

noztek Xcalibur

USER MANUAL



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WARRANTY

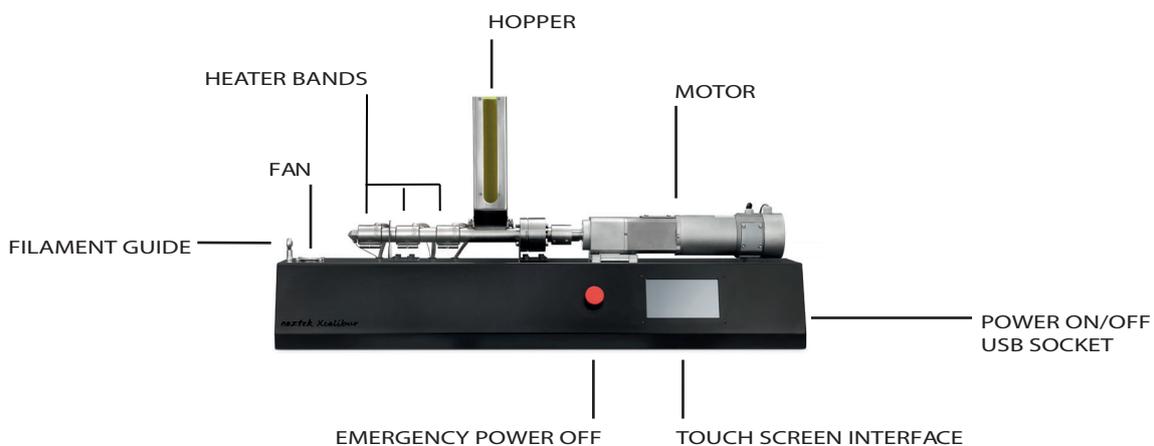
Equipment manufactured by Noztek carries the standard machine tool guarantee of freedom from defects in workmanship and material for one year from date of shipment.

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

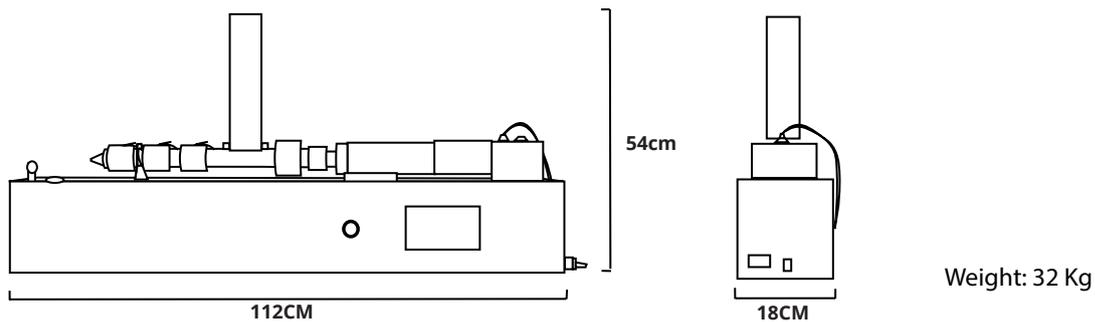
NOTE: READ THE SAFETY PRECAUTIONS BEFORE OPERATING THIS MACHINE.

SAFETY

- Know your equipment well before operating it
- Carefully read the instruction manual.
- Learn the proper, safe use and limitations of the equipment.
- DO NOT operate or use this equipment for any purpose other than its intended use.
- DO NOT modify this equipment.
- DO NOT perform adjustments or maintenance while system is operating or energize
- DO NOT clean the equipment with flammable solvents.
- DO NOT wash down the equipment with water. This could cause an electrical hazard.
- 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.
- 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.
- The feed hopper MUST be installed on the extruder feed section at all times when in operation
- NEVER put hands in the feed section or vent to remove material.
- DO NOT switch on the motor until the recommended temperature has been reached.



Heater Bands	3 x High Temp (600°), independently controlled Option for quick release for frequent cleaning
Motor	Choice of pace motor: 33 RPM, 24V, 37.8 Nm motor / 57 RPM, 2 4V, EM-243C DC-Motor Controller 12-48V 50A Hand built in Italy
Extrusion Speed	6-8m per minute / 2kg per hour
Max Temperature	600° (750\$ on request)
Screw	Stainless Steel Three stage Bespoke made by Noztek to generate barrel pressure L400mm gradient 130-200mm, 5mm channel, 23 degree pitch Interchangeable
Barrel	Stainless Steel Interchangeable
Power	Traco automated Available in 220V and 110V supply
Controls	7" Nextion TFT touch screen
PCB	Designed in house, working with Arduino Mega
Data	Real-time monitoring via USB using Noztek software
Hopper	750g Capacity (min load 50g)
Chassis	Reinforced steel



Programme Memory

The last used target temperature and speed will be remembered after a restart. Last used timer settings will also be kept.

Computer connection

The Xcalibur Controller enables you to take control of the machine via USB connection.

Warm-Up

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.

Emergency shutdown

The ability to quickly, electrically shutdown the Xcalibur in any urgent event.

Motor blocking management

If the motor cannot run for any reason, a message will be prompted and the motor will be stopped.

Sensor malfunction detection

If the temperature readings are incorrect a message will be prompted.

START UP GUIDE

The Noztek Xcalibur features an illuminated on/off switch on the back and a red emergency shutdown button on the front. In an emergency simply hit the button and the machine will completely switch off. To restart, simply untwist the button (anti-clockwise), to release.

First attach the hopper; the bolts are located in the bolt holes in the barrel. Then you are ready to switch on the power.

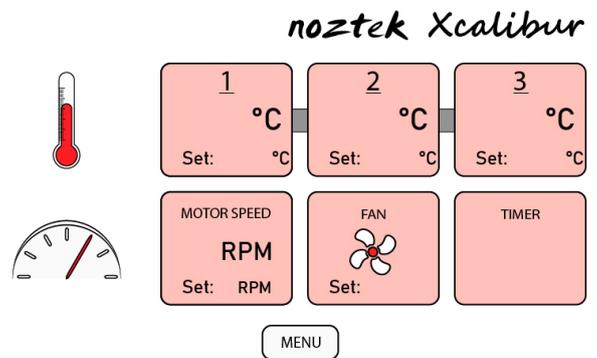
Once powered up, the Xcalibur will take a short period to boot before presenting the touch screen user interface

It is recommended that you read through all instructions BEFORE turning on your machine for the first time, to get acquainted with the process of operating the machine.

USER INTERFACE

This screen shows the current temperature of each heating band, the speed of the motor, the fan status, the timer progress, and access to the Menu screen.

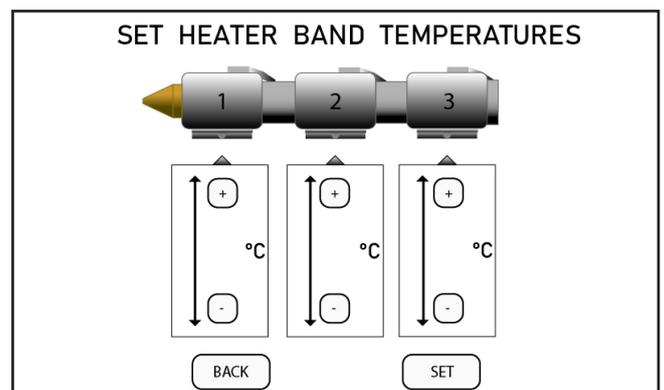
You can alter each of the settings either through the corresponding red box, or through the menu screen.



Temperature Settings Screen

Control each heater band from here. Upon activating the heating bands, the Xcalibur display will switch to the "warm up" screen while each band heats up.

If you would like to cancel your modifications, press BACK.

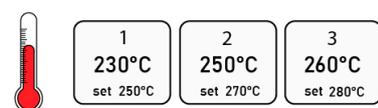


Warm-up Screen

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.

The Xcalibur will not exit this screen until the heater bands are at the set temperature, or the user aborts the heating process. This is a safety measure as it can be dangerous to begin extruding before the barrel has heated up sufficiently.

WARM UP IN PROGRESS



Speed Settings Screen

Use the slider to choose the speed and press SET to start the motor and return to the home screen

The max speed is ___rpm

If you would like to cancel your modifications, press 'Back'.

SET SPEED



BACK SET

Timer Settings Screen

Use the +/- buttons to set the extrusion timer. When this timer runs out, the heating and motor will stop, but the machine will not power off.

Do not leave extruder unattended.

SET TIMER



HOURS

MINUTES

BACK SET

CONNECTING 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 visualize the data on a graph, go to Display > Display data on graph. To export you data just click on "Export data to .csv" on the bottom right of the window.

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 175c. 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 will make green.

MAINTENTANCE

Regular cleaning of your plastic extrusion tooling during the disassembly process lengthens tooling life, helps reduce waste and helps maintain reliable 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 around 230-240c 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.

MOTOR BLOCK

When the motor blocks, it's likely that the fuse has blown. Check inside the casing, you'll see it fuse fixed to the bottom, Replace with a 15amp fuse

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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