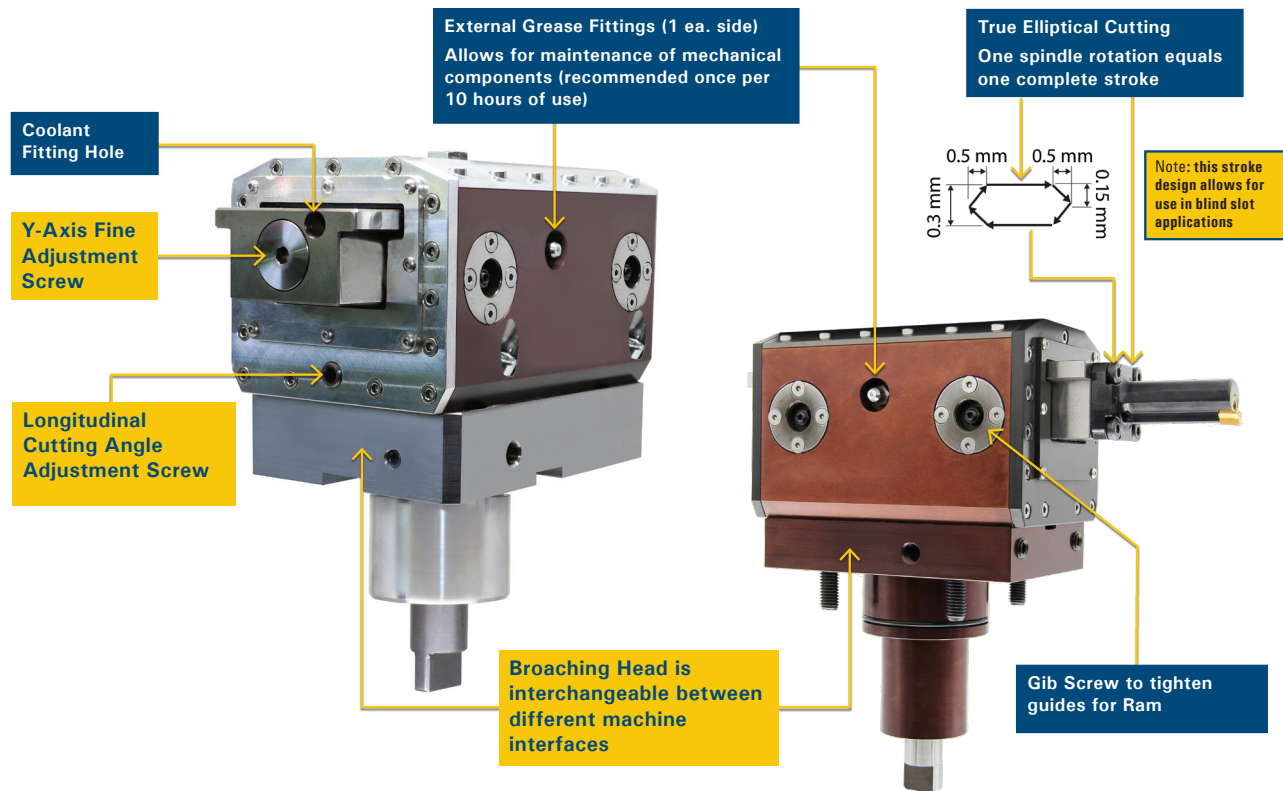


duMONT CNC Indexable Broaching System Motorized Slotter

USE AND MAINTENANCE



Y-AXIS ADJUSTMENT SCREW

This is used to correct any symmetry errors between the hole and the piece currently being processed. After unscrewing the tool clamping screws, turn the Y-axis adjustment pin either clockwise or counterclockwise. This will allow you to move the tool along the Y-axis. The adjustment range is +/- 0.5, which is extensive enough to correct all of the symmetry errors on lathes without a Y-axis.

LONGITUDINAL CUTTING ANGLE ADJUSTMENT SCREW

This screw is used to correct any errors in longitudinal angles. By turning it clockwise or counterclockwise the cutting angle can be adjusted.

EXTERNAL GREASE FITTINGS

These two grease fittings are built into the external structure of the motorized slotter and are used to grease after about 10 hours of use, meaning the effective operating time of the tool (see example of calculation for greasing).

COOLANT FITTING HOLE FOR COOLANT SUPPLY

All of the tools feature holes for the supply of coolant. The internal supply is recommended more than the external supply and allows the lubricant to be directed to the cutting area.

SETUP

For VDI style turrets, attach the slotter onto the interface and tighten the 4 attachment screws holding the slotter onto the interface, then install the unit onto the machine. For BMT style turrets, remove the slotter from the interface by loosening the 4 attachment screws and removing the slotter from the interface. Please note, the M6 SHCS must be removed, if the assembly is equipped, prior to pulling slotter off interface. There are 2 slots on either end of the slotter to place 2 flathead screwdrivers or similar tools to pry the tool evenly away from the interface. Bolt the interface onto the machine. Attach the slotter onto the interface using the 4 locating pins and tightening the 4 attachment screws. Apply oil to the ram and run the unit at 150 RPM for 10 minutes in order to lubricate and soften the gaskets and break in the unit.

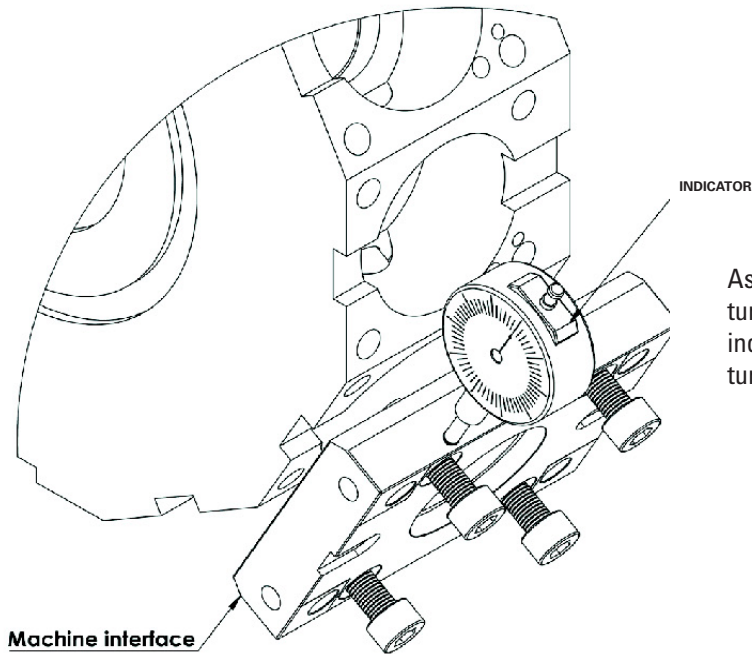


FIGURE 2

Assemble the interface plate on the lathe. Slightly loosen the turret clamping bolts and align the interface plate using an indicator, referring to figure 2. Once aligned with respect to the turret, tighten the turret clamping bolts.

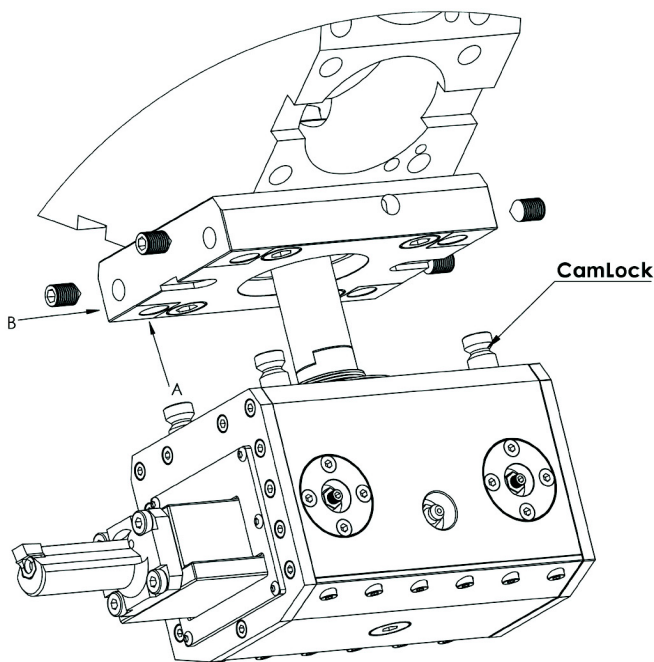


FIGURE 3

Once aligned the interface plate in turret, through the CamLock system, the slotter can be easily assembled and perfectly aligned with the turret. Insert the CamLock pins in the interface plate seats, tighten the provided M 10 gib screws on the CamLock pins. Verify alignments with indicator.

The Z-axis should be set with ram fully extended. The X-axis should be set by indicating during the out stroke to ensure the elliptical motion does not interfere.

MODULAR INTERFACE INSTALLATION

After a long period of use (about 1,000 hours/1 year), maintenance will need to be performed on the slotter, replacing the parts subject to wear such as bearings, gaskets, etc.

Drive shaft

Assembly/Removal/Replacement

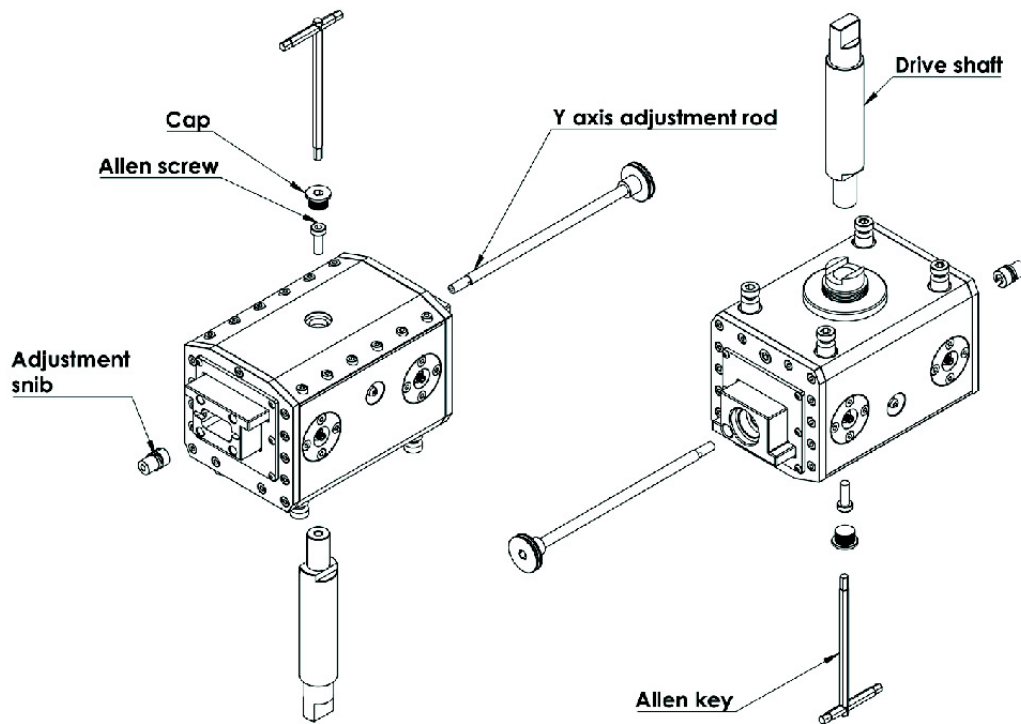


FIGURE 4

To correctly use the motorized device, the rotary motion drive shaft must be properly fixed to the motorized device by means of an Allen screw. To implement the procedure for the flange/machine change, follow the steps below:

- Tool disassembly
- Removal of adjustment snib fixed by M3 screw
- Y adjustment rod removal from the back
- Cap removal from cover
- Allen screw removal with key
- Shaft extraction from cam

Caution: when assembling the Y-axis adjustment rod, make sure that the pin on the rod is positioned facing the greater stroke between the two pins on the slide.

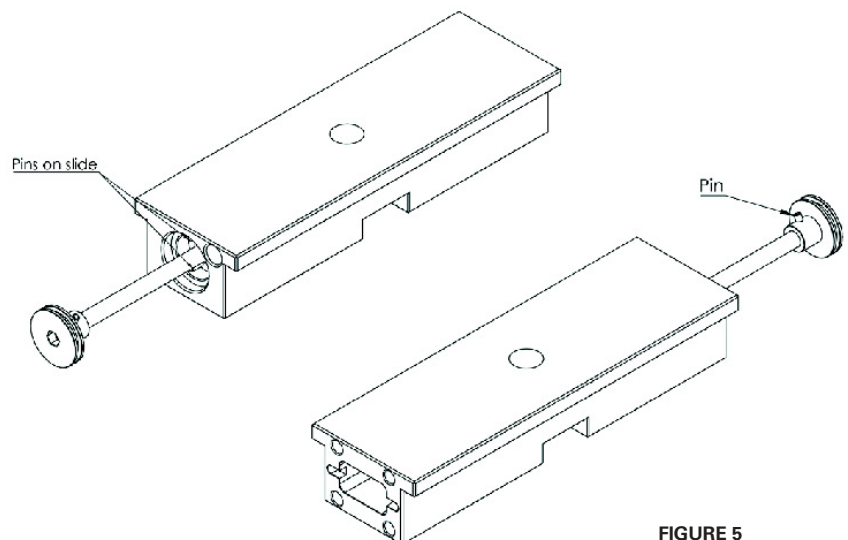


FIGURE 5

CUTTING PARAMETERS

For each material, based on our experience, the recommended parameters are:

	35 mm Ram Stroke	50 mm Ram Stroke	65 mm Ram Stroke	RPM = cut speed ÷ (ram stroke x 2)	
	Insert Width	Insert Width	Insert Width	Cutting speed	Cut per Stroke Min / Max
Aluminum	5/8 in.	5/8 in.	5/8 in.	1496 in./min.	.0023/.0059 in.
Soft steel	9/16 in.	9/16 in.	9/16 in.	1299 in./min.	.0015/.0027 in.
Cast iron	9/16 in.	9/16 in.	1/2 in.	1102 in./min.	.0015/.0027 in.
Common steel	9/16 in.	9/16 in.	1/2 in.	1181 in./min.	.0011/.0019 in.
Hardened steel	1/2 in.	1/2 in.	3/8 in.	984 in./min.	.0007/.0015 in.
Stainless steel	1/2 in.	1/2 in.	3/8 in.	984 in./min.	.0007/.0015 in.
Plastic	3/4 in.	3/4 in.	3/4 in.	1574 in./min.	.0027/.0059 in.
Bronze-Brass	9/16 in.	1/2 in.	1/2 in.	1181 in./min.	.0011/.0023 in.

PROCESSING START TANGENT ARC CALCULATION FOR INTERNAL

Before starting processing, always consider the tangent arc distance to avoid chipping or breaking the insert (figure 6).

$$R_i = (\sqrt{R^2 - (IN/2)^2})$$

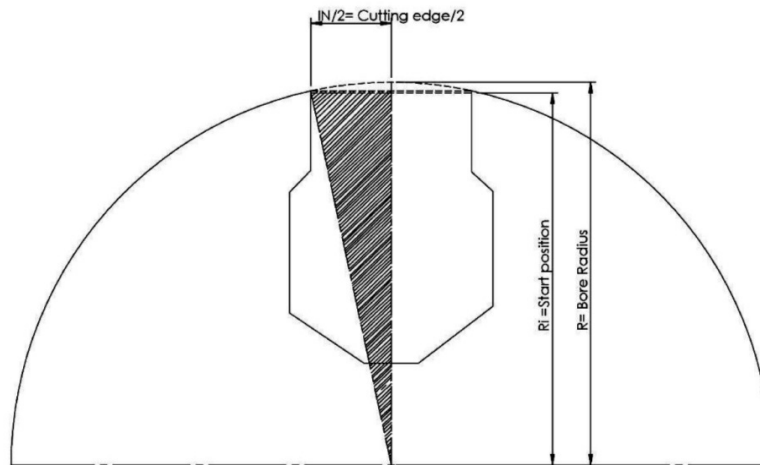


FIGURE 6

PROGRAMMING BEST PRACTICES

CAUTION: Consider tangent arc at the start of processing, under the lathing diameter (figure 6).

- Set feed to units per revolution.
- Set speed to revolutions per minute.
- For internal features, use clockwise live spindle direction; for external features use counterclockwise live spindle direction.
- Spindle RPM = SurfaceSpeed / (StrokeLength x 2)*

***Be sure to convert units to match if necessary**

RETRACT DURING THE RETURN STROKE

During the return phase, the tool detaches from the processed surface by 0.25 mm. This movement is essential to preserve the integrity of the insert. This is automatic and a function of the elliptical path referenced on page 1.

MAINTENANCE

ADJUSTABLE GIB SCREWS

After using the slotter for a long time, it will be necessary to eliminate the potential play created in the tool. Do this by unscrewing the hexagonal nut, tightening the center screw and then screwing the hexagonal nut back on. Repeat this operation on all four gibs of the slotter. Do not over tighten the screws and hinder longitudinal movement. Adjustment is only to remove any lateral play.

GREASING

To preserve the mechanics, we recommend greasing the slotter every 10 hours of use, meaning actual use (see example of calculation for greasing). We recommend using Castrol Tribol™ GR 100 PD Range or Mobil Mobilux EP 1. Proceed as follows in order to introduce the right amount of grease:

- Loosen the Cap Bolt on the motorized cover
- Start introducing the greasing using the special grease nipples
- Stop the introduction of grease when it comes out from the hole
- Tighten the Cap Bolt back on and start using the tool again.
- Example of calculation for greasing: If 2 minutes are required to produce one piece and 10 seconds are needed to make just the keyway for a feather key, grease after about 3600 pieces.

REBUILD

After a long period of use (about 1,000 hours), maintenance will need to be performed on the slotter, replacing the parts subject to wear such as bearings, gaskets, etc.

To keep your Motorized Slotter working at maximum efficiency, we give you the option of using our DIY Rebuild Kit or send us your equipment to repair at our facility.

For more information or to request a quote, visit pilotprecision.com/contact/

