and the size of the product, the external type is mostly right-angle walking type, AC servo motor drive, and is also built in the right angle walking type.
- The built-in rocker arm type is suitable for small parts, with single operation, fast speed and short cycle. The external type is mainly suitable for more complicated parts, multiple processes and convenient connection.

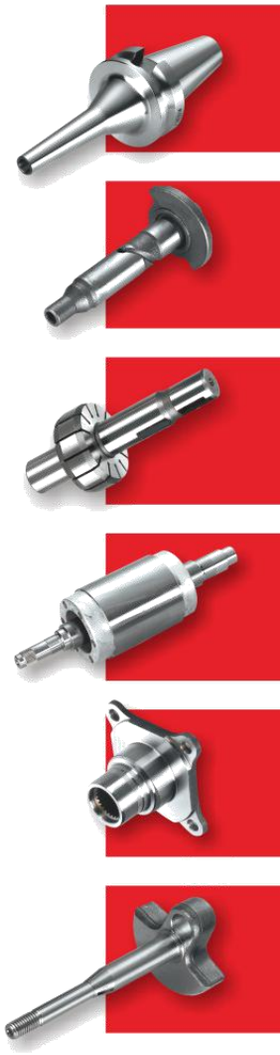
High Precision CNC Cylindrical Grinder

With Robot

Cylindrical Grinder Series

Robot Parameters

Project		Parameter
Robot lifting capacity		10 kg
Robot grip maximum diameter		Ø60mm
Workpiece scope	Part type	Universal shaft parts
	Max. size: diameter	Ø60mm
	Max. size: length	250mm
	Max. workpiece mass	5 kg
Beam (X-axis) material		Steel beam
Beam (X-axis) guide		Roller guide
Beam (X-axis) transmission		Timing belt
Beam (Y axis) material		Steel beam
Beam (Y axis) guide		Roller guide
Beam Y-axis transmission		Timing belt
X axis moving speed		120m/min
X-axis acceleration		0.8g
Y axis moving speed		80m/min
Y-axis acceleration		0.8g
Repeat positioning accuracy (ISO)		0.2 mm
Drive mode		Servo + reducer
Control Method		CNC
Maximum stacking height		400 mm
Automatic rotary storage bin	Station standard	10 stations (expandable to 20 stations)
	Station selection	Motor chain rotation
	Tray feed	Screw drive
Targeting		Similar with switch form
Sheet metal shield		Complete whole machine protection

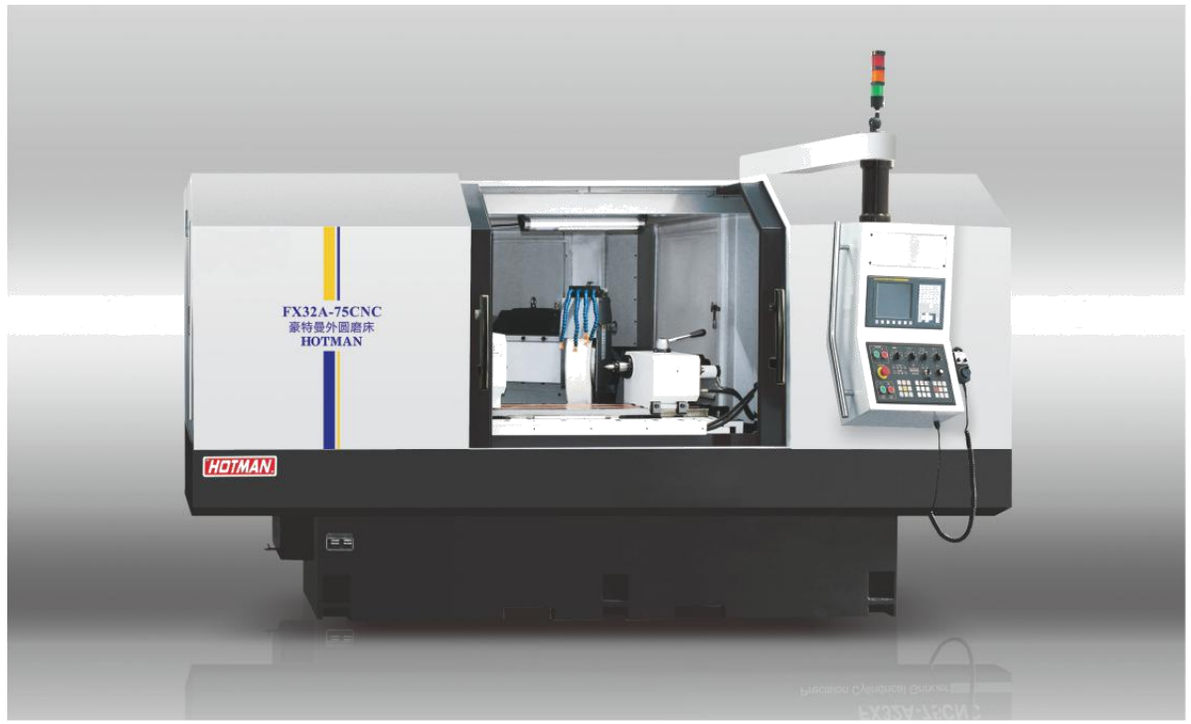


Cylindrical Grinder Series

High Precision CNC Cylindrical Grinder

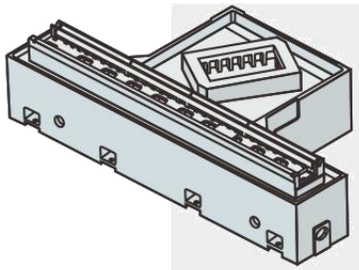
Oblique Feed

- FX25A-50CNC
- FX25A-75CNC
- FX32A-50CNC
- FX32A-75CNC
- FX32A-100CNC



Characteristics

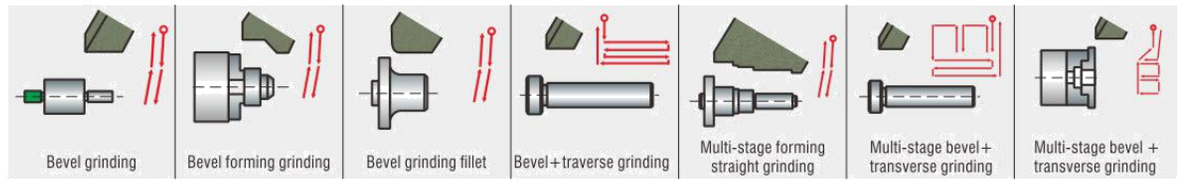
- The grinding wheel spindle has high rigidity, high precision, high service life and low vibration, and low friction.
- The self-aligning function, the wheel spindle is not affected by the belt tension and is biased.
- The spindle has a centering and simultaneous compound function, and the user can perform rapid conversion in the core machining and the chuck clamping process.
- The Z-axis consists of an AC servo motor, a high-precision bead screw, and an automatic forced lubrication system.
- High repeatability, long track service life, high rigidity and smooth reciprocating motion
- Configurable surface measurement, outer diameter thickness measurement, grinding wheel anti-collision device



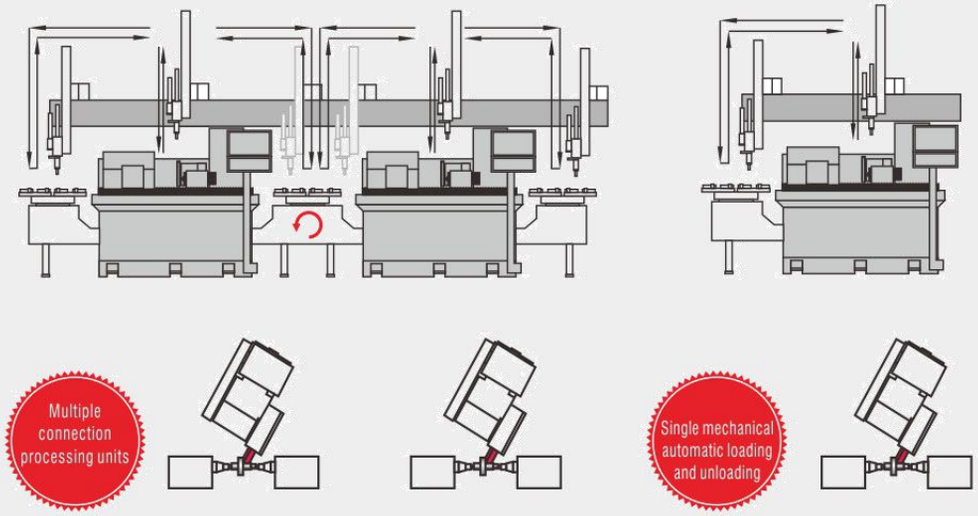
Bench Base Molding

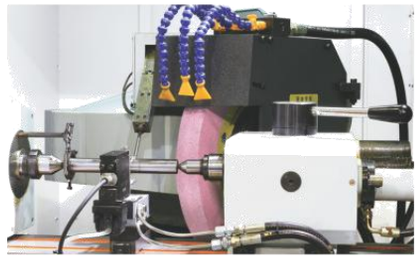
- The be nch is made of Meehanite cast iron. After stewing, the material is stable and rigid.
- The bench has rapid cooling and drainage characteristics to avoid thermal deformation and affect accuracy.

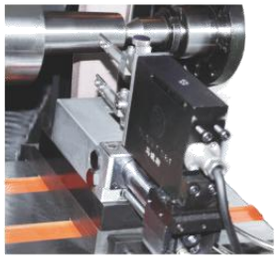
Grinding Method



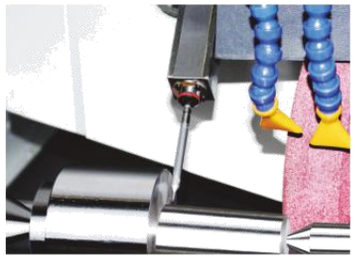
Grinding Wheel Shaping







Automatic outer diameter measuring device



Automatic end face detecting device

Machine Specification

Project		Unit	FX25A-50CNC	FX32A-50CNC	FX32A-75CNC
Processing Capacity	Worktable max. diameter	mm	250	320	320
	Inner longest heart	mm	500	500	750
	Max. grinding diameter	mm	250	320	320
	Max. load between two centers	Kg	80	150	150
	Dia.× width× aperture	mm	510×50×127	510×50×203.2/610×100×203.2	510×50×203.2/610×100×203.2
	Wheel speed	rpm	1670	1680/1410	1680/1410
	Max. line speed	m/s	35	45	45
Control System	Controller		FANUC/SIEMENS/MITSUBISHI	FANUC/SIEMENS/MITSUBISHI	FANUC/SIEMENS/MITSUBISHI
Grinding Wheel Head	Feed angle	Deg	60	60	60
	X-axis feed rate	m/min	6	6	6
	X-axis feed stroke	mm	225	300	300
	X axis min. setting unit	mm	0.001	0.001	0.001
Head Frame	Spindle speed	rpm	50-500	30-500	30-500
	Spindle form		Synchronization or centering	Synchronization or centering	Synchronization or centering
	Thimble		M.T5	M.T5	M.T5
Tailstock	Automatic telescopic distance	mm	40	40	40
	Thimble		M.T4	M.T4	M.T4
Workbench	Z axis fast moving speed	mm/min	8	8	8
	Z axis minimum setting unit	mm	0.001	0.001	0.001
	Maximum stroke		500	500	750
	Rotation angle	Deg	+9/-3	+7/-3	+7/-3
Motor	Wheel spindle motor	KW	4	7.5KW(11KW)	7.5KW (11KW)
	X-axis feed motor	KW	1.5	3.5	3.5
	Z-axis feed motor	KW	1.5	3.5	3.5
	Headstock spindle motor	KW	0.75	1.5	1.5
	Cooling water motor	KW	0.18	0.18	0.18
	Tailstock pump motor	KW	0.75	0.75	0.75
	Lubricating oil pump	KW	0.1	0.1	0.1
Other	Net weight	Kg	3800	7800	8500
	Gross weight	Kg	4100	8200	9000
	Package size (L×W×H)	mm	2700×1520×1650	4000×3500×2500	4500×3500×2500

Accessory

Item	Name		Specification	FX20P/A	FX25P/A	FX32P/A
1	Hydraulic tailstock			△	△	△
2	Wheel balance system			△	△	△
3	End face measuring device			△	△	△
4	Automatic measuring device for outer dia.		Depends on workpiece specification	△	△	△
5	Three-jaw chuck	Need to be ordered at the same time as the backplane	6”	△	△	
6	Three-jaw chuck		7”			△
7	Four-jaw chuck		6”	△	△	
8	Four-jaw chuck		7”			△
9	Grinding wheel flange			○	○	○
10	Grinding wheel	(Outer dia. × width × inner dia.) mm	400×50×127	○	○	
11	Grinding wheel		510×50×203.2			△
12	Grinding wheel		510×100×203.2			△
13	Grinding wheel		610×75×203.2			△
14	Grinding wheel		610×100×203.2			△
15	Wheel flange remover					
16	Tungsten carbide steel thimble		M.T4	○	○	○
17	Tungsten carbide steel thimble		M.T5	○	○	○
18	Diamond pen (axe type) diamond pen holder			○	○	○
19	Level adjustment screw and floor block			○	○	○
20	Half covered sheet metal			○	○	
21	Full covered sheet metal			△	△	○
22	CNC controller		MITSUBISHI	○	○	○
			FANUC	△	△	△
23	Water tank			○	○	○
24	Magnet filter			△	△	○
25	Hydraulic separator			△	△	△
26	Electromagnetic paper with water filter			△	△	△
27	Water tank and cooler			△	△	△
28	Tools and toolbox			○	○	○
29	Balance table and balance bar			△	△	△
30	Two-point center frame			△	△	△
31	Three-point center frame			△	△	△
32	Instruction manual and factory-included book			○	○	○

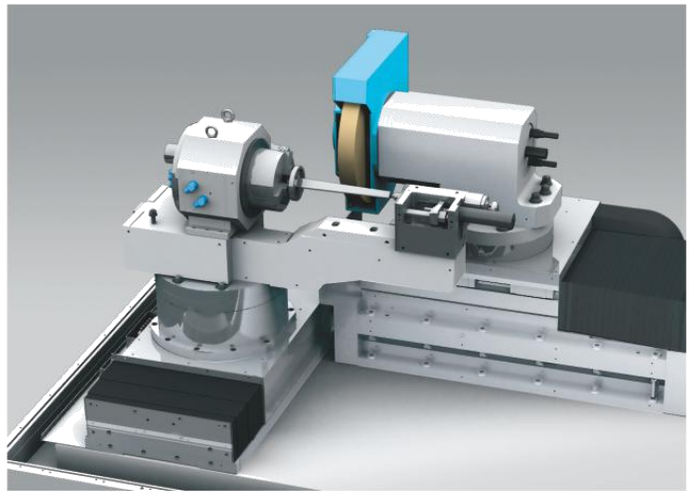
Note: “O” means standard, “△” means optional.

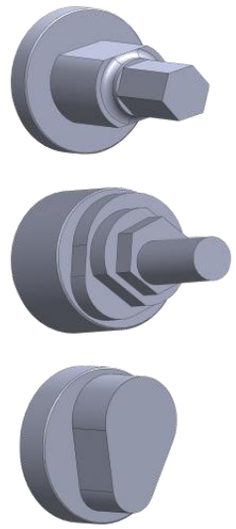
Shape Grinder Series

Precision CNC Special Shape Grinder

Special Model

· SOD31





China's First Special Shape Grinding Machine

The first high-precision CNC special shape grinding machine in China, which can grind eccentric shaft, polygon, ellipse, cam, etc.
High precision grinding of various non-circular shapes. Replacing the punch industry, the surface grinder + punch former manually grinds shaped workpieces, reducing labor costs while achieving higher precision workpieces.

Comprehensive Features

Main Body
The body and components are made of Meehanite cast iron FC-30. After artificial normalization heat treatment and the natural aging treatment, the internal stress of the main body is eliminated, and the precision of the processing surface is maintained.

Automatic Lubrication System
The slides and screws are continuously lubricated by the automatic lubrication system to ensure a longer service life and to maintain optimum accuracy over the long term. The cooling and lubrication system are separate from the main body, eliminating vibration and facilitating heat dissipation.

Grinding Wheel Head
Grinding feed is driven by the latest linear motor for smooth motion, excellent accuracy and repeatability, and long service life.

Wheel Spindle
The grinding wheel electric spindle system adopts oil cooling method and adjusts the line speed according to the requirements of the workpiece to obtain better precision and roughness.

Work Head
It adopts the German Rust DDR rotating motor, which has the characteristics of large torque and high rotation precision.

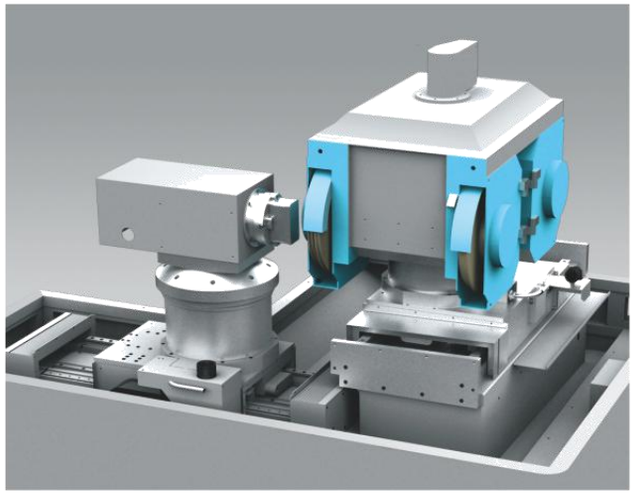
Control System
The machine tool control system adopts the shape control system from LYNUC, it cooperates with the LYNUC linear motor to obtain high compatibility. The program runs stable and the feed is accurate.

Precision CNC Special Shape Grinder

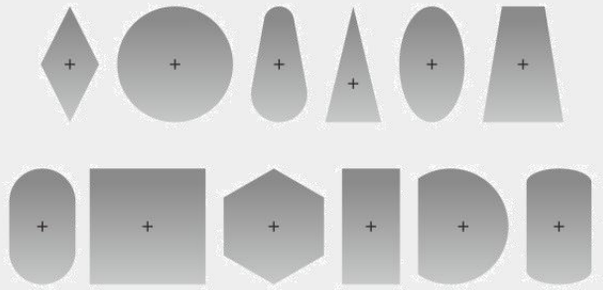
· SOD54

Special Model

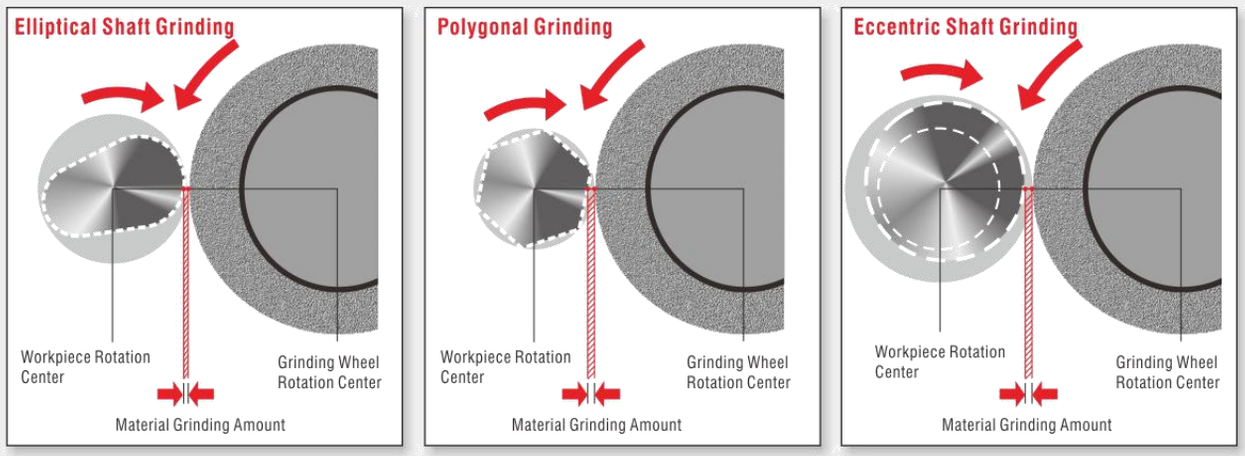
Shape Grinder Series



It can meet a variety of shape for grinding needs



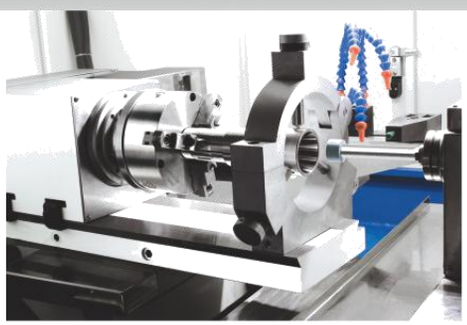
Through the system program control, the servo motor working head is linked with the Y axis to calculate the grinding amount of each point of the workpiece material. N times of repeated infeed grinding, resulting in high precision special shape workpieces.



Internal Grinder Series

High Precision CNC Internal Grinder

- IG150
- IG150-I 工作台加长型



Lengthen the workbench with the center frame, and the length of the workpiece can be up to: 800mm

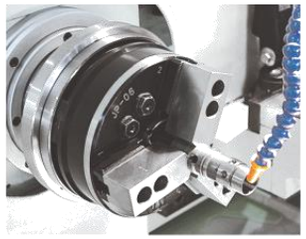
FANUC Control System (Option)

Advanced CNC Controller

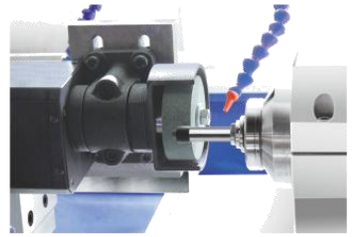
- Flexible control, increased functionality, and easy change
- Abnormal history record, troubleshooting instructions, improve after-sales service efficiency and quality
- Processing digitalization, improving accuracy, establishing standardization, and ensuring product quality stability and consistency

Comprehensive Features

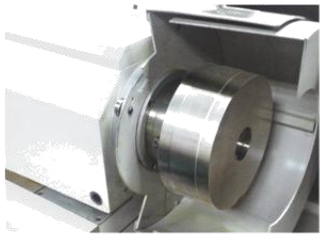
- The body design is ergonomically designed for easy operation
- Compact internal grinding machine with small installation space and suitable for any workshop
- The sliding surface adopts static pressure automatic lubrication system, which has smooth movement and good wear resistance.
- Fully automatic grinding：rough grinding，trimming, fine grinding, non-sparking grinding cycle action. High precision, easy operation and greatly increased production capacity. Suitable for mass production and grinding of a small amount of different form workpieces.
- The head frame rotates with P4 high-precision spindle bearings, featuring high precision, high rigidity and quiet operation.
- The feed shaft is equipped with a precision ball screw, which is driven by a servo motor and can be fed without a section.
- Trimming mode is CNC automatic correction and trimming
  (1) If you use diamond or CBN grinding wheel, you can choose not to correct the trimming mode.
  (2) For workpieces that are difficult to grind, multiple correction modes can be selected to ensure the best processing quality.
- In mass production, automatic production equipment such as automatic feeding and automatic unloading can be installed.



Hydraulic three-jaw chuck device (special accessories)

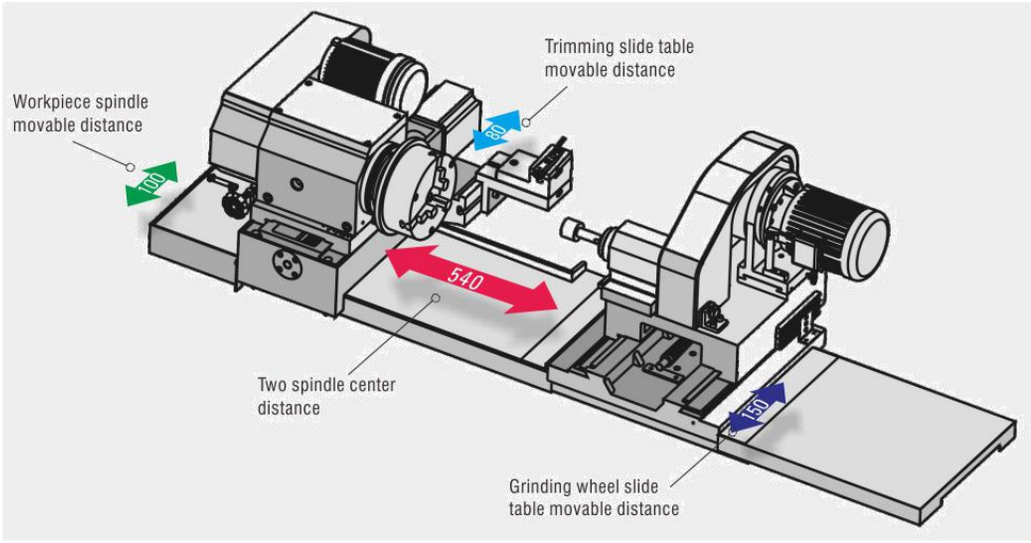


Diamond roller device (special accessories)

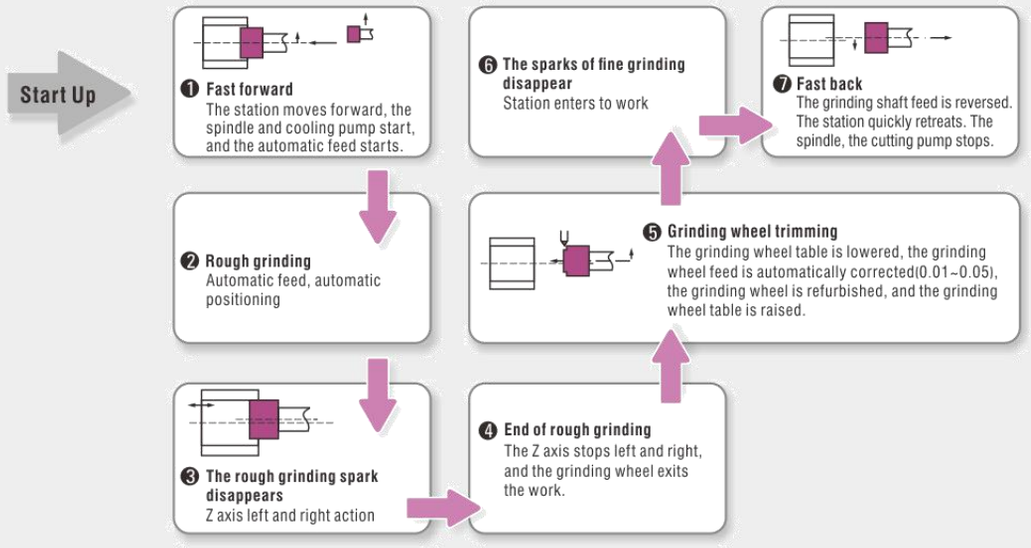


Magnetic plane work head

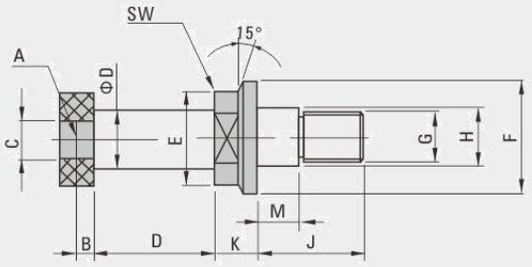
Slide Table Movable Range



Fully Automatic Grinding Cycle



Wheel Spindle



SNCM-8
HRC=52~54
Carburizing depth:1mm

Note:
The best grinding workpiece has a hole diameter to grinding length ratio of 1:3 and a maximum g rinding length of 150mm.

Optional Motor Spindle (Special Accessories)

	Aperture Φ	Grinding Wheel Spindle, Speed (r.p.m)	size										
			A	B	C	D	E	F	G	H	J	K	SW
Spindle	80-150	6,000	M8	12	12	Φ40×50 Φ40×106	50	57	M26×2.0P	28	42	16	18
	40-80	10,000	M8	10	10	Φ20×50 Φ25×70 Φ30×90	32	38	M16×1.5P	17	29	15	12
	25-40	20,000	M6	8	8	Φ16×40 Φ20×58 Φ24×80	24	32	M14×1.5P	15	27	10.5	11
	16-25	30,000	M4	8	6	Φ10×25 Φ13×30 Φ16×40	21	26	M10×1.5P	10.5	21	9.5	9
	13-16	40,000	M4	/	/	Φ8×25 Φ10×30 Φ12×40	17	23	M8×1.25P	8.5	19	8.5	7
	8-13	50,000	M4	/	/	Φ6×20 Φ7×25 Φ8×30	15	20	M7×1.0P	7.5	18	7	7

Machine Specification

Project	Unit	IG150	IG150-I
Grinding inner dia. range	mm	Φ6~150	Φ6~200
Grinding hole for the longest depth	mm	150(Integrated spindle max. grinding depth: 300mm)	200
Bench rotation dia.	mm	520	520
Rotation dia. inside the waterproof cover	mm	320	320
Max. stroke of the workbench	mm	540	540
Workpiece spindle rotation speed	r.p.m	0~3000	0~3000
Spindle table slide feed speed	m/min	8	8
X-axis feed rate	m/min	8	8
X axis min. moving unit	mm	0.001	0.001
Z axis min. moving unit	mm	0.001	0.001
Spindle table rotation adjustment angle		Forward 15° backward 2°	Forward 15° backward 2°
Feeding method		Servo motor	Servo motor
Wheel motor	2HP	2 (Three-phase motor)	2 (Three-phase motor)
X-axis servo motor	KW	1.5(1 axis)	1.5(1 axis)
Z-axis servo motor	KW	2.0	2.0
Floor area	mm	2500L×2100W	2500L×2100W
weight (about)	KG	3000	3200

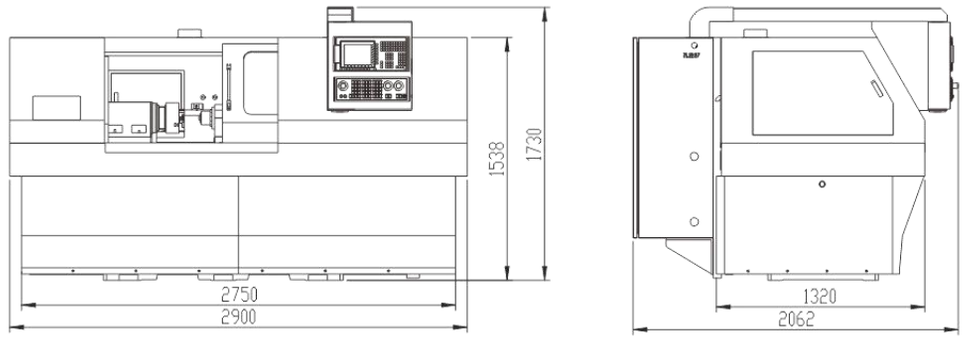
Standard Accessories

1. Grinding cooling device (water tank / water pump / water pipe) (1 set)
2. Diamond trimming pen (1 pcs)
3. Angle adjustment table (1 pcs)
4. Toolbox (hex wrench set / Open end wrench/ screwdriver) (1 pcs)
5. Spindle grinding wheel post (3 pcs)
6. High-speed grinding spindle (RMP optional) (1 pcs)
7. Basic adjustment block (6 pcs)

Special Accessories

1. Hydraulic three-jaw chuck
2. Chuck flange
3. Mechanical spindle: 10,000/20,000/30,000rpm
   Electric spindle: 40,000/100,000rpm
4. End face detecting device
5. Magnet filter
6. Paper tape filter
7. Closed full cover and automatic door
8. Inner diameter automatic measuring device

Appearance Size And Floor Space



Compound Grinder Series

High Precision Compound Grinder

Create A New Revolution In The Grinding Of Compound Grinding Machines!

It can realize one-time clamping and carry out compound grinding of inner circle, inner cone, outer circle, outer cone and end surface.

Comprehensive Features

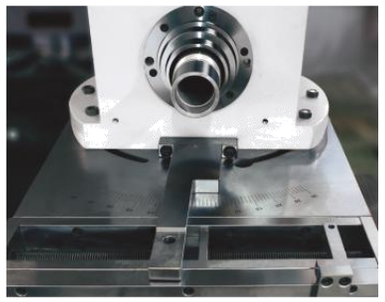
- Provides a complex solution for high-precision grinding of small and medium-sized workpieces.
- Machine tool industry, automotive engineering, tool and mold industry, aerospace industry, pneumatic / hydraulic, electronic /
- Electrical engineering, medical technology, watch industry.
- Modular design, you can choose different grinding wheel spindle combination to fully meet the processing all the requirements.
- The control system interface makes the operation and programming system very simple and easy to learn. The programming software directly programs the workpiece grinding and grinding wheel on the machine control system, it can also be programmed on an external computer.
- It can be equipped with automatic load and unload system to meet the needs of industrialized mass production.

- **CG45** Work head automatically adjusts the angle
- **CG45-I** Work head manually adjust the angle

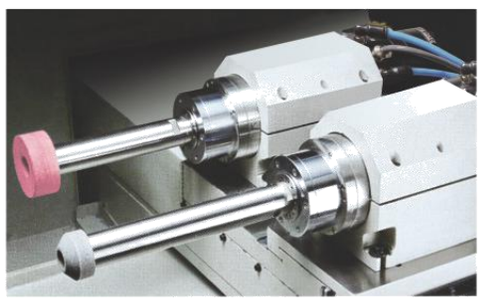
- **CG32**

Online measuring device

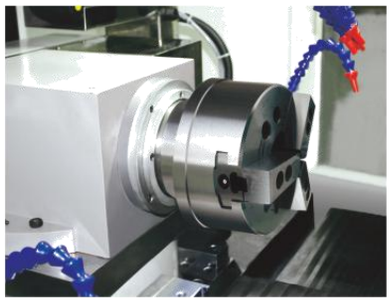
Internal grinding wheel
workpiece stroke: 0~470 mm
External grinding wheel
workpiece stroke: 0~365 mm



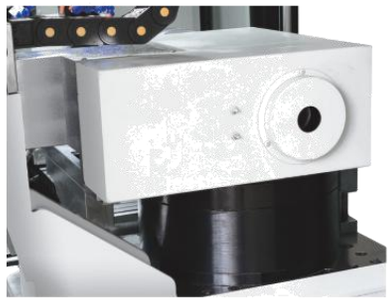
Spindle rotary table manual adjustment angle device



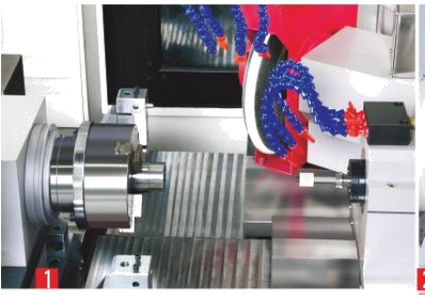
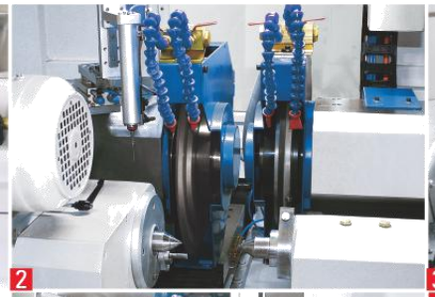
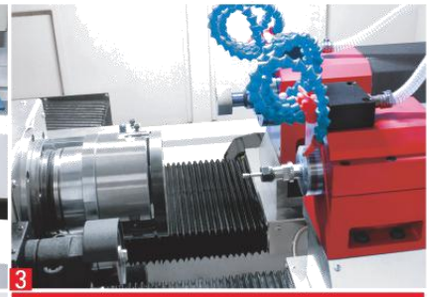
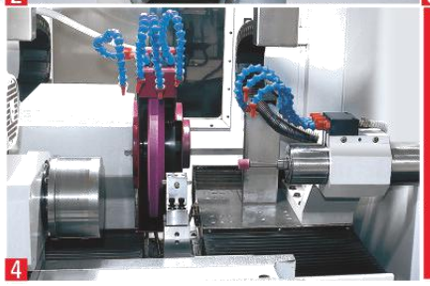
Inner circle double spindle



Hydraulic three-jaw chuck
(special configuration)



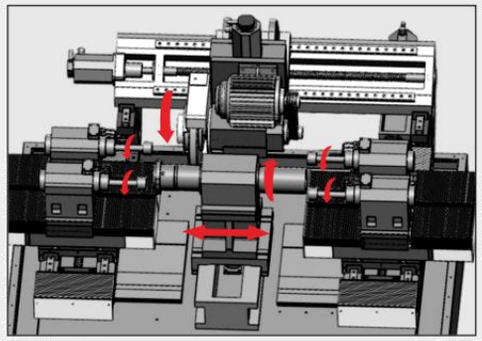
Work head rotating motor
(special configuration)

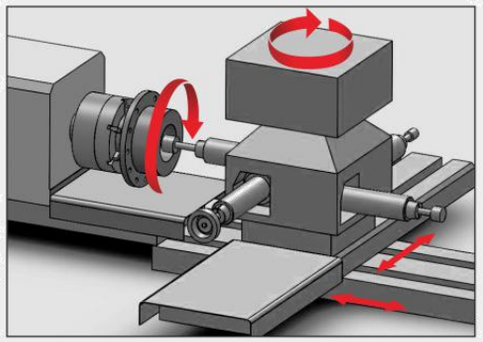
Grinding Wheel Head Modular

1.Bevel outer cylindrical grinding wheel + inner hole grinding wheel
2.Double outer grinding wheel
3.Double internal grinding wheel
4.lanting outer cylindrical grinding wheel + inner hole grinding wheel

Conceptual Model

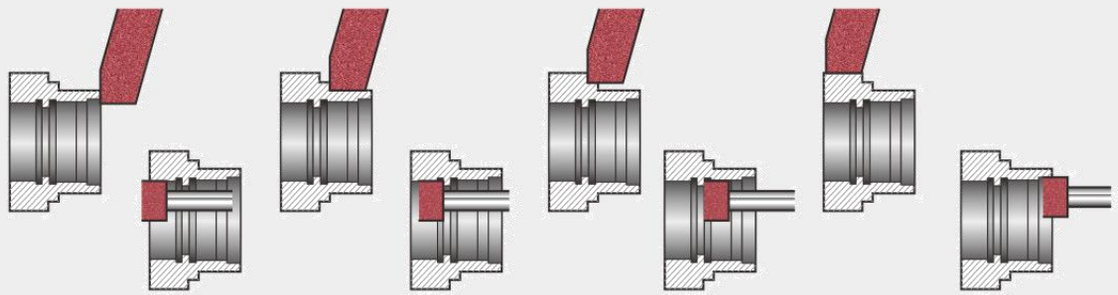


Double-head compound grinding machine



High precision CNC compound grinder

Grinding Method



Machine Specification

Project		Unit	CG32
ability	Max. outer diameter of the workpiece	mm	Φ200
	Wheel size	mm	Φ405*32～60*127
	Max. length of the workpiece	mm	200
	Inner diameter grinding range	mm	6～100
	Max. grinding depth	mm	150
	Workpiece clamping max. length	mm	200
	Axis mid-to-ground height	mm	1050
Feed skateboard	X1, X2 axis feed	mm	330(Option)
	X, X2 axis max. feed rate	mm/min	18,000
	X1, X2 axis min. resolution unit	mm	0.0001
Work head	Z axis fastest feed rate	mm/min	10,000
	Z axis min. feed unit	mm	0.001
	Z axis min. resolution unit	mm	0.0001
	Rotation angle	deg.	+15～-5(手动)
	Spindle rotation speed	r.p.m	0～1,000
Drive motor	X1 outer circular motor spindle	KW	5
	X2 inner circular motor spindle	KW	5
	Working head drive motor	KW	0.37
	Coolant pump motor	KW	0.37
other	Coolant tank capacity	L	200
	Mechanical size (L * W * H)	mm	1900*2053*1914
	Machine weight	kg	4,000

Project		Unit	CG45	CG45-I
ability	Max. outer diameter of the workpiece	mm	Φ400mm	Φ320
	Wheel size	mm	Φ405*32～60*127	Φ405*32～60*127
	Max. length of the workpiece	mm	200mm	150
	Inner diameter grinding range	mm	Φ6～200mm	6～100
	Max. grinding depth	mm	200mm	100
	Workpiece clamping max. length	mm	260mm	200
	Axis mid-to-ground height	mm	1150	1150
Feed skateboard	X, Z axis feed	mm	410+250(Option)	410+250(Option)
	Y, Z axis max. feed rate	mm/min	18,000	18,000
	Y, Z axis min. resolution unit	mm	0.0001	0.0001
Work head	X axis fastest feed rate	mm/min	10,000	10,000
	X axis min. feed unit	mm	0.0001	0.0001
	X axis min. resolution unit	mm	0.0001	0.0001
	Rotation angle	deg.	+15～-5(Manual)	+15～-5(Automatic)/+45～-45(Optional)
	Spindle rotation speed	r.p.m	0～1,000	0～1,000
Drive motor	Y Axis Grinding Wheel Motor	HP	3.75 HP	5HP(2P)
	X, Y, Z axis slider feed (servo motor)	KW	1.5	1.5
	Working head drive motor (servo motor)	KW	1.5	1.2
	Hydraulic pump motor	W	100	100
	Coolant pump motor	KW	0.37	0.37
other	Hydraulic tank capacity	L	2	2
	Coolant tank capacity	L	200	200
	Mechanical size(L * W * H)	mm	2,300*2,200*2,000	2,300*2,200*2,000
	Machine weight	kg	7,000	7,000

Compound Grinder Series

High Precision Compound Grinder

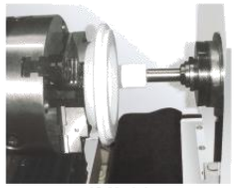
- CG15-II
- CG15-IO

China's First Small Internal And External Composite Grinder

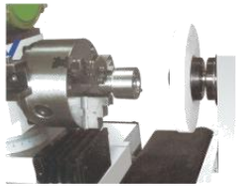
Secondary clamping combined with multiple grinding methods for high efficiency output

- 筒夹行业
- 齿轮行业
- 导套、汽\机车零部件
- 液\气压传动轴套
- 模具零件
- 医疗器械

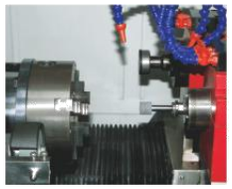
Grinding Form



IG Model
(inner hole grinding)



OD Model
(outer diameter grinding)

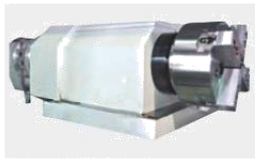


CG Model
(II three-jaw compound grinding)

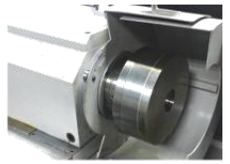
CG Model
(II collet type compound grinding)

CG Model
(IO compound grinding)

Special Accessories



Hydraulic chuck:6″ 8″



Magnetic plane work head

Roller head

Diaphragm chuck

Grinding Process

Rough Grinding → Wheel Trimming → Segmented Grinding → No Spark Grinding Cyclic Action

In the case of segmented fine grinding, the feed rate and feed amount can be set according to the user's requirements, and the stability of the workpiece size and surface roughness can be ensured.

Grinding wheel and puller

Machine Specification

Model		IG15	OD15
Clamping workpiece dia.		Φ3～200mm	Φ200mm
The longest workpiece it can hold		100mm	150mm
Max. stroke	X-Axis	330mm	100mm
	Z-Axis	150mm	330mm
Min. feed	X-Axis	0.001mm	0.001mm
	Z-Axis	0.001mm	0.001mm
Bench speed	X-Axis	0～10m/min	0～10m/min
	Z-Axis	0～10m/min	0～10m/min
Working head speed		0～600rpm	0～600 rpm
Spindle speed		10,000～50,000rpm任選一支	7,500rpm
Motor	Working head	0.75KW	0.75KW
	Spindle	1.1KW	1.1KW
	X-Axis	1KW	1KW
	Z-Axis	1KW	1KW
Machine weight (about)		3000kgs	3000kgs
Processing range		Φ6～80mm(ID)	Φ6～100mm(OD)
Floor area (L × W × H)		1900×1650×1800mm	1900×1650×1800mm
Standard accessories		1.Spindle: Φ90mm (10,000/50,000 rpm) 2.Automatic grinding wheel trimming device 3.Full cover waterproof device 4.Toolbox and accessories	1.Automatic grinding wheel trimming device 2.Full cover waterproof device 3.Toolbox and accessories

★ Grinding aperture and length is 1:3. The maximum length is no more than 150mm

Built-in high-speed motor spindle
(special accessories)

GMN
120,000rpm

DAKE
80,000rpm

Machine Assembly Workshop

Step Grinder Series

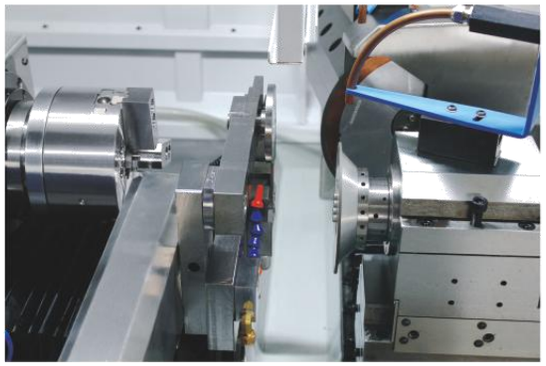
High Precision Central Type Step Grinding Machine

• H3

Diameter range: 0.05 ~ 20mm, with "self-developed control system and software", is first choice of grinding tool for complex geometry and high ratio of height and diameter work piece.

Grinding Solution

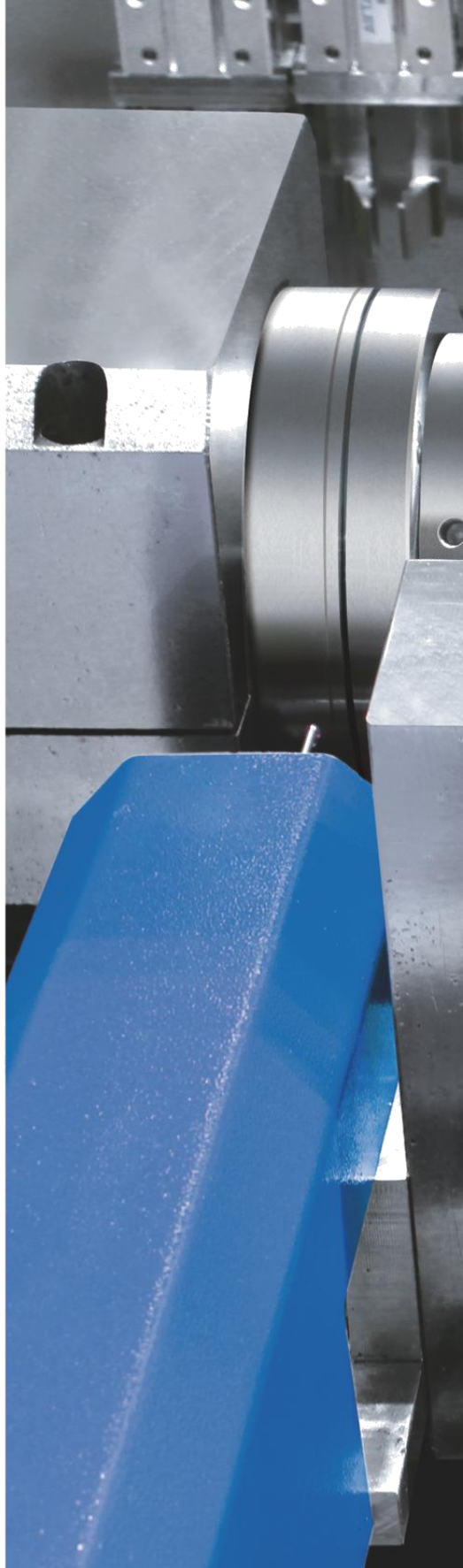
- Grinding diameter range of 0.05~20mm, five-axis precision step grinding machine is equipped with three-axis robot loading and unloading mechanism, especially for the grinding of complex geometries and high ratio of height and diameter work piece.
- On-line measurement system ensures long-term unattended production accuracy during batch grinding.
- The first centering workpiece clamping device in China can obtain superior concentricity in the grinding process.
- The high-speed rotation of the roughing and finishing grinding working in the same time, which helps to achieve the highest level of diameter difference compensation control. The excellent finish of the taper and cylindrical surface.

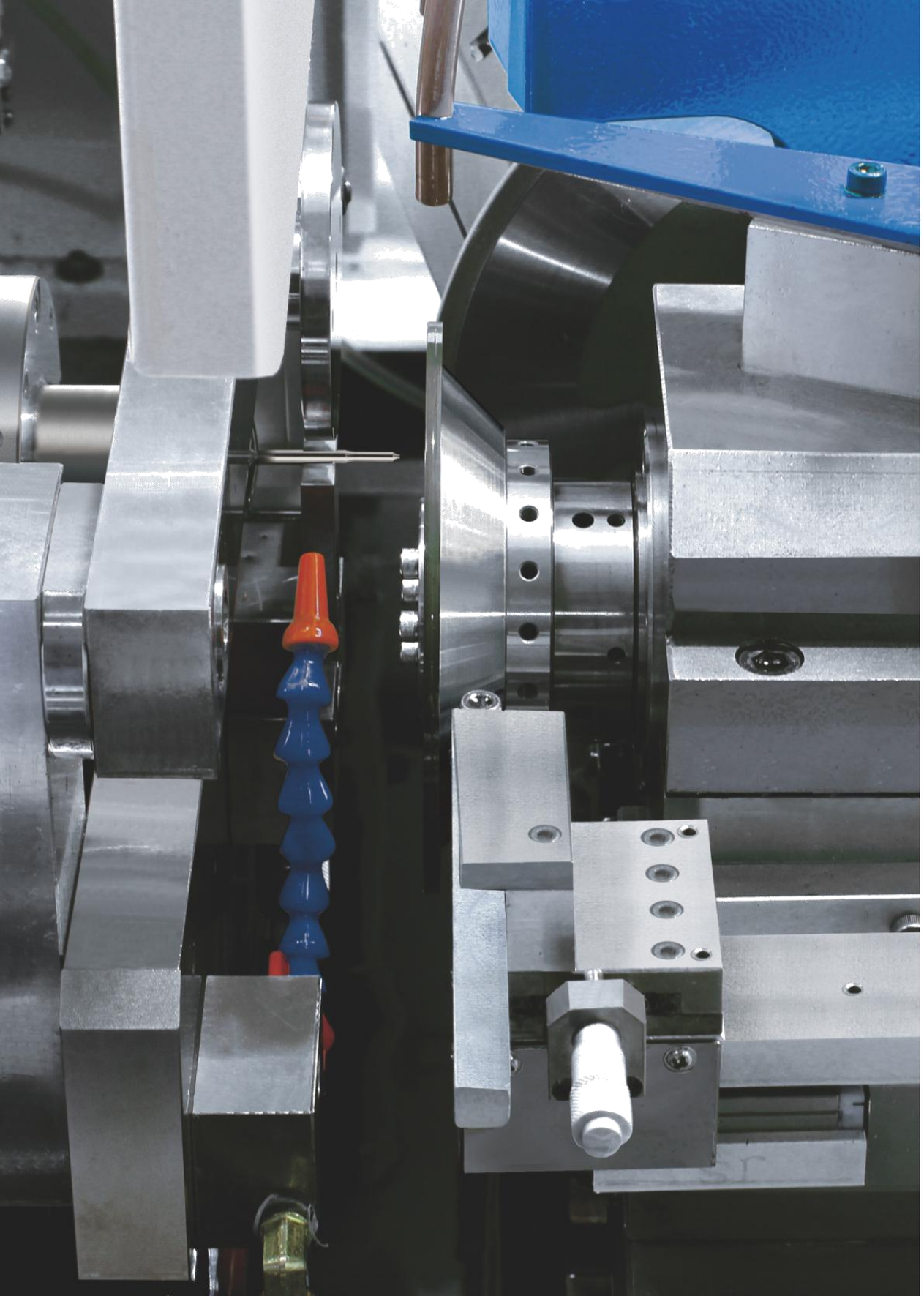


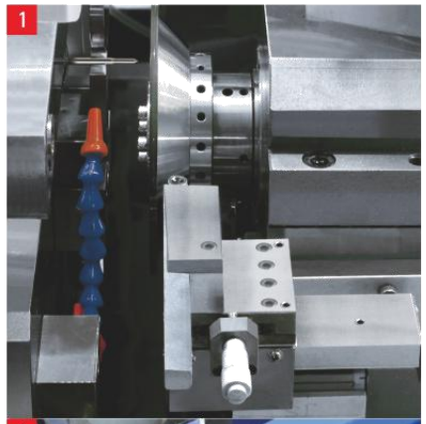
Three-jaw clamping head (optional)

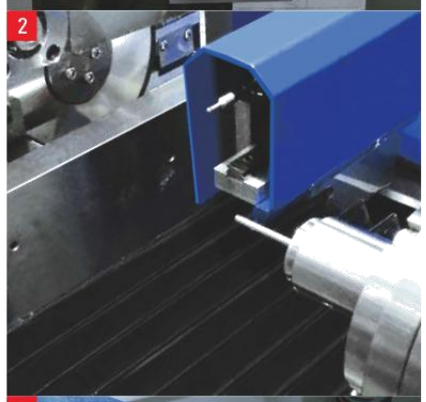
Marble Main Body (optional)

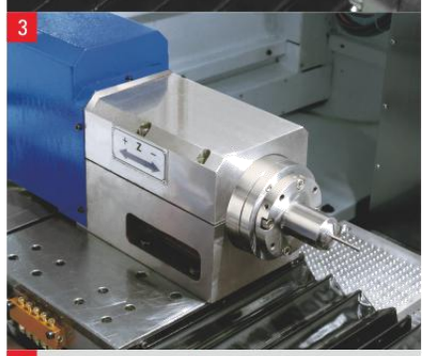
- The rock has long-term natural aging, uniform structure, minimal linear expansion coefficient, complete disappearance of internal stress and no deformation, and good rigidity. High hardness and high wear resistance, so it can maintain mechanical precision for a long time.
- It will not be eroded by acid and alkali, will not rust, and does not need to be oiled. It is hard to stick to dust, easy to maintain and has a long service life.
- No magnetization, smooth movement, no stagnation, no moisture
- Reasonable pre-laying of liquid circulation lines good for mechanical cleaning and maintenance











1 Wheel Trimming Device

Manual trimming, fine adjustment stroke 10mm, manual sliding stroke 50mm

2 Online Measuring Device

Length positioning, real-time monitoring and compensation for errors caused by loading clamps. The problem of the length of the workpiece is effectively solved during the processing, and the front-end-face positioning is adopted.

3 Workpiece Clamping Device

With the Schaublin clamp from Switzerland, the clamping precision and the durability is good. The clamping system of the grinding machine broadens the application range of the grinding machine, making our grinding machine an efficient production line.
The high-frequency motor spindle is equipped with imported special bearing FAG to ensure high precision and high efficiency requirements. Integrated built-in cooling circuit ensure motor temperature operation.

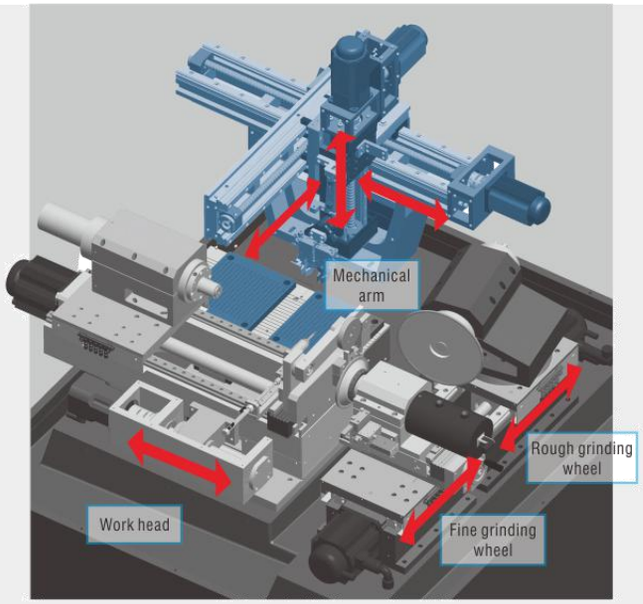
4 Grinding Fluid Filter

After the grinding process, the sewage liquid flows from the sewage tank to the VDF filter tube through the filter pump. After two-stage filtration, the precision can be up to 5 microns (the filter bag usage period is about 3 months), and the filtered powder impurities After backflushing to the scraper box, it will be periodically discharged into the collection box. The filtered liquid will be stored in the cleaning tank for use. When it is used, it will be supplied to the machine through the lift pump.

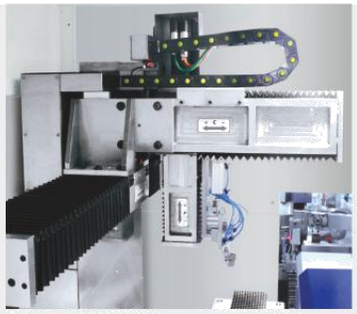
Step Grinder Series

High Precision Central Type Step Grinding Machine

· H3



Mechanical arm automatic solution

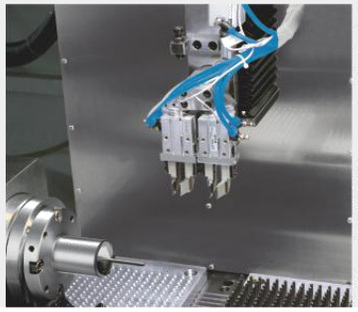


Mechanical Arm Device

The automatic loading and unloading are done by three ANCA servo motors. Through the combination of the precision wire rail and the ANCA control system, the whole loading and unloading work process can be completed efficiently, accurately and conveniently.

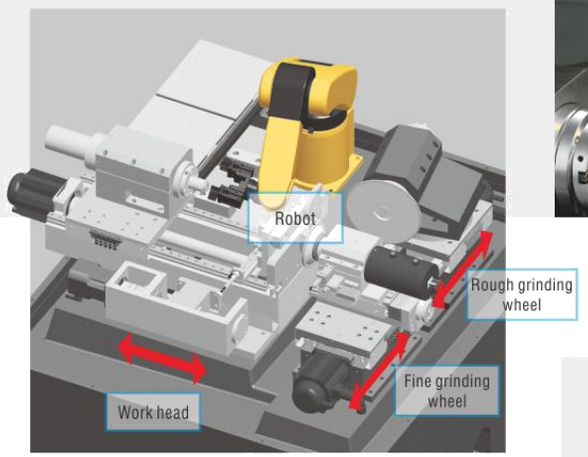
Tray Device

The loading tray and the unloading tray load 340 ~ 510PCS are convenient and flexible to operate, just need to pick up and align the four holes to put back.

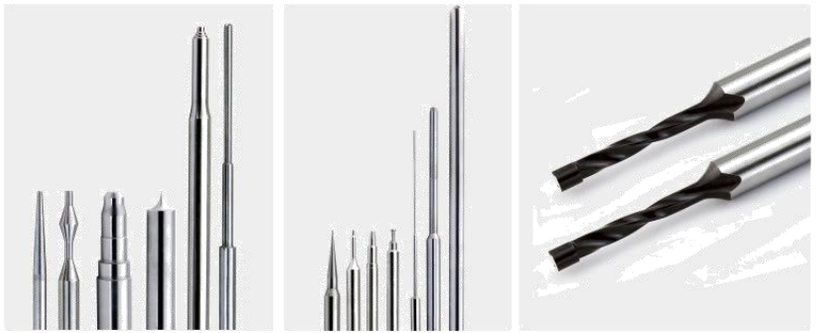


Loading And Unloading Device

Two pneumatic finger cylinders are used to load and unload the product. A rotary cylinder for angle adjustment, the angle of adjustment is 0 ~ 90 °



Robot automatic solution (optional)



Machine Specification

Grinding range	
Grinding workpiece diameter range	Φ0.05~20.0mm
Clamping workpiece diameter range	Φ0.5~20.0mm
Grinding workpiece length	Max: 200 mm
Working head spindle rotation mode	Fixed
Working head spindle speed	2000rpm
Control System	**ANCA**
CNC 4 axis	X/Y/Z1/Z Grinding station
CNC 3 axis	U/V/W Pick-up station
Y axis	Stroke: 350 mm resolution ratio: 0.001 mm
Z axis	Stroke: 100mm resolution ratio: 0.001 mm
X axis	Stroke: 29mm resolution ratio: 0.001 mm
V axis	Stroke: 29mm resolution ratio: 0.001 mm
C axis	Speed: 0~3000 r.p.m resolution ratio: 0.001°
Loading and unloading mechanism load	
Loading diameter	Φ1.0~20.0mm
Total length	20~300mm
Grinding motor and spindle	
Rough grinding wheel spindle motor	8.5/20KW Belt drive, internal cooling
Rough grinding wheel spindle diameter	Φ160/170mm
Rough grinding wheel max. line speed	90m/s
Rough grinding wheel	0~8500 (adjustable speed)
Rough grinding wheel size (outer dia. ×W×inner dia.)	250×20×31.75 mm
Grinding motor and spindle	
Fine grinding wheel spindle motor	2.0/5.0KW
Fine grinding wheel spindle diameter	Φ120mm
Fine grinding wheel max. line speed	90m/s
Fine grinding wheel speed	0~12000 (adjustable speed)
Fine grinding wheel size (outer dia. ×W×inner dia.)	150×20×31.75 mm
L×W×H	2450×1980×1998 mm
Net weight	4800KG

HOTMAN

Self-developed control system and software

7 Axis

Full runtime design, creating user interfaces without programming skills. High-performance interactive technology that enables easy interaction through multiple touch screens for more advanced gesture commands.

Advanced Interface
Allows operators to seamlessly monitor and interact with processed data to deliver a cutting-edge user experience.

Fully Customized
With the latest technology, you can freely move and rearrange buttons and icons to meet the business needs of different users

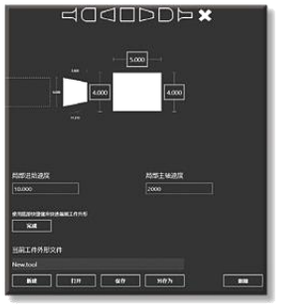
Save Time
Software brings you cutting-edge technology that bridges the gap between IDE developers and non-programming experts.

19-inch Digital LCD Display
Capacitive multi-industry touch screen, complete effective display area, waterproof and oil proof.

Quick Editing Of Artifacts

After the workpiece file is opened, as shown in the figure above, the operator can quickly check the work piece type and size.

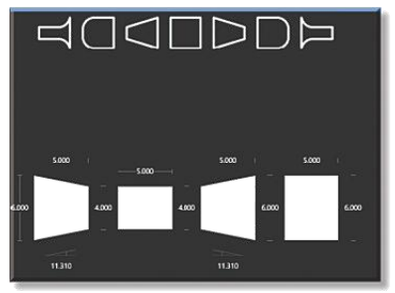
Click the "Edit" button to re-edit the workpiece shape, as shown below, click on each segment of the workpiece type for size editing.

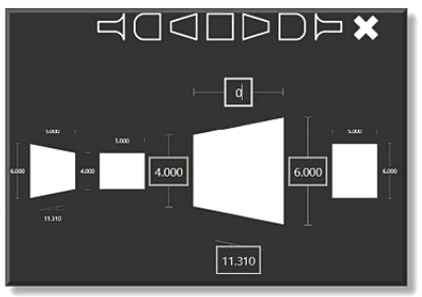


The operator can edit the feed rate and spindle speed of each segment as needed.

Quick Creation Of Artifacts

The operator can also create new tool types. For example, the T-knife is created from left to right (above) and the far right is the end face of the tool. According to the required workpiece type, click the knife type at the top of the screen to add it from left to right, and the rightmost "X" is the delete button.





After setting the shape and size of each segment, you can easily edit the T-knife and set the spindle speed for each grinding feed rate.

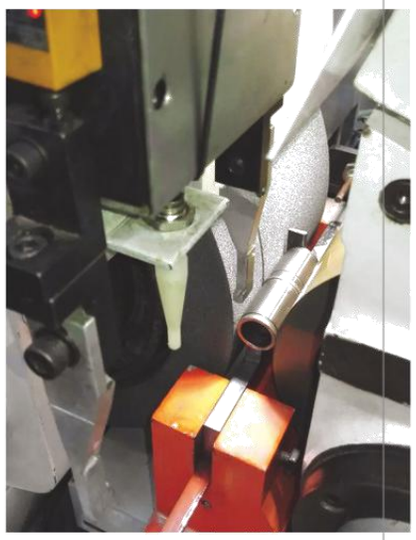
Centerless Grinder Series

High Precision Centerless Grinder

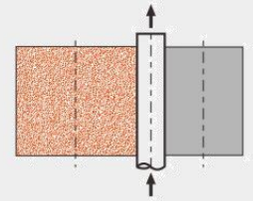
• Precision Mechanism

High Rigidity Body Structure

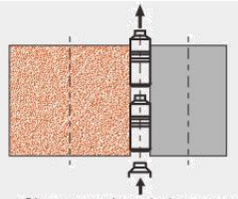
- The bottom of the centerless grinding machine is cast from high-grade cast iron (FC30) and normalized heat treatment. The double V-shaped slide rail design ensures the deformation of the inorganic body after long-term use. Fine adjustment of the upper and lower feeds up to 0.001mm.
- The grinding wheel trimming device can be adjusted to ±6°, and the workpiece and the guide wheel joint are accurate.
- The widest selection of models to meet a variety of grinding needs.
- The most complete selection of equipment to enhance operational functions and convenience.
- The most rigorous testing and quality control of the machine guarantees the best performance, precision and lowest failure rate.



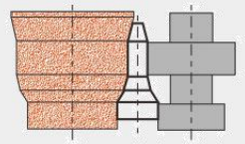
Examples of Grinding



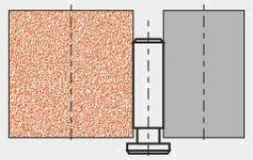
Round bar pass through grinding



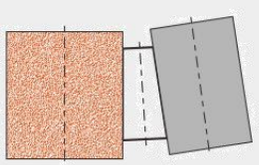
Short round workpiece pass through grinding



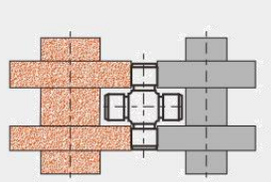
Multi-stage forming grinding



Attachment workpiece press grinding



Taper press grinding

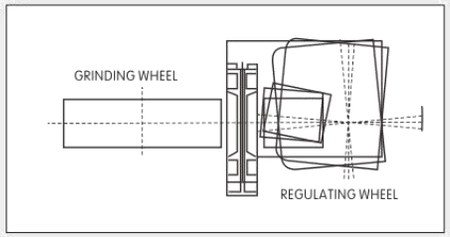


Cross-shaped workpiece grinding

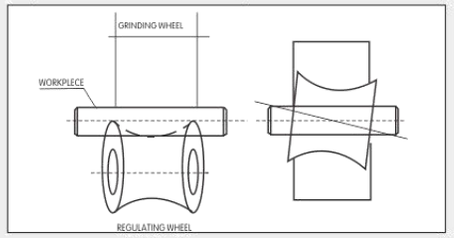
Precision Parts

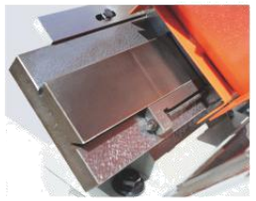
1 Precision hydraulic bearing
2 Precision grinding wheel Spindle and alloy bearing
3 Precision adjustment wheel Spindle and alloy bearing
4 Precision screw
5 Stable sliding table

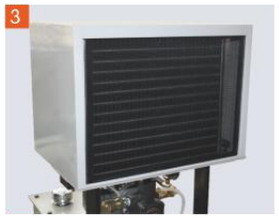
Upper Skateboard

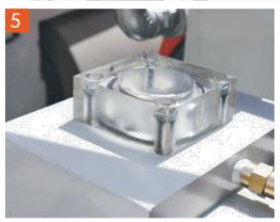


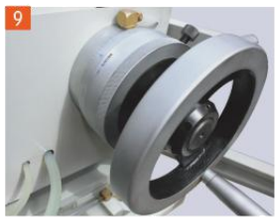
Adjustment wheel trimming device

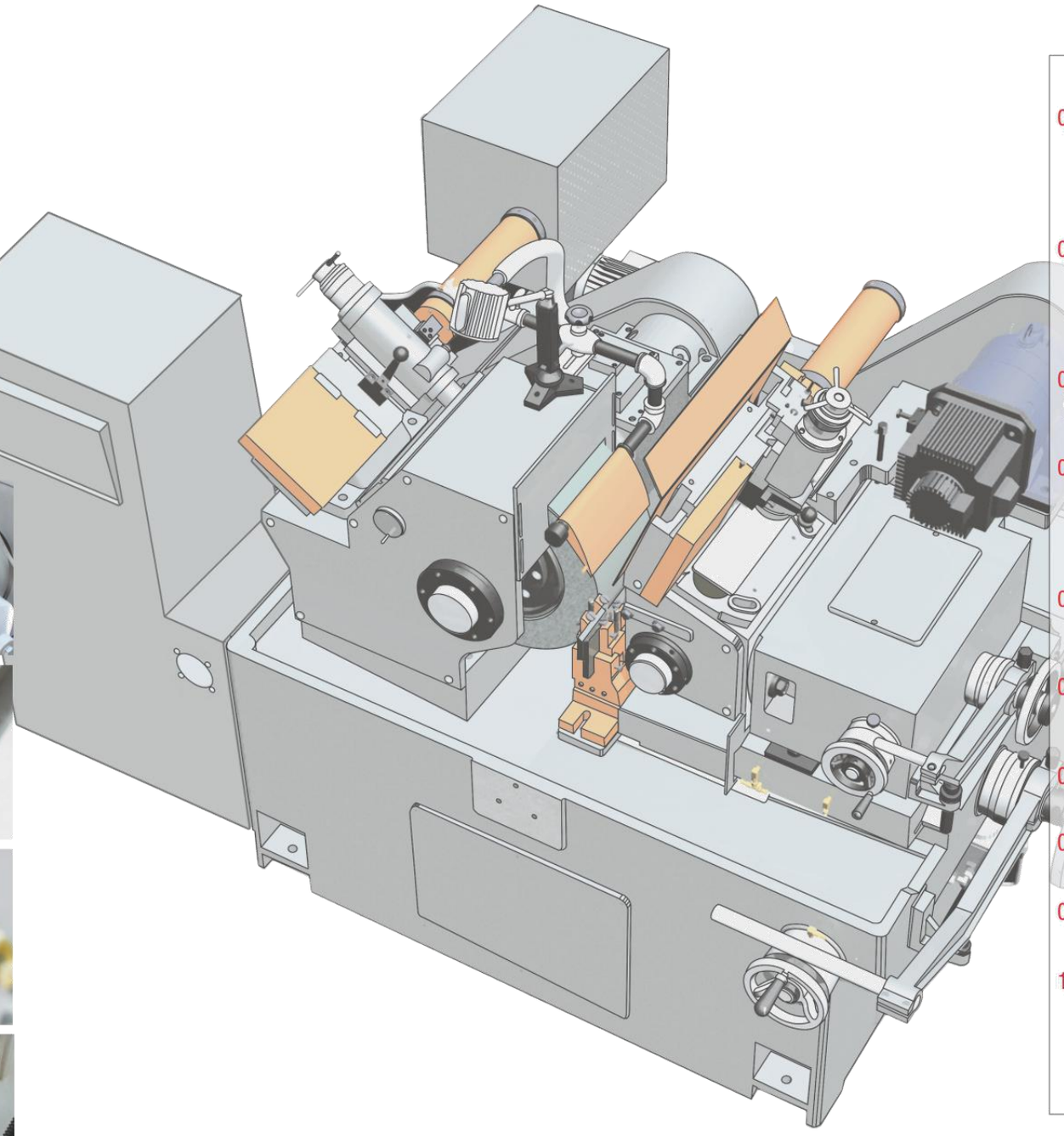












01 Trimming device
The trimming device of the grinding wheel and guide wheel are hydraulically driven, constant speed, and the trimming seat is made of special alloy cast iron, which is processed by stewing and precision shovel, and worn to ensure the flatness and straightness of the trimming.

02 Guide wheel with servo motor
The guide wheel uses the servo motor to move, can be arbitrarily adjusted to the appropriate speed, and the worm gear is used to directly drive the main shaft with the worm wheel. The workpiece is less affected by the vibration and gets better roundness.

03 Cooling fan
Reduces spindle oil to reduce thermal distortion and extend oil seal, spindle and alloy bearing life.

04 Pressure switch
The grinding wheel spindle bearing automatic lubrication system pressure switch, when the lubricating oil pressure reaches the rated number, the spindle motor can not be started or will automatically stop rotating to avoid the spindle dry rotation and damage.

05 Grinding wheel spindle circulating oil observer
To ensure the normal operation of the spindle by observing whether the oil goes bad.

06 Guide wheel trimming R angle
By adjusting this angle, the grinding accuracy of the workpiece is effectively changed when doing the passing through grinding.

07 Oil pressure switch
Used to change the trimming direction and speed.

08 The angle of grinding wheel
To accelerate the axial speed by adjusting the angle.

09 Feeding fine-tuning handwheel
Feeding amount per scale: 0.001mm

10 Spindle oil pressure gauge
The spindle has to work under normal oil pressure, when the pressure is too high, the machine will be stopped automatically.

Centerless Grinder Series

High Precision Centerless Grinder

• FX-12S

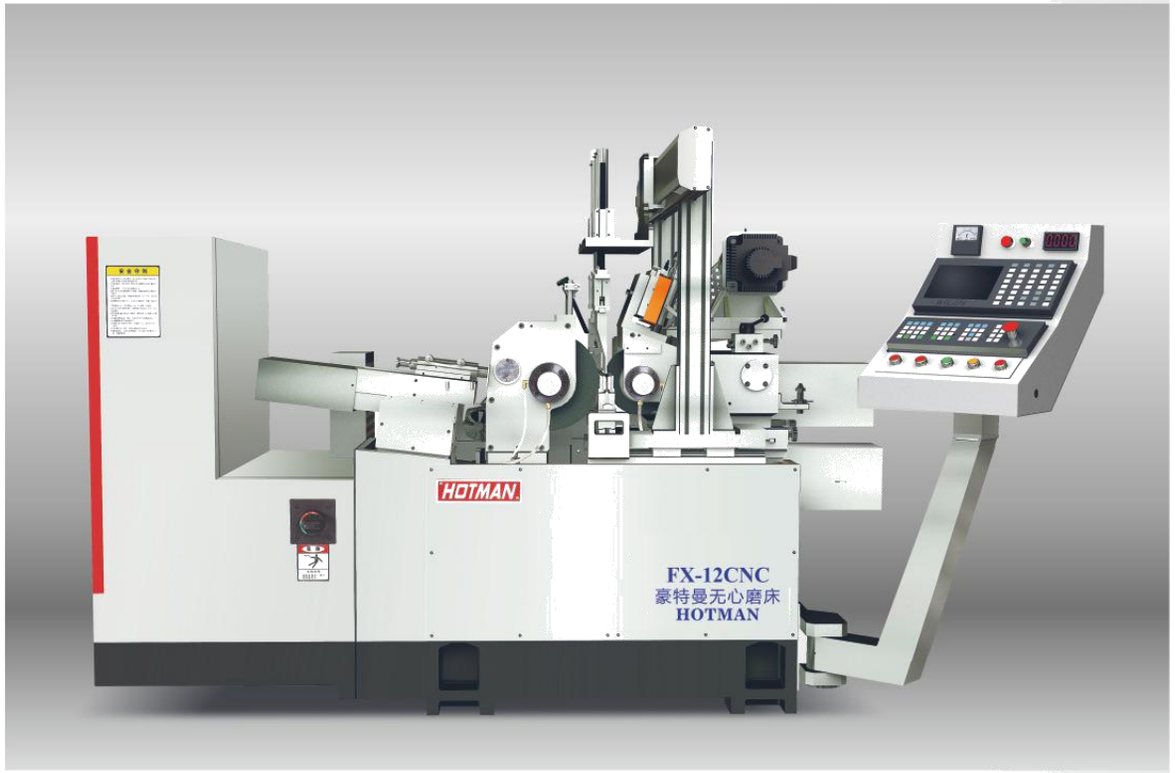
High Precision

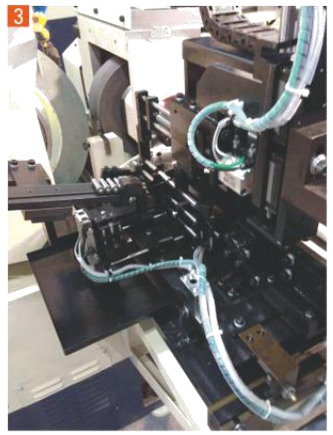
Full-cover type (for pass-through grinding. Oil mist recovery device can be installed)

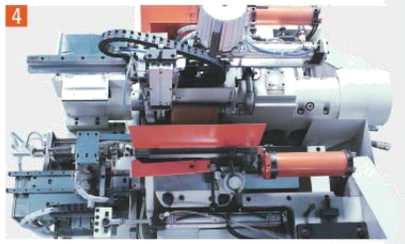
01 Direct-coupled motor to reduce transmission links and ensure the rotation accuracy of the guide wheel.
02 The hydraulic system fan and fuel tank make full use of the space for installation, so that the site can be fully utilized.

High Precision Centerless Grinder

• FX-12CNC







01 Hanging grinding device can design workpiece robot arm (special device) according to workpiece requirements
02 Molding abrasive wheel and guide wheel
03 Loading and unloading device of automatic forming grinding
04 Robot automatic feeding and receiving mechanism

High Precision Centerless Grinder

- FX-18S/AS/BS
- FX-18HS **Static Pressure Spindle**
- FX-20S

01 Manual long material feeding and grinding device (special device)
02 Manual long material receiving and grinding device
03 Long material feeding device (manual or automatic)

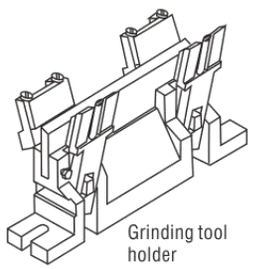
High Precision Centerless Grinder

- FX-18CNC-4 **Static Pressure Spindle, Static Pressure Guide (optional)**

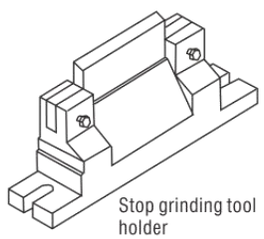
01 FANUC control system
02 Gantry type feeding mechanism (special device)
03 CNC three-axis roller type grinding wheel forming and trimming device
04 Multi-machine joint processing line

Vortex Filter System

Tungsten Steel Support Blade



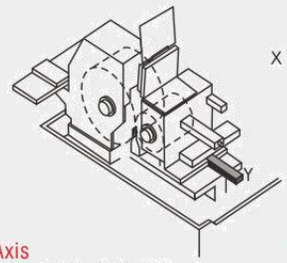
Grinding tool holder



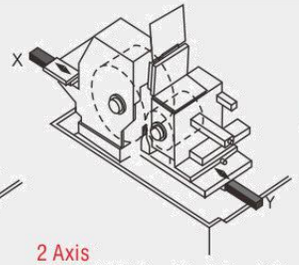
Stop grinding tool holder

Workpiece Diameter	Blade Thickness	Workpiece Diameter	Blade Thickness
1.5~2.5mm	1mm	8~10mm	6mm
2.6~4mm	2mm	10~16mm	8mm
4~5mm	3mm	12~20mm	10mm
5~7mm	4mm	15~30mm	12mm
7~8mm	5mm	25mm 以上	20mm

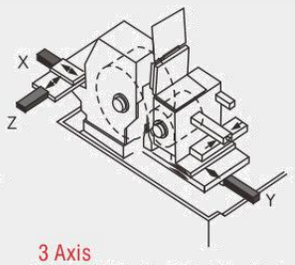
CNC Series Axial Integration



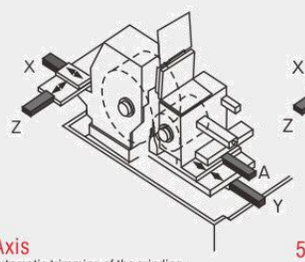
1 Axis
Automatically feeding by the skateboard (Above or below) of guide wheel



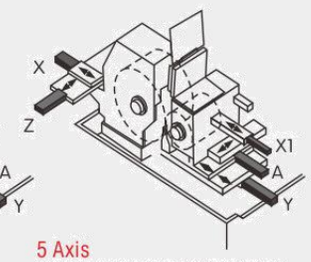
2 Axis
X: Automatic trimming of the grinding wheel (vertical axis)
Y: Automatically feeding by the skateboard (below) of guide wheel



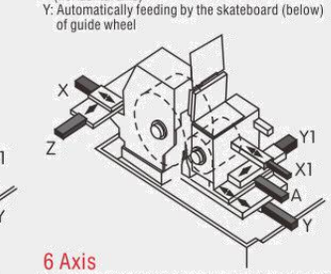
3 Axis
X: Automatic trimming of the grinding wheel (vertical axis)
Z: Automatic trimming of the grinding wheel (horizontal axis)
Y: Automatically feeding by the skateboard (below) of guide wheel



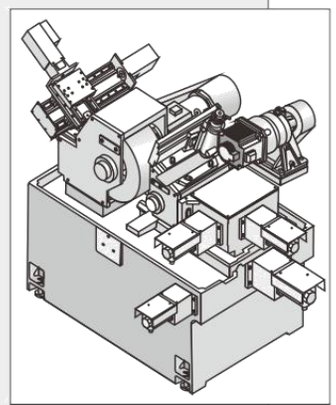
4 Axis
X: Automatic trimming of the grinding wheel (vertical axis)
Z: Automatic trimming of the grinding wheel (horizontal axis)
A: Automatically feeding by the skateboard (Above) of guide wheel
Y: Automatically feeding by the skateboard (below) of guide wheel



5 Axis
X: Automatic trimming of the grinding wheel (vertical axis)
Z: Automatic trimming of the grinding wheel (horizontal axis)
X1: Guide wheel automatic trimming (vertical axis)
A: Automatically feeding by the skateboard (Above) of guide wheel
Y: Automatically feeding by the skateboard (below) of guide wheel



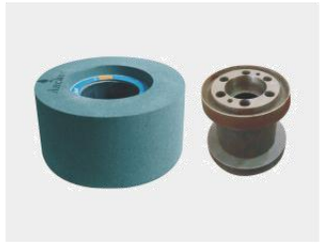
6 Axis
X: Automatic trimming of the grinding wheel (vertical axis)
Z: Automatic trimming of the grinding wheel (horizontal axis)
X1: Guide wheel automatic trimming (vertical axis)
Y1: Guide wheel automatic trimming (longitudinal axis)
A: Automatically feeding by the skateboard (Above) of guide wheel
Y: Automatically feeding by the skateboard (below) of guide wheel



Machine Specification

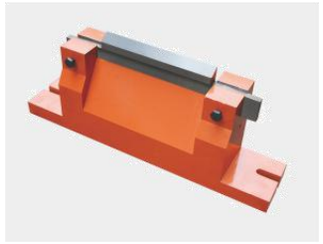
Model	FX-12S	FX-18S	FX-18AS	FX-20S	FX-24S-200CNC	FX-24S-300CNC
Standard workbench working dia.	Φ0.5~40mm Φ0.05~0.5mm(★Special customization)	Φ1~60mm	Φ1~60mm	Φ1~80mm	Φ1~80mm	Φ1~80mm
Grinding wheel size	Φ305×150×Φ120mm (outer dia. ×W×inner dia.)	Φ455× 205×Φ228.6mm	Φ455×255×Φ228.6mm	Φ510 x 205 xΦ254mm	Φ610 x 205 xΦ304.8mm	Φ610 x 305 xΦ304.8mm
Guide wheel size	Φ205×150×Φ90mm (outer dia. ×W×inner dia.)	Φ255× 205×Φ111.2mm	Φ255×255×Φ111.2mm	Φ305 x 205 xΦ127mm	Φ30 x 205 xΦ203.2mm	Φ330 x 305 Φ203.2mm
Wheel speed	1950 R.P.M	1520 R.P.M	1520 R.P.M	1350 R.P.M	1100 R.P.M	1100 R.P.M
Guide wheel speed	0~320R.P.M	0~250 R.P.M	0~250 R.P.M	0~250 R.P.M	0~250 R.P.M	0~250 R.P.M
Wheel drive motor	7 1/2HP	15HP	20HP	20HP	25HP	30HP
Guide wheel drive motor	2.0KW AC SERVO MOTOR	3.0 KW AC SERVO MOTOR	3.0 KW AC SERVO MOTOR	3.0KW AC SERVO MOTOR	3.0 KW AC SERVO MOTOR	4.4KW AC SERVO MOTOR
Hydraulic pump drive motor	1HP	2HP	2HP	2HP	2HP	2HP
Cooling pump drive motor	1/8HP	1/4HP	1/4HP	1/4HP	1/4HP	1/4HP
Guide wheel feed handwheel	3.5mm/Circle 0.02mm/Scale	3.5mm/Circle 0.05mm/Scale	3.5mm/Circle 0.05mm/Scale	3.5mm/Circle 0.05mm/Scale	3.5mm/Circle 0.05mm/Scale	3.5mm/Circle 0.05mm/Scale
Guide wheel fine adjustment handwheel	0.1mm/Circle 0.001mm/Scale	0.1mm/Circle 0.001mm/Scale	0.1mm/Circle 0.001mm/Scale	0.1mm/Circle 0.001mm/Scale	0.1mm/Circle 0.001mm/Scale	0.1mm/Circle 0.001mm/Scale
Workbench feed handwheel	7mm/Circle 0.05mm/Scale	9mm/Circle 0.10mm/Scale	9mm/Circle 0.10mm/Scale	9mm/Circle 0.10mm/Scale	Min. feed of servo motor: 0.0005mm	Min. feed of servo motor: 0.0005mm
Workbench fine-tuning handwheel	0.2mm/Circle 0.001mm/Scale	0.2mm/Circle 0.001mm/Scale	0.2mm/Circle 0.001mm/Scale	0.2mm/Circle 0.001mm/Scale	Min. feed of servo motor: 0.0005mm	Min. feed of servo motor: 0.0005mm
Trimming handwheel	1.5mm/Circle 0.01mm/Scale	2mm/Circle 0.01mm/Scale	2mm/Circle 0.01mm/Scale	2mm/Circle 0.01mm/Scale	2mm/Circle 0.01mm/Scale	2mm/Circle 0.01mm/Scale
Guide wheel tilt angle	+5°~-3°	+6°~-5°	+6°~-5°	+5°~-3°	+5°~-3°	+5°~-3°
Guide wheel rotation angle	±6°	±6°	±6°	±5°	±5°	±5°
Mechanical Dimensions	1800×1400×1450mm	2350×1960×1550mm	2350×1960×1550mm	2550×2050×1650 mm	2550×2050×1650 mm	2550×2050×1650 mm
Packing size	2350×1650×1770mm	2900×2400×1850mm	2900×2400×1850mm	3050×2500×1250 mm	3050×2500×1250 mm	3050×2500×1250 mm
Mechanical weight	1700kgs	2850kgs	2950kgs	3200kgs	6000kgs	6500kgs
Packing weight	1850kgs	3005kgs	3100kgs	3500kgs	65000kgs	70000kgs

Standard Accessories

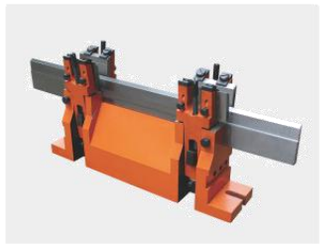


●Grinding wheel and flange (attached to the machine) (1Set)

●Guide wheel and flange (attached to the machine) (1Set)

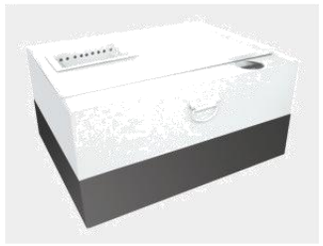


●Press grinding frame and support blade (1Set)

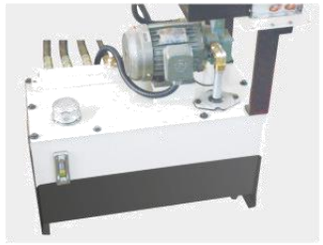


●Pass-through grinding frame and support blade (1Set)

●Electric control box (attached to the machine) (1Set)



●Water tank and water pump (1Set)

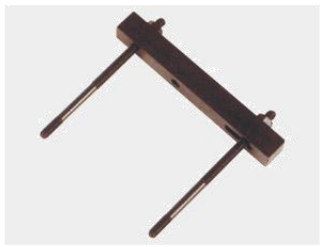


●Fuel tank and oil pump (1Set)

●Diamond trimming knife (attached to the machine) (2 pcs)

●Work light (attached to the machine)

●Cooling fan (attached to the machine) (1Set)



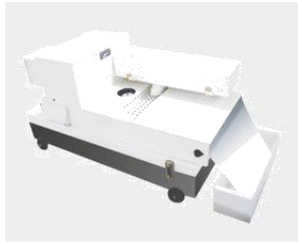
●Flange puller

●Toolbox (starter, open end wrench, hex wrench, etc.) (1Set)

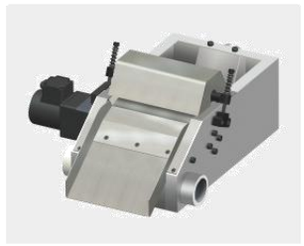
Special Accessories

●Workpiece lift and land frame

●Returning device



●Paper belt filter



●Magnet filter

●Cooling machine

●Guide rail and ball screw automatic oiler (CNC series standard)

Grinding processing example

Grinding Wheel Application

■ ABRASIVES

Abrasives are the main raw material for the manufacture of abrasive tools. They are used for grinding workpieces. The abrasives used in common abrasives mainly include corundum and silicon carbide.Code

Code	kind	Characteristics	Use
A	Brown Corundum	High hardness and high toughness	Used for medium and high tensile strength metal material grinding, such as general carbon steel, alloy steel, malleable iron, hard bronze and so on.
WA	White Corundum	The hardness is higher than that of brown corundum, the abrasive grains are easy to be broken, the edges and corners are sharp, the cutting performance is good, and the grinding heat is small.	Suitable for grinding of hard and sensitive steel materials. Such as hardened steel, high-break steel, general high-speed steel, alloy steel and other grinding. Mainly used for grinding and profile grinding of tools, cutting tools, molds, gears, threads, thin-walled parts, etc.
PA	Chrome Steel Corundum	The hardness is similar to that of white corundum, and the toughness is higher than that of white corundum. The abrasive cutting edge is sharp, the angular retention is good, and the durability is high.	t is suitable for the grinding of hardened steel, alloy steel tools and workpieces, as well as precision grinding of gauges and instrument parts, as well as for form grinding.
SA	Single Crystal Corundum	Compared with brown and white corundum, it has high hardness and toughness. It is a single-particle spherical crystal with good multi-edge cutting edge and strong crush resistance.	It is suitable for grinding of high hardness, toughness, easy deformation and easy to burn workpieces such as stainless steel and sorghum high speed steel.
MA	Microcrystalline Corundum	The abrasive grains are composed of tiny crystals, which have high toughness, high strength, and good self-sharpness of the abrasive grains.	Suitable for grinding of bearing steel, stainless steel and special ductile iron. Used in profile grinding, plunge grinding and other precision grinding.
A/WA	Brown-white Mixed Abrasive	It has the advantages of both brown and white corundum.	Suitable for grinding and other boring of spheroidal graphite cast iron crankshafts, camshafts and other workpieces.
GC	Green Silicon Carbide	High hardness, brittleness, sharp abrasive grain and good thermal conductivity.	Suitable for boring of carbide tools, workpieces and non-ferrous metals, non-metals, etc.
C	Black Silicon Carbide	High hardness, brittleness, sharp abrasive grain, and a certain thermal conductivity.	Suitable for grinding of non-ferrous metals and non-metallic materials.

■ GRIT SIZES

The abrasive grain size refers to the size of the abrasive grain geometry. The national standard divides the abrasive into 41 particle size numbers according to the size of the abrasive grain. The choice of abrasive grain size directly affects the surface roughness and grinding efficiency of the workpiece. In general, grinding with coarse-grained grinding wheels is highly efficient, but the surface roughness of the workpiece is poor. When grinding with a fine-grained grinding wheel, the surface roughness of the workpiece is good, but the grinding efficiency is low. In short, under the premise of the surface roughness of the workpiece, the coarser abrasive tools should be used as much as possible to ensure higher grinding efficiency.

Abrasive Grain	Usage Range
4、5、6、8、10、12、14、16、20、22、24、30	For rough grinding and cutting, etc.
36、40、46、54	Semi-finishing for general requirements
60、70、80、90、100	Fine grinding for general requirements
120、150、180、220、240、W63、W50、W40、W28、W20.	For grinding, thread grinding, etc.
W14、W10、W7、W5、W3.5、W2.5、W1.5、W1.0、W0.5	For mirror grinding, fine polishing, etc.

■ HARDNESS

The mold hardness refers to the ease with which the abrasive grains fall off from the surface of the abrasive tool during the grinding process.

1 Under normal circumstances, a softer grinding wheel is used to grind a harder workpiece, and a harder grinding wheel is used to grind a softer workpiece.

2 When grinding, when the contact surface between the workpiece and the grinding tool is large or the feed amount is large, the hardness of the grinding tool should be softened. In the case of forming and polishing, in order to ensure the accuracy of several shapes of the workpiece, the hardness of the grinding tool can be appropriately increased.

3 When grinding workpieces with poor thermal conductivity and sharpening tools, in order to avoid burns, annealing, the hardness of the grinding tools should be soft.

4 When grinding at high speed, the hardness of the grinding tool should be softer. The hardness of dry grinding is also softer than that of wet grinding.

Large Scale	Super Soft	Soft			Medium Soft		Medium		Medium Hard			Hard		Superhard
Minor Class	D.E.F	Soft 1	Soft 2	Soft 3	Soft 1	Soft 2	Medium 1	Medium 2	Medium Hard 1	Medium Hard 2	Medium Hard 3	Hard 1	Hard 2	Y
Code		G	H	J	K	L	M	N	P	Q	R	S	T	

■ BOND

The binder is a material that bonds the abrasive particles into various shapes of abrasives. Commonly used abrasive bonding agents are ceramics and resins.

Code	Kind	Characteristic
V	Ceramics	It has good heat resistance and chemical stability, good corrosion resistance and large porosity, which can better maintain the geometry of the abrasive tool, but it has high brittleness.
B	Resin	It has high strength and certain elasticity, it also has good self-sharpness. Low heat resistance and short production cycle.

■ STRUCTURE NO.

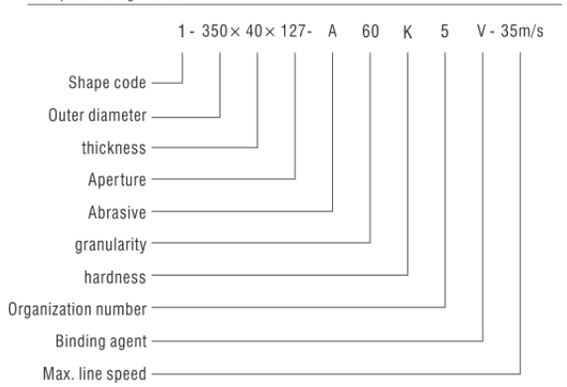
The organization number refers to the percentage of the abrasive grain volume to the specific product of the grinding. The larger the proportion of abrasive grains, the tighter the tissue; the other is loose. Abrasives with loose tissue (low grain rate), many pores between the abrasive grains, convenient chip evacuation, good heat dissipation of the workpiece, no burns. The compact structure (high abrasive grain rate) can maintain a good geometric shape, and the surface roughness of the workpiece to be ground is good and the machining precision is high.

Organization Number	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Abrasive Rate	62	60	58	56	54	52	50	48	46	44	42	40	38	36	34

■ SYMBOLS FOR THE FEATURES OF COMMONABRASIVE TOOLS

Abrasives are written in the order of shape, size, abrasive, particle size, hardness, tissue number, binder, and line speed.

Example Grinding Wheel



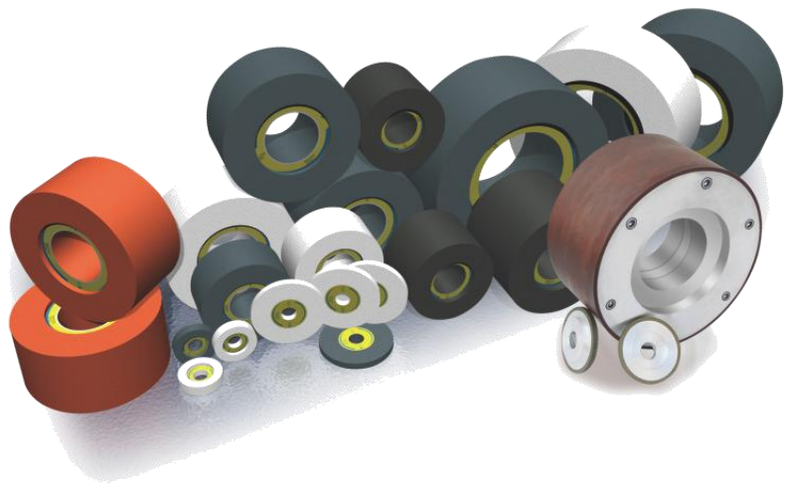
■ THE SPEED CONVERSION CHART OF COMMON GRINDING WHEELS

Line speed m/s of different diameter grinding wheels and speed r/min. Chart

Wheel Dia.	Max. Line Speed						
	30(m/s)	35(m/s)	40(m/s)	45(m/s)	50(m/s)	60(m/s)	63(m/s)
	Wheel Speed						
100mm	5732	6688	7634	8599	9554	11465	12115
125mm	4586	5350	6115	6879	7643	9172	9692
150mm	3822	4459	5096	5732	6369	7643	8077
175mm	3276	3822	4368	4914	5460	6551	6923
200mm	2866	3344	3822	4299	4777	5732	6058
250mm	2293	2675	3057	3439	3822	4586	4846
300mm	1911	2229	2548	2866	3185	3822	4038
350mm	1638	1911	2184	2457	2730	3276	3462
400mm	1433	1672	1911	2150	2389	2866	3029
450mm	1274	1486	1699	1911	2123	2548	2692
500mm	1146	1338	1529	1720	1911	2293	2423
600mm	955	1115	1274	1433	1592	1911	2019
750mm	764	892	1019	1146	1274	1529	1605

Grinding wheel speed and line speed conversion formula

$$n\ (r/min.) = \frac{60 \times V(m/s)}{3.14 \times dia.(m)}$$



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