BENCHMAN®-XT Machining Center

Tool Length Offset Probe User's Guide

intelitek

Eshed Robotec ▪ Light Machines

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The information contained in this guide (34-5269-0000) was accurate at the time of printing. intelitek reserves the right to change specifications and operational performance of its products without notice.

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Parts List

The Tool Length Offset Probe package contains:

- 1 Tool Height Sensor with signal cord
- 1 Tool Length Offset Probe User's Guide

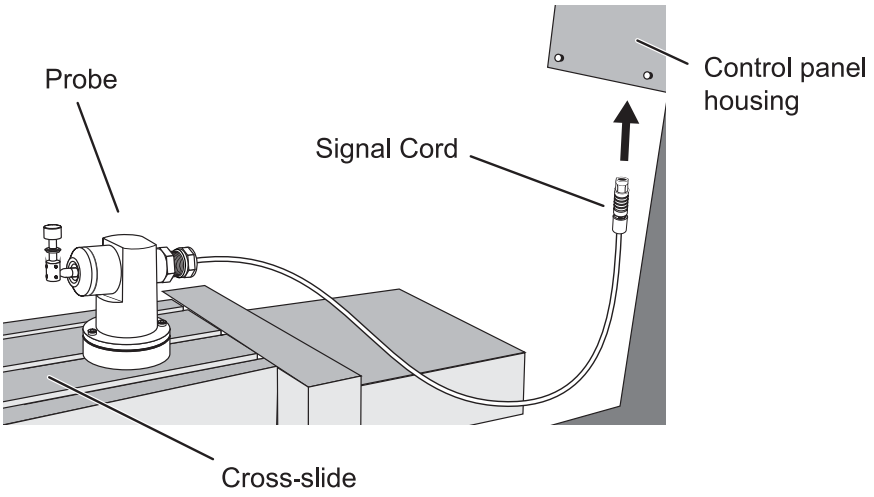
Requirements

The Tool Length Offset Probe is an accessory available for use with the Benchman®-XT Machining Center. In order to use the accessory, you must be running the Benchman®-XT Control Program Version 2.0.9.

Setting Up

Attach the Tool Height Sensor

Place the Tool Height Sensor on the cross-slide and plug the signal cord into the receptacle located on the bottom of the front control panel inside the enclosure.



Configure the Automatic Tool Changer

Once the Tool Height Sensor is attached to the machine, you must then configure the tools to be probed and the Automatic Tool Changer.

1. Turn on and home the machine.
2. Set up the tool library as described in the User's Guide.
3. Configure the ATC for the tool(s) you want to probe.

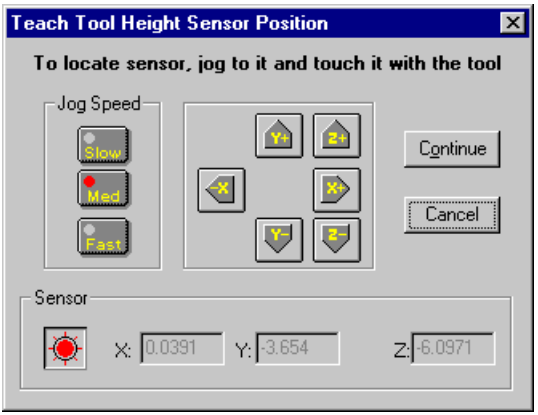
If there are any tools mounted in the ATC which you do not want to probe, remove them from the ATC configuration in the Control Program. (You do not need to remove them from the ATC platter.)

Teach the Sensor Position

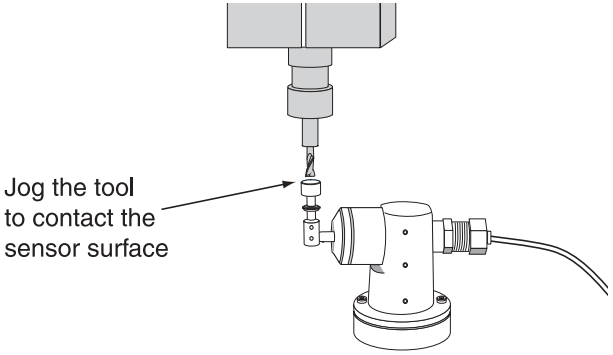
You are now ready to teach the machine where the Tool Height Sensor is located.

1. Insert the tool you want to probe into the spindle.
2. Select Tools > Tool Length Offset Probe.

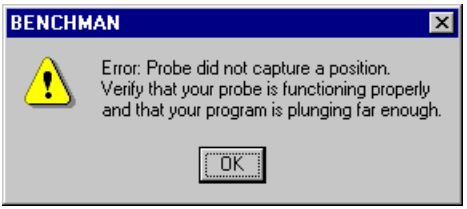
3. In the Tool Height Sensor Setup dialog box, select Teach Sensor Position.



4. In the Teach Tool Height Sensor Position dialog box, use the Jog keys to position the tool over the sensor, then jog the tool along the Z axis until contact is made with the surface.

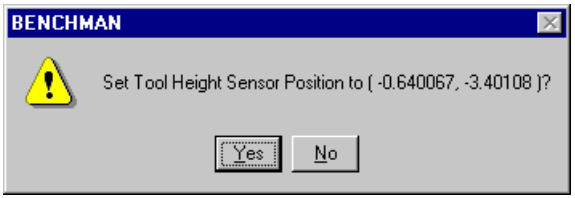


If the probe does not register a position the following error message appears.



Check the connections, then try touching off the tool again until sufficient contact is made to register the position.

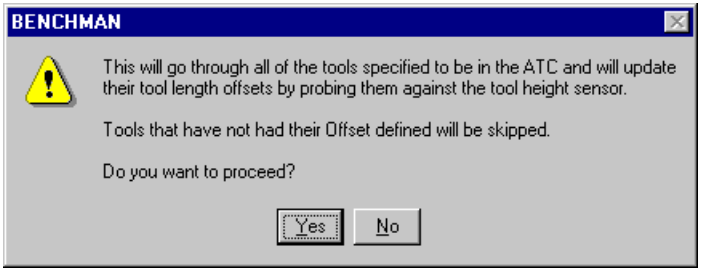
When the probe has successfully captured a position, it will prompt you to confirm the position.



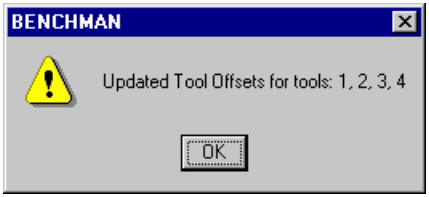
5. Click Yes to return to the Teach Tool Height Sensor Position dialog box.

Probe the Tools

1. In the Teach Tool Height Sensor Position dialog box, click Continue.
2. In the Tool Height Sensor Setup dialog box, select Probe All Tools. You will be prompted with the following message box:



3. Click Yes. The machine will touch off all the tools you configured in the Configure ATC dialog.
4. Click on OK in the message box that appears when the process is finished.



5. Teach the machine the workpiece origin.

   The program is now ready to run and will accurately compensate for the length of each tool probed.

NC-Codes for use with the Tool Length Offset Probe

You can include the code G131.2 in an NC program to probe a tool or reset the tool offset. This would usually be executed after a tool change.

Syntax

Before the G131.2 code, you must enter M05 (Spindle stop). After the code, command the tool to move to a safe position before you continue machining.

CAUTION

You must turn off the spindle (M05) before probing a tool to avoid damaging the machine, the tool or the tool height sensor!

The following example commands the machine to change to tool 2, probe the tool length, then move to the position where machining will resume.

```
M05              Spindle off
T2M6             Change to tool 2
G131.2           Probe the tool
S10000M3Spindle on at 10,000
G00Z3            Move to a safe position above the part
X0Y0             Move to start position
```

Note: Be sure to move to a safe position above the part, then move to the XY position where the machining will continue before plunging into the part. This prevents a tool crash.

The "R" Variable

To maintain high tolerances during machining, the tool length can be probed and recalibrated while the program runs. This will compensate for any wear on the tool, or will indicate if the tool has broken.

To use this function in an NC program, enter an R code in the G131.2 line. Enter a value after the R code for the acceptable tolerance for tool wear, etc. If, when touching off on the sensor, the tool registers a length within the tolerance, the tool length offset value will be updated. The program will continue to run using the new tool length value.

If the value exceeds the tolerance, an error message will appear and the program will stop.

Example:

G131.2R.005	Probe the tool, using an acceptable tolerance of .005". If the new value registered differs from the last measured value by more than .005", the program will stop and give you an alarm.

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