



KENT Industrial (USA) Inc.

CENTERLESS GRINDING MACHINE
More Efficient Solutions For Grinding



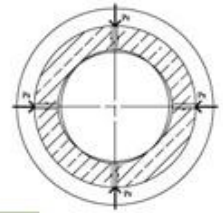
CE



Features

1. Main Structure of Machines

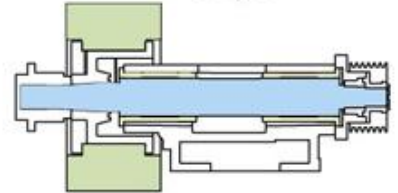
They are cast of high grade FC-30 iron, melted by advanced induction furnace, then cast in resin cores. In order to ensure stability and rigidity, they are heat-treated with normalizing procedure prior to machining.



2. Hydrostatic Bearings

Precision ground Hydrostatic Bearings: Substantial decrease in heat deformation associated with Hydrodynamic bearings. Minimal friction, lateral displacement, and pressure. Extended tool life under heavy cut loads.

Grinding Wheel Spindle: The Grinding Wheel Spindle runs on hydrostatic bearings with a high pressure oil film for added precision under heavy loads. Substantially reduces wear while prolonging spindle trueness. SNCM-210H carbon steel hardened beyond HRC60, yielding high torsion resistance.



3. Semi-Hydraulic Float Bearings

They are made of SNCM-220H Ni-Cr-Mo alloy steel and case-hardened, carbonized, then computerized sub-zero degree treated, to surface hardness over HRC 62 at 1.0mm depth. Core hardness is kept at about HRC 25-30 to ensure consistency of high precision grinding operation. Spindles withstand high torsion and have a long and lasting life. They are made of KJ-4 alloy bushing metal with a three point hydraulic cycle system. The semi-hydraulic float spindle is protected by an oil membrane which results in minimal contact friction. This device is specially designed for high speed and heavy load operation.



4. Regulating Wheel Drive

A Japanese servo motor provides control of speeds from 10 to 250RPM and is used for the regulating wheel which can be adjusted to ideal linear speeds. When the diameter of the regulating wheel changes the same linear speed can still be maintained so as grind the best quality products. The motor is driven by a timing-belt to reduce vibration and noise. Since the motor housing and spindle housing are joined together as an integrated body, when the regulating wheel tilts the motor also follows. This completely overcomes problems caused by unparallelism and torsion of belt pulleys and the belts.



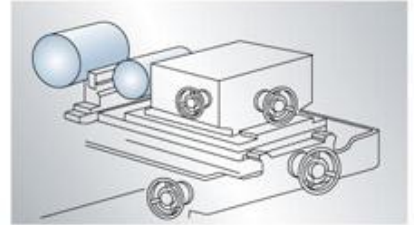
5. Spindle Oil Circulation

There is a variable vane type oil pump for the hydraulic dressing and enforced spindle oil circulation. The oil tank is located outside of the machine for easy maintenance. Two layers of filter plus a pressure regulator ensure the cleanliness of spindle oil and the consistency of oil film thickness, thus extending the service life of the wheel spindle and the steadiness of accuracy.



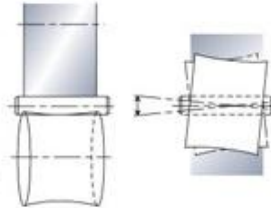
6. Slide Device

The lower slide consists of two internally mounted V-shaped slides and cuneiform protector to ensure smooth movement, stable operation and prevent the entering of debris or liquid from the working environment. The swivel slides on a dovetail flute and swivels ± 5 degrees. There is a fine tuning hand wheel for precise adjustment. The accuracy per calibration is 0.001mm in diameter for high precision and easy operation.



7. Wheel Dressing Device

The device is made of FC-30 cast iron and normalized then precisely ground. It is driven by a hydraulic system with a step-less speed regulator for easy and steady dressing. There is a safety handle for emergency purposes. In order to upgrade the straightness and the surface finish on through-feed grinding of long work pieces, please adjust the angle of the dressing device (swivels ± 5 degrees). The regulating wheel should be adjusted to resemble a concave barrel to increase contact length while grinding.



8. Grinding Accuracy

- Workpiece: $\varnothing 2 \times 20 \text{ mm}$
- Grinding wheel WA 1000#
- Metal: SUJ-2
- Machine: JHC-18
- Hardness: HRC-62

CUT OFF=0.25 mm
 TRAVERSING LENGTH=1.0 mm
 MAG=10000

Ra=0.02 μm RMS=0.02 μm
 RMax=0.28 μm Rt=0.22 μm
 Rz=0.24 μm Rtm=0.20 μm



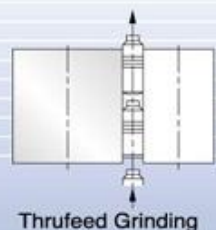
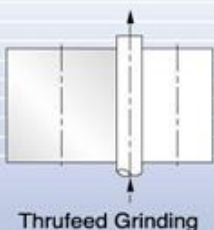
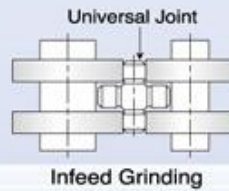
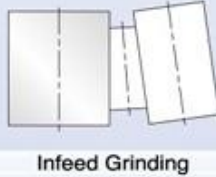
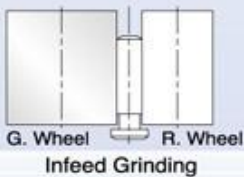
Roundness



Quality of Our Machines

The performance of all our machines is strictly inspected for roundness, straightness and surface roughness on standard work pieces before delivery.

9. Operation Applications



CNC Coordinate Measuring Machine

	JHC-12BN	JHC-12S
Standard work rest (dia.)	ø1~ø25 mm	
Special work rest (dia.)	ø25~ø40 mm	
Grinding wheel size (dia. x width x hole)	ø305 x 150 x ø120	
Regulating wheel size (dia. x width x hole)	ø205 x 150 x ø90	
Grinding wheel speed	1900 R.P.M	
Regulating wheel speed	20-337 R.P.M. (7 steps)	10-300 R.P.M variable speed
Grinding wheel motor	7.5 HP	
Regulating wheel motor	1 HP	2 HP
Hydraulic pump motor	1 HP	
Coolant pump motor	1/8 HP	
Regulating wheel feed on handwheel	4 mm (Rev) 0.02 mm (Gra)	
Table feed on handwheel	7 mm (Rev) 0.05 mm (Gra)	
Table micro feed on handwheel	0.2 mm (Rev) 0.001 mm (Gra)	
Dressing handwheel	1.25 mm (Rev) 0.01 mm (Gra)	
Regulating wheel tilt angle	+5° ~ -3°	
Regulating wheel swivel angle	±5°	
Floor space (L x W x H)	1800 x 1400 x 1400 mm	
Net weight / Gross weight	1600 kgs / 1750 kgs	
Size of case (L x W x H)	2300 x 1100 x 1800 mm	

* Manufacturer reserves the right to change specification without prior notice.



JHC-12S with servo motor for regulating wheel, variable speed.



JHC-12BN

	JHC-18	JHC-18S	JHC-18A	JHC-18AS	JHC-18B	JHC-18BS
Standard work rest (dia.)	ø1~ø50 mm					
Special work rest (dia.)	ø40~ø100 mm					
Grinding wheel size (dia. x width x hole)	ø455 x 205 x ø228.6		ø455 x 255 x ø228.6		ø455 x 305 x ø228.6	
Regulating wheel size (dia. x width x hole)	ø255 x 205 x ø111.2		ø255 x 255 x ø111.2		ø255 x 305 x ø111.2	
Grinding wheel speed	1500 R.P.M					
Regulating wheel speed	13-316 R.P.M. (10 steps)	10-250 R.P.M. variable speed	13-316 R.P.M. (10 steps)	10-250 R.P.M. variable speed	13-316 R.P.M. (10 steps)	10-250 R.P.M. variable speed
Grinding wheel motor	15 HP		15 HP		20 HP	
Regulating wheel motor	2 HP	4 HP Servo Motor	2 HP	4 HP Servo Motor	3 HP	5 HP Servo Motor
Hydraulic pump motor	1 HP					
Coolant pump motor	1/4 HP			1/2 HP		
Regulating wheel feed on handwheel	3.5 mm (Rev) 0.05 mm (Gra)					
Regulating micro feed on handwheel	0.1 mm (Rev) 0.001 mm (Gra)					
Table feed on handwheel	9 mm (Rev) 0.05 mm (Gra)					
Table micro feed on handwheel	0.2 mm (Rev) 0.001 mm (Gra)					
Dressing handwheel	2 mm (Rev) 0.01 mm (Gra)					
Regulating wheel tilt angle	+5° ~ -3°					
Regulating wheel swivel angle	±5°					
Floor space (L x W x H)	2300 x 2000 x 1530 mm					
Net weight / Gross weight	2800 kgs / 3100 kgs		2900 kgs / 3200 kgs		3000 kgs / 3300 kgs	
Size of case (L x W x H)	3200 x 1400 x 1900 mm					

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JHC-18 drive with 10 step variable speed



JHC-18A / B



JHC-18S

	JHC-20	JHC-20S
Standard work rest (dia.)	ø1~ø50 mm	
Special work rest (dia.)	ø40~ø100 mm	
Grinding wheel size (dia. x width x hole)	ø510 x 205 x ø254	
Regulating wheel size (dia. x width x hole)	ø305 x 205 x ø127	
Grinding wheel speed	1350 R.P.M	
Regulating wheel speed	13-316 R.P.M. (10 steps)	10-250 R.P.M. variable speed
Grinding wheel motor	20 HP	
Regulating wheel motor	3 HP	4 HP (Servo motor)
Hydraulic pump motor	1 HP	
Coolant pump motor	1/2 HP	
Regulating wheel feed on handwheel	3.5 mm (Rev) / 0.05 mm (Gra)	
Regulating micro feed on handwheel	0.1 mm (Rev) / 0.001 mm (Gra)	
Table feed on handwheel	9 mm (Rev) / 0.05 mm (Gra)	
Table micro feed on handwheel	0.2 mm (Rev) / 0.001 mm (Gra)	
Dressing handwheel	2 mm (Rev) / 0.01 mm (Gra)	
Regulating wheel tilt angle	+5° ~ -3°	
Regulating wheel swivel angle	±5°	
Floor space (L x W x H)	2300 x 2000 x 1530 mm	
Net weight / Gross weight	3200 kgs / 3500 kgs	
Size of case (L x W x H)	3200 x 1400 x 1900 mm	

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JHC-20



JHC-20S

	JHC-2408-150S	JHC-2410-150S	JHC-2412-150S
Standard work rest (dia.)	ø2~ø60 mm	ø2~ø60 mm	ø2~ø60 mm
Special work rest (dia.)	ø50~ø150 mm	ø50~ø150 mm	ø50~ø150 mm
Grinding wheel size (dia. x width x hole)	ø610 x 205 x ø304.8	ø610 x 255 x ø304.8	ø610 x 305 x ø304.8
Regulating wheel size (dia. x width x hole)	ø305 x 205 x ø127	ø305 x 255 x ø127	ø305 x 305 x ø127
Grinding wheel speed	1050 R.P.M		
Regulating wheel speed	10-250 R.P.M, variable speed		
Grinding wheel motor	20 HP	30 HP	30HP
Regulating wheel motor	4 HP Servo Motor	5 HP Servo Motor	5 HP Servo Motor
Spindle circulating pump motor	1 HP		
Coolant pump motor	1/2 HP		
Regulating wheel feed on handwheel	2.5 mm (Rev) / 0.01 mm (Gra)		
Regulating micro feed on handwheel	0.02 mm (Rev) / 0.001 mm (Gra)		
Table feed on handwheel	2.5 mm (Rev) / 0.01 mm (Gra)		
Table micro feed on handwheel	0.02 mm (Rev) / 0.001 mm (Gra)		
Dressing handwheel	2 mm (Rev) / 0.01 mm (Gra)		
Regulating wheel tilt angle	+3° ~ -5°		
Regulating wheel swivel angle	±1°		
Floor space (L x W x H)	2800 x 2000 x 1650 mm		
Net weight / Gross weight	6500 kgs / 7000 kgs		
Size of case (L x W x H)	3000 x 1800 x 1950 mm (machine), 2600 x 1400 x 1300 mm (accessory)		

* Manufacturer reserves the right to change specification without prior notice.

- The Grinding Wheel Spindle runs on hydrostatic bearings, extended tool life and increase accuracy under heavy cut loads.
- Lower Slide is equipped with a heavy bearing, precision linear motion system (slide way system) and C3 Class Ball Screw and a total length of 1,350mm.
- Upper Slide is equipped with heavy loading linear motion system and C3 Ball Screw with Fine Tuning and positioning ability up to 0.001mm.
- The machine body is designed for both conventional as well as CNC machines. Double Feed axis and Double slides design are easily accomplished with automatic and computerized Numerical Control (CNC) System. This enables it to eliminate the trouble caused by former single feed axis while CNC and automated.



Lower Slide Way is equipped with Heavy Bearing, Linear Motion System and Ball Screws.



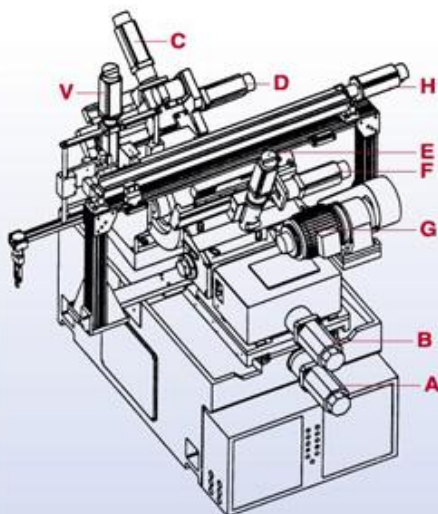
Strong main structure for JHC-24S



JHC-24S

The CNC system is with servo motor & ball screws in both axes. Consistent, automatic wheels dressing, suitable for precision fine tuning. Accurate, automatic dimensional & servo feed system. Comprehensive, automatic in – process feed units. It is easy to adjust through the CNC control system.

CNC 2 AXES	Name of axis: G-axis, A-axis / G-axis, B-axis Regulating wheel speed control, lower slide or upper slide feeding.
CNC 3 AXES	Name of axis: G-axis, A-axis, B-axis Regulating wheel speed control, lower slide and upper slide feeding.
CNC 4~5 AXES	Name of axis: G-axis, A-axis, B-axis, C-axis, E-axis Regulating wheel speed control, lower slide and upper slide feeding. Grinding wheel and regulating wheel dressing.
CNC 6~7 AXES	Name of axis: G-axis, A-axis, B-axis, C-axis, D-axis, E-axis, F-axis Regulating wheel speed control, lower slide and upper slide feeding. Grinding wheel and regulating wheel dressing. Dressing attachments cross slide feeding for profile dressing.
CNC 8~9 AXES	Name of axis: G-axis, A-axis, B-axis, C-axis, D-axis, E-axis, F-axis, H-axis, V-axis Regulating wheel speed control, lower slide and upper slide feeding. Grinding wheel and regulating wheel dressing. Dressing attachments cross slide feeding for profile dressing. Robot system horizontal axis and vertical axis control.



- A. Worktable feed
- B. Regulating wheel feed
- C. Grinding wheel dressing attachment
- D. Grinding wheel dressing cross slide
- E. Regulating wheel dressing attachment
- F. Regulating wheel dressing cross slide
- G. Servo motor for regulating wheel
- H. Horizontal travel for robot system
- V. Vertical travel for robot system



JHC-18S CNC 9 AXES

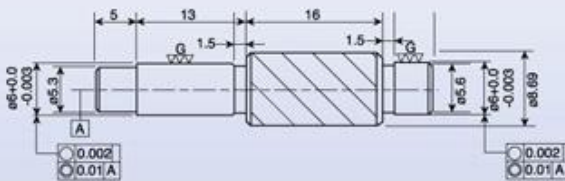
JHC-NC



JHC-20-NC-1



Automatic feeding and grinding system for infeed grinding.

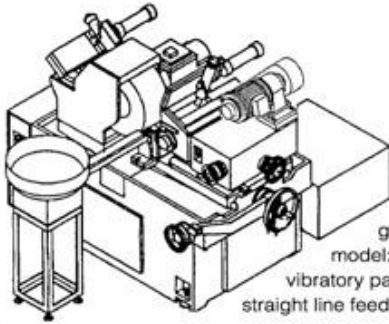


Automatic feeding & infeed grinding system with robot auto loading & unloading device, and vibratory parts feeder.

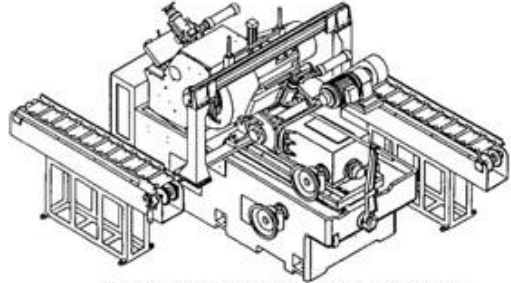


JHC-18-NC-2

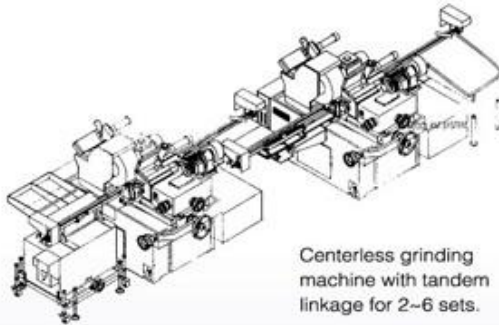
Operation Applications



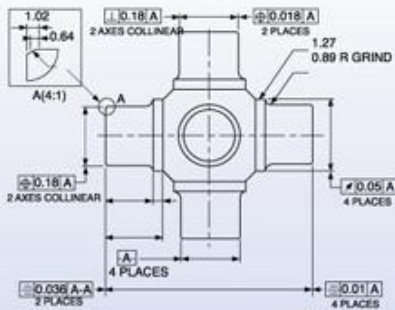
Centerless grinding machine model: JHC-18S with vibratory parts feeder and straight line feeder.



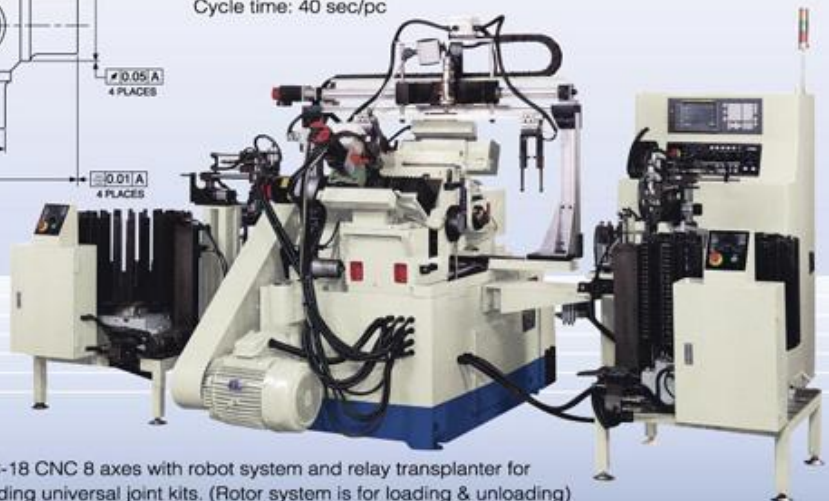
Model: JHC-2412 CNC 4 axes with robot automatic loading and unloading device.



Centerless grinding machine with tandem linkage for 2-6 sets.



Material: SCM415H
 Hardness: HRC59~64
 Stock removal: 0.2 mm~0.3 mm
 Cycle time: 40 sec/pc



JHC-18 CNC 8 axes with robot system and relay transplanter for grinding universal joint kits. (Rotor system is for loading & unloading)

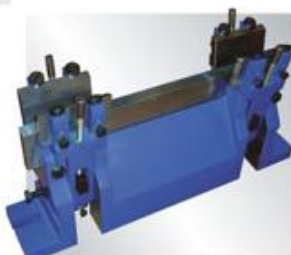
Standard Accessories



① Grinding wheel and grinding wheel flange x 1 set



② Regulating wheel and regulating wheel flange x 1 set



③ Thrufeed standard workrest and blade x 1 set



④ Infeed standard workrest and blade x 1 set



⑤ Tool box and tools x 1 set



⑥ Work lamp x 1 set



⑦ Diamond tool x 2 pcs



⑧ Thrufeed safety device x 1 set



⑨ Flange extractor x 1 set

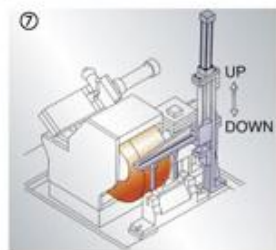
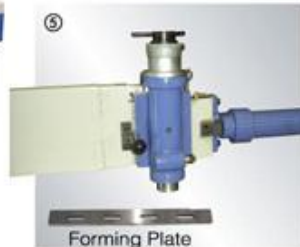


⑩ Levelling screw and plate x 1 set

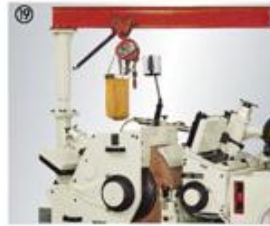
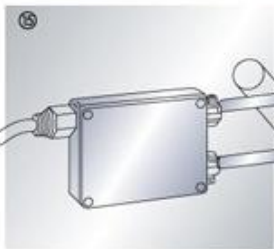


⑪ Thrufeed process gauge x 1 set

Special Accessories



- ① Magnetic separator
- ② Paper filter coolant
- ③ Hydrocyclone coolant filtering unit
- ④ Work ejector device
- ⑤ Forming dressing device
- ⑥ Long V-shaped support
- ⑦ Manual parts feeder for infeed grinding
- ⑧ Automatic receiver for thrufeed grinding
- ⑨ Automatic thrufeed device
- ⑩ Vibratory parts feeder and straight line feeder



- ⑪ Auto thrufeed taper grinding device
- ⑫ Auto infeed forming grinding
- ⑬ Wheel balancing arbor
- ⑭ Wheel balancing base
- ⑮ Off-line gauging, non-contact O.D. measuring system
- ⑯ Grinding wheel automatic balancing system
- ⑰ Oil cooler
- ⑱ Rotary type grinding wheel dressing attachment
- ⑲ Jib crane & hook for grinding wheel
- ⑳ Grinding balancer for wheels
- ㉑ Oil mist / vapour receiver



Providing Solutions.

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