Tangential Knife Operations

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Tangential Knife Operations

Step 1 - Swap out sacrificial boards

Swap the sacrificial MDF Board used with the spindle for the sacrificial Polystyrene Board used with the knife.

Step 2 - Remove AXYZ Spindle Unit

1. Move machine head to a position that is convenient for making changeover of the different tools.
2. remove the vacuum hose as safety collar.
3. With an allen Key loosen the 5x Hex Studs securing the Spindle mounting plate to the machine head mounting plate.
4. Disconnect control cables connecting spindle to the machine head by turning the aviation connector plug sleeve anticlockwise.
5. Support the weight of the spindle while simultaneously completely removing the hex studs.
6. Now place spindle unit safely to one side.

Step 3 - Install Multicam Tangential Knife Works

1. align the holes on the Knife Works mounting plate with the holes on the machine head mounting and insert the 4x hex studs and tighten.
    1. Use the lowest holes available
    2. **Do not use the cross-threaded hole 2nd from the bottom on the left-hand side**

Step 3 - Install Multicam Tangential Knife Works - Continued

1. When tightening bolts
    1. support the knife with another pair of hands - or your gut hand
    2. get the top left and bottom right screws 3/4 threaded.
    3. make sure the knife plate is **flat** against the machine head mounting plate.
    4. Thread the bottom left, then top right screws 3/4 threaded
    5. Finger tighten all screws in the same order
    6. Use the 3mm Allen Key to fully tighten.

Step 3 - Install Multicam Tangential Knife Works - Continued 2

1. Connect the control cable via the aviation plug.
2. Connect the air supply hose;
    1. push the socket down
    2. jam the hose in - the socket has teeth that will grip the hose.

Step 3 - Install Multicam Tangential Knife Works - Continued 3

1. Add 2 drops of machine oil to oil nipple (2 drops to be added every 2 hours of operation)
2. Execute function F58 - Changes A2MC from Spindle control to Tangential Knife control setting. At this point the machine will reboot
3. Allow the machine to home the knife on the X&Y axis

Step 4 - Fit Knife Blade

WARNING - KNIVES ARE EXTREMELY SHARP

Move Machine head to middle of table and place scrap foam on knife as guard whenever knife is not in use.

Extreme care should also be exercised when handling Knife blades as they are expensive and fragile and are likely to break if dropped.

Only remove them from their packaging over the sacrificial board

Step 4 - Fit Knife Blade - Continued

- Wear protective gloves whenever handling the knife. - Select specific knife blade appropriate for your cutting requirements. - The knife cutting length should be as close as possible to the thickness of material - Again, position Machine head over sacrificial board in a convenient position for installing the required knife blade. - Execute Function F42 to 90 deg to expose the knife retention grub screw and remove grub screw with 3mm Allen Key. - Insert Knife blade with into holder with keyway oriented to the grub screw hole. Screw in grub screw and tighten.

MAKE SURE THE KNIFE IS FITTED STRAIGHT The grub screw should only contact the flat area **of the knife blade hilt**

Step 5 - Set Knife Length

The machine head needs to be calibrated to the correct Z axis value so that the knife tip's highest point of travel is level with the upper surface of the sacrificial board. This requires the operator calibrate the z axis manually (or by eye) while the knife is reticulating.

1. Now move Machine head over sacrificial board.

WARNING **the next Step Starts the Knife**

Step 5 - Set Knife Length - continued

- Execute Function F24 - Set Knife Length. This will start the knife's reticulating movement.

1. Using the Z axis jog buttons (and =/- buttons to adjust jog speed -fast, medium or slow) to lower the tip of the blade slightly into the sacrificial board.
2. When you have adjusted the Z axis to the correct depth the tip should be just under (by the smallest fraction possible) under the surface of the sacrificial board at the highest point of travel.
3. When you are happy with the calibration of the Z axis select enter.
4. A2MC will now ask if you want to Set Knife? Perform a visual check of whether the knife is running parallel to the X axis. If the knife is aligned on the X axis Select **no**. If the Blade is not aligned select **Yes** and perform the Set Knife procedure.

Other Knife Operations

- |Adjust over/under cut
- set_knife