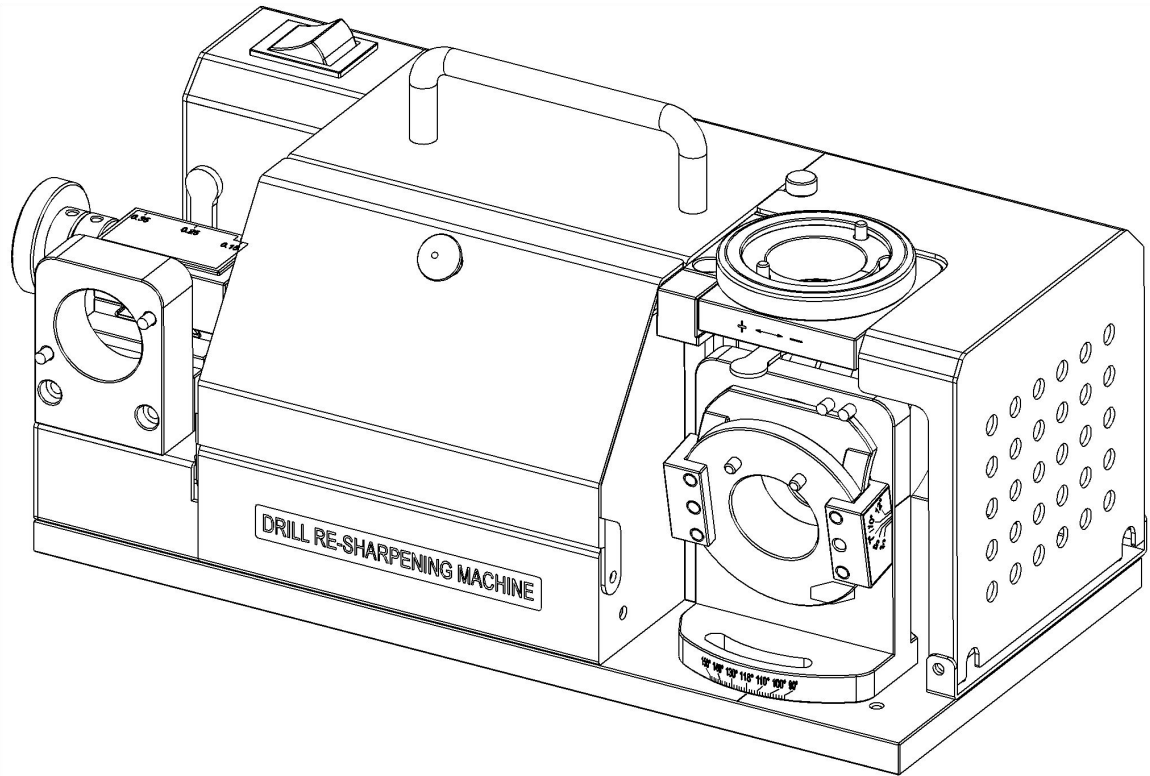


# INSTRUCTION MANUAL

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DRILL RE-SHARPENING MACHINE

## DRM-20



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- Dear customer, thanks so much for purchasing our products. In order to ensure safe operation, please read this instruction manual carefully before starting.
  - We have applied to State Intellectual Property Office (SIPO) for several patents
  - We will constantly improve the performance and quality of our products to meet requirements of customer
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# Safety

1. Work site
  - 1) Stall this equipment on a flat and substantial ground
  - 2) Kept in the place out of reach of children
  - 3) Prevent ground from overmuch dust and vibration
  - 4) Ensure non flammable, explosive environment. Any inflammable gas will cause explosion while grinding
2. Person protection
  - 1) Operator should wear protective goggles in order to avoid injury to eyes caused by debris.
  - 2) Operator should wear dust mask in order to avoid respiratory diseases caused by inhaling dust
  - 3) Do not permit wearing ties, coat with long sleeves. In order to avoid injury caused by involved coat or long hair in equipment operation, operators, who wear long hair, should wear the helmets to cover the long hair
  - 4) Non-operating staff should keep a safe distance of the perform region, any person should wear protective apparel if enter work place
3. Handling precautions
  - 1) Please use the power cable equip with the grinder
  - 2) Use suitable dust collector, which is non-inflammable.
  - 3) In equipment operation, keep finger and other items off the whirling area fest any injury.
  - 4) While grinding, keep equipment away in order to avoid injury caused by jumping debris
  - 5) When power off the equipment, we can plug in power plug to socket. If plug when equipment in on-state, the equipment will start automatically, which will lead to damage easily
  - 6) When not in use, please power off first and then plug out. If there is any abnormal noise or some smoke, Please power off and plug out promptly. Do not repair yourself, it is better to contact our company in time.
  - 7) Do not place any items on power cable and power device
  - 8) Do not use this equipment when there is some crack on power cable or other cables
  - 9) Functions are limited to grinding tungsten steel and high speed steel drill, not to ceramic drill and drill with diamond
  - 10) While motor is overheating, equipment will stop automatically. At this time, please power off and plug out power cable, if not, its sudden restart after cooling will cause huge damage to the equipment.
  - 11) It is not permitted to keep such equipment working 30 minutes continuously
4. Precautions after using
  - 1) Plug out after switching off
  - 2) Do not use finger or instrument to test whirling status of the diamond grinding wheel
  - 3) Clean the equipment with brush and cloth regularly, blowing device is not allowed.
  - 4) Use dry cloth to clean the equipment. If clean with water, the equipment is easy to rust. Gasoline, alcohol and other organic solvent are not permitted

# Purpose and specifications

## 1. Purpose

The product is drill re-sharpening machine driven by permanent magnet DC motor, it is suitable for regrinding of high-speed steel and tungsten steel drill.

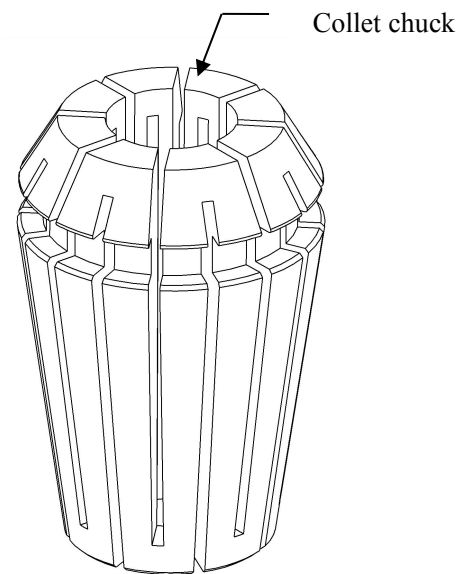
## 2. Specification

### 1) Equipment specification

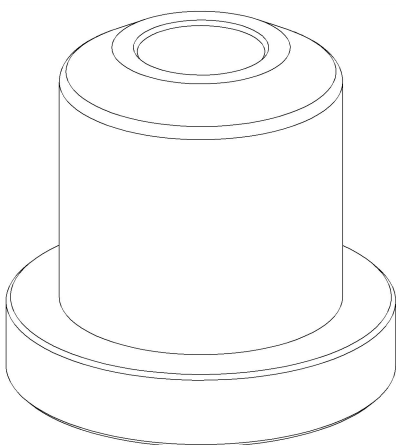
Model	DRM-20
Suitable drill	$\phi 2 \sim \phi 20\text{mm}$
Grinding range of apex angle (vertex angle)	$90^\circ \sim 150^\circ$
Grinding range of cutting edge relief angle	$0^\circ \sim 12^\circ$
Grinding wheel	CBN220(used for HSS drill) $\phi 85*10$
Power source	$220\text{V} \pm 10\% \text{AC}$
Motor output power	250W
Rotation speed	5000 rpm
Overall dimension	350X160X180(mm)
Equipment mass	19KG
Standard accessories	Collet chuck $\phi 2 \sim \phi 20\text{mm}$ (18pcs)
	Hexagon spanner 2.5mm*1pcs,5mm*1pcs
	Chuck group *2 group
	Controller*1pcs

## 2) Specification of collet chuck

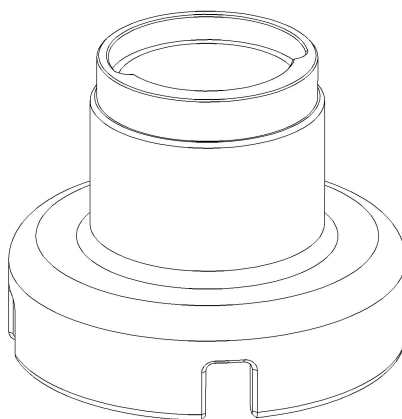
Model of collet chuck	Diameter of suitable drill
φ 3.5	φ 2.1 ~ φ 3
φ 4	φ 3.1 ~ φ 4
φ 5	φ 4.1 ~ φ 5
φ 6	φ 5.1 ~ φ 6
φ 7	φ 6.1 ~ φ 7
φ 8	φ 7.1 ~ φ 8
φ 9	φ 8.1 ~ φ 9
φ 10	φ 9.1 ~ φ 10
φ 11	φ 10.1 ~ φ 11
φ 12	φ 11.1 ~ φ 12
φ 13	φ 12.1 ~ φ 13
φ 14	φ 13.1 ~ φ 14
φ 15	φ 14.1 ~ φ 15
φ 16	φ 15.1 ~ φ 16
φ 17	φ 16.1 ~ φ 17
φ 18	φ 17.1 ~ φ 18
φ 19	φ 18.1 ~ φ 19
φ 20	φ 19.1 ~ φ 20



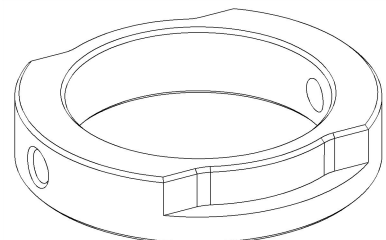
## 3) Clamping assembly:



Chuck fixing sleeve



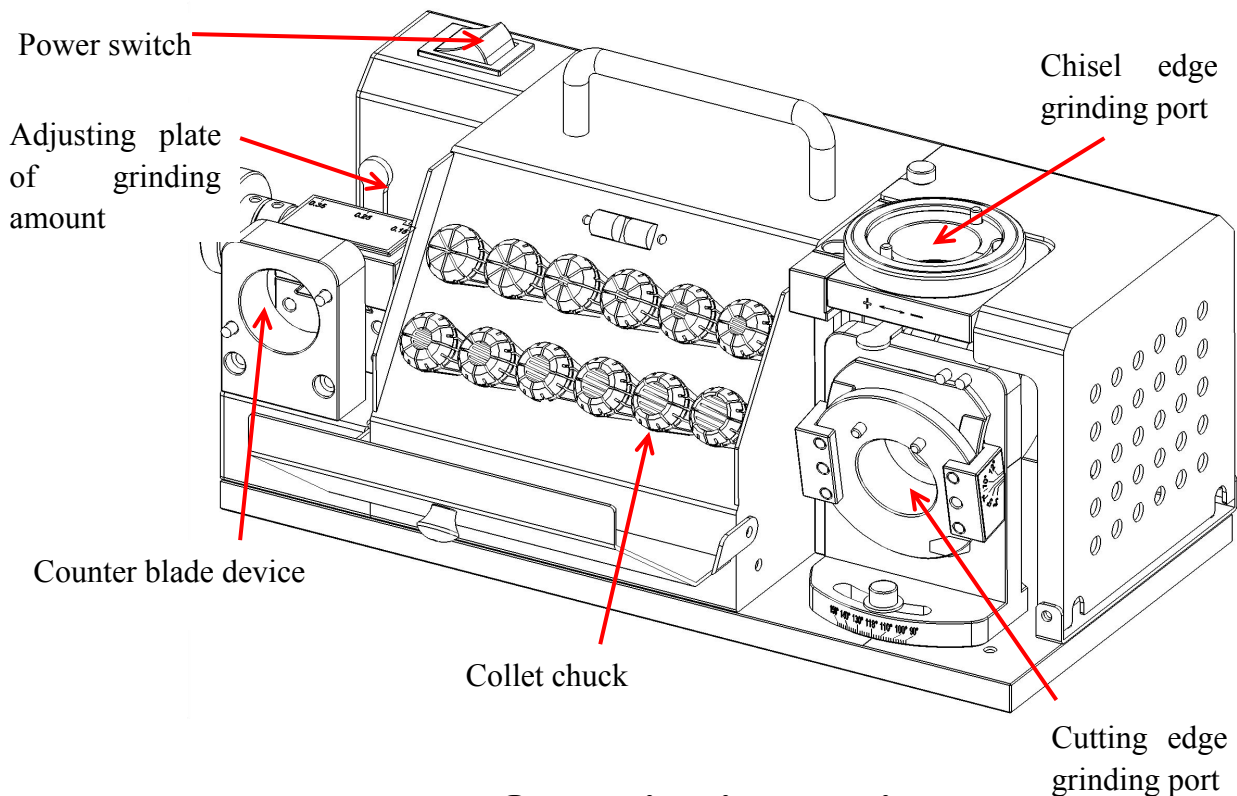
Chuck lock sleeve



Locating ring

# Structural diagram of drill re-sharpening machine

## Main body of drill grinder (front view)



## Operation instructions

### 1) Instruction of the drill:

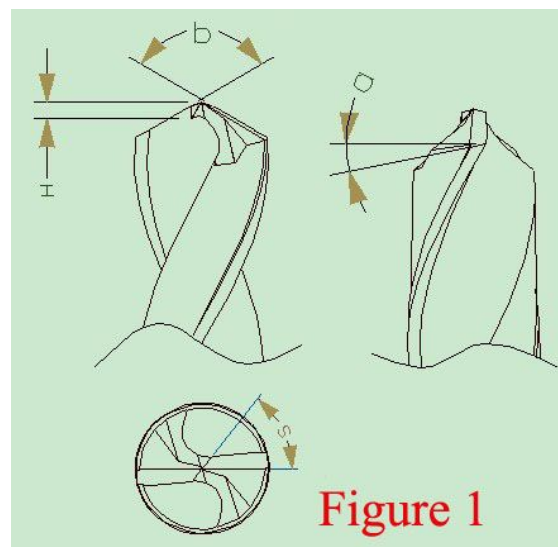
Refer to the figure on the right for shape of the drill.

$\alpha$  : Relief angle of cutting edge

b: Vertex angle

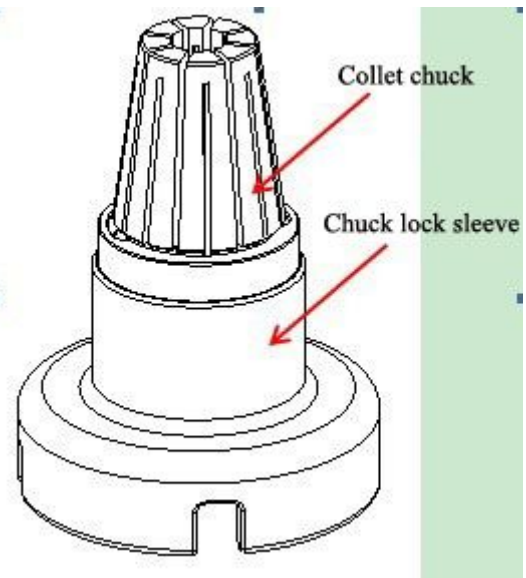
S: Chisel edge angle

H: Depth of chisel edge

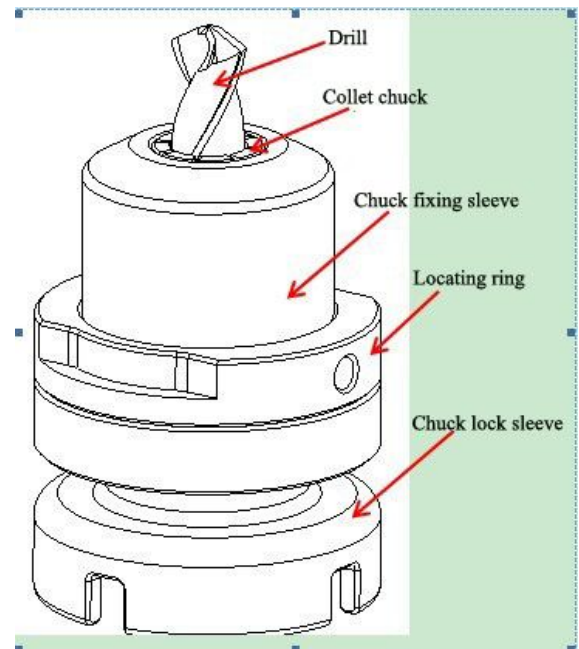


### 2) Connecting power (power switch of the equipment should be closed)

3) Take out collet chuck corresponding with drill diameter according to grinding drill diameter, put the collet chuck into chuck lock sleeve as shown in the right figure:



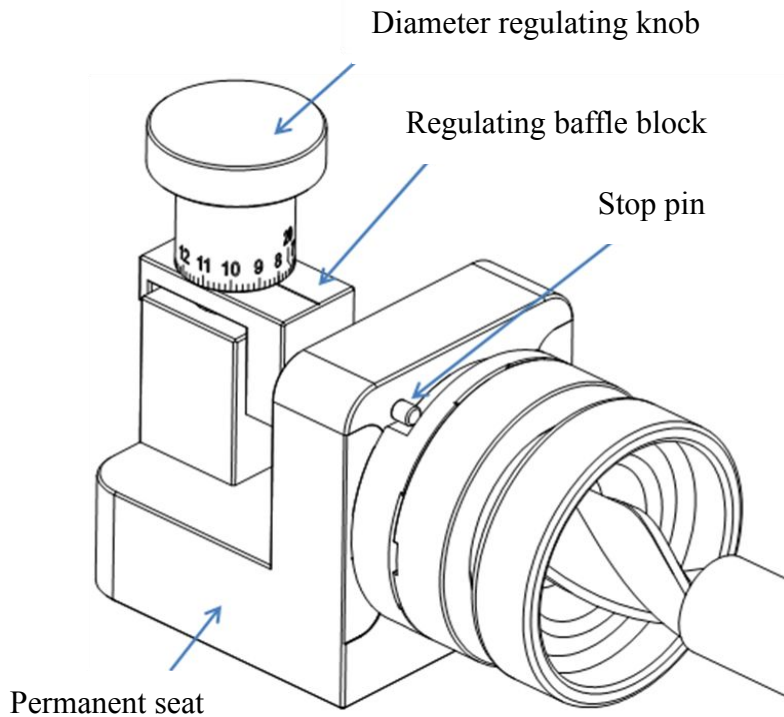
4) Install the chuck lock sleeve mounted with collet chuck into chuck fixing sleeve, then install locating ring on ex-circle of chuck fixing sleeve to make the end face of locating ring contact step face of chuck fixing sleeve, fasten two screws of locating ring to fix locating ring and chuck fixing sleeve, put the drill that should be grinded into collet chuck, fasten lock chuck slightly to make the collet chuck fix the drill and the drill can rotate in the chuck as shown in the right figure:



### 5) Clamping and setting of drill

A diameter regulating knob of a drill blade aligning device is regulated to enable the value of the knob to be accordant with the diameter of the drill to be grinded, if the diameter of the drill to be grinded is 8 millimeters, the diameter regulating knob is rotated to align the number 8 to the scale of a regulating baffle block; the fixture provided with the drill is placed in the blade aligning device of the machine, the fixture is rotated to enable the lateral surface of the locating ring to contact with a stop pin, the tool nose of the drill is contacted with a permanent seat, the chuck locking sleeve is tightened slightly

to realize the effect that the drill is incapable of rotating in the spring chuck, the diameter regulating knob is rotated to separate the regulating baffle block from the drill, the chuck locking sleeve is strongly locked, and then the fixture is taken out.

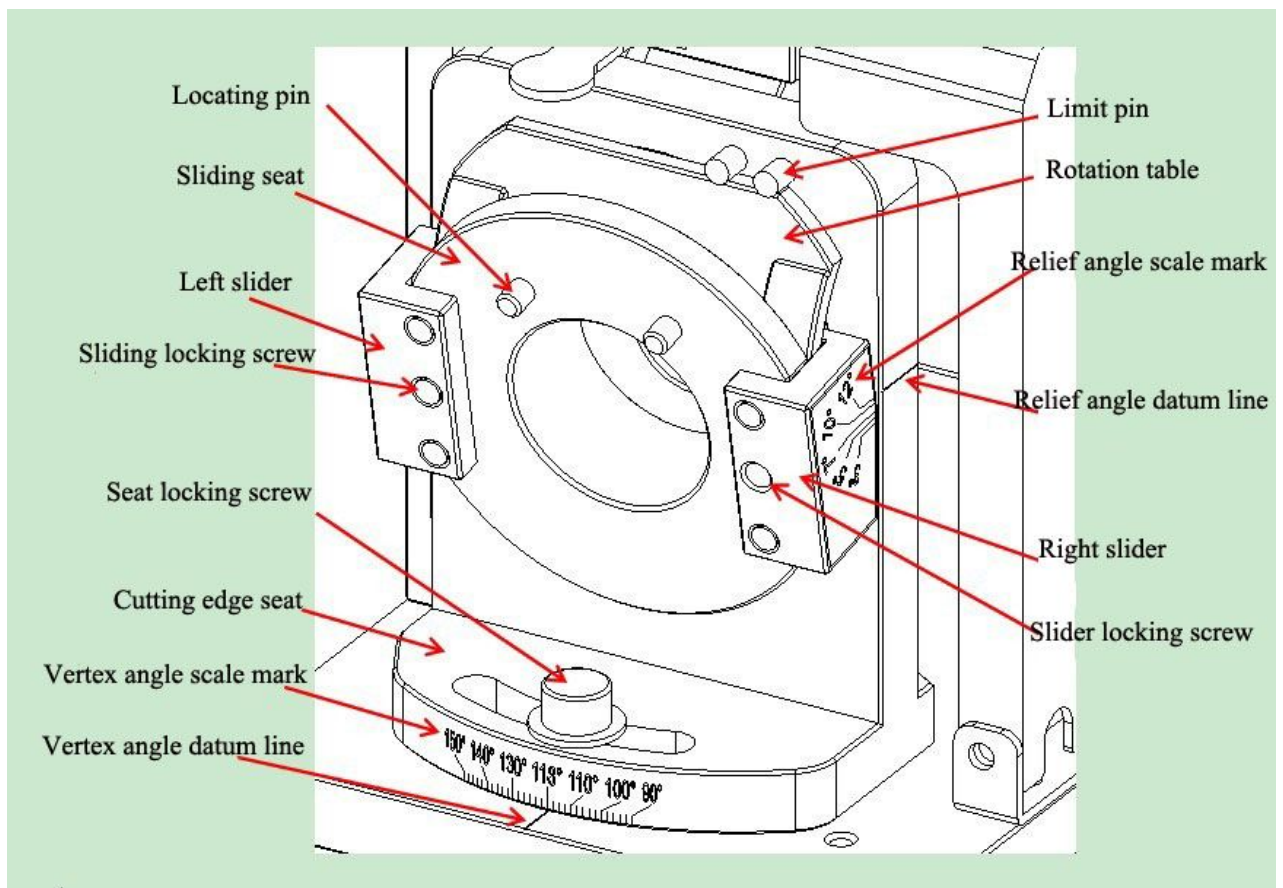


Put the clamping assembly mounted with drill into blade device of the machine, rotate the clamping assembly to make side face of the locating ring contact limit pin, and blade tip of the drill contact fixing seat, and fasten chuck lock sleeve (when fastening, confirm that cutting edge of the drill cannot contact adjusting stop dog, if cutting edge of the drill contacts adjusting stop dog when fastening, the stop dog will block the drill and cause inaccuracy of drill clamping), loosen locking screws of locating ring, rotate clamping assembly together with the drill to make cutting edge of the drill contact adjusting stop dog, rotate locating ring to make side face of the locating ring contact limit pin, fasten screws of locating ring and take out clamping assembly.

#### 6) Angular adjustment of vertex angle:

When adjusting, loosen locking screws of the bottom seat, rotate the bottom seat of cutting edge to the left and right to make the adjusted vertex angle scale mark align with vertex angle datum line, then fasten locking screws of the seat, if vertex angle of the drill need to be grinded to  $118^\circ$ , make  $118^\circ$  scale mark of vertex angle align with vertex angle datum line, then fasten screws of the bottom seat.





#### 7) Angular adjustment of cutting edge relief angle:

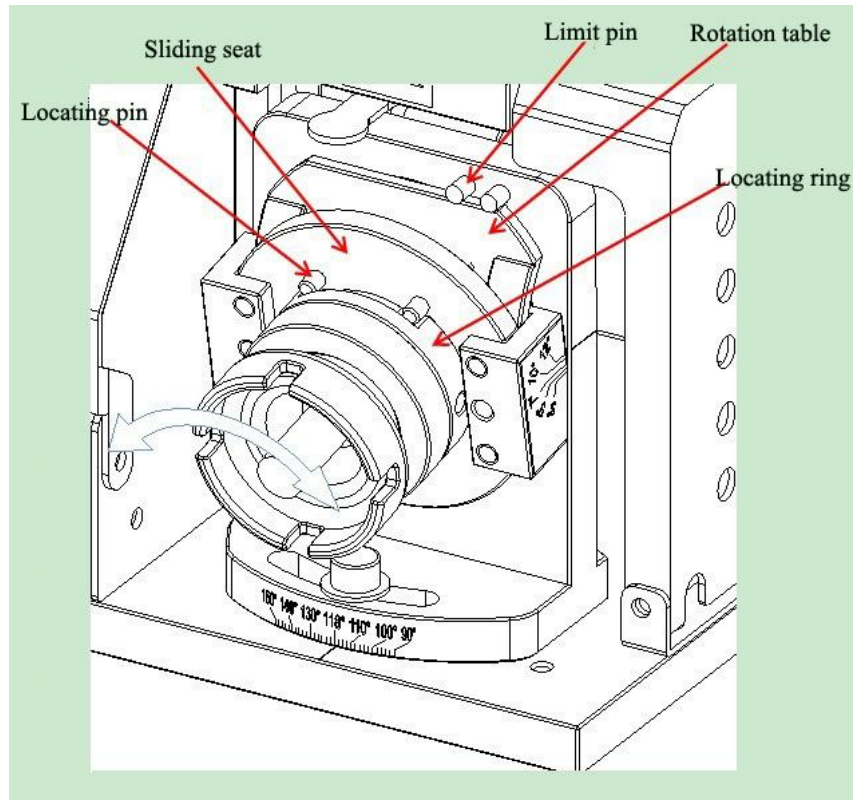
When grinding cutting edge of the drill, this machine can adjust relief angle at will ( $0^{\circ} \sim 12^{\circ}$ ).

When adjusting, loosen slider locking screws of the left slider and the right slider, rotate sliding seat up and down to make the grinded relief angle scale mark at the side of right slider align with the relief angle datum line at the side of the bottom seat, then fasten locking screws of the slider, if relief angle of the cutting edge of the drill is grinded to  $12^{\circ}$ , then make  $12^{\circ}$  scale mark of the relief angle scale mark align with relief angle datum line.

#### 8) Grinding of cutting edge:

As is shown in following figure, put the clamping assembly mounted with drill into the hole of sliding seat of grinding port of cutting edge, make side step of locating ring of clamping assembly contact with locating pin of sliding seat, end surface of locating ring contact end surface of sliding seat, rotate clamping assembly to make the rotating table rotate together with the clamping assembly, keep end surface of locating ring contacting end surface of sliding seat when rotating until the grinding sound disappears, then take out clamping

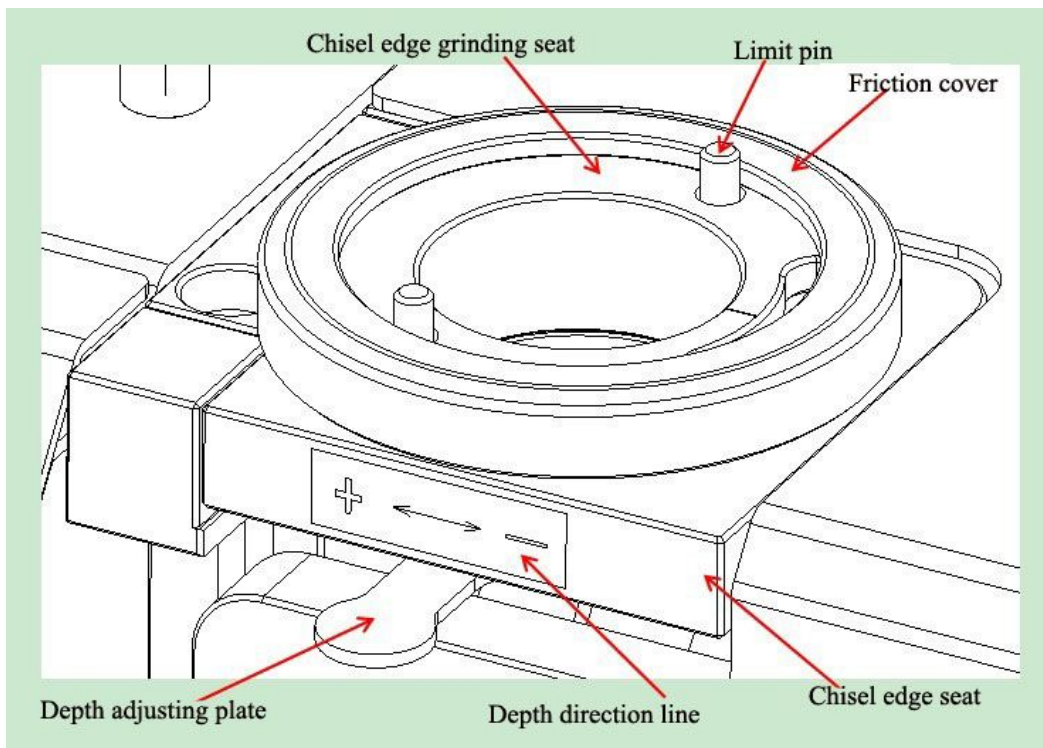
assembly and rotate for  $180^\circ$  , then put clamping assembly into the hole of sliding seat, then grind next cutting edge.



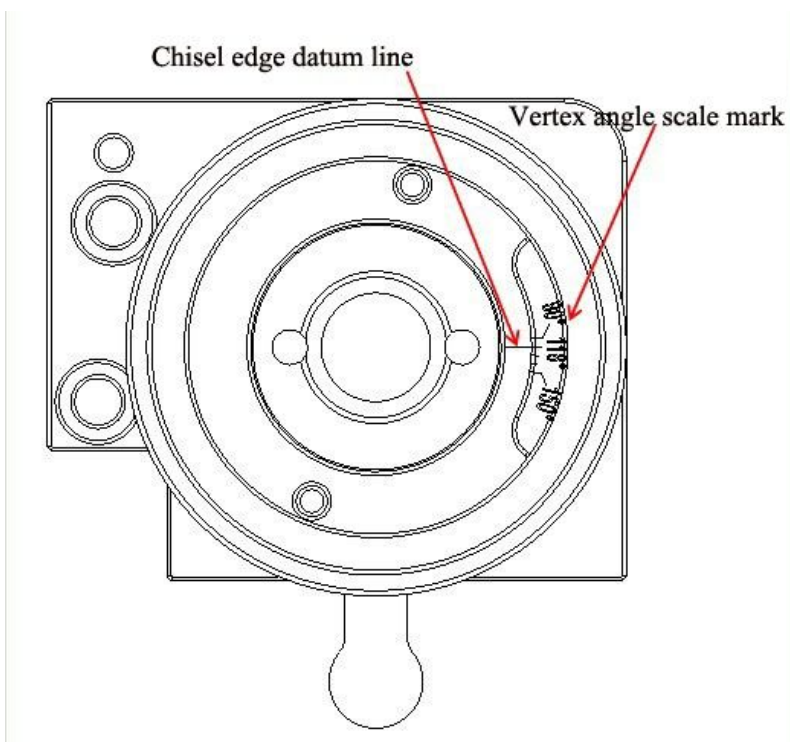
#### 9) Depth of chisel edge and angular adjustment:

This machine can adjust depth and angle of chisel angle according to vertex angle and relief angle of the drill.

- ① Depth of the chisel angle should be adjusted according to vertex angle of the grinded cutting edge, when vertex angle is small, increase depth of chisel edge properly, when vertex angle is big, reduce depth of chisel edge properly. As is shown in following figure, when adjusting, loosen friction top of chisel edge grinding mouth, when increasing depth of chisel edge, rotate depth adjusting plate to “+” direction in front of the chisel edge seat, when reducing depth of the chisel edge, rotate depth adjusting plate to “—” direction.

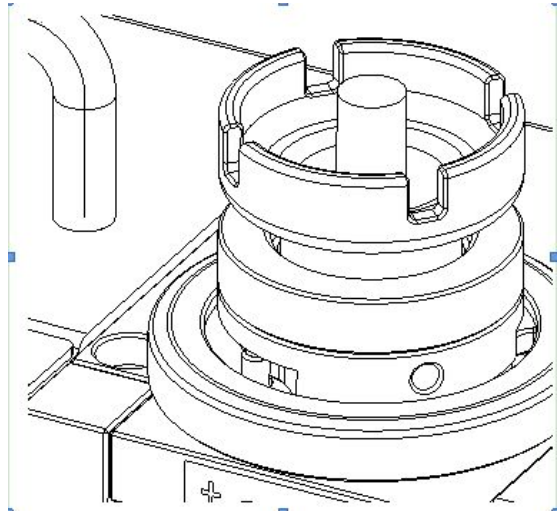


② Angle of the chisel angle should be adjusted according to vertex angle of the grinded cutting edge as shown in following figure: vertex angle of the grinded drill is  $118^\circ$ , rotate chisel edge grinding seat to make scale mark of chisel edge align with  $118^\circ$  scale mark of the vertex angle on chisel edge seat, then lock the friction cover.



## 10) Grinding of chisel edge:

As is shown in figure, install clamping assembly in the hole of chisel edge grinding seat, rotate clamping assembly, keep end surface of the locating ring of clamping assembly contacting with end surface of chisel grinding seat when rotating, when grinding sound disappears, take out clamping assembly, rotate for 180° to grind another chisel edge, then drill grinding is finished.

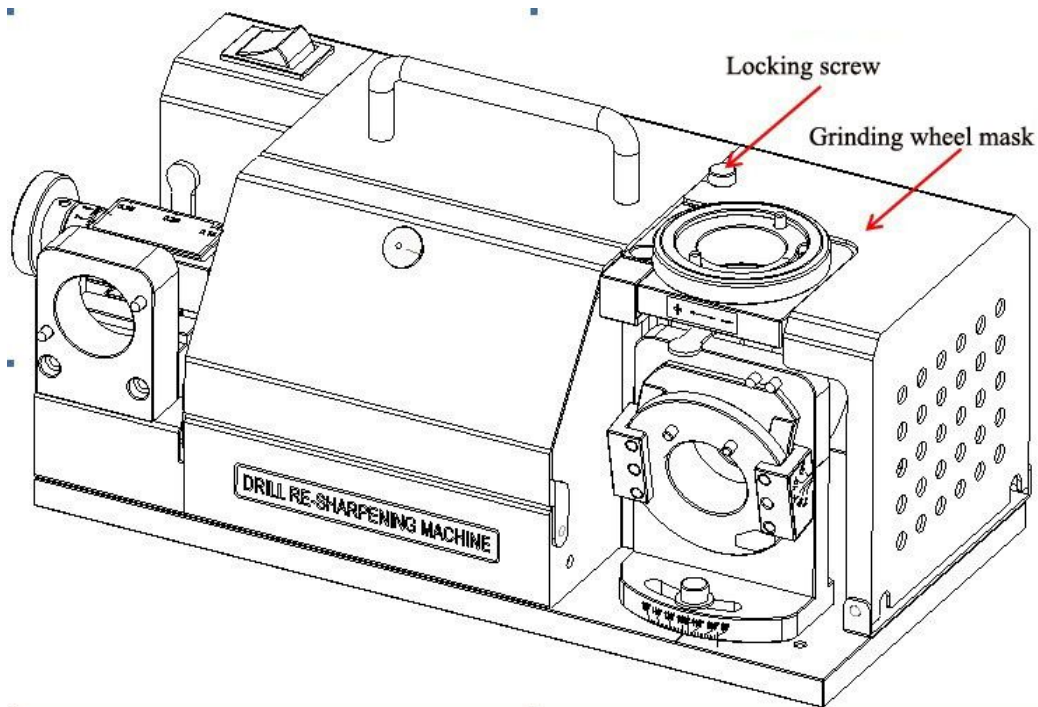


## Maintenance

Equipments must be maintained periodically after using to guarantee normal running of the machine efficiently.

Loosen locking screws of grinding wheel mask, open grinding wheel mask, clean dust on surface of the bottom plate and grinding wheel with brush, close grinding wheel mask after cleaning, and then fasten screws.

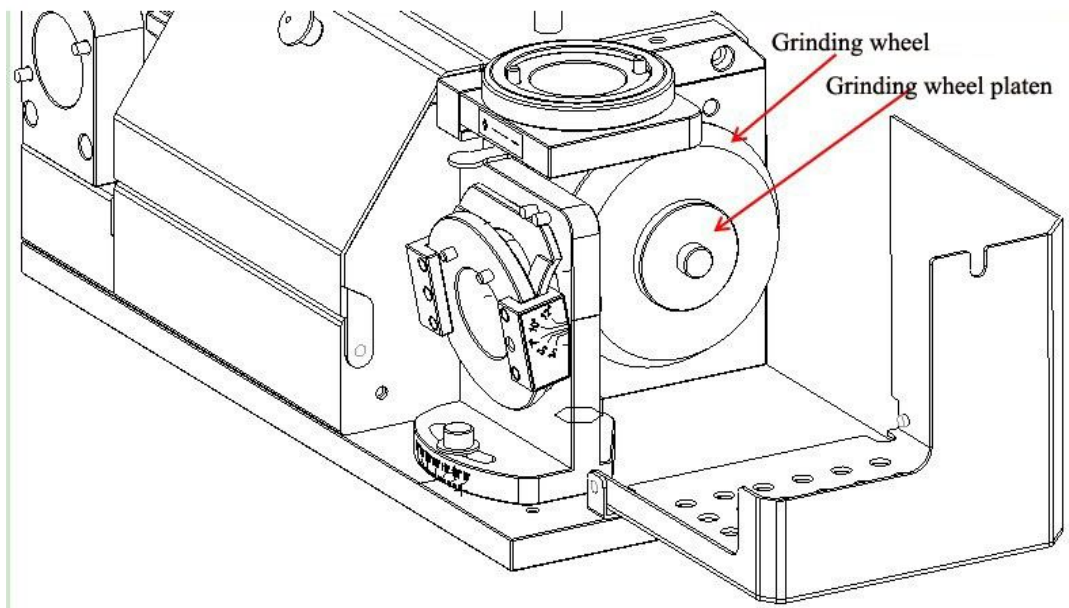
Do not use water and organic solvent when cleaning to avoid rust and corrosion, please operate according to relative items of safety notices when cleaning.



## Replacement of grinding wheel

The power source must be turned off and unplug power socket before replacing grinding wheel,

1. Loosen locking screws of grinding wheel mask and open grinding wheel mask.
2. Loosen screws on platen of grinding wheel, take out platen of grinding wheel and take out grinding wheel.
3. Install new grinding wheel and platen, and fasten screws on platen of grinding wheel.
4. Close grinding wheel mask and fasten screws.



Do not replace other parts at will except grinding wheel, clamping assembly.

Please use parts supplied by the original factory to avoid unpredictable damage. The company is not responsible for invalid maintenance commitment resulted from using parts not from the original factory or the corresponding harm and danger to you and other people.