BL-580 LD

Brake Lathe

OPERATING MANUAL

WORLD TOOLS CORPORATION
Danwon, Ansan, Gyeonggi 15616 South Korea

Tel: +84 985 726 585

Safety Cautions

This machine is intended for use by QUALIFIED PERSONNEL only. Make certain all operators are properly trained, know how to safely and correctly operate the unit.

1) Pre-Use Safety

Educating yourself about the lathe before using it can prevent many accidents. Read the user manual before you start work. Examine the lathe for any loose, damaged or missing parts and ensure that all parts are in place. Do not use the lathe if you notice any problems.

2) Wear Safety Glasses

Lathes often spit out chips and other pieces of hot, sharp metal. Wearing industrial safety glasses, especially those with side shields, will protect your eyes from damage.

3) Clothing and Accessory Safety

Lathes can easily catch long sleeves and loose clothing. It's best to wear short sleeves or long sleeves with fitted cuffs that cannot get caught and drawn into the lathe. Wear long pants and sturdy work shoes to protect your legs and feet from hot metal. Remove any jewelry or wrist watches that could get caught on the lathe. Pull back long hair as well.

4) Aligning Workpieces

Before you begin work, make sure drums and rotors are properly and squarely mounted before starting lathe, and all parts are secure.

5) Cutting Safety

Keep your hands and fingers away from any moving parts or cutting tools. Never use your hand to stop a moving parts. Instead, move the cutting tool away from the rotors or drums, turn off the lathe and remove the work piece.

6) Use the Right Tool Only

Do not force a tool or an attachment to do a job for which it was not designed. It does not help to do any job better.

7) Electrical Safety

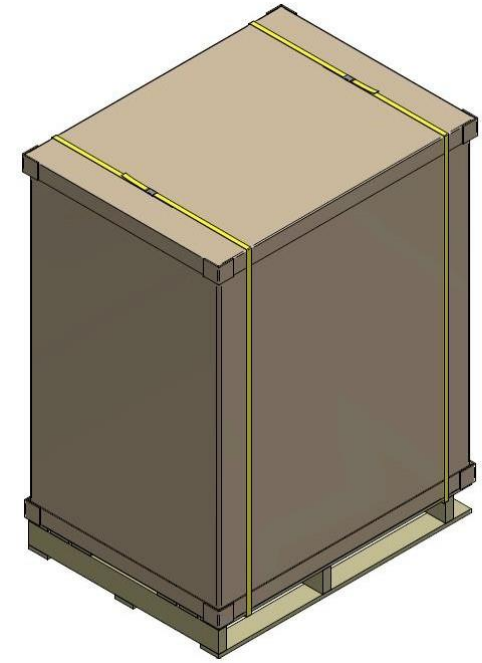
Remove power from the unit before servicing. Avoid unintentional starting. Make sure the switch is in the OFF position before plugging the machine in or performing any maintenance. If an extension cord is necessary, a cord with a current rating more than that of the equipment should be used at all times. Cords rated less current than the equipment may overheat. To reduce the risk of electric shock, do not use on wet surfaces.

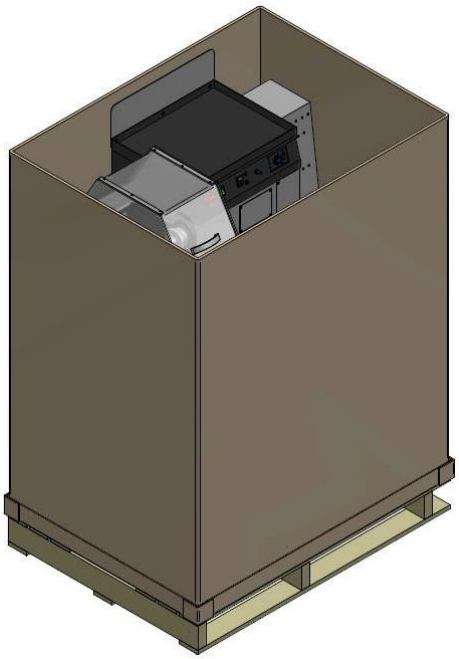
8) Clean Up Safety

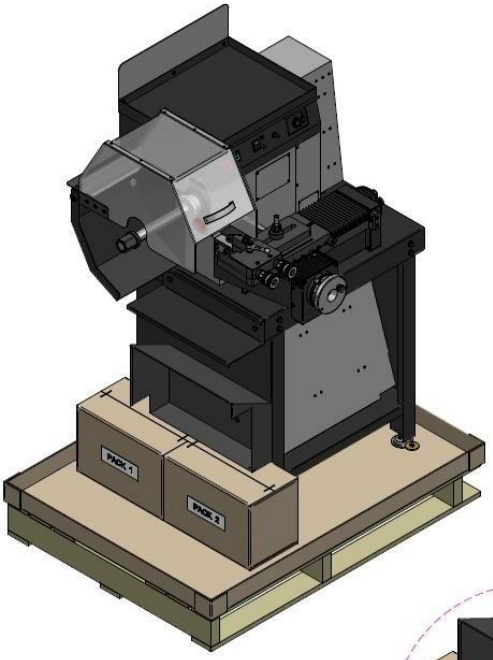
Thoroughly clean your work area after using the lathe. Sweep up any metal pieces from the floor or work area with a brush or broom. Do not touch the metal pieces with your hands as they may cut or burn you. Do not use compressed air to blow the tool clean. Metal chips and dust may be driven between machines parts and into bearings causing wear.

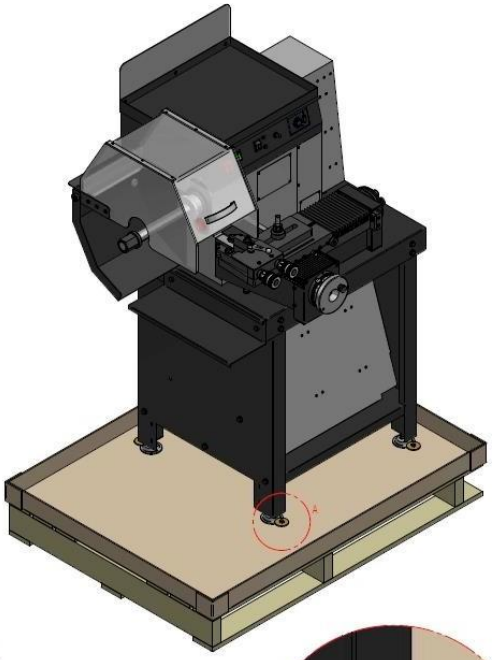
1. Receiving & Unpacking

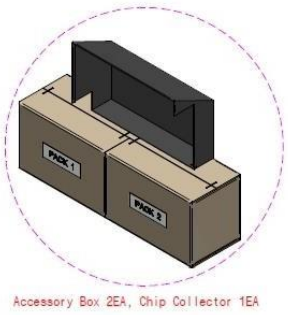
The shipment is packed by standard export carton box. If any of the goods are shorted or damaged, notify manufacturer at once.











Accessory Box 2EA, Chip Collector 1EA

Detail A

Mandatory Checklist

Do NOT operate the machine until you understand all the c
Make certain operators are properly trained, know how to correctly operatethe machine.

- **Install a machine evenly to the ground surface.** Adjust provided level-feet as necessary. -Minimizing any possible vibration is a key to successful work.

- **Do NOT use a steel hammer to dismount the rotor from the vehicle.** This will result in bent rotor and no matter how you try to fix it, there will be a constant runout presented. Dismount a rotor with a soft rubber hammer only.

- **Clean thoroughly build-up rust and debris from the rotor where the brake hub touches** using a bristled brush or a sandpaper. Remove any rust build up or high spots and get the inner/outer edge as close as possible to the overall rotor surface height.

- **Use Chip Deflector and Silencer Springs at all times.**
Chip Deflector also dampens vibration while skimming and it is a mandatory item to achieve fine, smooth cut. With chip deflector neglected, tiny metal chips will get into machined parts and cause undue wear/damage to the leadscrew and its part.

- Depth of cut should be within limit. **Max. depth should NOT exceed 0.05mm deep.**- Working over the max. depth will cause electric overload to the motor as well as to the feed controller.

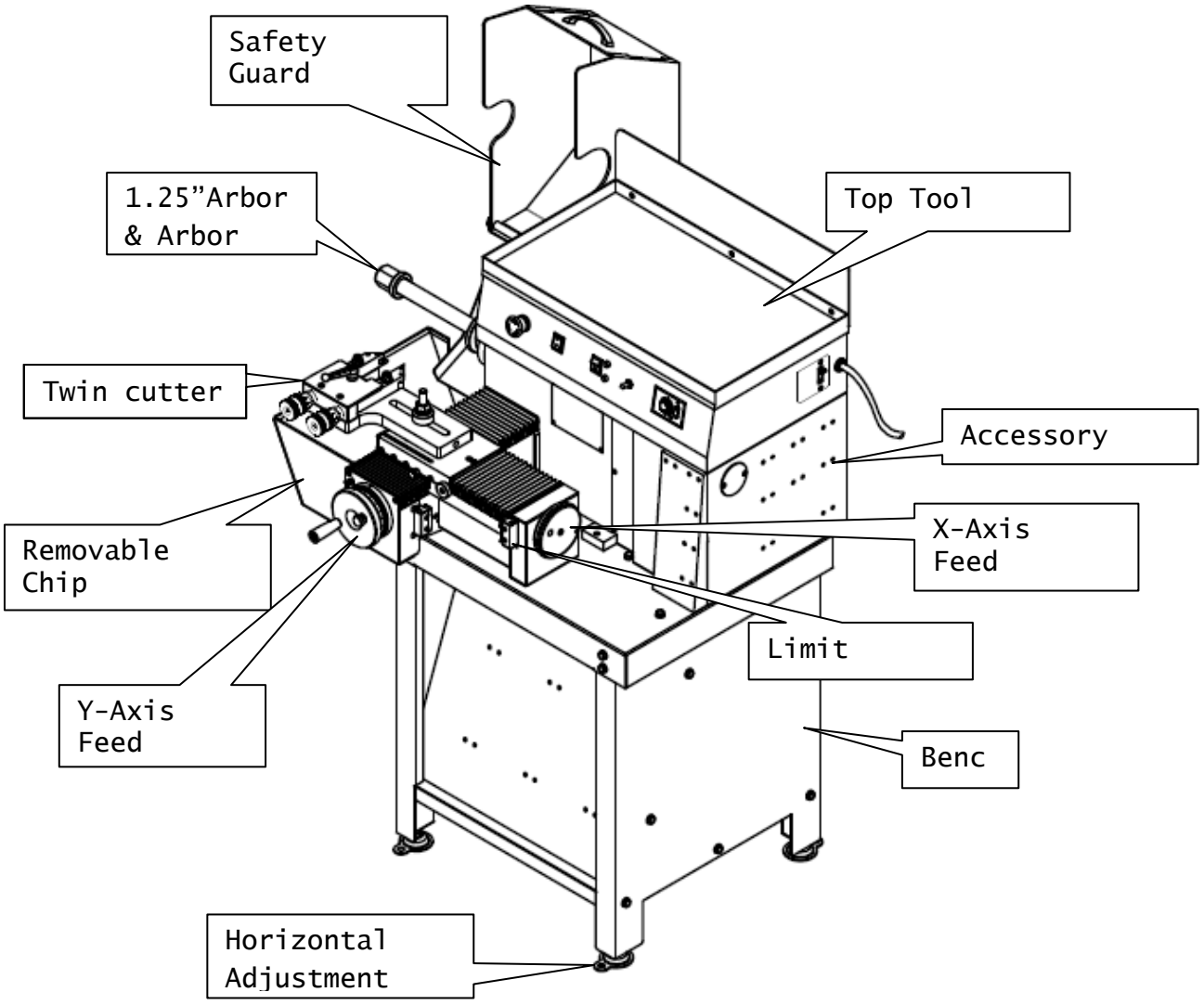
- Check the Bit Tips in a regular basis and **replace it only with manufacturer's genuine parts.** Do NOT use generic, cheap Bit Tips. Fine cut is NOT guaranteed.

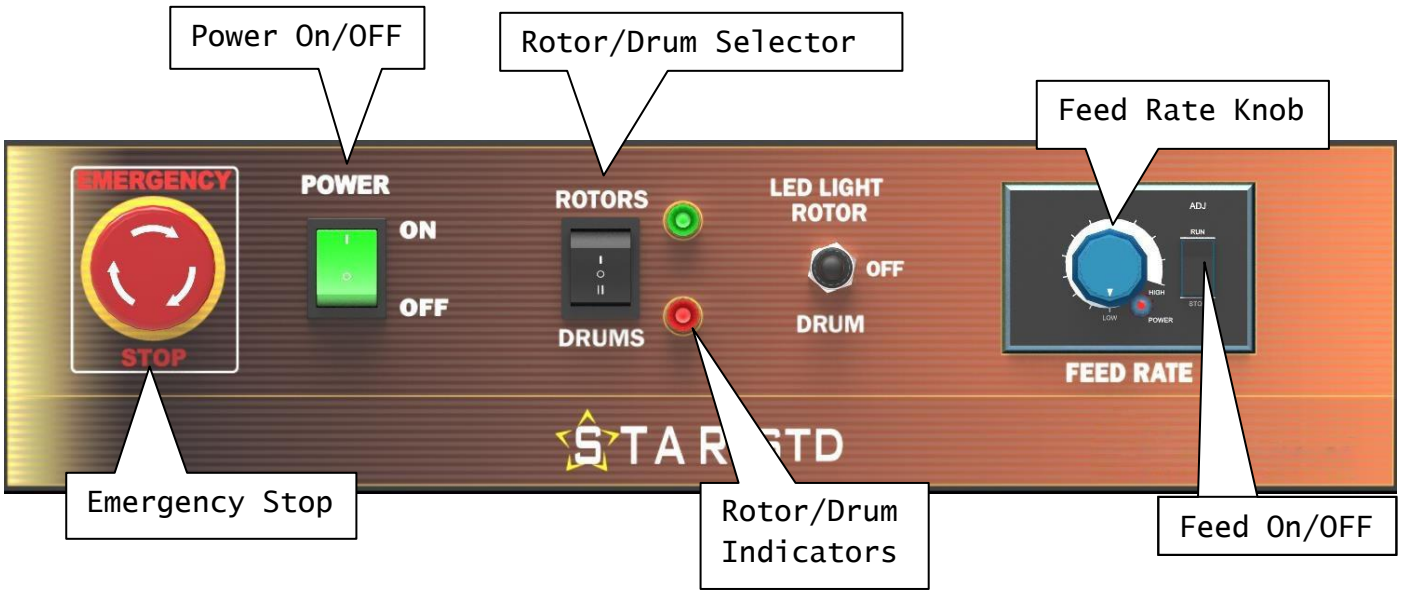
- **Keep the precision-machined parts (shaft & adapters) be free from rust and scratches** for best performance. Apply a light layer of oil to shaft & adapters to protect their machined surfaces from rust after each use. The smallest scratch can cause incorrect drum, rotor alignment, resulting in inaccurate resurfacing.

- **Do NOT use compressed air gun to blow the machine clean.** -Metal chips and dust may enter into the inside of the machine and cause damage to electronic component and undue wear to mechanical parts. Use a rag or metal brush to remove metal chips.

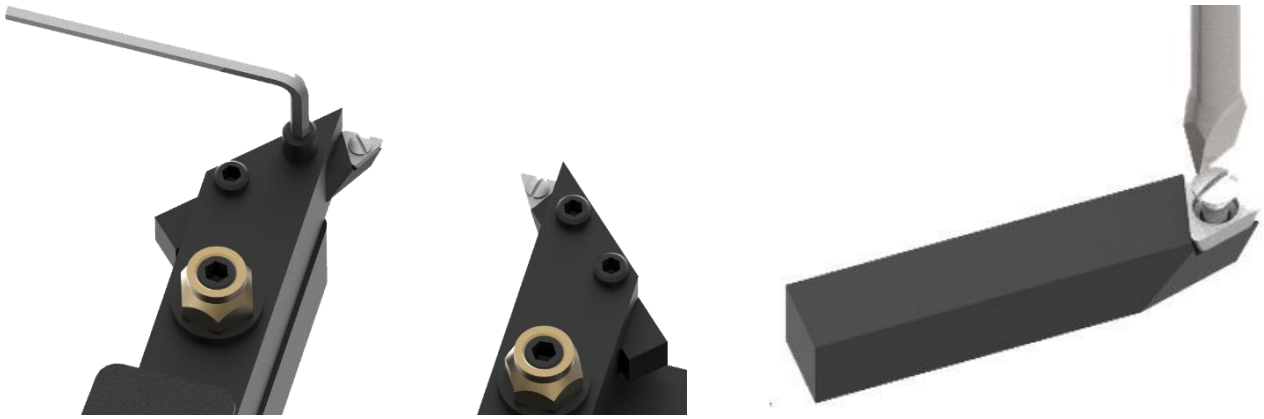
- **Mount all adapter in correct order**. Follow the mounting guidelines and examples provided on this manual at all times. Incorrect mounting causes misalignment and lead to poor cut.

2. Machine Description



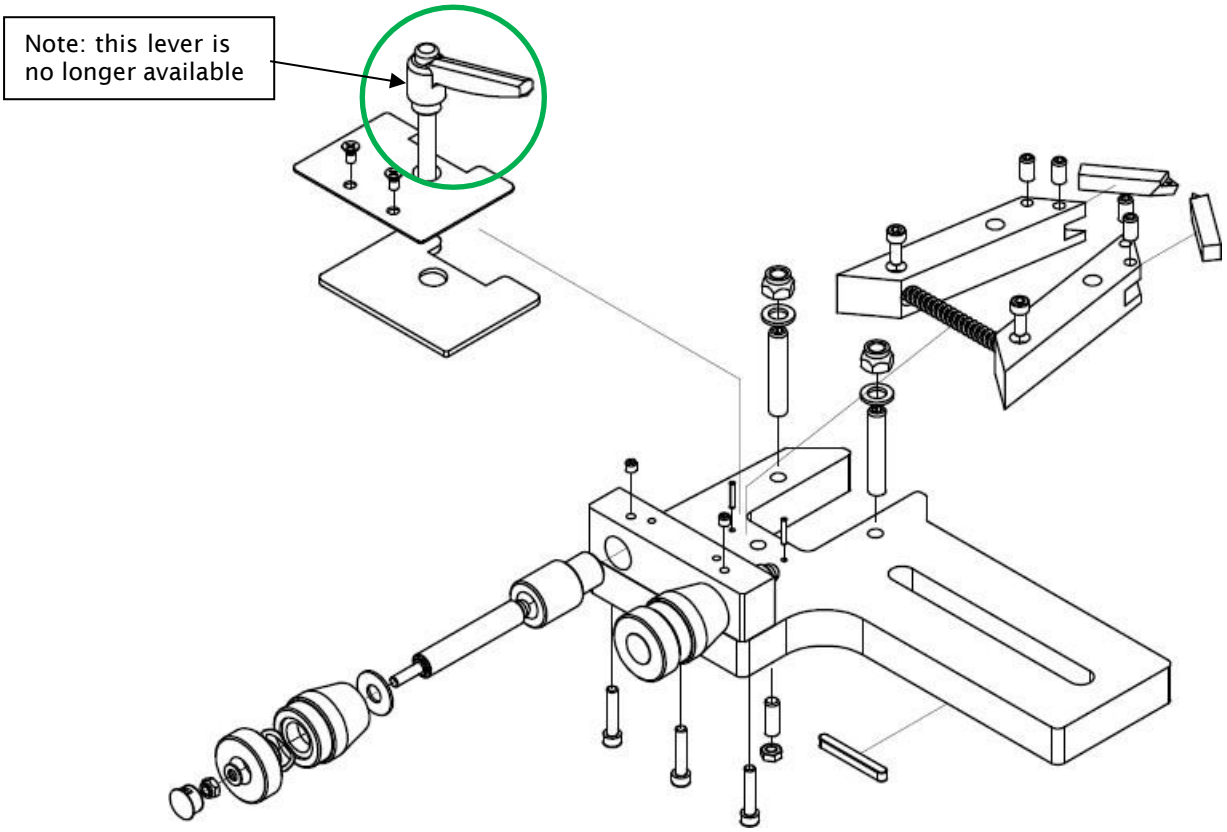


3. Tool Bits and Twin Cutter

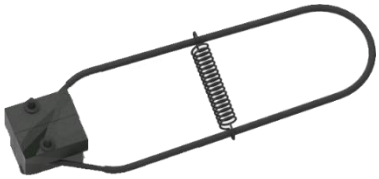


Use provided 4.0mm Allen wrench to unbolt tool bit holders. Then replace worn tool bits with new bits by using flat-head screwdriver. NEVER operate the lathe with a worn or broken tool bits. It can not only cause poor cut but also tool bit holders to contact the rotor or drum surface. It may cause damage to the rotor, drum or even tool bit holders. Replace worn or broken tool bits immediately with manufacturer's recommended carbide inserts.

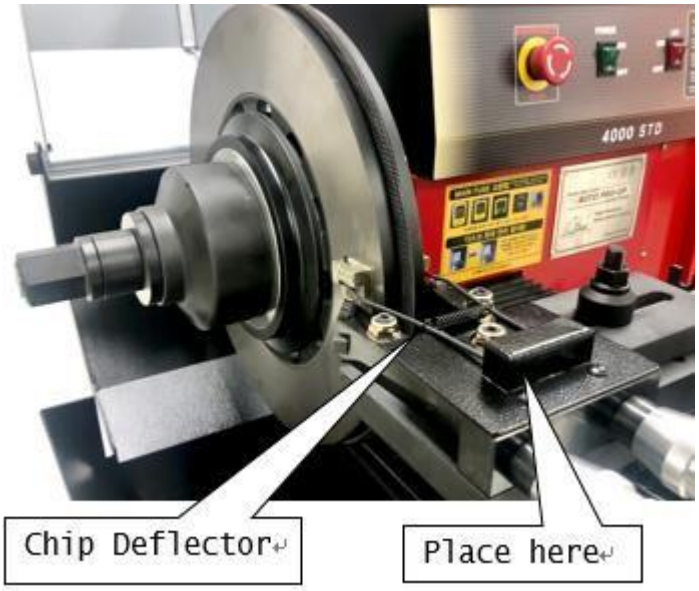
DBL-STAR STD uses TPGX110308 HTi10 carbide inserts made by Mitsubishi Materials.

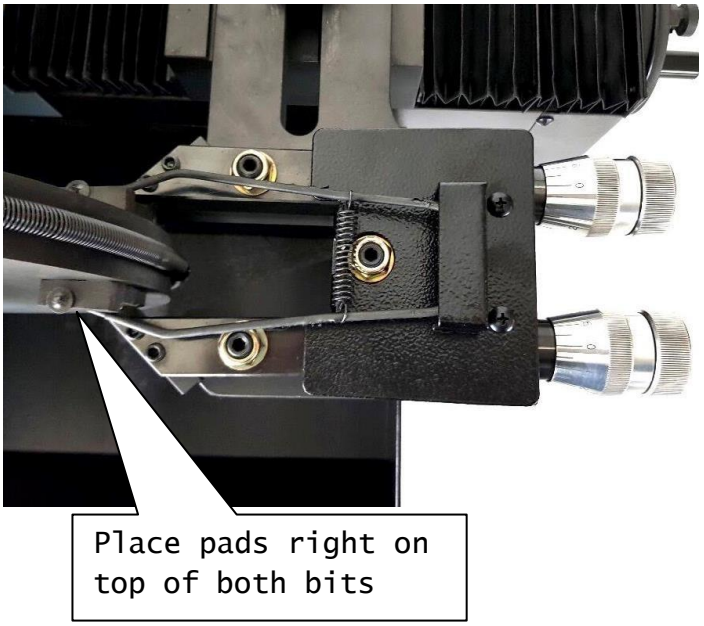


4. Chip Deflector



When turning the disk, it is ESSENTIAL to attach chip deflector in order to achieve smooth cut. It also dampens vibration and noise effectively while machining. You may experience poor-cut without Chip Deflector so make sure to use it at all times. Chip Deflector is a consumable item and has a limited lifetime. Replace as necessary to ensure smooth operation. To purchase replacement pad, contact your local dealer or distributor.

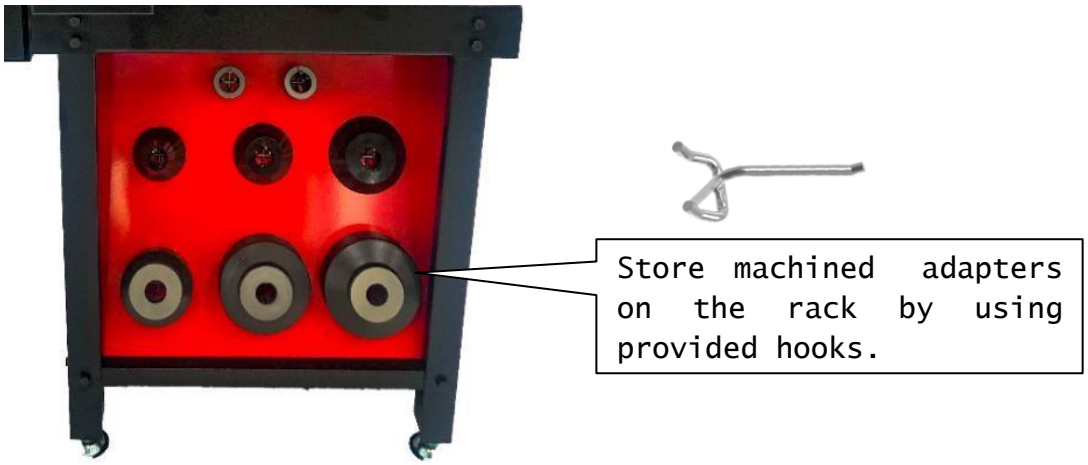




5. Arbor and Adapters Care

Arbor and accessories are most important components when machining. Even the smallest scratch or loose metal chip can cause incorrect and unstable rotor or drum alignment. This will eventually lead to bad cut. Arbor shaft and accessories need to be checked and maintained by operator with great care. Always store all adapters on individual hooks. Clean metal and cutting debris from adapters, arbor's machine surfaces before and after using the machine.

It is VERY important to remove all accessories from the arbor after machining. After removing all adapters from the arbor, clean those with an oil lag and all accessories must be stored on individual hooks. Apply a light film of oil to all adapters to protect their machines surfaces from rust. DO NOT leave them on the arbor when not in use!



6. Mounting Rotors

Clean the rotor mounting surfaces before mounting the rotor. Use a wire brush or sandpaper to clean all mounting surfaces of burrs and rust. The inside diameter of the center hole must be thoroughly cleaned as well to ensure accurate mounting.

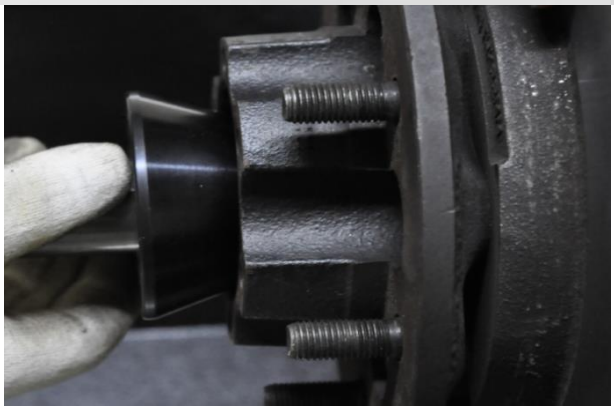
Hubless Rotors.

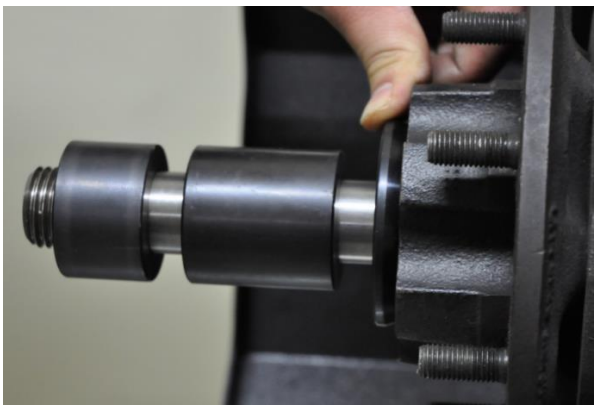
a) Mount the most appropriate size of Hole cup, slip the spring into the arbor.
b) Chose centering cone that contact the rotor near the middle of bearing races rather than near an edge for accurate mounting.
c) Install rotor, then another Hole Cup to hold the rotor
d) Add Spacers as necessary to fill the arbor out to the threaded section.
e) Stretch the springs evenly around the rotor Stretch the springs evenly around the rotor Attach the rotor spring to the rotor.

+

Typical Hubbed Rotors

Hubbed rotors are mounted with two centering cones to center the rotor and spacers for setup. After mounting the rotor, it may be necessary to use spacers to fill out the arbor so the arbor nut can be tightened down securely. The spacer must always be used next to the arbor nut.





Make sure centering cones are inserted deep enough to the middle of hub bearing races for accurate mounting

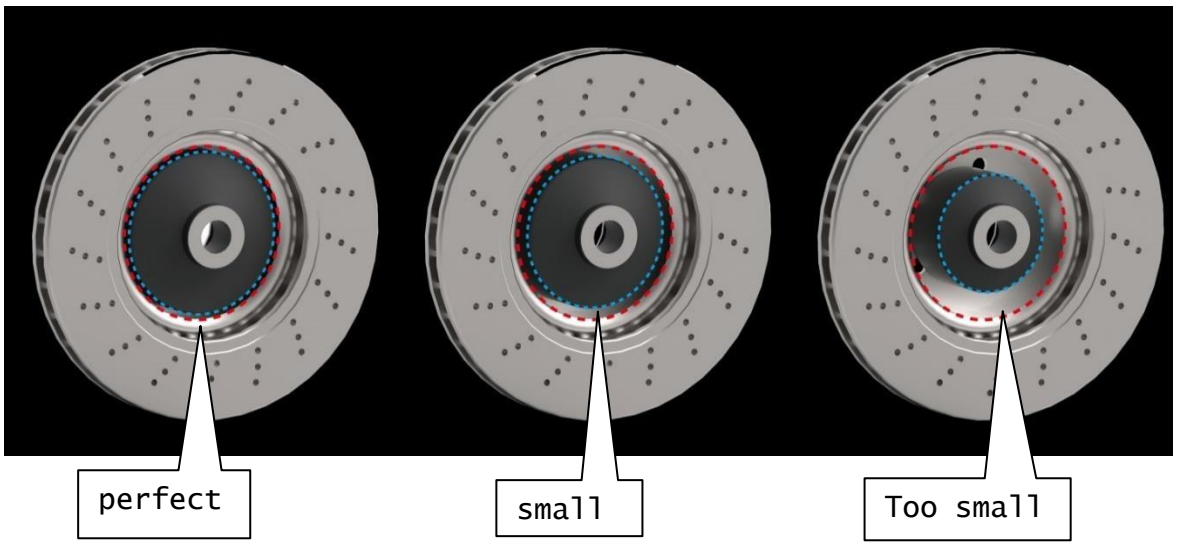
7. Mounting Drums (DBL-Star Only)

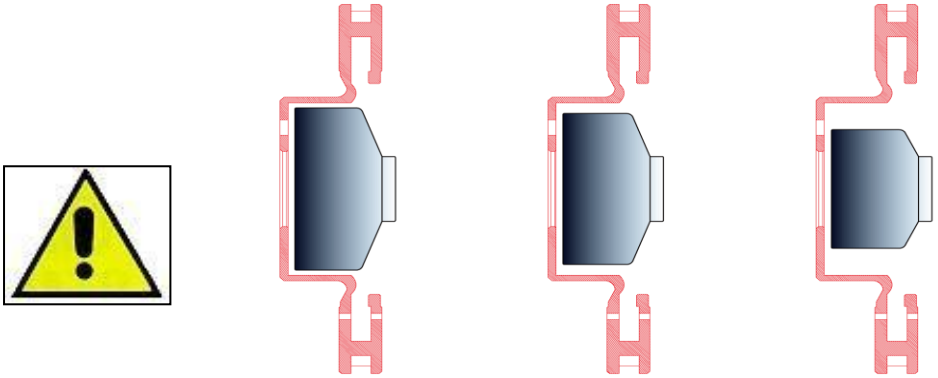
Hubbed drums are mounted with centering cones or double taper cones (sold separately) that contact the drum near the middle of the bearing races. Hubless drums are held in place on the arbor by the hole cup and centered by centering cones. Machined surface of the hole cup must contact the bolt hole surface of the drum.

Clean the drum mounting surfaces before mounting the drum. Clean all mounting surfaces of dirt, burrs and rust. Fail to clean mounting surfaces can lead to inaccurate mounting and rough cut.

Always wrap the drum band whenever skimming drums

Use below illustrations as a guide when choosing right adapters for rotors and drums.



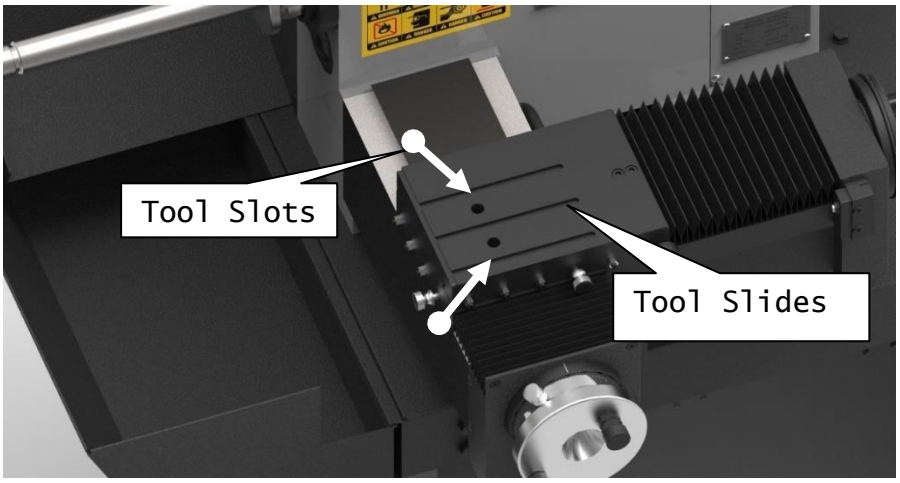


Pay particular attention when choosing adapters. Using proper adapters in width and length (cups, centering cones and spacers) is crucial to achieve optimum cutting experience. If adapters are too large or small, it can cause incorrect rotor or drum alignment, resulting in inaccurate machining.

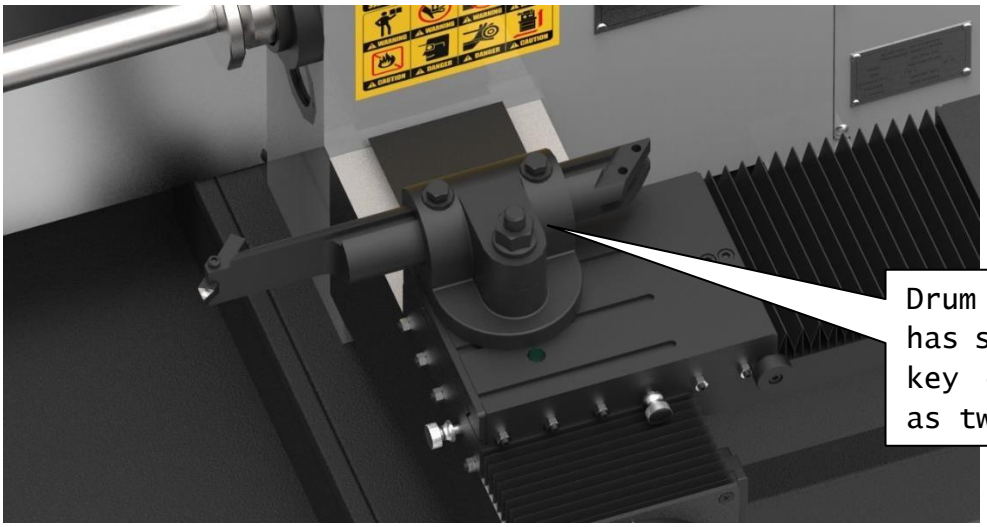
Regularly inspect the faces and seating tapers of the centering cones for scratch or damage. Correct any flaw with a fine sandpaper. If the damage cannot be corrected, replace the adapter.

Clean contact area by sandpaper or bristled brush before mounting

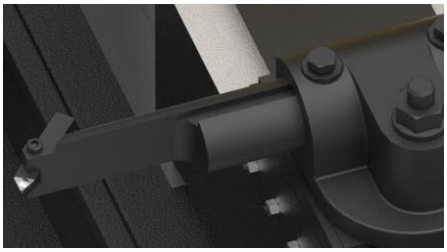
8. Install Drum Boring Bar

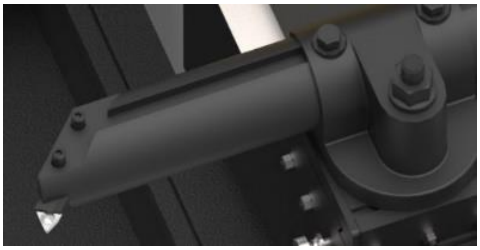


Clean the tool slides and bottom of the twin cutter. Install the twin cutter onto tool slides over the bolt and secure with 14mm hex nut. Adjust position of the bolt from two tool slots as illustrated below. Make sure tool slide key of twin cutter is securely fit into tool slide. Handtighten the nut and adjust position of the twin cutter for rotor. Tighten hex nut with provided wrench to finish installation.



Hold twin cutter and remove hex nut by using provided wrench. Lift twin cutter off tool slide. Clean the slide and bottom of boring bar clamp. Install the boring bar and boring bar clamp onto tool slide, over the bolt and secure with 14mm hex nut. Handtighten the nut and adjust position of the boring bar and boring clamp as necessary. Tighten hex nut with provided wrench. Install drum boring bar to boring bar clamp based on drum work as illustrated below.

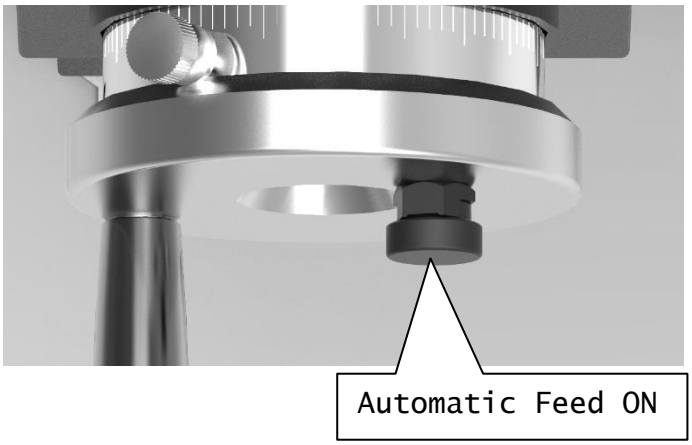


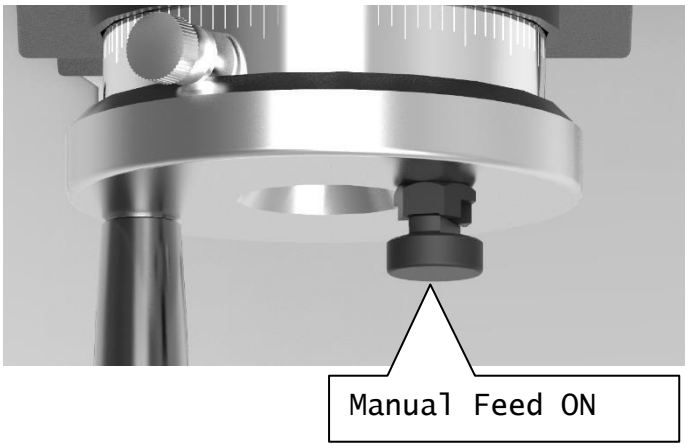


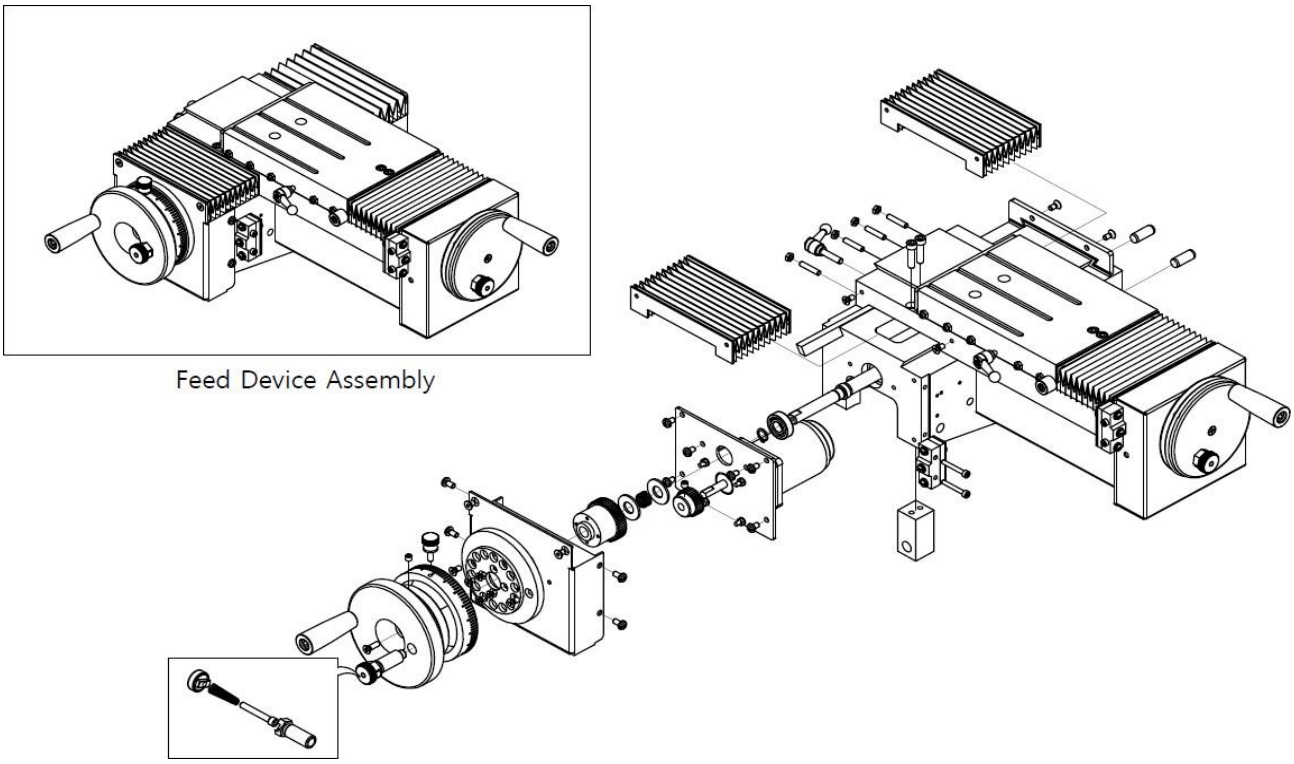
9. Cross-Feed Device

The Push-pull switch sets the feed to move in and out automatically or manually. Turn the handwheel clockwise to move the crossfeed inward towards the rotor or the drum. Turn in counterclockwise to move the crossfeed away from the rotor or drum. For Drum, tool slide will move left and right by handwheel-moving the tool bit into and out of drum.

In order to turn the handwheel freely by hand, Pull-Push switch must set to manual feed. When it is set to automatic feed, handwheel is locked and cannot be turned by hand.







Feed Device Assembly

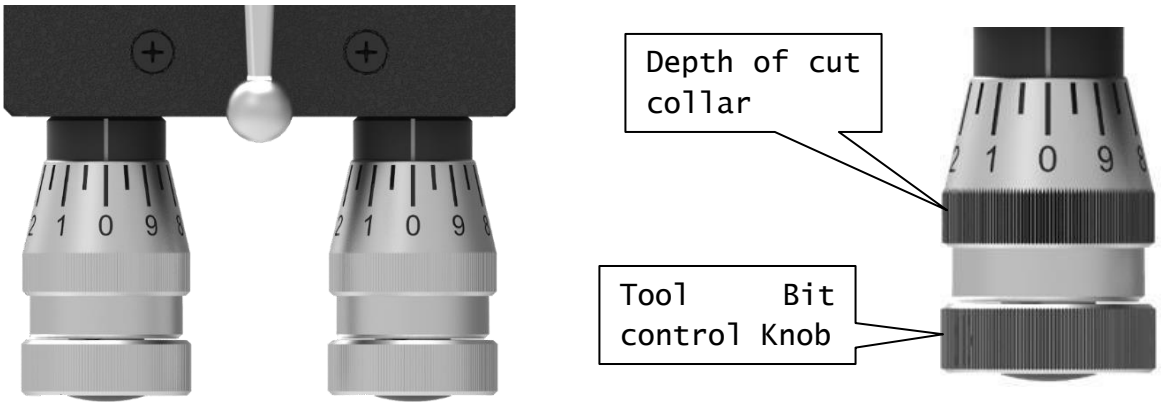
Always feed the work into a cutter and against the direction of rotation. Cutters and tool bits are designed to cut from the inside of a rotor or drum to outer edge. Do not attempt to cut from the outside edge in to the center.

10. Rotor Micro Dial

Move the crossfeed in towards the lathe and center the twin cutter so the rotor is between the tool bits. As long as hex nut is not fully tightened, the twin cutter has enough room to move and align with the rotor properly without moving the feed. Tighten the hex nut after twin cutter is positioned.

1) Turn a tool bit control knob clockwise to advance the tool bit into the rotor. Move it until it just touches the rotor surface.

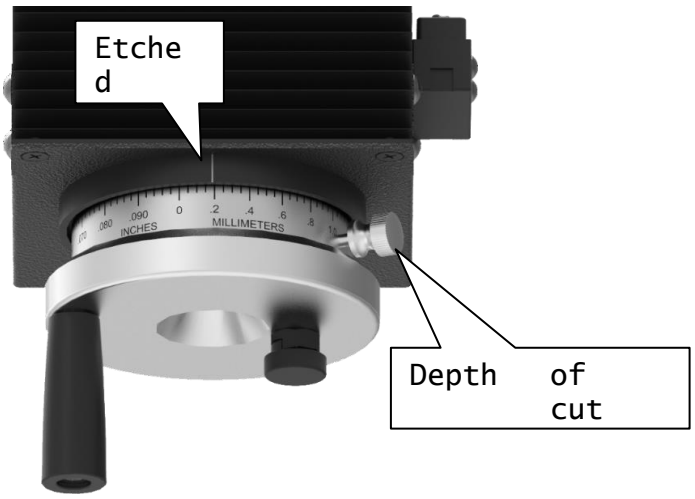
2) Turn the depth of cut collar on the tool bit to zero. From this point on, all tool adjustments will be made with the tool bit controls. The depth of cut collars will be the reference and should not be moved.



Between the numeric digits is equivalent to 0.05mm (0.002”) and maximum cutting depth cannot exceed 0.05mm deep(0.004”)

11. Drum Micro Dial

The dial has an inch scale as well as metric scale. Drum depth-of-cut dial is used to select the amount of material to be cut from the inside drum diameter.



Position the boring bar so tool bit just touches the drum surface.

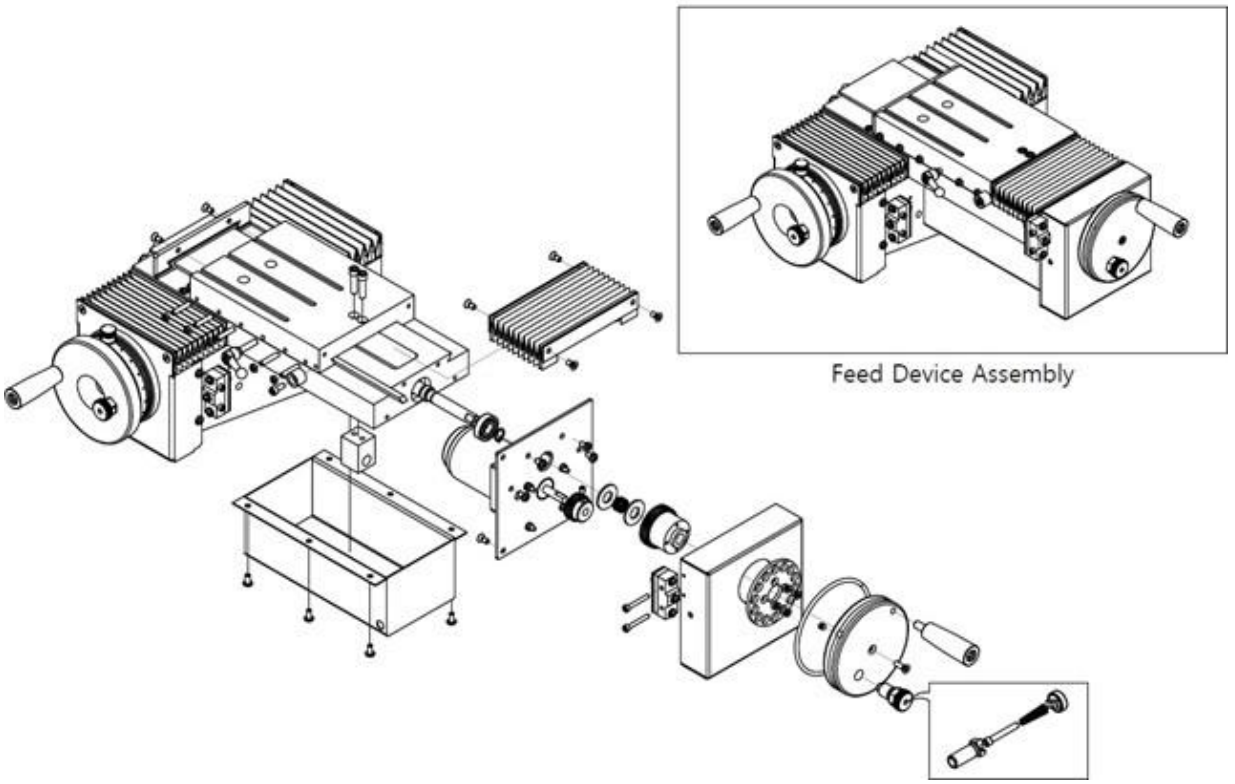
Turn X-axis handwheel clockwise to advance the tool bit to the inside corner of the drum.

Turn Y-axis handwheel in counterclockwise until tool bit just touches drum surface.

Turn the depth of cut collar to zero by aligning with the etched mark. Turn lock knob. Rotate the handwheel to dial in the desired depth-of-cut.

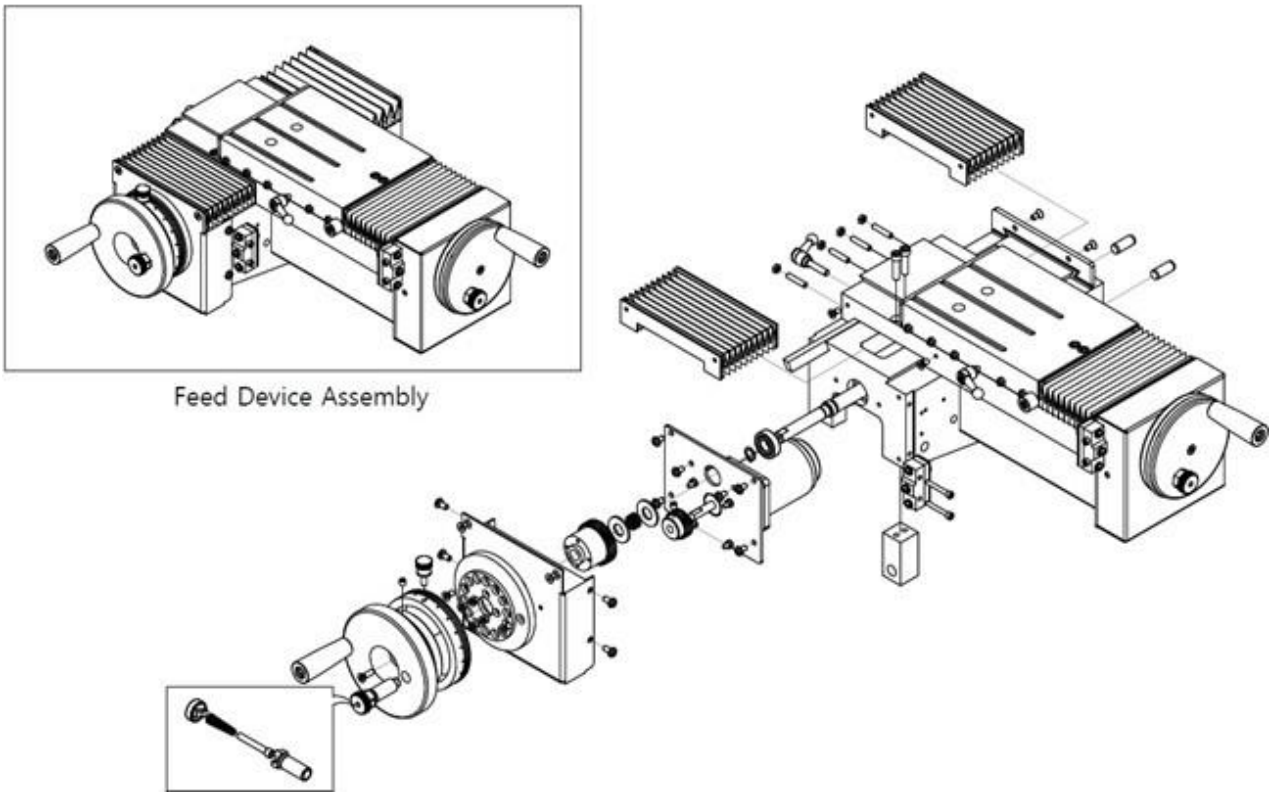
12. Exploded Views – X/Y Feed Devices

X AXIS FEED DEVICE / EXPLODED VIEW



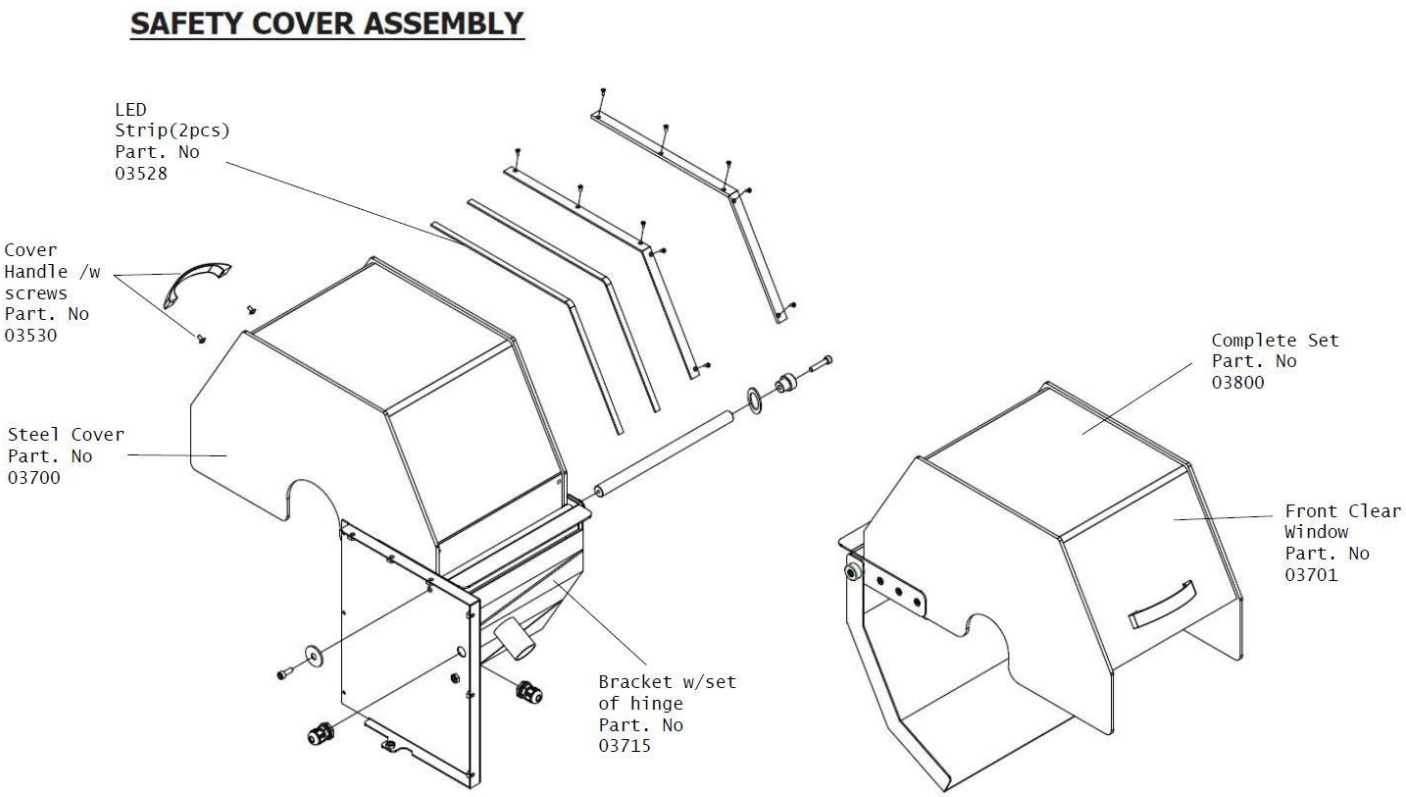
Feed Device Assembly

Y AXIS FEED DEVICE / EXPLODED VIEW



Feed Device Assembly

Safety Guard w/LED Strips



IMPORTANT REMINDERS

Do not attempt to operate this equipment if you have never been trained on basic operation procedures.

- ✓ **Check Electrical Requirements**

  The lathe must be properly grounded to protect the operator from shock. Be sure to check stable voltage and current source at workshop. The impact of bad power supply on the lathe can be significant. It can cause disruption of power to equipment resulting in operational delays, equipment instability and failure. Using a voltage regulator is highly recommended if workshop has unstable voltage supply.

- ✓ **Handle adapters with great care**

  The adapters, arbor, and spindle are made of top-grade steel, hardened, and precision ground to close tolerances. Great care should be taken in their use, handling, and storage. The smallest scratch can cause incorrect drum, rotor alignment, resulting in inaccurate resurfacing. WD-40 or equivalent works well as a cleaning medium and rust preventer.

- ✓ **Always perform "Pre-Cut" before machining rotor**

  Remove any rust build-up or high areas at the inner/outer edge of the rotor. Repeat as necessary to remove the high spots and get the inner/outer edge as close as possible to the overall rotor surface height. Failure to follow this will result in overload to core electrical components such as main motor, feed motor and electronic feed controller.

- ✓ **Learn how to set the Micro Dial**

Zero the Twin Cutter by holding the outer knurled knobs firmly with your left hand, then carefully rotate the inner knurled dial indicator knobs clockwise with your right hand until ZERO is positioned and lined up with the etched mark. This will give you an initial zero-set starting point.

✓ **Do NOT underestimate importance of the Chip Deflector**

Chip deflector helps metal chips, debris to fall down directly to the Chip Tray and it also reduces noise and dampens vibration when machining. With chip deflector neglected, tiny metal chips will fly and scatter around machined parts and cause undue wear/damage to the leadscrew and center block. If leadscrew is worn, machine will not work properly until the part is replaced with a new leadscrew!

✓ **Sharp tool bits must be used at all times**

A dull bit will affect the finish of both drums and rotors negatively. If the cutting edge is damaged, replace it promptly with manufacturer's original tool bits.

✓ **Do Not blow the machine with compressed air**

Chips and dust may be driven between machined parts and into bearings, causing undue wear. It can also be driven to upper control panel and result in electrical shortage of switches and electronic feed controller. Use a rag or brush to remove metal chips. Always keep the machine clean.

✓ **Mount the adapter in correct order.**

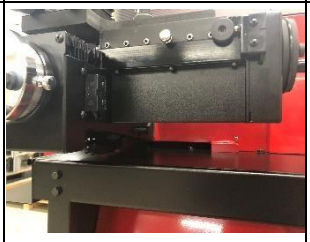
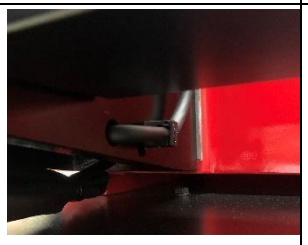
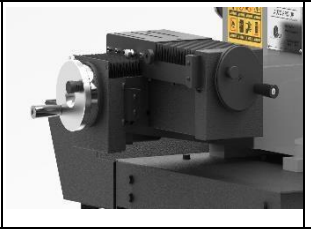
Follow the mounting guidelines and examples provided by

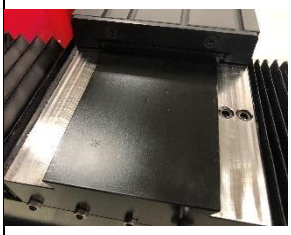
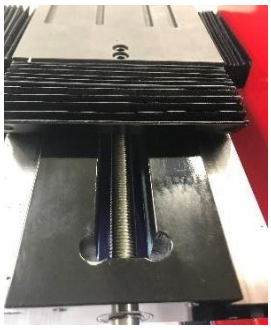
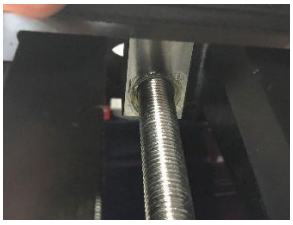
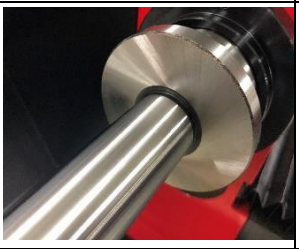
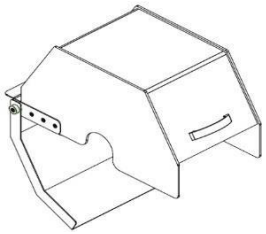
manufacturer at all times. Incorrect mounting causes misalignment and leads to poor cut.

The most important maintenance is cleaning. Keep the machine and working area as clean as possible for trouble-free operation as well as safety and longer machine life. Keep the machine clean in a regular basis. In addition to the specific maintenance items that are listed here, the following general maintenance must be also be done regularly.

1. **Check all fasteners and keep them tight.**
2. **Check all electrical components for proper, tight connections.**
3. **Check wiring for any exposed wires or damaged connectors.**
4. **Check all warning information labels on the unit and make sure they are properly attached and clearly visible.**
5. **Replace any damaged or excessively worn components.**
6. **Do NOT use compressed air to blow the machine clean. Metal chips and dust may be driven between machined parts, causing wear. Always usea wired, bristled brush to keep metal chips and dust off the machine.**
7. **All bare, machine metal parts should be wiped with an oiled rag daily.**

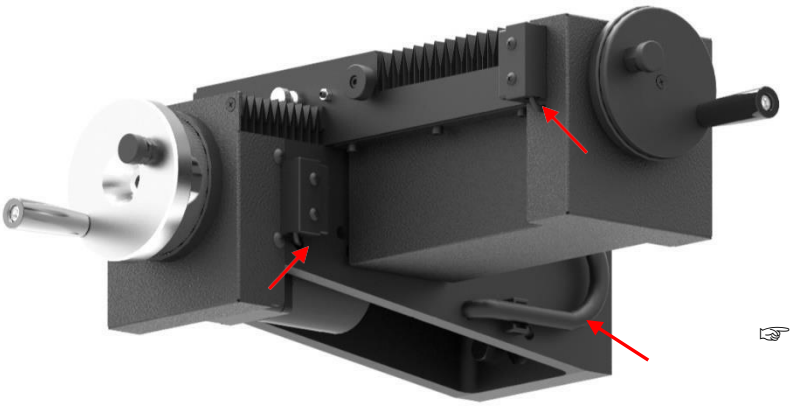
No.	Part Description	Image	Checklist
1	Emergency Switch		General inspection is required. All electricity should shut down when it is pressed down.
2	Power on/off Switch		General inspection is required. Working properly? Light is on?
3	Disc/Drum Conversion Switch		Inspect if it is working properly when the switch is engaged. When switched, inspect Red/Green light is on. ● When switching, it must stay in a neutral position at least for 3 seconds.
4	LED light Toggle on/off Switch		General inspection is required
5	Feed Rate Controller On/off Switch		On/off properly? Feed rate is properly adjusting? ● “standby” light should be on when power is supplied to the machine.
6	X/Y Limit Switch		Manually push down the switch to see if it is smoothly working. ● Clicking sound must be heard whenever it is pushed down.

7	Limit Switch Wires		Check wires. Is wire attached firmly? Is there any exposed or damaged wire?
8	X/Y Feed Motor		Check both motors are running smoothly when automatic feed is engaged.
9	Feed Motor Wires		Check any exposed or damaged wires
10	Automatic feed Push/Pull Switch		Check push/pull switch is working properly
11	Clamp Lever		Check if lever is working properly. ● Do NOT overtighten the lever.
12	Twin Cutter Washer		Check two washers if they can slightly move. ● Do NOT overtighten the nut. If Nut is overtighten, it restricts twin cutter's movement.
13	X/Y Cross feed Movement		Check for smooth crossfeed movement by turning the handwheel left and right. If the movement is difficult, check the leadscrews.

14	Gib inspection		The handwheel should move smoothly with only moderate effort. If looseness is detected, gib adjustment is required. ● For gib adjustment, see page.6-7
15	X/Y Dove Tail Slide Way		Check both slideways are free from dust or metal chips. ● Clean slide way and lubricate it with grease every month.
16	X/Y Lead Screws		Check the leadscrews every month. Use wired brush to clean lead screws and aply a light coating of grease to the lead screw. ● **Do NOT use compressed air to clean lead screws.**
17	X/Y Lead Screw Nuts		Check Lead Screw Nut every month. Inspect & clean any foreign materials between the lead screw and nut with a wired brush.
18	Arbor		Clean the arbor after using the machine by using an oiled rag. Use a light machine oil for daily wipe and inspect the arbor for any flaw.
19	Adapters		Great care should be taken & daily cleaning is required. ● Remove all adapters from the arbor after machining. Do NOT Leave adpaters on the arbor when not in use.
20	Safety Cover & Disk LED		Check if LED strip bars are lighted properly. Cehck for any damaged parts & materials and replace if necessary.

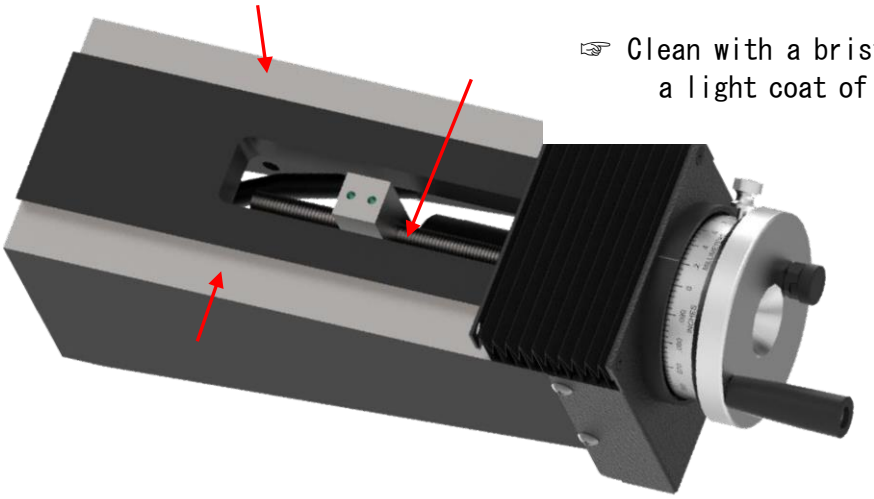
21	Drum LED		Check LED light and replace the bulb if necessary.
22	RPM Meter		Check if numbers are displayed correctly. Checkif numbers are shwoing “0000”. It means RPM meter needs to be reset.

Crossfeed Configurations



☞ Check wires every month

Lead Screws/Nut/Slide ways Configurations

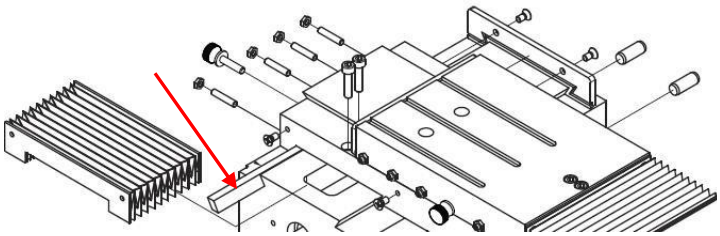


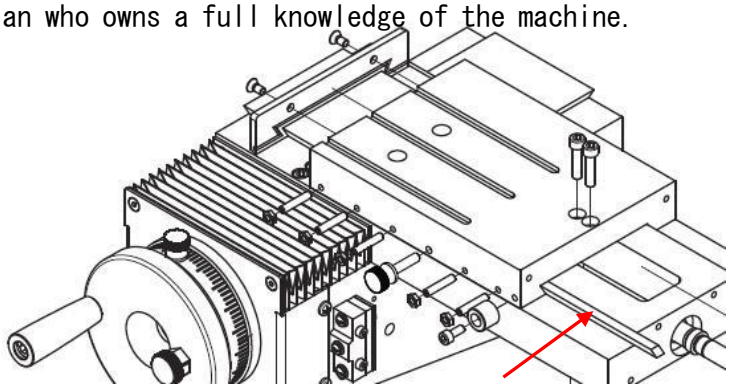
☞ Clean with a bristled brush and apply a light coat of grease every 3 month

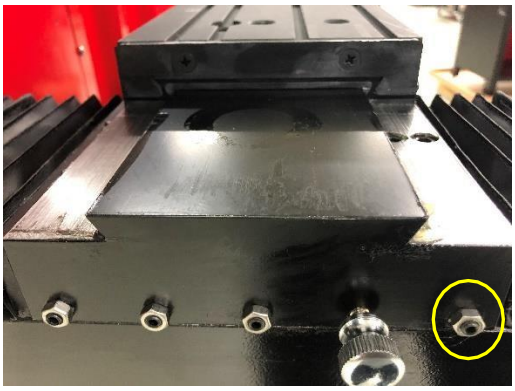
Gib Adjustment (Mandatory for every 3 months)

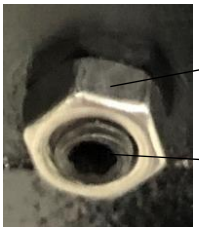
The gib is adjusted at the factory and should only require adjustment for wear after long periods of use.

Gib adjustment requires patience and time. It cannot be done in a few minutes. Poor gib adjustment will result in poor machine performance, poor reconditioning, reduced machine life. Adjustment must be performed by technician who owns a full knowledge of the machine.





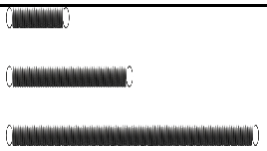
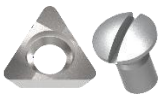




Gib Adjustment Procedures

1) Loosen the jam nuts on the front (for Drum axis) and the side(for Disc axis) of the dovetail slide ways.
2) Adjust the set screws inside the jam nuts until the looseness is eliminated and the slide way moves smoothly when turning a handwheel left to right.
3) Check the movement of the slide way by turning a handwheel
4) Once looseness is eliminated, hold the set screws in place with 5mm Allen wrench and tighten the jam nuts securely with 8mm wrench.
5) Recheck for looseness and smooth movement.
6) Adjust again for looseness felt or slide way movement is difficult.
7) Repeat all procedures until slide way movement is smooth and moderate.

PACK 1 (베트남-킹 테크)

Image	Description	V	Image	Description	V
	Feed Handle X 1pcs	✓		Arbor Nut Spanner x1pc	✓
	Spring x 1pc	✓		Natural Rubber Drum Band X 1pc	✓
	Chip Deflector X 1pc	✓		Storage Hook x 12pcs (S:7 L:5)	✓
	Allen Wrench 4mm X 1pc	✓		Rotor Springs SM/MD/LG 3pcs	✓
	Bit Tips & Screws <u>Total Qty 6pcs</u> Pre-installed : 3pcs Spare : 3pcs	✓		Boring Bar & Clamp x 1set	✓
	Spare fuse 250V / **10A** x 5pcs	✓		User Manual	✓

PACK 2

	**Spacers** 10/20/30/50mm Total 4 pcs	✓
	**Centering Cones** 52/63/73/83/92/108/118mm Total 7 pcs	✓
	**Hole Cups** 106/135/145/145mm Total 4 pcs	✓