

# TRAK<sup>®</sup> 3ntr 3D Printers

## Using the Materials Profile Wizard: Procedure/Instructions

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| Document: P/N 32234<br>Version: 111919 |
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### Covers Current Models:

- 3ntr A2
- 3ntr A4

**TRAK** MACHINE  
TOOLS



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# 1 Use the Material Wizard to Create a New Material Profile

## 1.1 Introduction

### Procedure Description:

This section describes the process to create a new material profile using the Material Profile Wizard in KISSlicer. In order to do this, you will need to obtain detailed information about the new material supplied by the material manufacturer. The material profile wizard requires only limited information about the new material, then based on that information, automatically completes the long list of parameters and settings for 3D printing the material – thereby simplifying the process.

### What is a Material Profile?

A material profile in KISSlicer contains all the printer, process and extruder settings that are necessary for the TRAK 3ntr printer to successfully 3D print a specific material using the FFF process. Parameters of a material profile include the actual filament diameter, temperature settings for extruder, bed, and box, material shrinkage ratios, and extruder feed/flow control settings. TRAK 3ntr printers come from the factory supplied with KISSlicer software that includes a very large selection of standard/reference materials profiles for the most common 3D print materials.

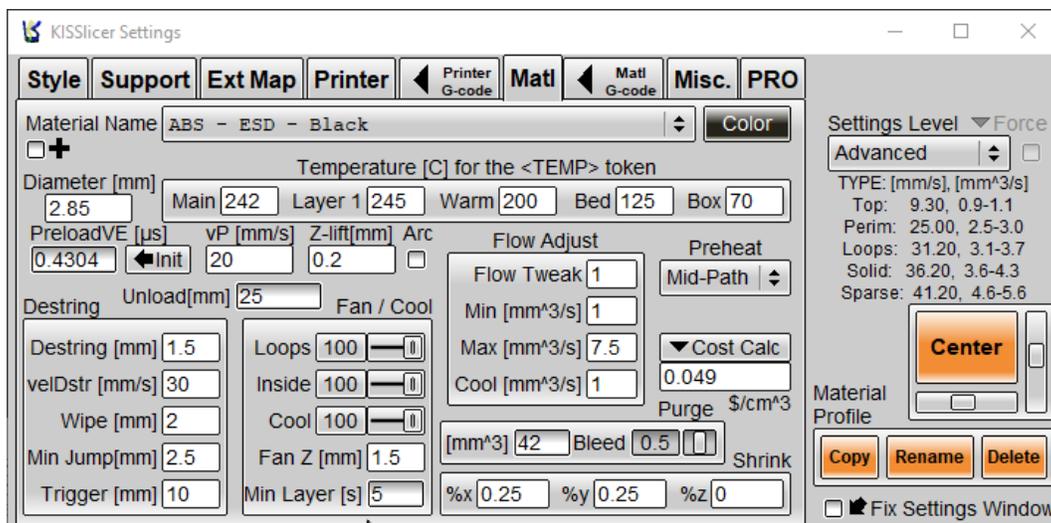
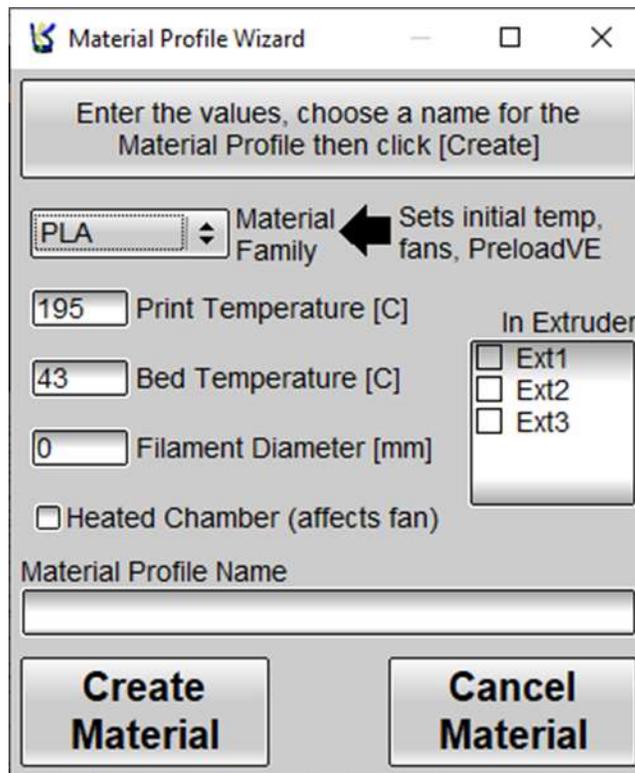


Figure 1.1.1 Example of a Standard/Reference Material Profile for ABS-ESD Black

### What is the Material Profile Wizard?

The material profile wizard in KISSlicer is a software tool that automates, simplifies, and speeds the process of creating a new material profile (from scratch) with basic information that most open platform 3D print materials manufacturers supply. The printer wizard is necessary because when using an open materials platform, industrial grade printer, there are many parameters that must be correctly input for successful 3D printing. The materials profile wizard takes basic information such as the polymer family/materials grouping and some limited specific information about print temperatures from the material datasheet, then generates a complete materials profile that can be saved, used as a starting

point for initial prints, later adjusted, if necessary, for improved print results. For convenience, the wizard allows you to name and save the new material profile, and as well, map it to the extruder where it will be used.



**Figure 1.1.2 KISSlicer Material Profile Wizard**

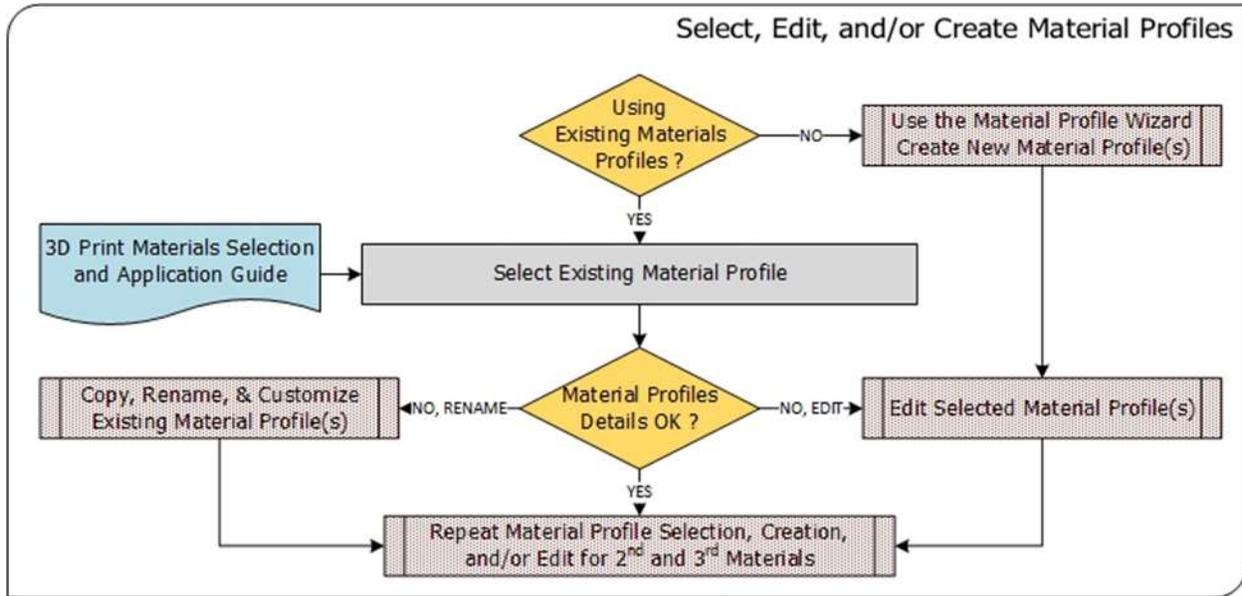
**Use/Application:**

The Materials Profile Wizard is used when a new print material is to be used, but there is no existing standard/reference material profile to use as a starting point. Since there are a wide range of standard/reference material profiles that can be used as-is or used as a starting point for editing/customizing the parameters, using the material wizard as part of a print project is typically reserved for new, different, and/or highly specialized materials that have never been printed before.

**NOTE** – Use of the Material Profile Wizard is typically NOT necessary for print projects that use a pre-existing materials profile or standard 3D print materials whose reference material profile exists within the KISSlicer application. Before starting this procedure, check to see if a standard material profile can be used as-is or if you want to copy, save under a different name, and then edit/customize a new material profile rather than use the printer wizard.

### When is the Materials Profile Wizard Used in a 3D Print Project Workflow:

Materials Profiles must exist and be selected before the program for TRAK 3ntr 3D printers, in the form of a G-Code file, can be created using the KISSlicer slicing software program. Since making a G-code file requires selecting from the materials profiles available within the application to map extruders, you must create a new material profile, using the material profile wizard, before mapping extruders.



**Figure 1.1.3 Making a G-Code File Workflow: Materials Profiles**

## 1.2 Procedure Instructions:

The Material Profile Wizard should only be used when you wish to create a profile from scratch. Often it is faster and simpler to either edit an existing Material profile or to Copy, Rename, and Customize from an existing Material profile.

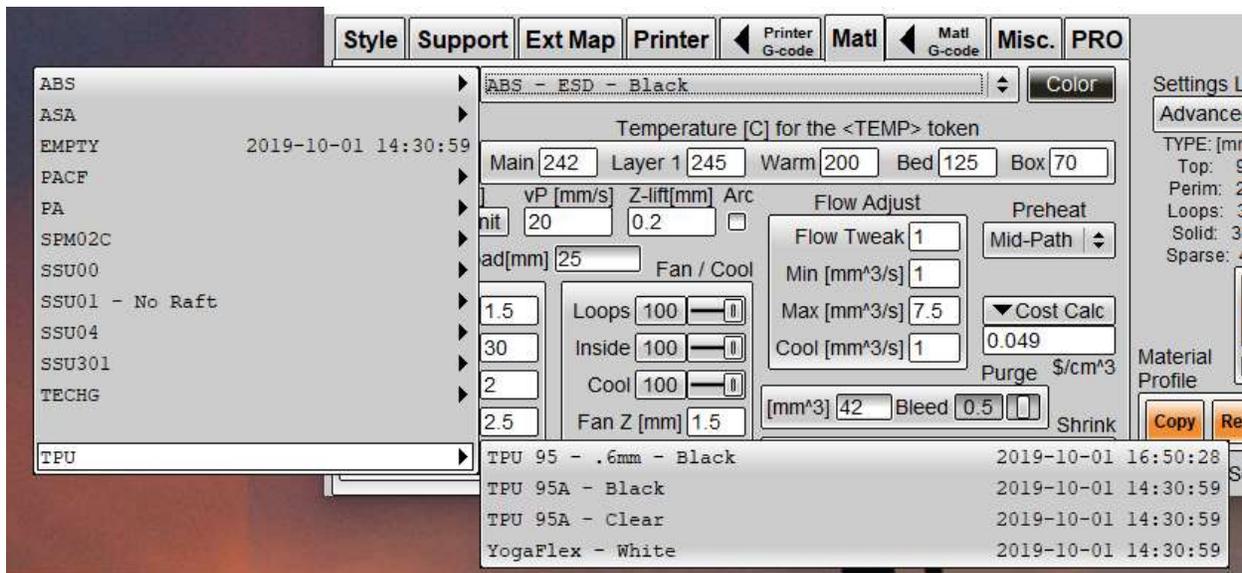
- 1) Get the material manufacturer's datasheet and 3D printing information.



**Figure 1.2.1 Example of Material Manufacturer's Technical Information**

- 2) Open the KISSlicer software application to browse the list of standard materials profiles and see if use of the material wizard is necessary.
- 3) Click Profile Settings > Mtl to display the Materials Profile parameter settings for the current selected material. Next, Click the selector next to Material Name to browse the current list of material profiles. You may also need to click on the material class to open up the sub-menu and see all the profiles.

**NOTE** – The materials profiles may be nested in sub-menu's, you must click on the group to open the sub-menu and see all the individual profiles within that material grouping/family.

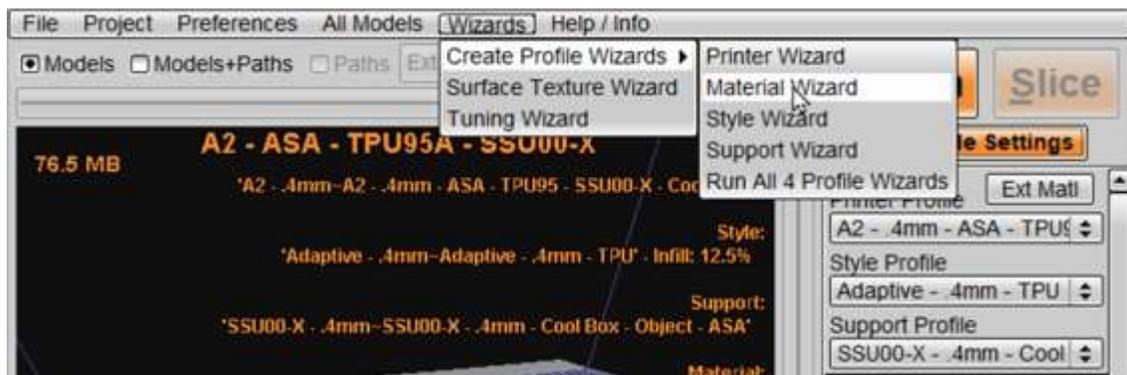


**Figure 1.2.2 Browsing the List of Existing/Standard Material Profiles**

- 4) From the materials family listed by the manufacturer, look within similar materials profiles to determine if the exact material type profile already exists within KISSlicer, or if there is a material profile that so closely matches the new material, that you would choose to copy this standard/reference profile, save it under a new name, and then customize one or more of the parameters instead of proceeding to create a new material profile using the Materials Profile Wizard.

**NOTE** - In this example, we found the similar and applicable TPU family, clicked on it to see the profiles contained within the sub-menu, and did not find a TPU 45 or anything similar the material we wish to print. Accordingly, we must proceed to use the wizard to make a new material profile.

- 5) If a new materials profile is to be created from scratch then proceed forward, otherwise, STOP and follow the different procedure for selecting a standard material profile OR for copy, saving under a new name, and editing/customizing a material profile.
- 6) From the top menu go to Wizards>Create Profile Wizards>Material Wizard



**Figure 1.2.3 Launching the Material Wizard in KISSlicer**

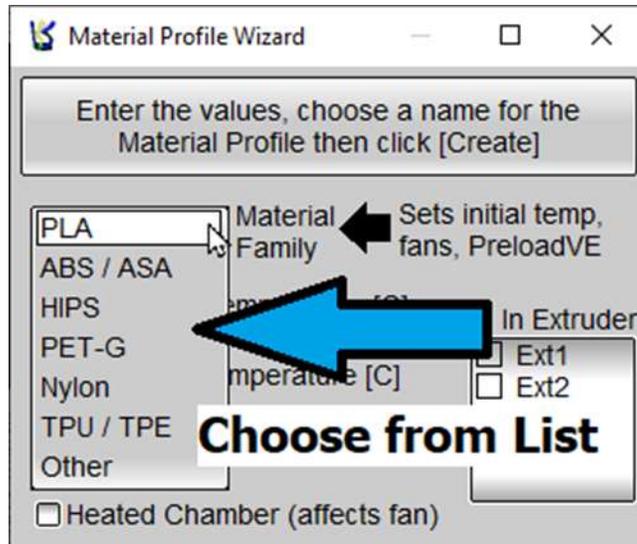
- 7) Review the materials manufacturers datasheet information to determine the base polymer (materials family). Go to the Material Profile Wizard to input this information by selecting from the nearest material family. Choose other if none of the choices are applicable to the new material.

| Technical Data Sheet  |  |
|---|--|
| InnoFlex 45 by Innofil3D BV   |  |
| Filament suitable for all commercially available leading brands 3D FDM/FFF printers |  |
| IDENTIFICATION OF THE MATERIAL  |  |
| Trade name  | InnoFlex 45                              |
| Chemical name   | Thermoplastic Copolyester Elastomer.     |
| Chemical family   | Biobased Thermoplastic copolyester (TPC) |
| Use   | 3D-Printing                              |
| Origin  | Innofil3D BV                             |

**Figure 1.2.4 Finding Material Family in Manufacturer’s Datasheet**

**NOTE:** You may not recognize the manufacturer’s materials family name as one on the list. If necessary, consult a filament materials directory to determine the materials family before selecting other in the materials wizard.

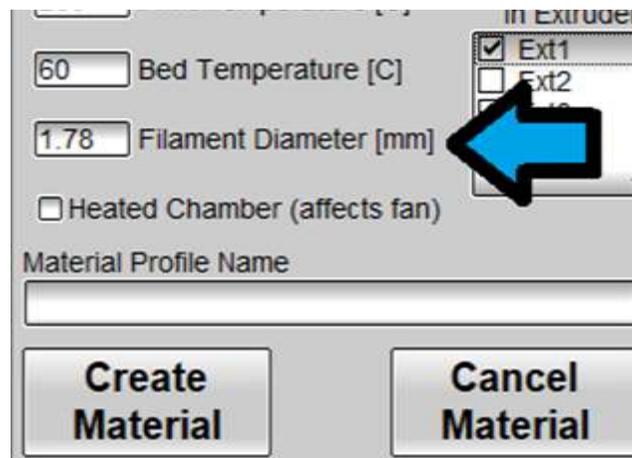
In this example, after looking up the chemical family, it was determined that TPU/TPE is the nearest selection within the wizard choices.



**Figure 1.2.5 Choose the Materials Family within the Materials Profile Wizard**

**CAUTION** – The TRAK 3ntr A2/A4 printers are only suitable for printing polymer base materials suitable for FFF (Fused Filament Fabrication), also known as trademarked FDM® Fused Deposition Modeling or filament freeform fabrication. This includes composite materials of a polymeric matrix with short or long hard fibers. Ceramic or metals cannot be printed with the TRAK 3ntr A2/A4 printers.

- 8) Carefully measure the filament actual diameter using a micrometer, 20cm or so from the end, and at 90° angles. Average, then enter the value within the filament diameter input of the wizard.



**Figure 1.2.6 Enter Actual (Measured) Filament Diameter**

**NOTE** – Measuring and entering the actual filament diameter is a critical aspect of creating a good material profile that will print reliably and repeatably. There are variations among batches and manufacturers, always measure and update the actual filament diameter for good prints.

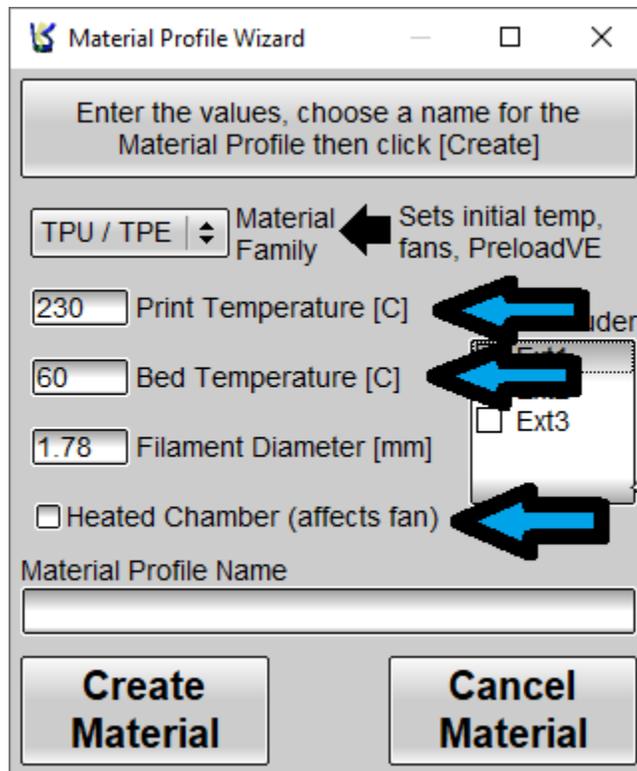
- 9) Enter the Print & Bed Temperatures from the Manufacturers Datasheet into the wizard.

| GUIDELINE FOR PRINT SETTINGS |                  |
|------------------------------|------------------|
| Nozzle temperature           | 230 ± 20 °C      |
| Bed temperature              | Up to 60 °C      |
| Bed modification             | Kapton tape      |
| Active cooling fan           | Yes (up to 100%) |
| Layer height                 | 0.1 - 0.2 mm     |
| Shell thickness              | 0.8 - 2.0 mm     |
| Print speed                  | 20 - 50 mm/s     |

Settings are based on a 0.4 mm nozzle

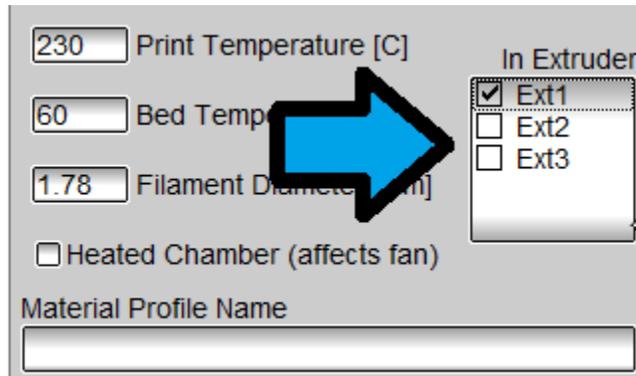
**Figure 1.2.7 Finding Printer & Bed Temperatures in Manufacturer’s Technical Data**

**NOTE** – Make note of other specific printing information from manufacturer. In this materials example, Kapton tape must be used on the printer bed plate.



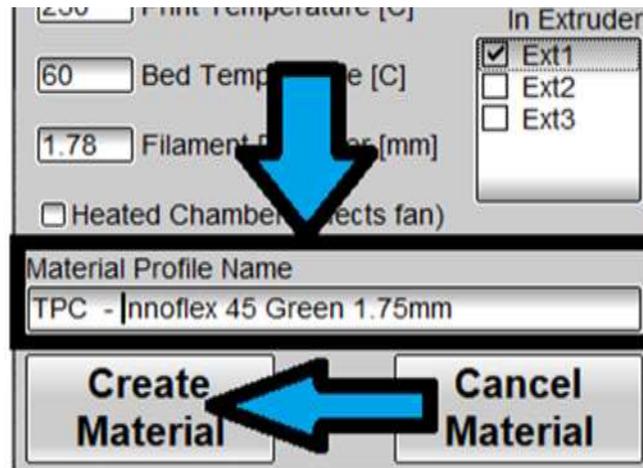
**Figure 1.2.8 Entering Manufacturer’s Technical Data into the Wizard**

- 10) If desired, map the new material profiles to the selected extruder. This step can be done later in the process of making a G-code file (mapping extruders); however, it is convenient and time saving to assign it to extruder(s) with the wizard.



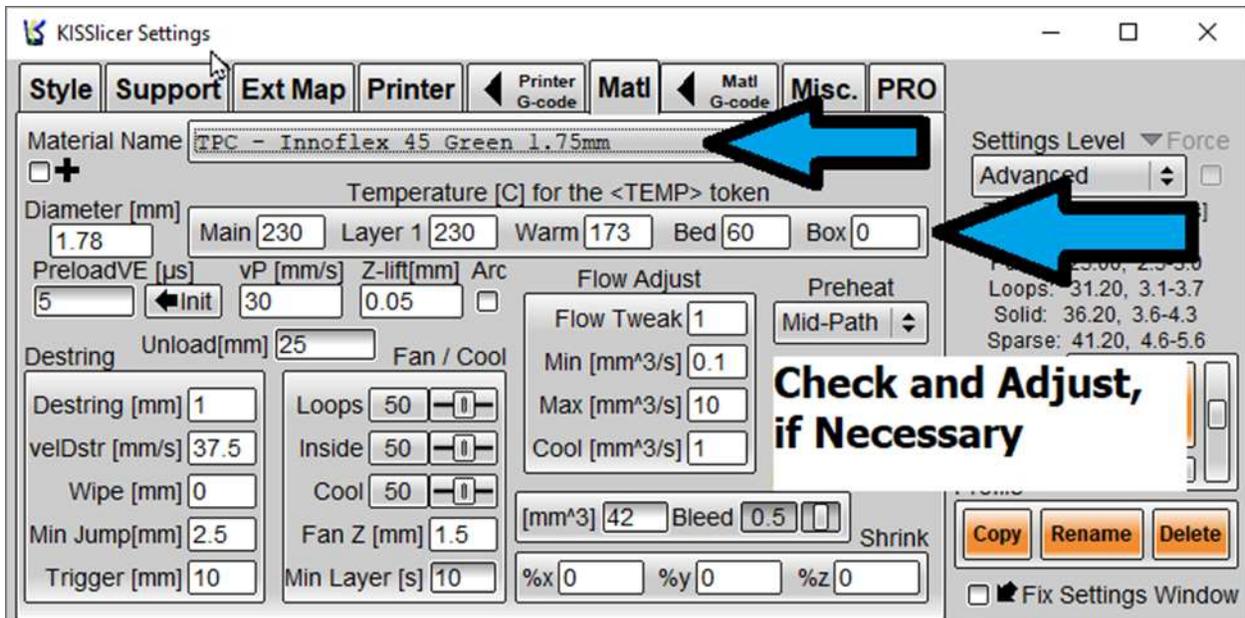
**Figure 1.2.9 Select Extruders to Assign New Material Profile**

- 11) Enter a descriptive name for the new material profile and click "create Material Profile"



**Figure 1.2.10 Enter a Name and Click "Create Material"**

- 12) Go to Profile Settings>Matl tab to review the new profile details. If it does not appear, Click the selector button for Material Name, then browse and find the recently created profile.  
13) Review all material profile settings and adjust as necessary



**Figure 1.2.11 Check and Adjust Parameter Settings for New Profile**

14) Process Complete.

TRAK Machine Tools  
Southwestern Industries, Inc

# TRAK Warranty Policy

## Warranty

TRAK products are warranted to the original purchaser to be free from defects in workmanship and materials for the following periods:

| Product            | Warranty Period |               |
|--------------------|-----------------|---------------|
|                    | Materials       | Factory Labor |
| New TRAK/ProtoTRAK | 1 Year          | 1 Year        |
| Any EXCHANGE Unit  | 90 Days         | 90 Days       |

The warranty period starts on the date of the invoice to the original purchaser from Southwestern Industries, Inc. (SWI) or their authorized distributor.

If a product, subsystem or component proves to be defective in workmanship and fails within the warranty period, it will be repaired or exchanged at our option for a properly functioning unit in similar or better condition. Such repairs or exchanges will be made FOB Factory/Los Angeles or the location of our nearest factory representative or authorized distributor.

## Disclaimers of Warranties

- This warranty is expressly in lieu of any other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular purpose, and of any other obligations or liability on the part of SWI (or any producing entity, if different).
- Warranty repairs/exchanges do not cover incidental costs such as installation, labor, freight, etc.
- SWI is not responsible for consequential damages from use or misuse of any of its products.
- TRAK products are precision mechanical/electromechanical/electronic systems and must be given the reasonable care that these types of products require. Evidence that the product does not receive adequate Preventative Maintenance may invalidate the warranty. Excessive chips built up around ballscrews and way surfaces is an example of this evidence.
- Accidental damage, beyond the control of SWI, is not covered by the warranty. Thus, the warranty does not apply if a product has been abused, dropped, hit or disassembled.
- Improper installation by or at the direction of the customer in such a way that the product consequently fails, is considered to be beyond the control of the manufacturer and outside the scope of the warranty.
- Warranty does not cover wear items that are consumed under normal use of the product. These items include, but are not limited to: windows, bellows, wipers, filters, drawbars and belts.