noztek Xcalibur
USER MANUAL
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WARRANTY

• Equipment manufactured by Noztek carries the standard machine tool guarantee of freedom from defects in workmanship and material for one year from date of shipment.

• TO INSURE THAT YOUR WARRANTY IS HELD IN EFFECT, PROPER OPERATION PROCEDURES MUST BE OBSERVED.

• NOTE: READ THE SAFETY PRECAUTIONS BEFORE OPERATING THIS MACHINE.

SAFETY

1. Know your equipment
2. Carefully read the instruction manual.
3. Learn the proper, safe use and limitations of the equipment.
4. DO NOT operate or use this equipment for any purpose other than its intended use.
5. DO NOT modify this equipment.
6.
7. DO NOT perform adjustments or maintenance while system is operating or energize
8. DO NOT clean the equipment with flammable solvents.
9. DO NOT wash down the equipment with water. This could cause an electrical hazard.
10. DO NOT probe into extruder vent with the machine running. Never Use a metal probe in the vent area. The screw may shear the probe, causing extensive damage to the barrel and screw. A wooden probe is recommended.
11. DO wear a face shield, insulated gloves when operating and when in close proximity to the extruder during operation. These protective items must also be worn when adjusting the die, cleaning the screw, etc. The extruder temperatures are extremely hot and failing to protect yourself may cause serious injury.
12. The feed hopper MUST be installed on the extruder feed section at all times when in operation
13. NEVER put hands in the feed section or vent to remove material.
14. DO NOT switch on the motor until the recommended temperature has been reached.
# MAIN FEATURES

<table>
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<th>Feature</th>
<th>Description</th>
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<tr>
<td>7-inch Touch screen</td>
<td>HMI Capacitive Touch Display</td>
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<td>Timer</td>
<td>Enables you to shutdown the running session by deactivating the heatbands and motor.</td>
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<tr>
<td>Programme Memory</td>
<td>The last used target temperature and speed will be remembered after a restart. Last usetimer settings will also be kept.</td>
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<tr>
<td>PID</td>
<td>The Xcalibur uses PID for greater temperature and speed control.</td>
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<tr>
<td>Computer connection</td>
<td>The Xcalibur Controller enables you to take control of the machine via USB connection.</td>
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<td>Warm-Up</td>
<td>Designed to allow the barrel to fully heat after 10 minutes so unmelted materials do not block the motor. This avoids damaging to motor or machine.</td>
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<tr>
<td>Emergency shutdown</td>
<td>The ability to quickly, electrically shutdown the Xcalibur in any urgent event.</td>
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<tr>
<td>Motor blocking management</td>
<td>If the motor cannot run for any reason, a message will be prompted and the motor will be stopped.</td>
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<tr>
<td>Sensor malfunction detection</td>
<td>If the temperature readings are incorrect a message will be</td>
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prompted.
POWER SWITCH AND START UP GUIDE

The Noztek Xcalibur features an illuminated on/off switch and an emergency shutdown. In an emergency simply hit the button and the Noztek Xcalibur will completely switch off. To restart, simply untwist the button.

First attach the hopper; the bolts are located in the bolt holes in the barrel. Then attach the 45 degree bracket (if using). There are six bolts, two for either end and two which connect the bracket together.

Once powered up, the Xcalibur will take a short period to boot before presenting the control screen/User Interface.
USER INTERFACE

Control Screen

This screen shows the current temperature of each heating band and the speed of the motor (top row), their set temperature and speed (second row), activation/status switches (third row) and access to the Menu screen (bottom).

To activate the heating bands, touch any of the temperature activation/status switches. Upon activating the heating bands, the Xcalibur display will switch to the “warm up” screen (fig.4). The Xcalibur will not exit this screen until the heating bands are at the set temperature, or the user aborts the heating process. The motor switch will activate the warm-up to allow the motor to run safely after it.
Warm-up Screen

This screen is displayed when you heat for the first time or when the temperature dropped under the target. This warm up is to ensure that the barrel has reached a certain temperature before being able to run the motor safely.

TIME LEFT: sets a timer for automatically shutting down the DC motor drive and heating bands.

Menu Screen

The menu screen (fig. 5) gives the user access to all of the Xcalibur’s settings and additional functionality.

SET TEMP: sets the desired temperature of the individual heating bands.

SET SPEED: sets the desired revolutions per minute (rpm) for the D.C. motor drive.

FAN: ON/OFF: activates or deactivates the fan.

TIME LEFT: sets a timer for automatically shutting down the DC motor drive and heating bands.
**Setting Temperature**

This screen enables the user to set the temperature for each heat band. To do this the user can either use the sliders or the “+” and “-” buttons and then press the “SET” button. If you want to cancel your modifications press “BACK”.

**Setting Speed**

This screen enables the user to set the speed for the motor. To do this the user can either use the sliders or the “+” and “-” buttons and then press the “SET” button. If you want to cancel your modifications press “BACK”.

Setting Timer

This screen allows the user to set the timer to shutdown the current session. This will not power off the Xcalibur entirely, but will stop the heating and the motor. Do this using the “+” and “-” buttons and then press the “SET” button. To cancel your modifications press “BACK”
CONNECTING XCALIBUR TO A COMPUTER

The Xcalibur Controller software enables you to control the Xcalibur and collect data using a USB connection. The data can then be saved to a “.csv” file in order to be opened in a spreadsheet software. You will also be able to see the data on a graph.

To visualise the data on a graph, go to Display > Display data on graph.
To export your data just click on “Export data to .csv” on the bottom right of the window.

To change temperature or the motor settings, enter the value you want in the relevant field using the keyboard and then press “Set”. To activate or deactivate the fan just press the “ON/OFF” button next to “Fan state”.

Note: For safety reasons, the warm-up cannot yet be launched via controller.
CHANGING THE NOZZLE
Before attempting this operation please use insulated gloves. To switch between nozzle sizes to heat up the unit to 175°C. Unscrew the nozzle, clean off any excess plastic from the internal threads, then screw on new nozzle.

COLOUR MIXING
Adding colours is simple. Mix the natural and the colorant at the given ratio, then pour it into the hopper. It will take 10-20 minutes to see changes in the colour. It is also possible to mix colorants to create new colours. For example, mix blue and yellow make green.

MAINTENTANCE
Regular cleaning of your plastic extrusion tooling during the disassembly process lengthens tooling life, helps reduce waste and helps maintain tighter tolerances for your final product. Use a wire brush and fine metal pick to clean the threads and the screw assembly.

LUBRICATION
The thrust bearing assembly will require occasional lubrication; this is a relatively simple operation, simply unscrew the brass grease nipple and squirt a 2 second burst of a lubricant like WD40 Lithium Grease. For optimal performance we recommend this procedure is carried out every 100 hours of operation.

BARREL JAM
Depending on what type of resin you are using, you may experience a barrel jam. If at any time during extrusion the motor starts to labour and slow right down then you should switch off the motor immediately. A good way to free the jam is to turn the temperature up to say 230-240°C and leave this for 15 – 20 minutes, then switch on the motor again; this should allow the screw to rotate again. Also using a blow torch to heat the barrel just past the hopper will usually release any solidified plastic and free the screw.
CONTACT NOZTEK

Please see our FAQ help section on our website at www.noztek.com for further troubleshooting. If the answer to your query is not found here, please contact the Noztek expert team directly.

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