YETI®
TOOL

CNC *Stylus*

Contents

1 Introduction

Thank you for purchasing CNC Stylus. This quick start guide has been created to enable you to start drawing and cutting vinyl as quickly as possible. *For more detailed guidance, please see Section 8.2 Knowledgebase, page 17.*

2 Getting Started

Before you start, we would recommend reading this guide to ensure you understand how to successfully use the CNC Stylus.

2.1 Safety

Note: Vinyl cutting blades are sharp and should be handled with care. When not in use, remove the blade and replace the cover. Blades should be disposed of in a safe manner.

2.2 What's in the box?

Start by getting familiar with all the components of the CNC Stylus.

Please check the box contents. If any of the above items are damaged or missing, please contact your point of purchase immediately.

1x CNC Stylus

1x ER25 Collet set (sizes 8-16mm)

1x Vinyl cartridge

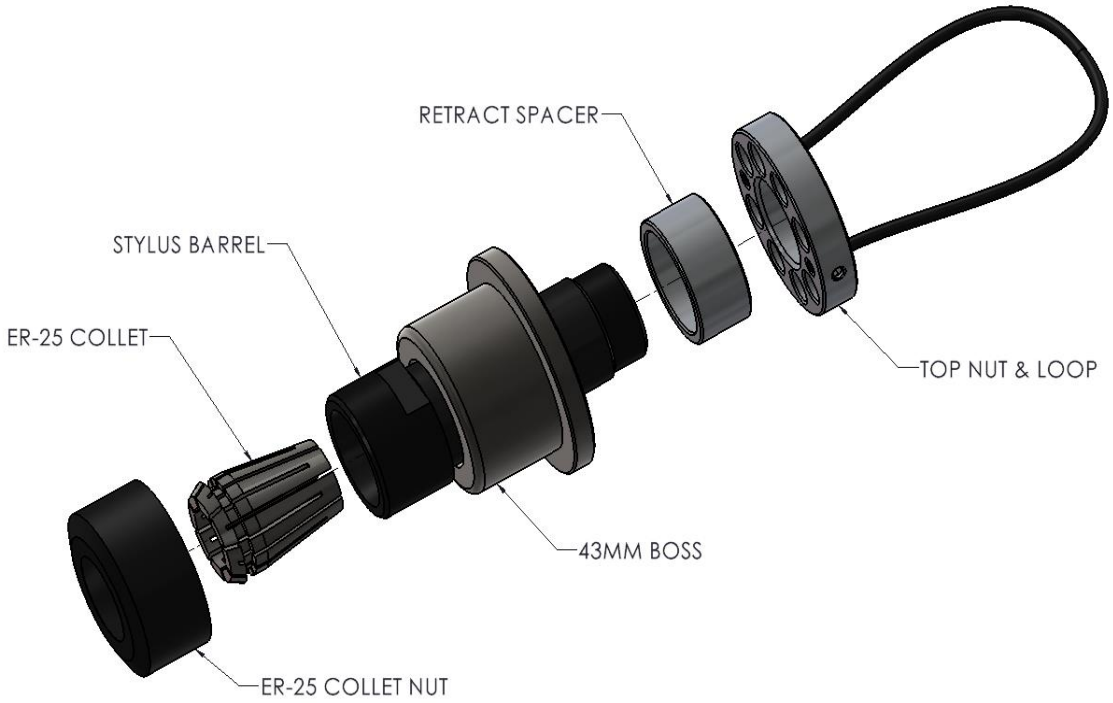
3x Set of vinyl cutting blades (30, 45 and 60 degree)

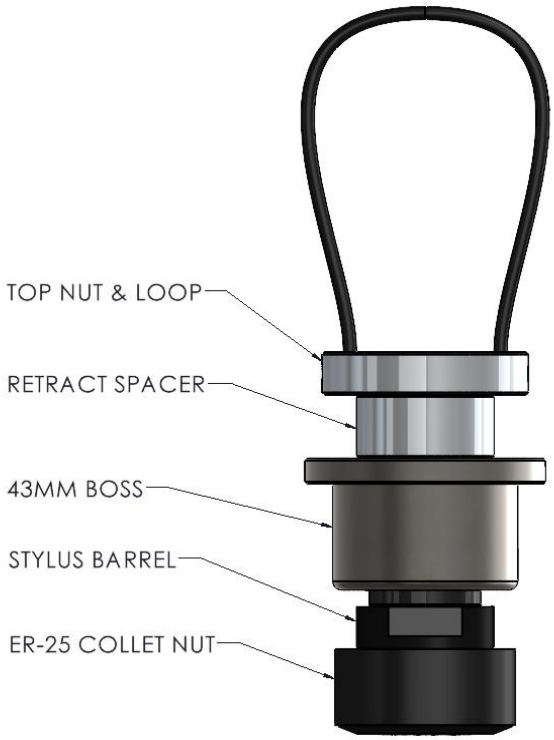
1x Set of 4 Sharpies (Marker pens)

1x Blade height jig

2.3 CNC Stylus assembly

The CNC Stylus comprises several different components as detailed in the diagrams below.





3 Collet system

3.1 Collet sizes

CNC Stylus uses an ER-25 collet system which allows you to easily interchange different tools into the device.

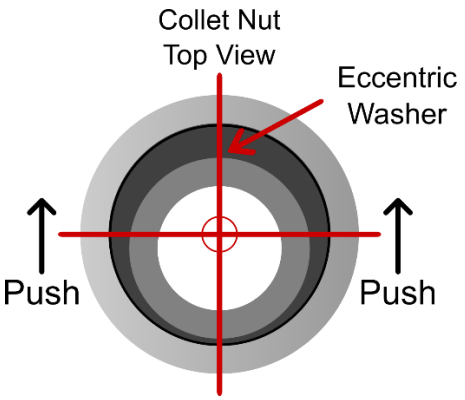
We have created a quick look up table below for some common tools.

Tool	**Collet size**
Vinyl Cartridge	15-16mm
Sharpie	11-12mm
Biro	7-8mm
Pencil	7-8mm

3.2 Fitting and removing a collet

The collet features an eccentric washer which requires force to be applied to a specific side to allow engagement and removal of the collet with the nut.

After selecting your collet, you will need to push it into the nut until it engages.

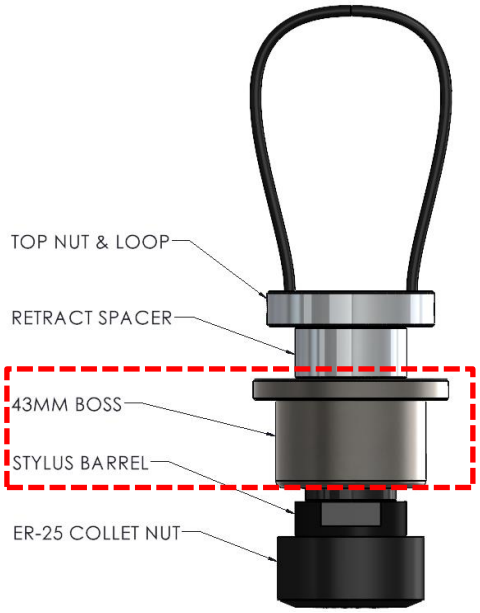


You will hear an audible click. You can check this by inverting the assembly. If the collet is fitted correctly, the collet will not fall out.

To remove the collet, push the collet to the side using your thumb. You may need to rotate the collet in the nut.

4 Fitting CNC stylus

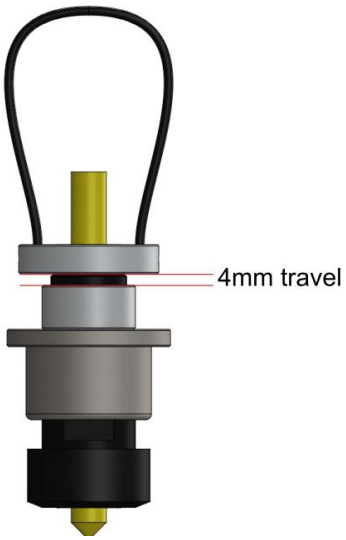
CNC Stylus has a standardised 43mm boss which is compatible with a wide range of CNC machines. The CNC Stylus should be clamped securely around the boss.



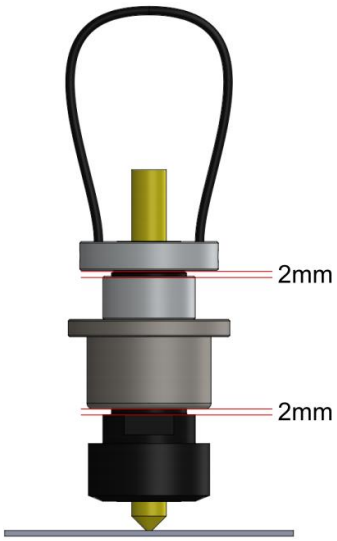
5 Setting Z datum

The CNC Stylus features a constant pressure system, using gravity. This ensures the chosen tool maintains an even contact with the material surface, irrespective of any deviation in flatness.

This feature is achieved by allowing the barrel to move freely inside the boss. As built, travel is 4mm.



When setting the Z datum, you must position the CNC Stylus' barrel in the middle of the travel range. To do this, move your Z axis until the tool touches the material surface, and then continue to move your axis by another 2mm. You can now set your Z datum to this point.



You will need to adjust the retract settings in your CAM software to ensure the CNC Stylus lifts clear of the material during a move to the start of a new toolpath. As shown, this value would need to be higher than 2mm e.g., 5mm. *To learn more about retracts, and how to increase total retract height up to 19mm for special projects*, *please see Section 8.2 Knowledgebase, page 17.*

6 Pen plotting

6.1 Materials

CNC Stylus can be used to draw, write, and plot on many different types of material including the following:

- Papers
- Cards
- Woods
- Textiles
- Plastics
- Metals

6.2 Preparation

6.2.1 Spoil board

When selecting a suitable spoil board, we need to ensure to use something strong, rigid, and flat.

We would recommend using a 12mm melamine faced MDF board.

6.2.2 Work-holding

There are several different ways to hold material down to your spoil board. You should ensure your material is as flat as possible.

We would recommend using a low tack tape along all edges. *To find out more about work-holding, please see Section 8.2 Knowledgebase, page 17.*

6.3 Mounting a drawing device

To fit your tool to the CNC Stylus, you will need to ensure you select the correct collet size.

Please see the quick look up table in the collet sizes section – Page 6.

Once you have selected the correct size collet, fit the collet to the collet nut. You can now insert your chosen tool into the stylus and tighten the collet nut. We would recommend clamping onto the tool as close to the tip as possible.

6.4 CAM

6.4.1 Toolpaths

You must use your CAM software to create a toolpath for your design. You can use several different toolpaths including profile, pocket and engrave.

To find out more about creating toolpaths with Vectric VCarve Pro please see Section 8.2 Knowledgebase, page 17.

6.4.2 Retract height

You will need to set the retract height to reflect the amount of travel set in Section 5, page 8.

7 Vinyl cutting

7.1 Materials

7.1.1 Self-adhesive vinyl

Self-adhesive vinyl comes in many different types which vary in thickness, colour and finish. Adhesive vinyl is cut with the vinyl facing up and the paper carrier sheet down.

This can be used for signage and branding in both indoor and outdoor environments.

7.1.2 Heat transfer vinyl

Heat transfer vinyl (commonly called HTV) is not sticky and instead is fused with heat to fabrics, such as shirts, tote bags, coats, scarves, blankets, stuffed animals, etc. It is designed to be applied with a heat press or an iron. HTV is cut with the clear shiny side facing DOWN and the duller back of the vinyl facing up.

7.1.3 Rigid vinyl

Rigid vinyl can come in a range of thicknesses from 70- 500 microns. Most commonly made from PVC, this clear vinyl has a range of applications.

7.2 Preparation

7.2.1 Spoil board

When selecting a suitable spoil board, we need to ensure to use something smooth, rigid, and flat.

We would recommend using a 12mm melamine faced MDF board.

7.2.2 Cutting mat

Although it is not mandatory, using a cutting mat when cutting through vinyl will maintain the condition of the blade and avoid snagging.

A self-healing mat can for this type of application. *To find out more about cutting mats, please see Section 8.2 Knowledgebase, page 17.*

7.2.3 Work-holding

There are several different ways to hold material down to your spoil board. We would recommend using either a low tack tape or a spray mount adhesive. You should ensure your material is as flat as possible. *To find out more about work-holding, please see Section 8.2 Knowledgebase, page 17.*

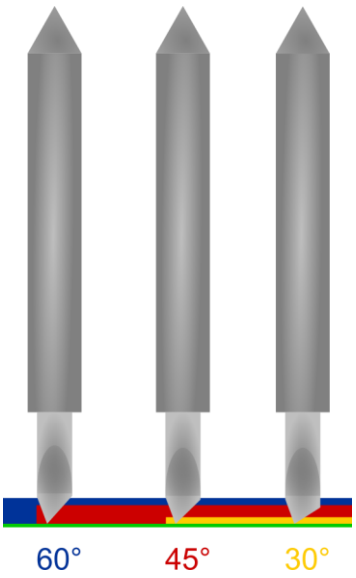
7.3 Blade types

There are 3 different types of blade, defined by their cutting angle. The different angles can be applied to different material types and thicknesses. The diagram below represents the 3 different blade angles and their uses.

60 degree – Thick media such as card, rigid vinyl, fabric, cork, and magnet

45 degree – Medium media such as vinyl (adhesive and heat transfer), paper and thin card

30 degree – Thin media such as film or window tint

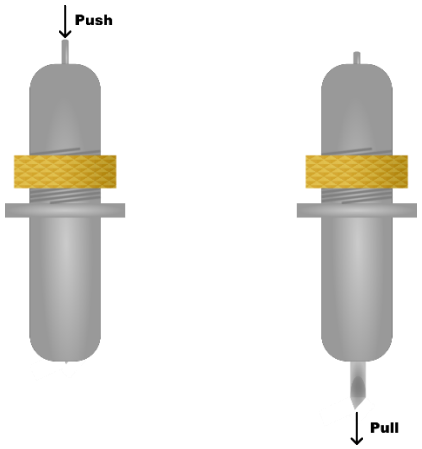


*Cutting mat/ backing paper

7.4 Changing a blade

The cutting blade is held in place with a magnet which sits on a bearing. This allows the blade to easily swivel and rotate.

To remove the blade, simply press on the ejection pin as shown below.



You can then remove the blade by pulling it out. Remember to replace the protective cap to ensure your blade does not get damaged or blunted.

7.5 Setting blade height

When cutting vinyl, setting the correct blade height is especially important. If you do not set the blade height correctly, you can end up cutting too far through your material, or not far enough.

To set the blade height:

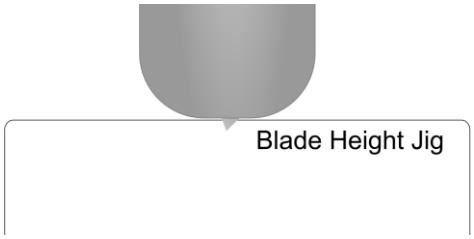
1. Insert the blade you wish to use into the vinyl cartridge
2. Loosen the gold locking ring on the vinyl cartridge
3. Rotate the top part of the cartridge assembly until the blade extends from the cartridge the correct amount
4. Tighten the gold locking ring to fix the blade height

IMPORTANT: The blade should be set to extend from the cartridge system the same distance as the thickness of the material you wish to cut. We would recommend you measure the material but only include the layers you wish to cut through.

For example, if you are cutting self-adhesive vinyl then you will need to ensure you are only cutting through the top layer and not the backing paper. We would recommend testing the blade height on a scrap piece of vinyl before committing to your project.

We have included a blade height jig which will allow you to clearly see how far the blade extends from the cartridge.

To use the jig, hold the cartridge against the edge of flat face. This will allow you to clearly see how far the blade extends from the cartridge and adjust, as necessary.

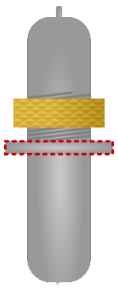


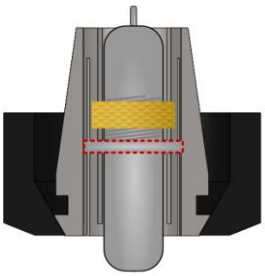
7.6 Mounting the vinyl cartridge

To fit the vinyl cartridge to the CNC Stylus, you will need to ensure you select the correct collet size.

Please see the quick look up table in the collet sizes section – Page 6.

Once you have selected the correct size collet, fit the collet to the collet nut. You can now insert the vinyl cutting cartridge into the stylus. In the diagram below, you can see the part of the assembly we need to clamp onto to effectively hold the cartridge.





7.7 CAM

7.7.1 Toolpaths

You must use your CAM software to create a toolpath for your design. Vectric Vcarve Pro features a drag-knife tool path gadget which is pre-installed.

To find out more about creating toolpaths with Vectric VCarve Pro please see Section 8.2 Knowledgebase, page 17.

7.7.2 Blade offset

Blade offset is the distance between the point at which the blade cuts to the point at which the blade rotates.

Most CAM software can accommodate for blade offset which needs to be entered manually. The value is normally between 0.25 and 0.1mm. If your blade offset is set incorrectly, you will not achieve sharp corners where required. *To find out more about blade offset please see Section 8.2 Knowledgebase, page 17.*

7.7.3 Retract height

You will need to set the retract height to reflect the amount of travel set in Section 5, page 8.

8 Support

8.1 Get help

If you require technical support, please go to www.yetitool.com/support and submit a support ticket.

SCAN ME TO GO
TO SUPPORT

8.2 Knowledgebase

For further information please visit our website. We have a dedicated Knowledgebase which hosts more resources: www.yetitool.com/knowledgebase/cnc-stylus

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