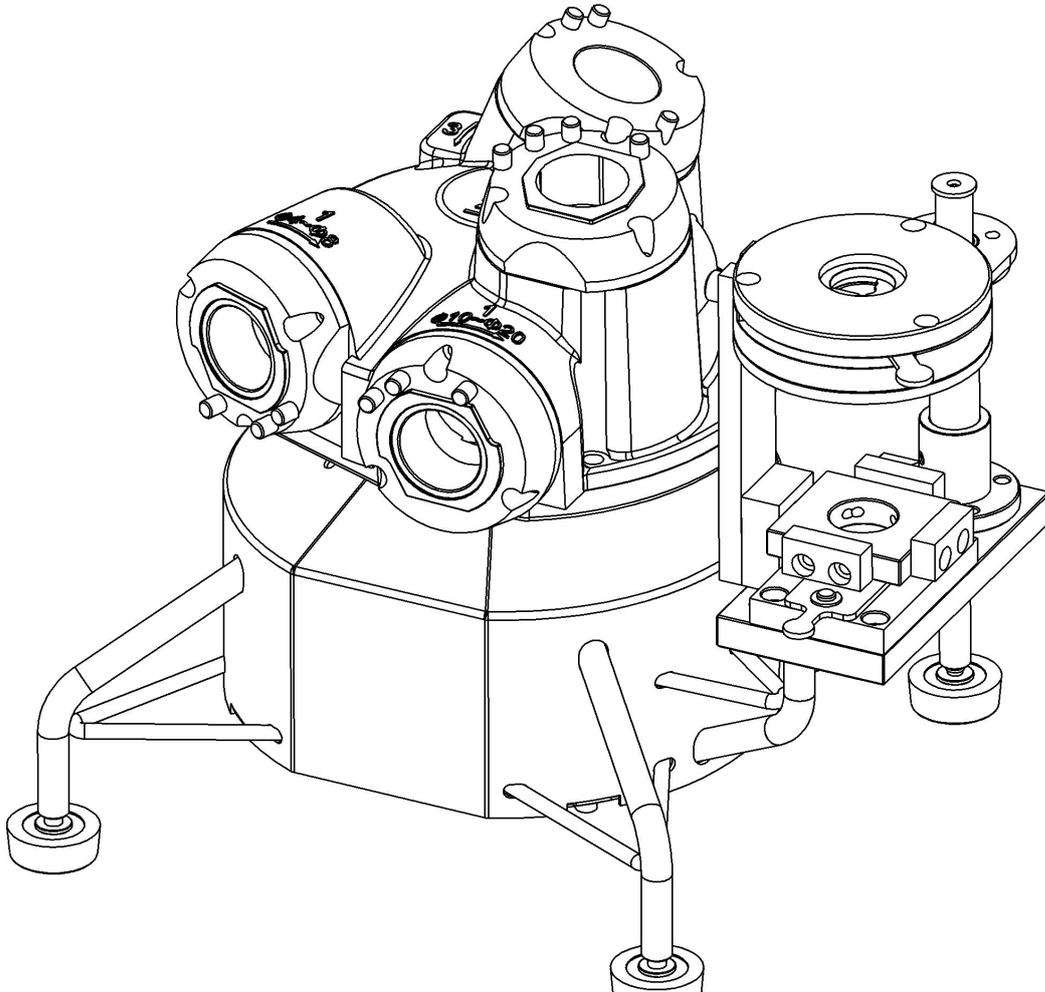


INSTRUCTION MANUAL

END MILL RE-SHARPENING MACHINE

ERM-20



-
- 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 end mill, not to ceramic mill and mill 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

Usage and Specifications

1. Usage

The equipment is mill grinder using permanent magnet DC motor as power source. It is applied to regrinding of tungsten steel and high speed steel end mill

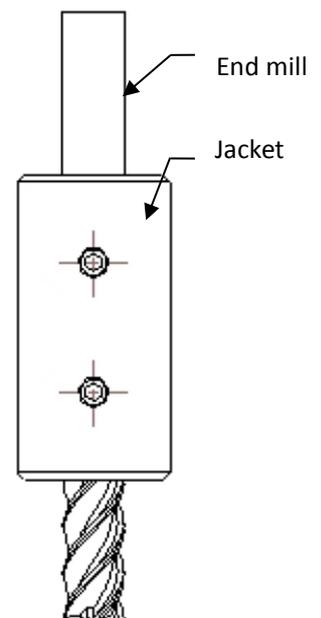
2. Specifications

1) For equipment

Model	ERM-20
Applicable diameters	Φ4, Φ5, Φ6, Φ8, Φ10, Φ12, Φ16, Φ20
Applicable flutes	2, 3, 4
Axial angles	Secondary clearance angle 6° Primary relief angle 20° End gash angle 30°
Diamond grinding wheel	SDC#180(CBN Choose)
Power	220v ± 10%AC
Motor output	600W
Rotate speed	6000 rpm
Dimension of equipment	310X260X260(mm)
Weight of equipment	23KG

2) For mill jacket

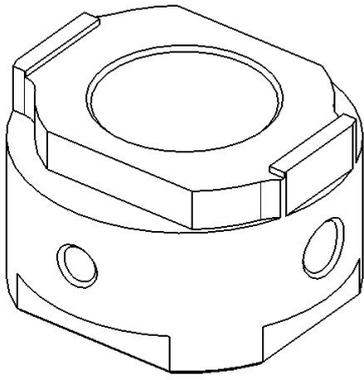
Model of jacket(I.D)	Types of correspondent fitted mill
Φ4	Diameter of mill is Φ4, diameter of flutes is Φ2, Φ3, Φ4
Φ5	Diameter of mill is Φ5, diameter of flutes is Φ4, Φ5
Φ6	Diameter of mill is Φ6, diameter of flutes is Φ4, Φ5, Φ6
Φ8	Diameter of mill is Φ8, diameter of flutes is Φ8
Φ10	Diameter of mill is Φ10, diameter of flutes is Φ10
Φ12	Diameter of mill is Φ12, diameter of flutes is Φ12
Φ16	Diameter of mill is Φ12, diameter of flutes is Φ12
Φ20	Diameter of mill is Φ12, diameter of flutes is Φ12



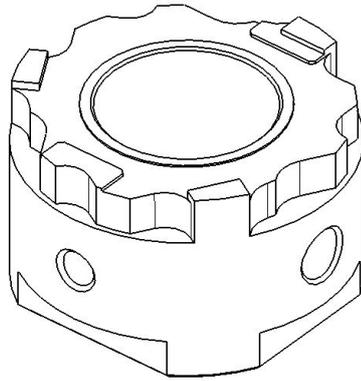
3) Jacket holder

Mill with different diameters should match different jacket holder, and different jacket holders for different Jacket with different NO. of flutes as well, details listed as below

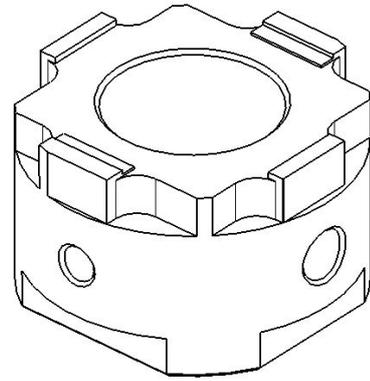
Flutes No of mill	Spec of Jacket holder
2	Φ4, Φ5, Φ6, Φ8, Φ10, Φ12, Φ16, Φ20
3	Φ4, Φ5, Φ6, Φ8, Φ10, Φ12, Φ16, Φ20
4	Φ4, Φ5, Φ6, Φ8, Φ10, Φ12, Φ16, Φ20



Holder for 2 flutes



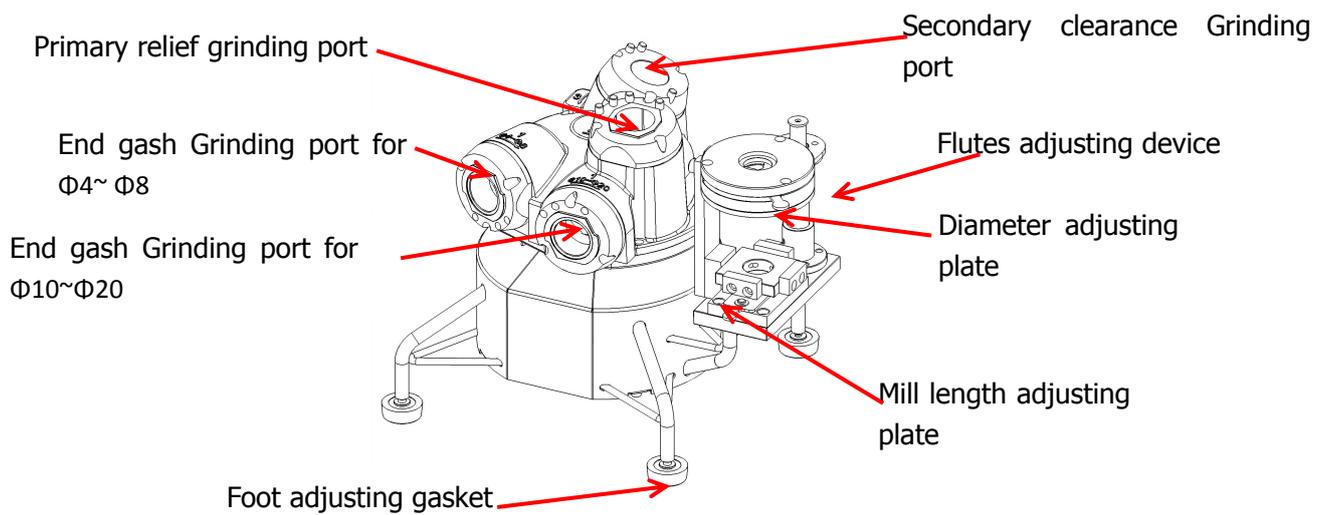
Holder for 3 flutes



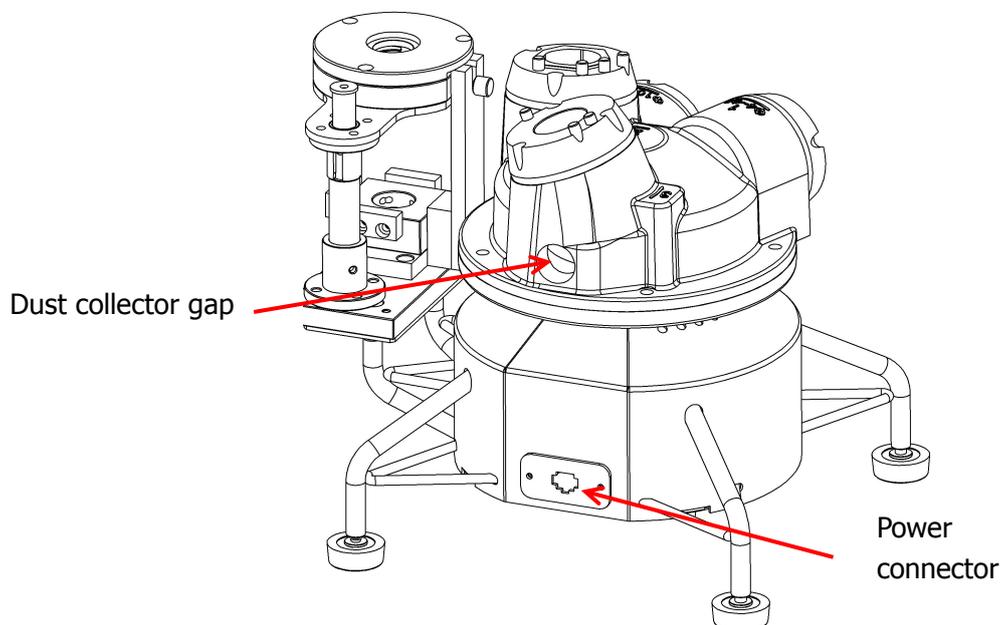
Holder for 4 flutes

Structure Diagram of Mill Grinder

Grinder Body(Front view)



Grinder Body(Back view)



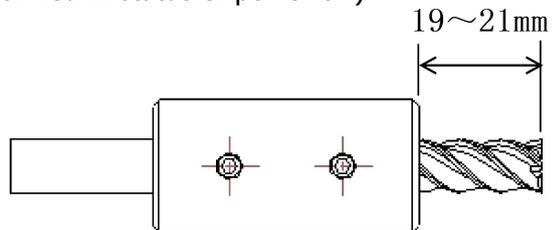
Operating Instruction

1. Handling preparations

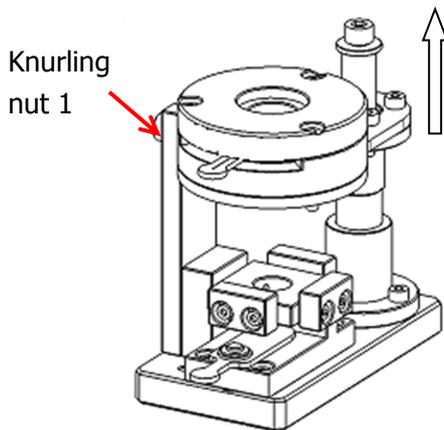
- 1) Place equipment in compliance with the terms of safety instruction, adjust the foot adjusting gasket, keep equipment balance and stable, screw down the hex nuts of foot to ensure fixture of foot and equipment
- 2) Connect dust collector to its gap
- 3) Connect power supply cable (action performed in status of power off)

2. Operation procedure

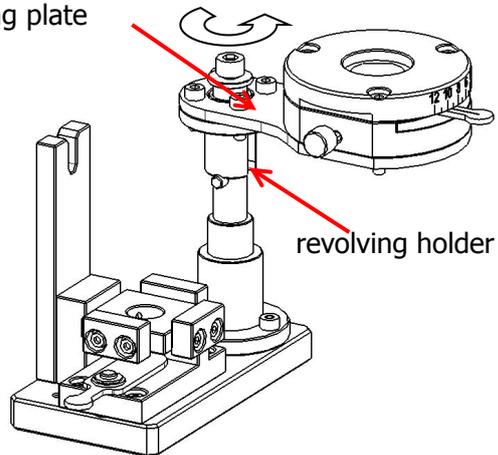
- 1) put mill to its jacket, ensure length of the mill outer part 19-21mm, screw down nut of jacket to ensure fixture of mill and jacket



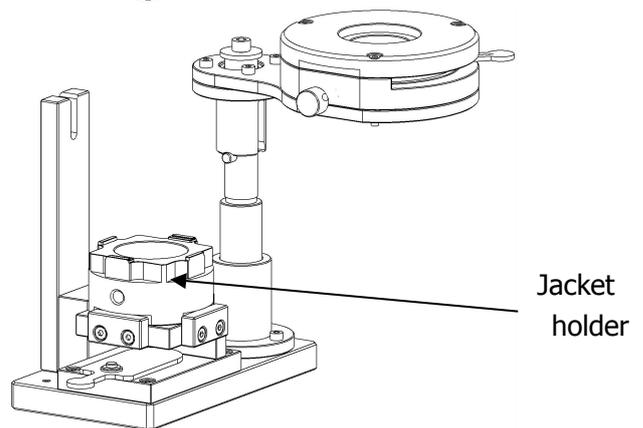
- 2) loose the knurling nut 1 of tool setting device, rise up the supporting plate to make bayonet lock remove from the slot fixed to revolving holder, turn plate counter-clockwise at 90 degree



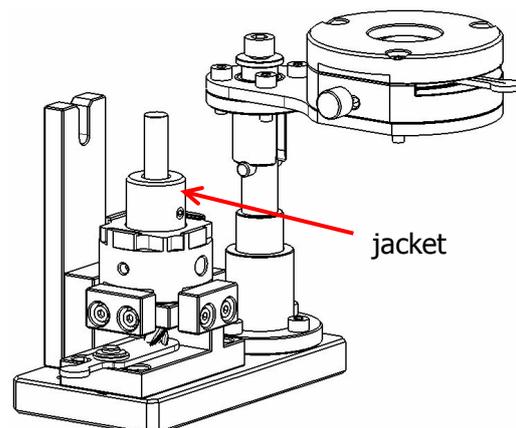
supporting plate



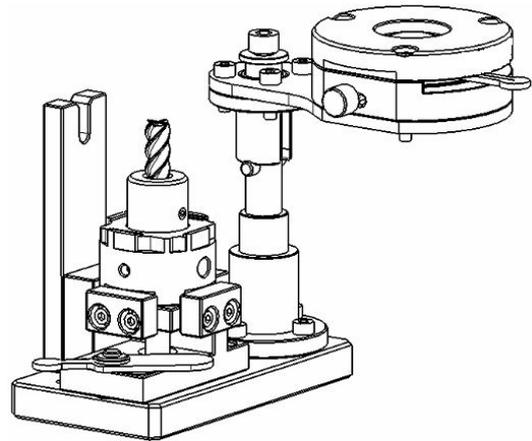
- 3) put holder which is correspondent to mill for grinding to holder socket, meanwhile, make the nut of jacket holder outwards (as shown in diagram), match jacket holder set to jacket holder fixed seat (if choose mill for grinding with 4 flutes $\Phi 8$, please choose its dedicated holder)



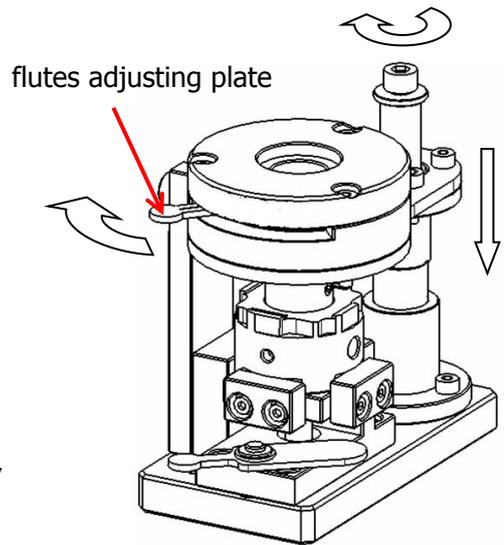
- 4) Put jacket yet fixed mill to jacket holder, it is clearance fit for diameter of mill jacket and inner hole of jacket holder, when putting, make flutes face down carefully in vertical, ensuring the jacket can whirl free.



5) Loosen the lock screw to make the mill point touch the mill length adjusting plate, make the head face of the jacket touch the top of the jacket holder, and then screw down the lock screw of the jacket to ensure the fixture of the mill and jacket.



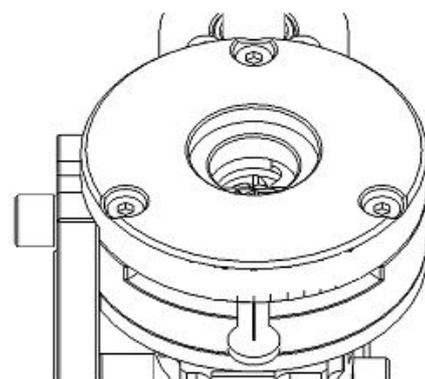
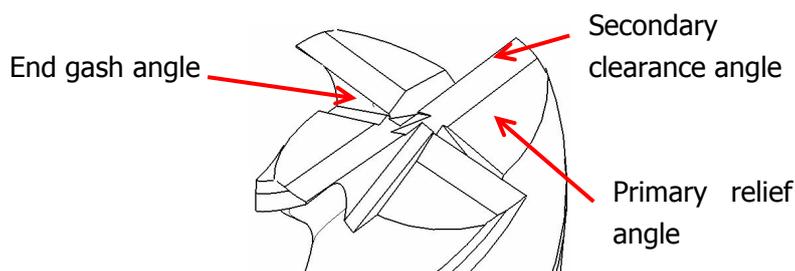
6) Pull out the mill jacket, turn it up and down at 180 degrees to make the flutes up, and then put the jacket holder (when the length of the mill for grinding is over 75mm, whirl the mill length adjusting plate in order to missing mill position, then put the jacket holder).



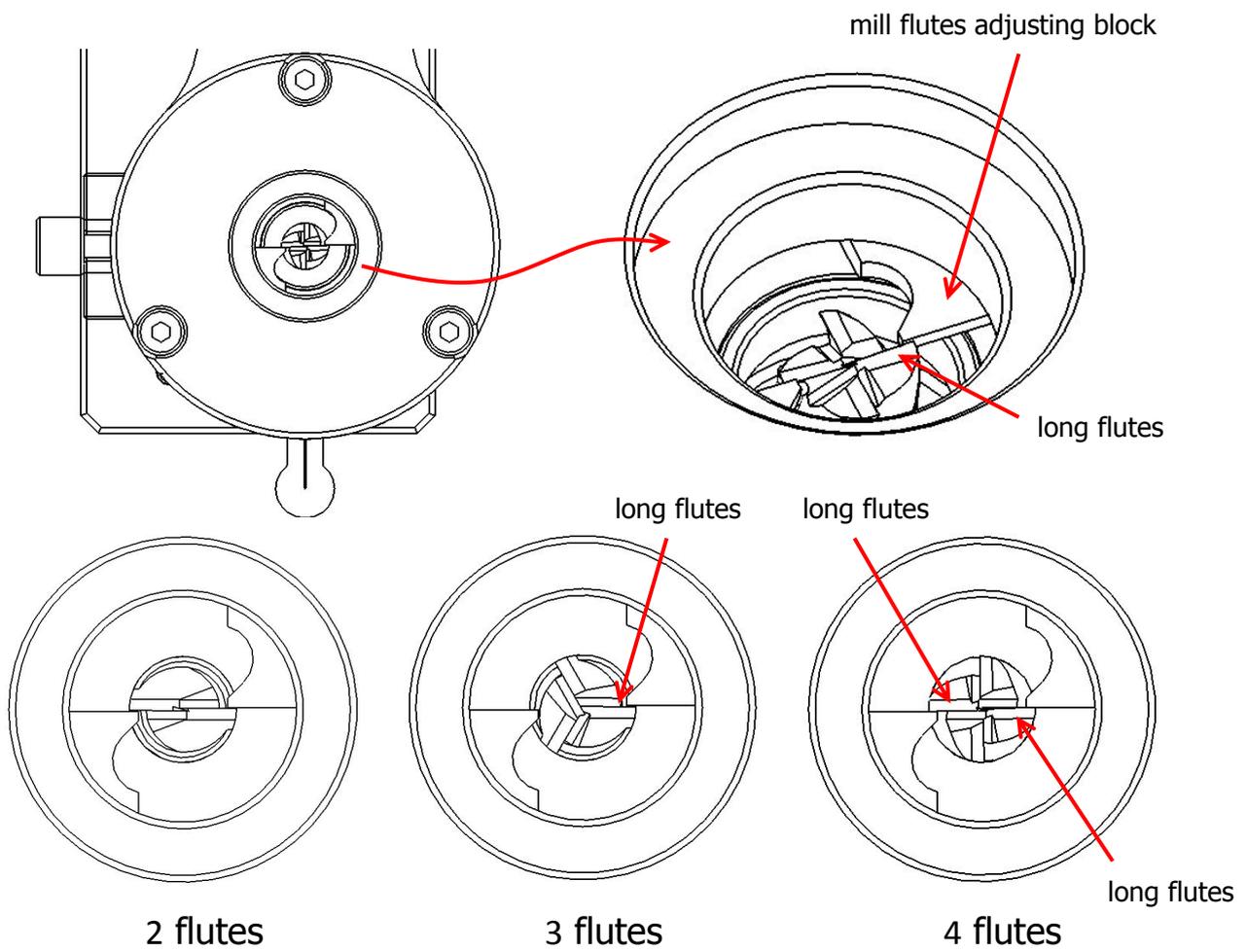
7) Turn the flutes adjusting plate clockwise to the edge to make the open distance of 2-flute mill to maximum, turn the supporting plate clockwise to make the bayonet lock just in the slot of the revolving holder.

8) Move down the supporting plate to make its bottom touch the head face of the mill jacket, screw down the knurling nut 1.

9) Turn the mill flutes adjusting plate counter-clockwise to make it correspondent to the mill for grinding. If the diameter of the mill for grinding is 8mm, adjust the plate to the position of the cylindrical pin 8.



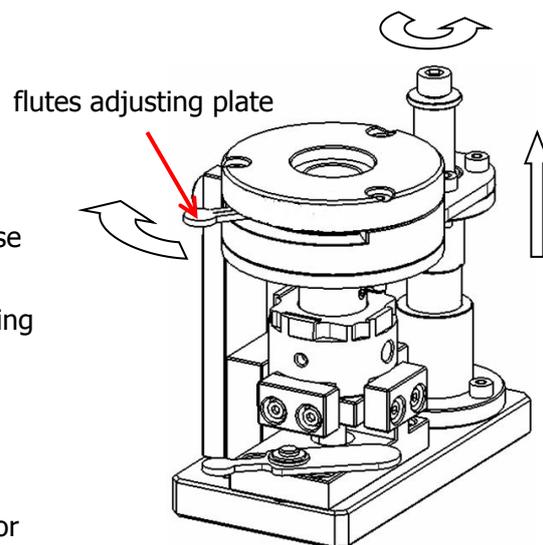
10) Turn the mill jacket (for 2 flutes and 4 flutes) to make the long flutes point of the mill touch the mill flutes adjusting block. For 3-flute mills with single long flutes, when adjusting, ensure the long flutes point of the mill is touching the right mill flutes of the adjusting block, shown in the following diagram.

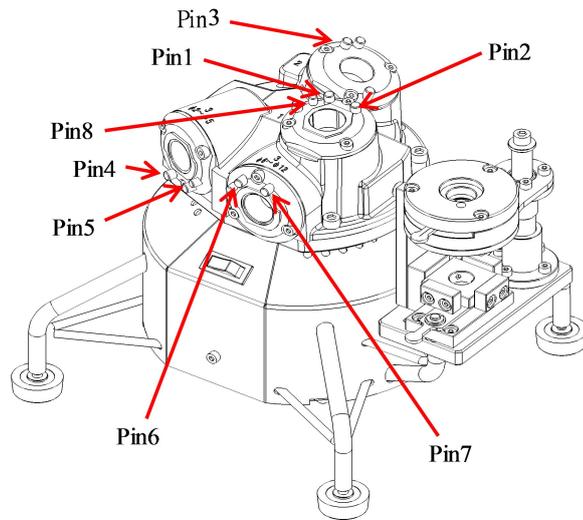
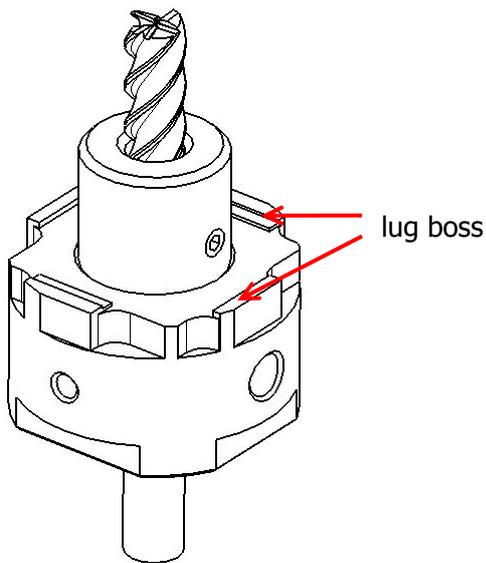


11) screw down the nut of jacket holder to ensure the fixture of jacket and its holder (do not with strong force to avoid damage to the cover of the jacket)

12) turn the mill flutes adjusting plate clockwise to the edge, rise up the supporting plate to make bayonet lock out of slot of revolving holder, then turn the supporting plate counter clockwise at 90 degree, pull out the jacket holder fixed mill

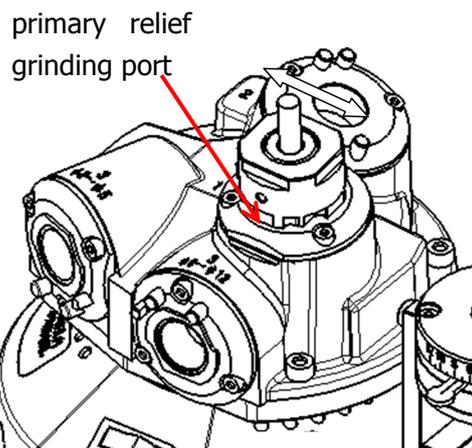
13) Switch on the equipment and dust collector to starting grinding



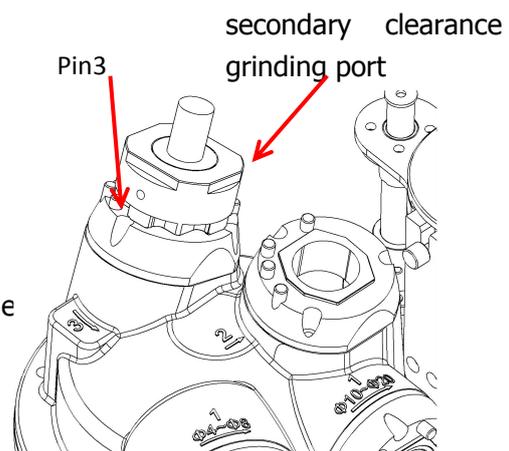


- 14) put jacket holder tool point primary relief grinding port, while putting, to ensure lug boss of the jacket holder between positions cylindrical pin 1 and 2, to move the holder front and back (in the direction shown by the arrow) keeping mill flutes touching diamond grinding wheel.

Through the high speed whirling to achieve grinding of the mill. When grinding mill with 2 flutes, first turn the jacket holder at 180 degree, and then grinding the other mill. When grinding mill with 3 flutes, turn the jacket holder at 120 degree two times, and then grinding the other two primary relief. When grinding mill with 4 flutes, turn the jacket holder at 90 degree three times, and then grinding the other three primary relief

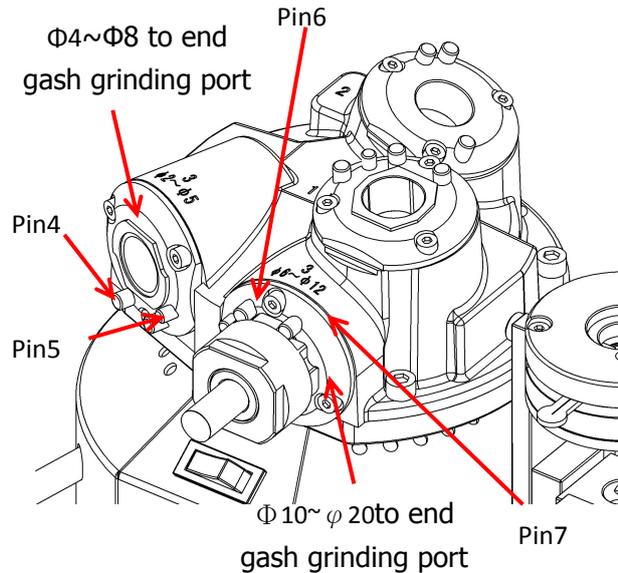


- 15) put jacket holder secondary clearance grinding port, while putting, to ensure lug boss of the jacket holder at position cylindrical pin 3(as the diagram showing), to move the holder with round trip, keeping mill flutes touching diamond grinding wheel. Through the high speed whirling to achieve front bevel angle grinding of the mill. When grinding mill with 2 flutes, first turn the jacket holder at 180 degree, and then grinding the other secondary clearance. When grinding mill with 3 flutes, turn the jacket holder at 120 degree two times, and then grinding the other two secondary clearance, When grinding



mill with 4 flutes, turn the jacket holder at 90 degree three times, and then Grinding the other three secondary clearance

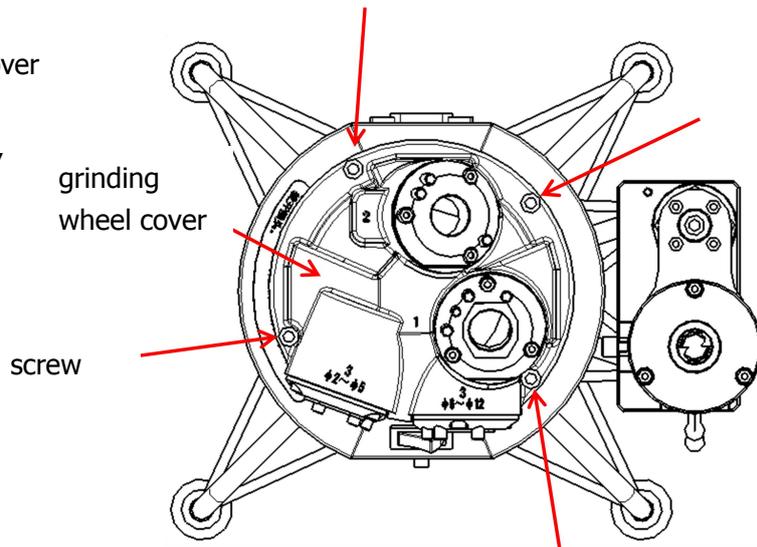
- 16) put jacket holder end gash grinding port, put mills with diameter of $\Phi 4\text{--}\Phi 8$ to end gash grinding port, while putting, to ensure lug boss of the jacket holder between positions cylindrical pin 4 and 5, put mills with diameter of $\Phi 10\text{--}\Phi 20$ to end gash grinding port, while putting, to ensure lug boss of the jacket holder between positions cylindrical pin 6 and 7,(as the right diagram showing), to move the holder with round trip, keeping mill flutes touching diamond grinding wheel. Through the high speed whirling to achieve front bevel angle grinding of the mill. When grinding mill with 2 flutes, first turn the jacket holder at 180 degree, and then grinding the other back bevel angle mill. When grinding mill with 3 flutes, turn the jacket holder at 120 degree two times, and then grinding the other two end gash, When grinding mill with 4 flutes, turn the jacket holder at 90 degree three times, and then grinding the other three end gash



Maintenance

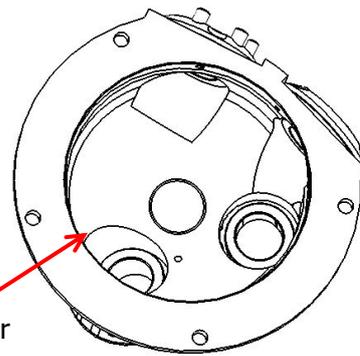
After using, you should carry out effective maintenance to make it work smoothly

1. Loose 4 lock screws on the cover of the grinding wheel (in the direction shown by the arrow), pull out the grinding wheel cover



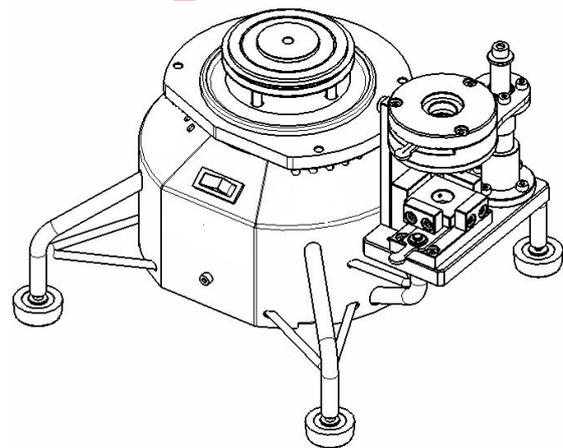
2. Remove the dust in 4 grinding gaps of the cover with clean cloth, use brush, air gun to clear the lumen of the grinding wheel.

grinding wheel cover



3. Use clear brush and dry cloth to clear the Chassis of the equipment, do not use the gas gun in order to avoid the damages caused by entered dust to motor

chassis

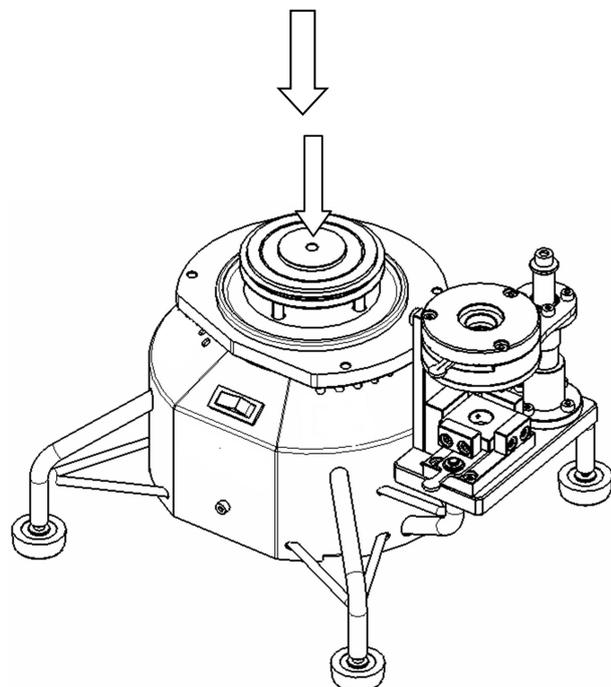


4. After cleaning, install well the grinding wheel cover and screw down the 4 screws. Before installing, ensure there is no dust in the fit part between the grinding wheel cover and bottom for precision. In this cleaning process, do not use water and organic solvent, otherwise the equipment is easy to rust and corrosion. Performing this, please strictly comply with the terms of safety instructions

Grinder wheel replacing

Before replacing the diamond grinding wheel, please ensure switching off and plug out

1. Loose 4 lock screws on the cover of the grinding wheel, pull out the grinding wheel cover
2. Loosen the lock screw of the diamond grinding wheel(in the direction shown by the arrow), pull out the diamond grinding wheel
3. Install a new diamond grinding wheel and screw down the lock screws, pay attention, do not install in contrary (in the right install direction)

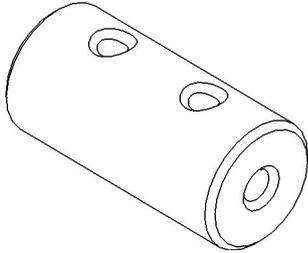


of the grinding wheel)

4. Install the grinding wheel cover, screw down the lock screws

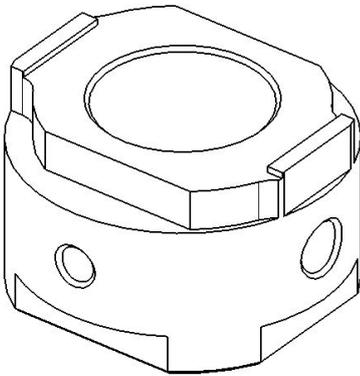
Parts List

1. Mill Jacket

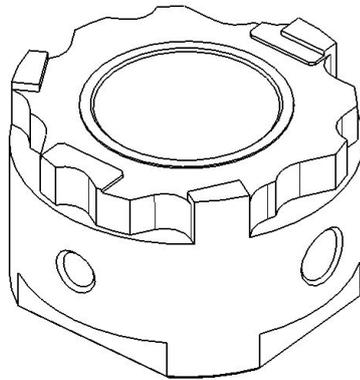


Mill jacket $\Phi 4, \Phi 5, \Phi 6, \Phi 8, \Phi 10, \Phi 12, \Phi 16, \Phi 20$ total 8 sets

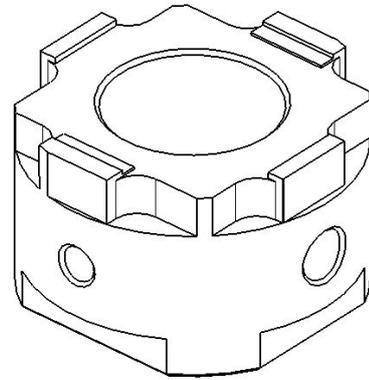
2. Jacket Holder



Two flutes ($\Phi 4, \Phi 5, \Phi 6, \Phi 8, \Phi 10, \Phi 12, \Phi 16, \Phi 20$) total 8

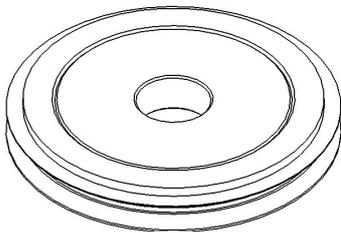


Three flutes ($\Phi 4, \Phi 5, \Phi 6, \Phi 8, \Phi 10, \Phi 12, \Phi 16, \Phi 20$) total 8



Four flutes ($\Phi 4, \Phi 5, \Phi 6, \Phi 8, \Phi 10, \Phi 12, \Phi 16, \Phi 20$) total 8

3. Diamond grinding wheel 1 piece



4. Controller 1pcs

The above parts, user can replace by themselves, other parts are not permitted
Please use the part offered by the original manufacture in order to avoid unexpected damage.
Using parts do not from the origin manufacture will lead to failure of the warranty commitment,
even to injure you and your family, for this, we do not take on any responsibility