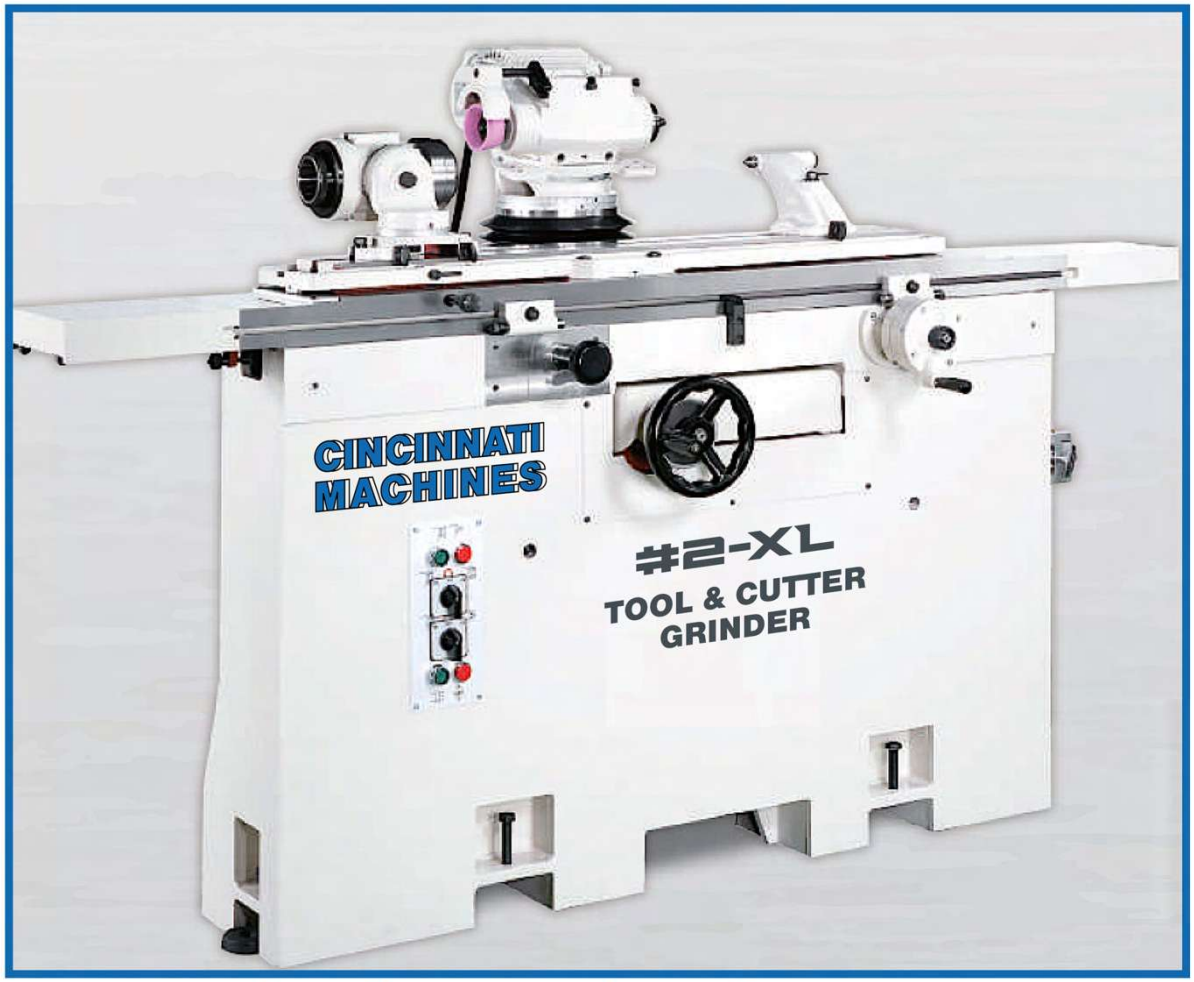
CINCINNATI MACHINES

#2 & #2-XL

UNIVERSAL TOOL & CUTTER GRINDER

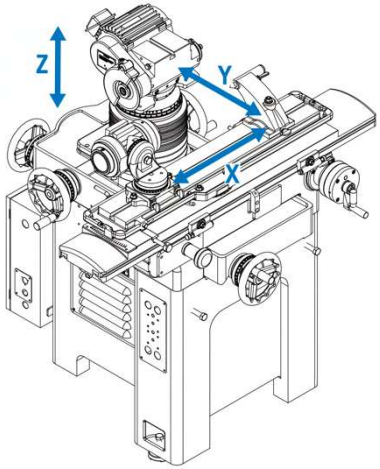


Standard of the Industry For Nearly 100 Years

UNIVERSAL CUTTER & TOOL GRINDER

#2 / #2XL

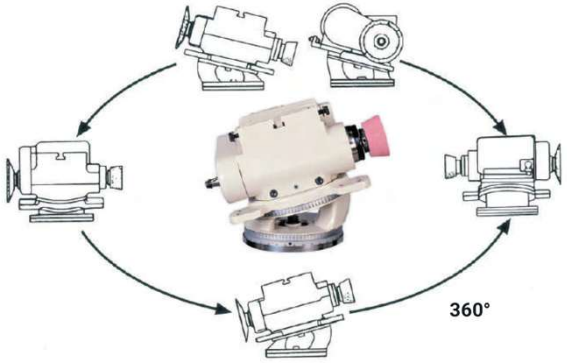
The universal cutter & tool grinder can be used for a wide range of grinding works. It features equipped with different optional accessories for specific grinding application according to your demands, achieving the versatile functions with economic benefits



- Tool Grinding
- Surface Grinding
- Cylindrical Grinding
- Internal Grinding
- Grinding Wheel Dressing

Functions

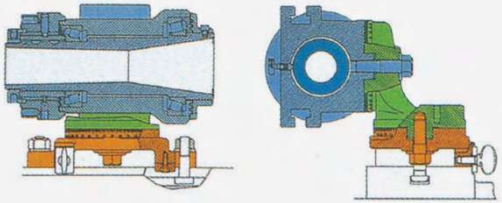
- Helical sharpening
- Step O.D Grinding
- Broach sharpening
- Drill Point Grinding
- End Mill Grinding
- I.D. Grinding



Wheel Head Incline Device

The wheel head can be rotated 360 degree in this horizontal plane.

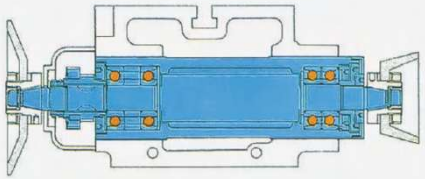
It has an inclination angle of ±15 degree to be easy to grind at the rake angle, relief angle, and various angles required.



Universal Workhead

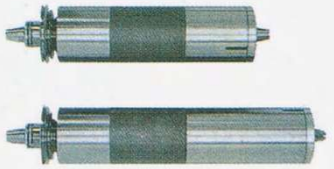
The universal working head can be operated in a very light and flexible way. It can be accurately adjusted at any required angle in the horizontal and vertical directions.

There are taper holes at both ends of the spindle, which is NT50 and MT5. Using it with collet or collet chuck improves the efficiency of grinding.



Grinding Wheel head

The spindle arbor is designed to support, tighten, and fix two pairs of angular contact ball bearings with nuts at appropriate positions on both sides of the spindle.



Extended Grinding Wheel Spindle (option)

To increase the life of grinding wheel spindle, the interior has been lubricated with grease, so no additional lubrication is required.

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Features

Precise and Accurate Multipurpose Worktable

At 120° of the worktable is a scale that rotates ±60°. When rotating at ±60°, the workhead can be rotated simultaneously, which facilitates precise grinding large or long milling cutters and any other cutting tool.

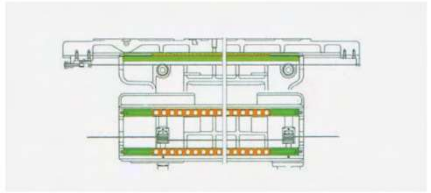
Slow-acting Clutch

In order to easily grind all kinds of tools, the slow acting and fast feed of the table feed are controllable.

Table feed handles are on the left and right sides of the table; the clutch lever on the right side operates on the slow acting. Turning the clutch lever when grinding will not affect the accuracy.

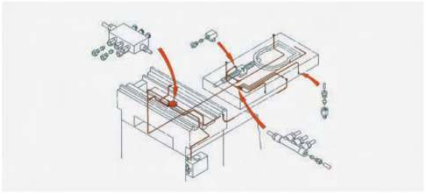
Tailstock

There are two tailstocks; one is used to fix the thimble with bolts, and the other is equipped with the spring-compressed thimble. It is very convenient to assemble and disassemble the parts. The combination of one or two tailstocks and a universal workhead leads to a stable clamping of the workpiece and grinding of the best quality.



Precision Ball Chute Structure

The precision ball chute enables flexible sliding of the workbench. The chute is composed of special alloy steel, processed and ground by high frequency. The workbench is also wound with steel cables, improving the work efficiency for operators.



Centralized Lubrication

These machines have centralized lubrication system that ensures the great supply of lubricant to every part evenly. With such lubrication system, it ensures the machine to stay in great condition, and moreover it extends the durable life of the machine.

Easy to Use

CCD Camera System (Option)

Online measuring process greatly improves the efficiency and quality of production, especially for the angle, arc, and high-precision generation and regrinding of various small cutters.

(Optional)

Universal Cutter and Tool Grinder

- Transverse motion (X-axis) is driven by hydraulic cylinder.
- Cross motion (Y-axis) is driven by servo motor.
- PLC touch panel for manually inputting parameters.

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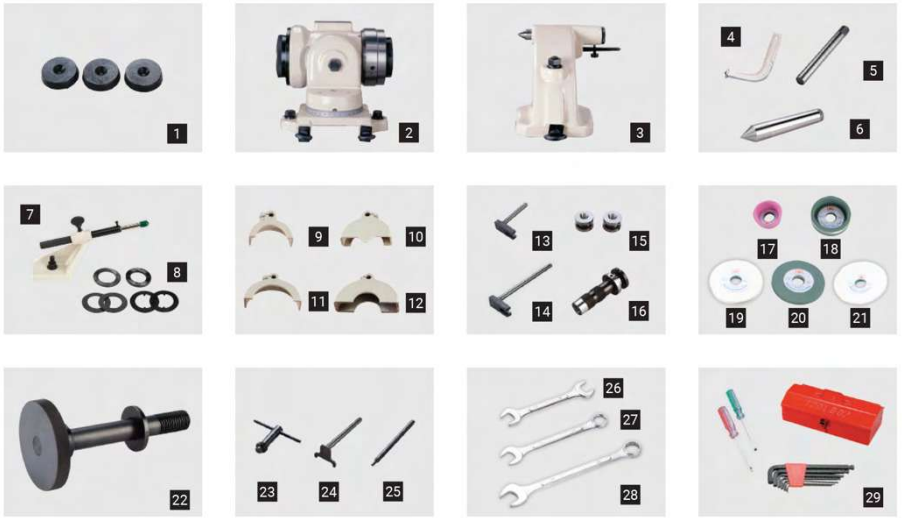
Standard Acessories

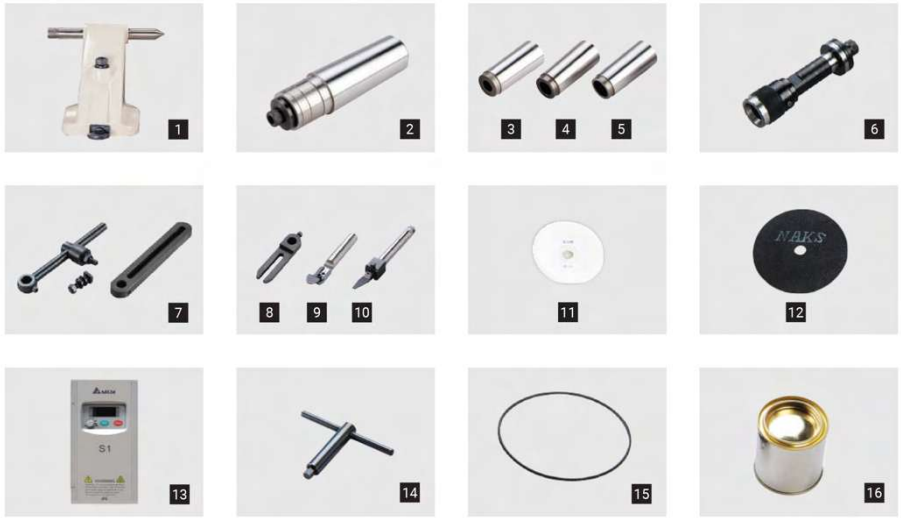
(Actual Standard and Optional Accessories Vary)



1.Leveling Blocks	16.4" Grinding Wheel Flange Extension (Ø31.75 mm)
2.Workhead	17.Grinding Wheel (PA 90D x 38T x 31.75H)
3.Right-hand Tailstock	18.Grinding Wheel (GC 125D x 38T x 31.75H)
4.Center Gauge	19.Grinding Wheel (WA 150D x 13T x 31.75H)
5.Ejector Rod	20.Grinding Wheel (GC 150D x 13T x 31.75H)
6.Center for Workhead Spindle MT5	21.Grinding Wheel (WA 150D x 19T x 31.75H)
7.Diamond Dresser Holder	22.Draw-in Bolt for Workhead and Spacer
8.Grinding Wheel Washer Set	23.Wheel Spanner
9.Wheel Guard (Outer Diameter of Grinding Wheel Max. Ø90)	24.Collet Wrench
10.Wheel Guard (Outer Diameter of Grinding Wheel Max. Ø110)	25.Fixture Rod
11.Wheel Guard (Outer Diameter of Grinding Wheel Max. Ø125)	26.Open End Wrench (17-19 mm)
12.Wheel Guard (Outer Diameter of Grinding Wheel Max. Ø150)	27.Combination Wrench (19 mm)
13.Wheel Guard Holder (short)	28.Combination Wrench (24 mm)
14.Wheel Guard Holder (long)	29.Tool Box & Adjusting Tool
15.2 Sets Grinding Wheel Flanges	

Optional Acessories

(Actual Standard and Optional Accessories Shown in Formal Quotation)



1.Left-hand Tailstock	21.Cylindrical Grinding Attachment
2.Tool Holder	22.Internal Grinding Attachment
3.MT5 to MT2 Morse Taper Sleeve	23.Workhead Indexing Attachment (24 Notched, 20 Notched)
4.MT5 to MT3 Morse Taper Sleeve	24.Extended Grinding Wheel Spindle
5.MT5 to MT4 Morse Taper Sleeve	25.Surface Grinding Attachment
6.4" Grinding Wheel Flange Extension (Ø12.7 mm)	26.Drill Pointing Attachment
7.Universal Tooth Rest Plate and Blade Holder Extension	27.Lathe Tool & Planer Tool Grinding Attachment
8.Plain Tooth Rest Holder	28.Spring Collet Set-6.8.10.12.16.20.25mm (MT5)
9.Plain Tooth Rest Holder	29.Dust Collector
10.Fine Adjustment Guide Rod	30.Wet Grinding Attachment with Waterproof Equipment
11.Grinding Wheel (WA 76D x 12.7T x 12.7H)	31.5C Chuck
12.Grinding Wheel (A 100D x 1.5T x 12.7H)	32.CCD System with Software and IPC
13.Frequency Inverter 1.5 or 2 HP	33.X&Y Axis with Linear Scale with Degital Read Out
14.T-Wrench	34.Linear Guideway - X-axis (M-40)
15.Belt 5M530/ 7M530 for Spindle Drive	35.Hydraulic Device - X-axis (M-40) Travel:350 mm
16.Work Lamp	36.4' Three-Jaw Chuck with Flange
17.Radius Grinding Attachment (Radius NO.1)	37.Transformer 3kva(If voltage is not 220V or 380V, this item is needed)
18.Radius Grinding Attachment (Radius NO.2)	38.Upgrading Grinding Wheel Spindle Motor to 2 HP
19.Face Mill Grinding Attachment	39.CE Safety Device
20.Helical Grinding Attachment (MT4 Holder Included)	40.Transformer

Optional Acessories

17.Radius Grinding Attachment (Radius NO.1)
· Peak Power of motor : 0.2 kW (1/4 HP)
· Holder : MT5,Clamping range of tool diameter : Ø3 – Ø32 mm
· Max. Grinding range of arc radius : 50 mm
· Suitable for regrinding radius of ball, and end radius of ball end mill.

18.Radius Grinding Attachment (Radius NO.2)
· Holder : NT50 (BT50) Max. Tool diameter : Ø300 mm
· Suitable for regrinding side cutter, face mill and end radius.
· Max. Grinding range of arc radius : 25 mm

19.Face Mill Grinding Attachment
· Grinding range of tool diameter : Ø170 – Ø457 mm
· Inclination of workhead : ±15°
· Rotary horizontal angle : 360°
· Suitable for regrinding large face cutter or large cutting tool.

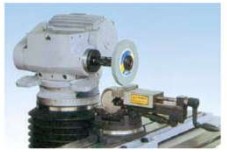
20.Helical Grinding Attachment
· Max. Grinding outer diameter : 125 mm
· Holder : MT4, Clamping range of tool diameter : Ø3 – Ø25 mm
· The inner workhead equally distribute 24 teethes for indexing device.
· Suitable for regrinding mill, hob, and drill of helical flute.

21.Cylindrical Grinding Attachment
· Peak Power of motor : 0.2 kW (1/4 HP)
· Three-jaw chuck : 4"
· Clamping range of tool diameter : Ø3 – Ø90 mm
· Suitable for regrinding surface of cylinder and surface of taper.

22.Internal Grinding Attachment
· Must be used with cylindrical grinding attachment that could grind taper of the internal hole.
· The internal attachment is driven by wheel spindle.
· Wheel spindle speed : 20000 rpm
· Internal grinding wheel diameter : Ø3/Ø6 mm

23.Workhead Indexing Attachment (24 T)
· Standard issued attachment is a 24 equally distributed teethes indexing plate.
· Available for customize different numbered teeth of indexing plate.

24.Extended Grinding Wheel Spindle
· Length of extended grinding wheel spindle: extension 75 mm
· Suitable for regrinding small and special tool.



25.Surface Grinding Attachment
· Width of Vise : 100 mm
· Depth of vise : 30 mm
· Rotary horizontal angle : 360°
· Suitable for regrinding horizontal surface

26.Drill Pointing Attachment
· Six-jaw chuck
· Clamping range : 3 – 60 mm
· Suitable for re-grinding drill point, step drill, center drill, chamfer mill, relief angle of 3 or 4 flutes' taps.

27.Lathe & Planer Tool Grinding Attachment
· Clamping range of tool : 10 – 38 mm
· Suitable for regrinding lathe and planer

28.Spring Collet Set
· Clamping range of tool diameter : Ø6 – Ø25 mm
· Holder : MT5

Optional Acessories

29.Dust Collector

· Peak Power of Motor: 0.4 kW (1/2 HP)

· It collect chips with dusts to keep working environment clean.

30.Wet Grinding Attachment with Waterproof Equipment

· Peak Power of Motor: 0.1 kW (1/8 HP)

· Suitable for cooling tool while it grinds.

31.5C Chuck

· The device needs to using with 5C collet in metric/inch sizes to do grinding.

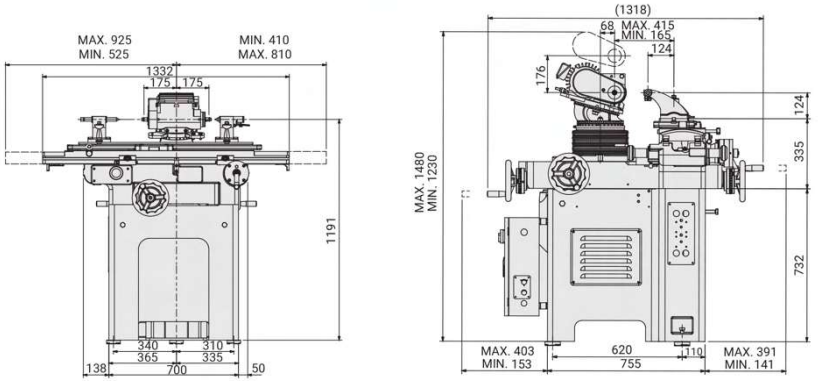
32.CCD Camera System

Online measuring process greatly improves the efficiency and quality of production, especially for the angle, arc, and high-precision generation and regrinding of various small cutters.

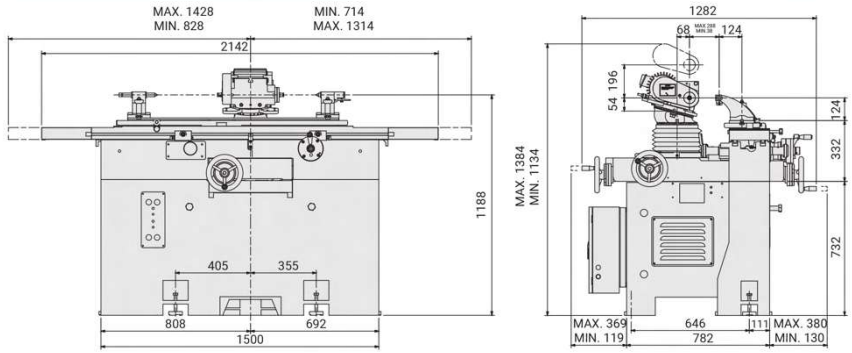
· For irregular and complex tools and parts regrinding.
· Online measuring system
(24" magnification for full screen : 10x - 85x)
· Tool comparison software (including dxf import)

Machine Layout

#2 UNIVERSAL TOOL & CUTTER GRINDER Unit : mm



#2-XL UNIVERSAL TOOL & CUTTER GRINDER Unit : mm



Easy to Use

Add Smart Operation!

CCD Camera System (Option)

Online measuring process greatly improves the efficiency and quality of production, especially for the angle, arc, and high-precision generation and regrinding of various small cutters.

(Optional)

Universal Cutter and Tool Grinder

· Transverse motion (X-axis) is driven by hydraulic cylinder.
· Cross motion (Y-axis) is driven by servo motor.
· PLC touch panel for manually inputting parameters.

Power it up!

Specifications

	#2	#2-XL
Stroke		
Longitudinal Movement of Table (X-axis)	400 mm	600 mm
Cross Movement of Saddle (Y-axis)	250 mm	250 mm
Verticle Movement of Wheelhead (Z-axis)	250 mm	250 mm
Distance Between Center	700 mm	900 mm
Distance Between Tailstock and Workhead	580 mm	780 mm
Workbench		
T-slot	15 mm (+0.05 – +0.10 mm)	15 mm (+0.05 – +0.10 mm)
Working Range of Table	135 x 940 mm	135 x 1140 mm
Rotative Angle of Table	±60°	±60°
JOG Adjustment of Table	±10°	±10°
Workhead		
Workhead Taper	One end MT5/the other NT50	One end MT5/the other NT50
Wheelhead		
Inclination of Wheelhead	±15°	±15°
Rotative Angle of Wheelhead	360°	360°
Distance Between Center of Spindle and Table	Max. 300 mm/Min. 50 mm	Max. 300 mm/Min. 50 mm
Distance Between Center of Spindle and T-slot	Max. 415 mm/Min. 165 mm	Max. 415 mm/Min. 165 mm
Peak Power	1.5 HP (1.1 kW) 2 HP (1.49 kW) - opt. 3 HP (2.23 kW) - opt.	1.5 HP (1.1 kW) 2 HP (1.49 kW) - opt. 3 HP (2.23 kW) - opt.
Grinding wheel spindle Speed	2600/3700/6200 rpm	2600/3700/6200 rpm
Machine Dimensions		
Dimensions (W x D x H)	1332 x 1318 x 1480 mm	2142 x 1282 x 1384 mm
Weight	970 kg	1370 kg

※ All specifications are subject to change without prior notice.

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