

# noztek

## Tolerance Puller



# USER MANUAL

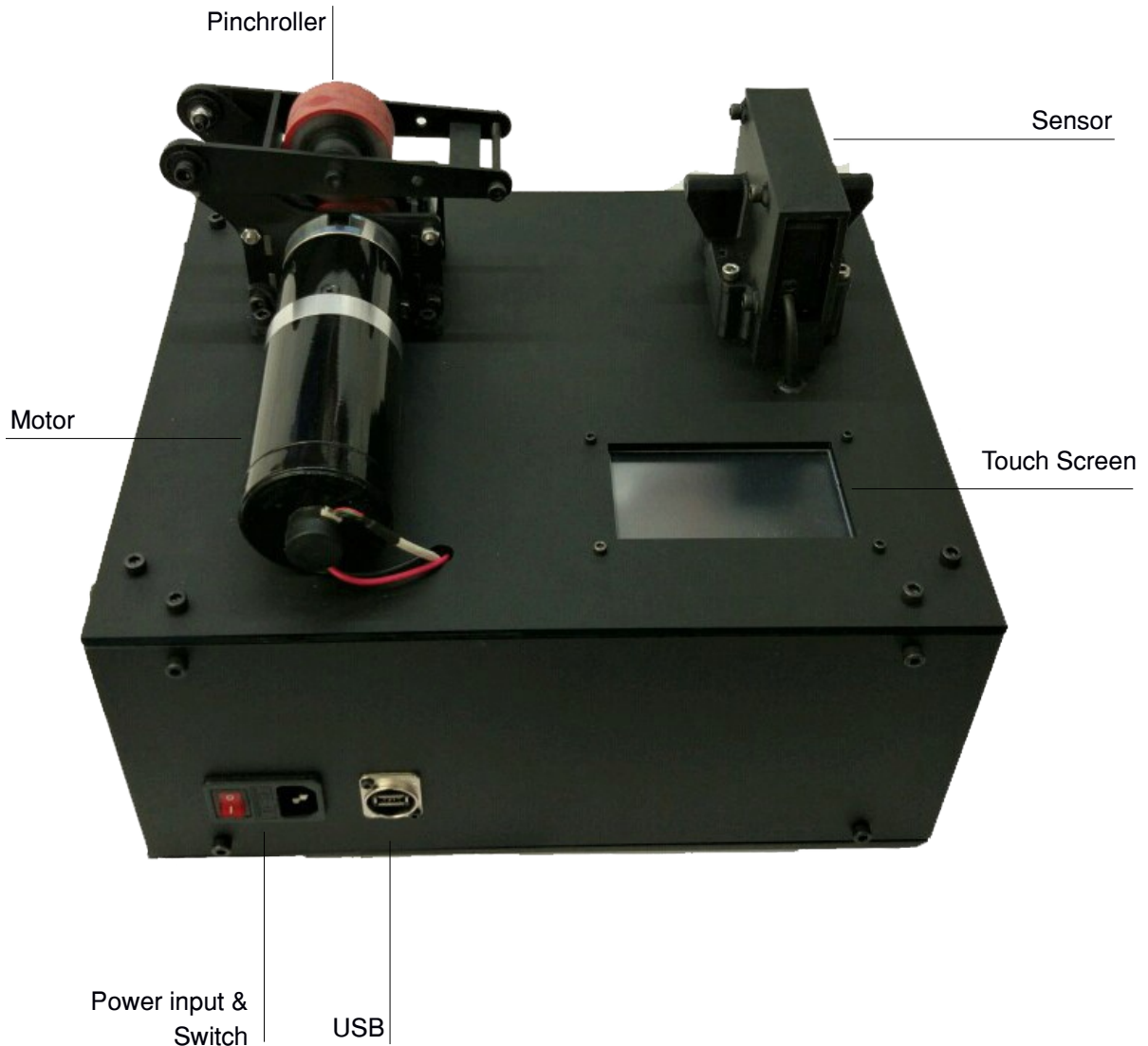
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## WARRANTY

- 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 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
  - DO NOT clean the equipment with flammable solvents.
  - DO NOT wash down the equipment with water. This could cause an electrical hazard.
  - Never put hands in the feed section or vent to remove material.



## INTRODUCTION

The Noztek Tolerance System is designed to provide you complete control of the tolerance of your filament. Users are able to determine the diameter of the filament, the speed at which it renders and the error correction ratio. The system relies on tension to get smooth, reliable results, pulling the material from a larger nozzle on the extruder to a much smaller diameter in the puller ensures the tension is keeping the resulting tolerance consistent. This set-up will save you time and cost, while causing significantly less material wastage. The system is supplied with Noztek's own integrated software, connecting it directly to a laptop to monitor the performance detailing speed and tolerance charts.

## QUICK START GUIDE

1. Set up the partnering extruder ready to begin as per extruder user manual start guide.
2. Turn on power using the power switch located on the front face of the machine
3. The interface will now be illuminated and you can begin determining your tolerance settings (see below).
4. Feed the extruding filament from the extruder into the tolerance system. Auto mode will use the settings from your previous session (for your first session, please use Semi-Auto mode).

## CONTROL INTERFACE

Once power is switched on, the touch screen interface will be illuminated. The main screen allows the user to monitor the filament's width and the speed of the flow of the filament (motor speed). On this screen you can access two modes of operation: **auto** and **semi auto**.

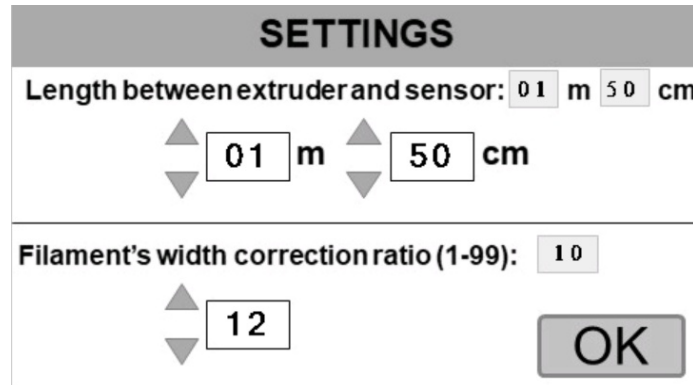
The **automatic mode** will allow the machine to adapt it's speed according to the filament's width with a starting speed saved from the previous session.

**Semi automatic mode** will guide you step by step to roughly find the speed from which the automatic mode can best adapt.

The "Settings" button gives access to two parameters: the length between the machine's sensor and the extruder's nozzle and the correction ratio.

| Motor speed  | Filament width                            |
|--|---|
| Act: <input type="text" value="0"/> cm/min   | Act: <input type="text" value="0"/> mm    |
| Set: <input type="text" value="400"/> cm/min   | Set: <input type="text" value="1.75"/> mm |
| <input type="button" value="Auto"/> <input type="button" value="Semi-Auto"/> <input type="button" value="Settings"/> |   |
| <small>v. 1.0</small>  |   |

Before running a session, you should make sure you set the correct length in the "Settings"



The two parameters on the settings screen will affect the frequency/time the speed adapts, and the amount it will adapt.

The greater this length is, the more time it will take for the filament to travel from the extruder nozzle to the pinchroller's sensor.

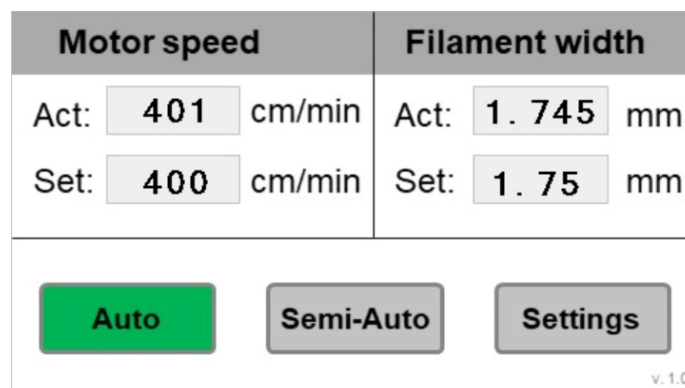
**Frequency of adjustment = Measured speed / Length between extruder and sensor**

The correction ratio allows you to adjust how big the next adjustment will be according to the error  $Abs(\text{Targeted width} - \text{Measured width} = \text{Error})$ .

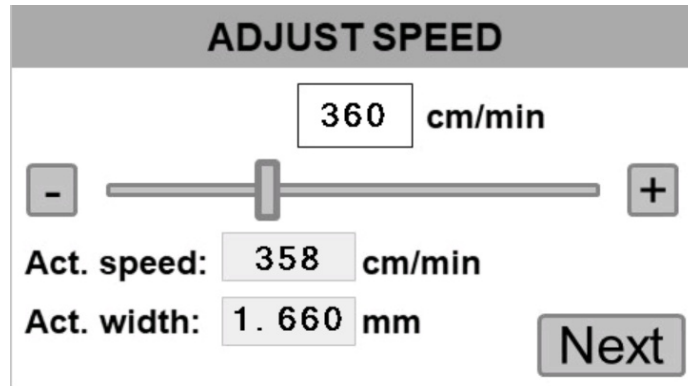
**Adjustment = Error \* Correction Ratio**

Once these settings have been confirmed by pressing 'OK', you will return to the main screen.

Auto can be enabled from here, which will use the last used settings from your previous session. When automatic mode is running you can monitor the filaments flow on the top left corner and the filament's width on the top right corner. To stop the automatic mode, press the "Auto" button again.

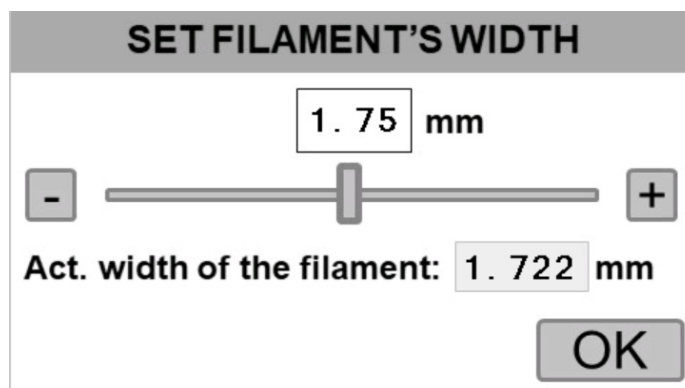


Upon your first use, it is recommended to use **semi-automatic mode**, as automatic mode can take a while to adapt because the starting speed might be far from the needed speed. To go the semi-auto mode, press “Semi-Auto”



This screen allows the user to adjust roughly the speed until you are near targeted width (recommended less than +/- 0.5 mm). When your filament's flow is stable you can then press the “Next” button to access the Width's target screen.

Useful tip: the faster you go, the thinner the width gets. A greater speed will also result in a more consistent tolerance.



When you reach this screen the filament's flow must be stable. Meaning that since the last time you changed the speed, the filament should have had time to travel from the tip of the extruder's nozzle to the sensor. You can then set the wanted width's target and press “OK” to finally switch to automatic mode.

## REPLACING COMPONENTS

Replace water after each use to maintain quality of results. [How to change components?](#)

## MAINTENANCE

Regular cleaning of your machine during the disassembly process lengthens machine life, helps reduce waste and helps maintain tighter tolerances and quality for your final product.

## MAXIMIZING ON YOUR EXTRUDING QUALITY & EXPERIENCE

Professional results require professional equipment. At Noztek we have deeply investigated industrial models and explored the possibilities of matching the results found. Our range of professional grade machinery is designed to work together in harmony to provide optimum quality from pellet to print.

Set up this system in along with a Noztek Filament Winder for best results. A Noztek Resin and Filament Dehydrator may also be used to further enhance the quality of the eventual print by removing all residual moisture from the filament.

To see our full range of extrusion systems, head to [noztek.com/products](https://noztek.com/products)



## CONTACT NOZTEK

Please see our FAQ help section on our website at [www.noztek.com](http://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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