

## New Functions of NcEditor V12 Tube Cutting (Exclusive to Bodor)

Version: 2018.7 1st Version

Author: Document Department

Weihong Corporation, All Rights Reserved

This document is applicable to configuration **Tube (85A+5E+EX33A)** of *NcEditor V12 Laser Cutting CNC System*.

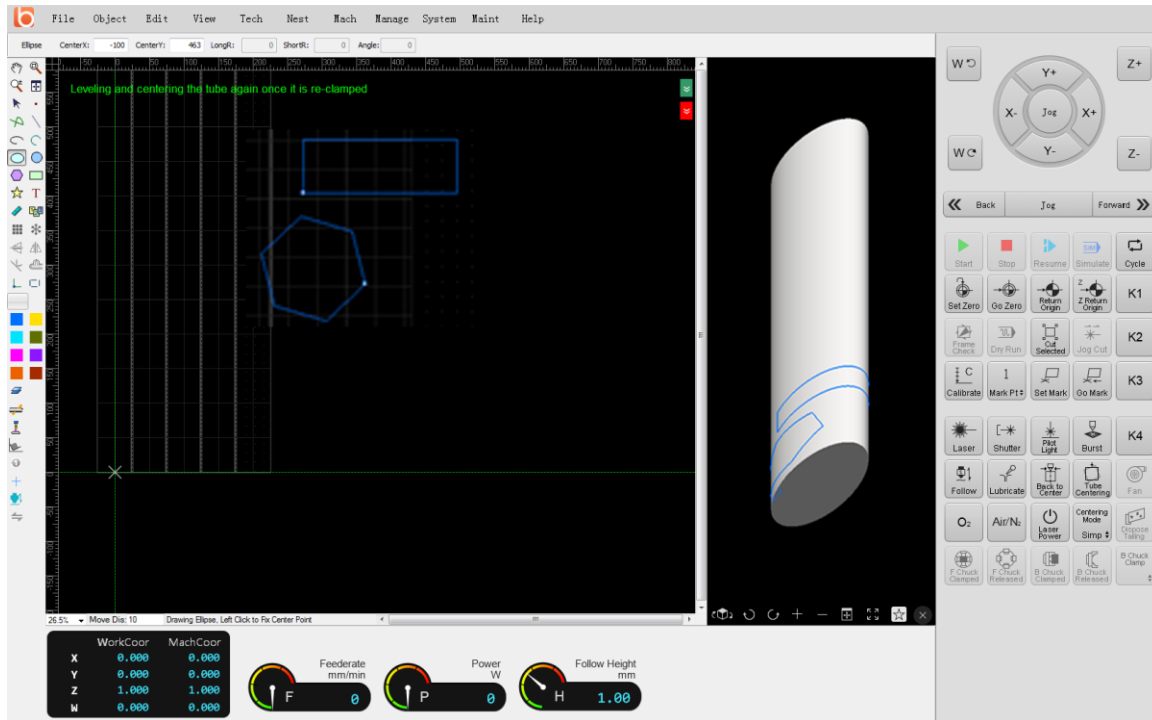
It mainly introduces new functions of tube cutting and their operations:

- Returning to the Center
- Tube Centering
- Vertical Intersection
- Tube Array

Before using configuration **Tube (85A+5E+EX33A)**, do the following to switch system configuration:

1. Click **System** → **Configs** → **Tube (85A+5E+EX33A)**, dialog box **Move Cutting Head** pops up.
2. Click **OK**. NcEditor confirmation box pops up to confirm whether to switch to configuration **Tube (85A+5E+EX33A)**.
3. Click **OK** to continue. NcEditor confirmation box pops up to confirm whether to restart the software right now to enable the switch.
4. Click **OK** to restart the software. Successfully switch to configuration **Tube (85A+5E+EX33A)**.

Take the horizontal version as an example, the main interface under configuration **Tube (85A+5E+EX33A)** is as follows:



**Note:** The software supports both vertical and horizontal screens. To switch the screen, click **System** → **System Parameters** → **OtherParam** → **N43 Screen switch**

## Returning to the Center

### Function

It refers to returning to the tube center.

### Operation

Before returning to the center, please ensure the following:

- The system is in idle status.


Otherwise, this function is disabled with icon in grey:



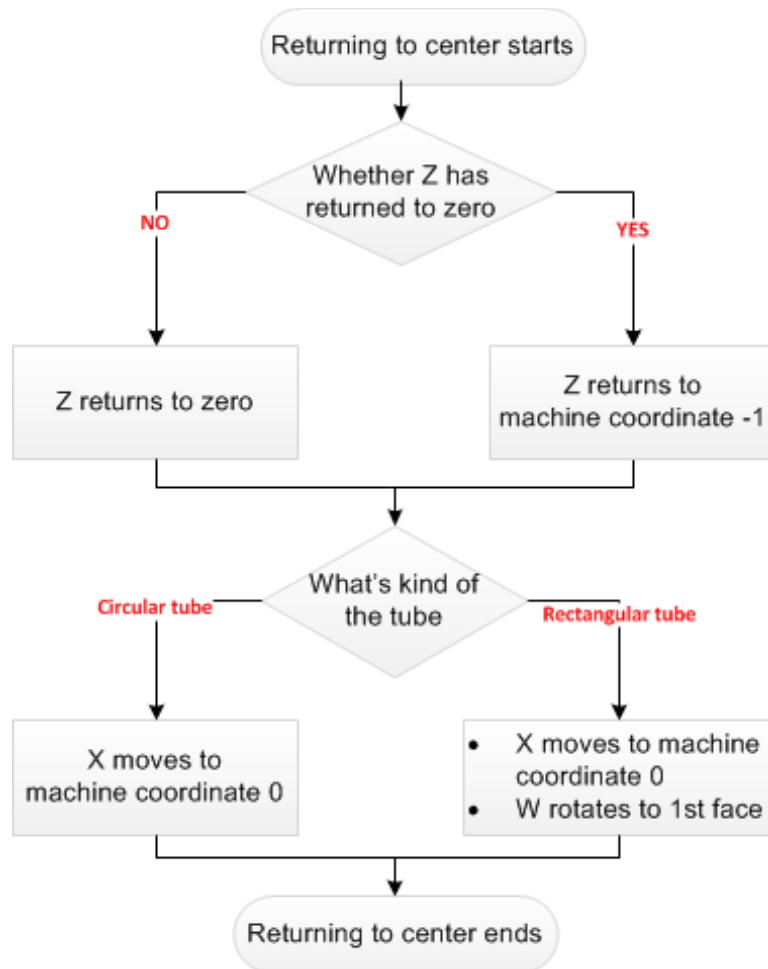
- Tube centering has been done.

To return to the center, do the following:



Click . Each axis returns to the tube center automatically.

Returning process that is automatically done by the system is as follows:



## Tube Centering

### Function

This function is used to ensure to place the tube horizontally and find its center line.

It includes two aspects:

- Leveling  
Adjusting the tube to horizontal position.
- Centering  
Finding the center line of certain tube face.

**Note:** To get better cutting result, both leveling and centering are required before cutting rectangular tube; while only centering is required before cutting circular, elliptic, and waist-shaped tubes.

For different types of tube, check the availability of leveling and centering functions:

Function	Rectangular Tube	Circular Tube	Oval Tube
Tube Centering	Applicable	Applicable	Applicable
Centering Mode	Applicable	Not Applicable	Not Applicable
Auto Centering	Applicable	Not Applicable	Not Applicable
Pivot Compensation	Applicable	Not Applicable	Not Applicable

### Operation

Tube centering includes two processes:

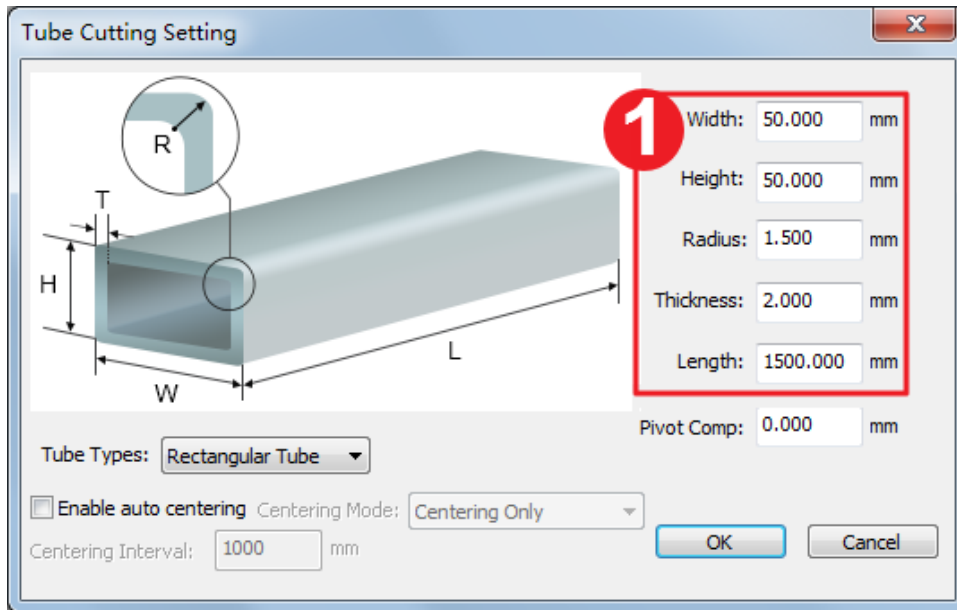
- Doing tube centering
- Doing auto centering

## Doing Tube Centering

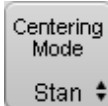
Before doing centering, please ensure the type of tube firstly.

To do tube centering, do the following:

1. Click **System** → **Tube Cutting Setting** to open dialog box **Tube Cutting Setting**:



2. Select the tube type, set parameters in area ① according to tube's actual size and click **OK** to save setting.


3. **Optional:** If the tube shape is rectangular, click  to switch centering mode from the following:

- **Standard: Leveling+Centering:**
- **Simple: Centering only**

Select this mode to save adjusting time only when leveling has already been done on the tube.

The switch takes effect immediately.

**Note:** Text on bottom right of the button shows the current centering mode.

4. Click . The system begins to do tube centering.

## Doing Auto Centering

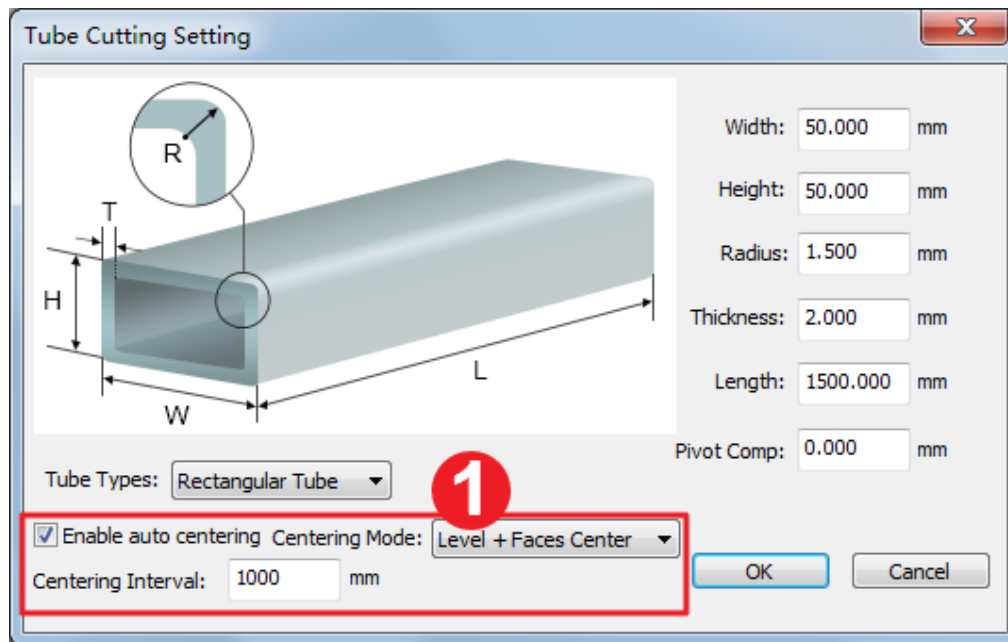
If the length of the tube is too long, the part between the front and rear clamps will suffer from bending deflection. Thus, after cutting a length of the tube, centering data before machining is no longer applicable. To fix the deflection and ensure cutting accuracy, the system supports **Auto Centering**.

After cutting a certain length, the system will automatically do levelling or faces centering and execute breakpoint resume after centering is done.

Before doing auto centering, please ensure that the shape of tube is rectangular.

To do auto centering, do the following:

1. Click **System** → **Tube Cutting Setting** to open dialog box **Tube Cutting Setting**.
2. Switch **Tube Types** to **Rectangular Tube**.
3. Check **Enable auto centering**:



4. Set the following parameters:

– **Centering Mode**


It includes to options: **Centering Only** and **Level+Faces Center**.

– **Centering Interval**

When Y-axis length of the cutting object exceeds the set value, the system does centering automatically according to the set centering mode and executes breakpoint resume after centering is done.

5. Click **OK**.



**Note:** If auto centering is interrupted abnormally, please manually click  to recover from exception.



## Vertical Intersection

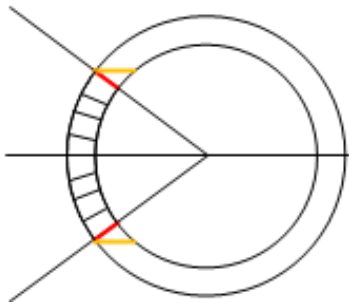
### Function

Intersecting line refers to the intersection of two cubes' surfaces. When circular tube is cut, the general intersection cutting may cause the outer cutting hole is big and inner cutting hole small so that the other tube cannot be inserted into the cutting hole.

Thus, the function of vertical intersection is offered to ensure the size of outer and inner cutting holes is the same.

The top view of hole cutting for vertical intersection of circular tube is as follows:

Original Cutting Track  
Cutting Track after Vertical Intersection Done



### Operation

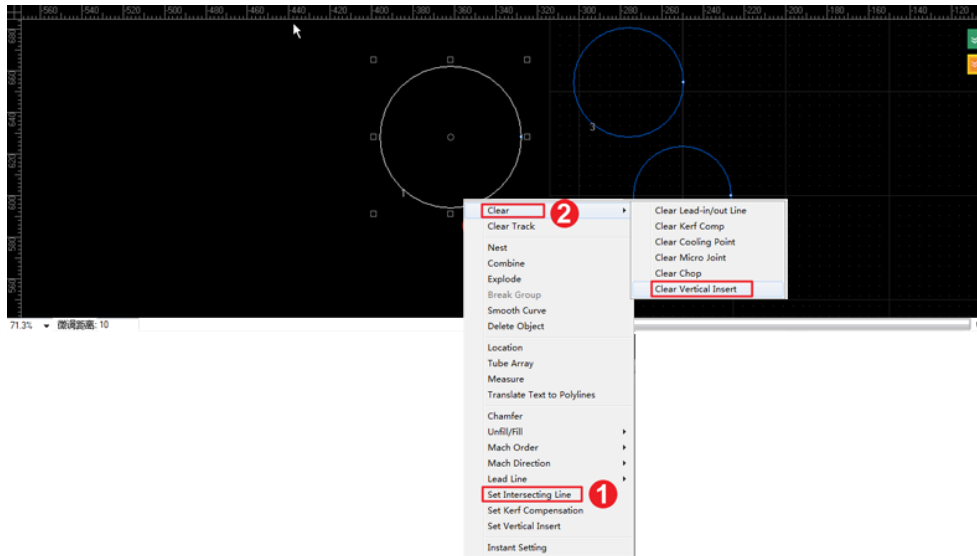
Before doing vertical intersection, do the following:

1. Select the tube type as **Circular Tube**, for vertical intersection is only suitable to circular tube cutting.
2. Set the diameters of primary tube and auxiliary tube as follows:

$$\text{Diameter of Primary Tube} \leq (\text{Diameter of Auxiliary Tube} / 3)$$


To do vertical intersection, do one of the following:

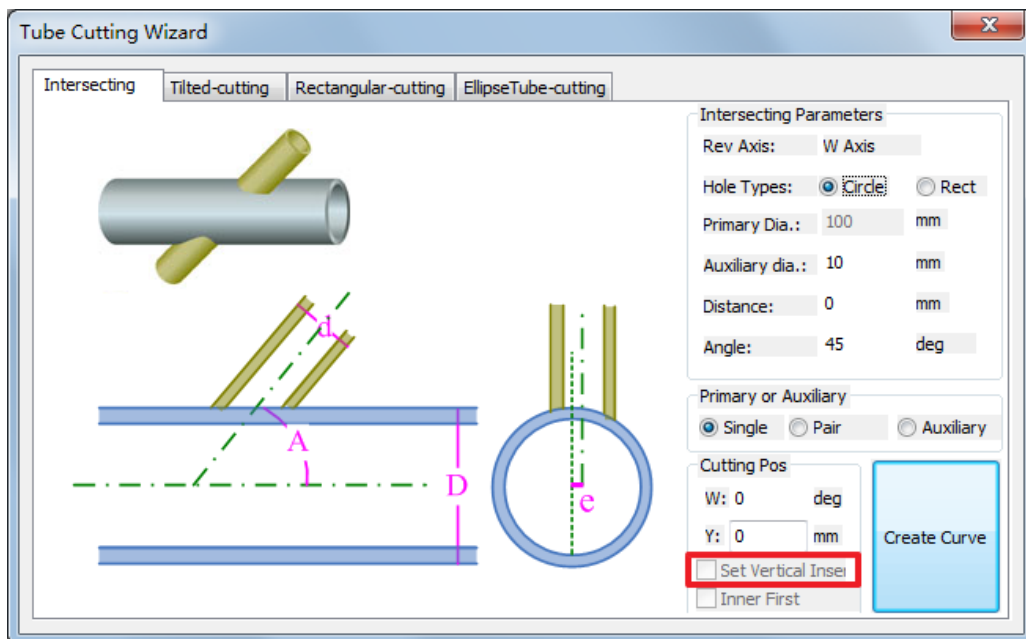
- To add vertical intersection in **drawing** window, do the following:
  1. Import or draw cutting objects in **drawing** window.
  2. Select the objects needed to add vertical intersection.  
Several objects can be chosen.
  3. Right-click on **drawing** window and select **Set Intersecting Line** as shows in ①:



After it is done, all selected objects turn to white.

4. **Optional:** To cancel vertical intersection, select the set object, right-click on **drawing** window, and select **Clear** → **Clear Vertical Insect** as shows in ②.
- To set vertical intersection in wizard, do the following:

1. Click  in the side drawing tool bar. Dialog box **Tube Cutting Wizard** pops up:



2. Switch to child interface **Inserting**.
3. Check **Set Vertical Insert**.
4. Click **Create Curve** to finish setting.

## Tube Array

### Function

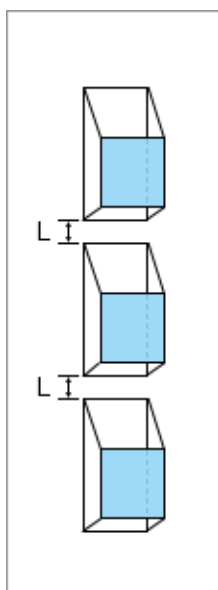
In general, a tube cutting program file only contains a piece of workpiece. Use the tube array to do nesting in actual machining scenario.

Tube array supports the following methods of rotation:

- No rotation

With this method, the tube only does translation array in Y-axis direction.

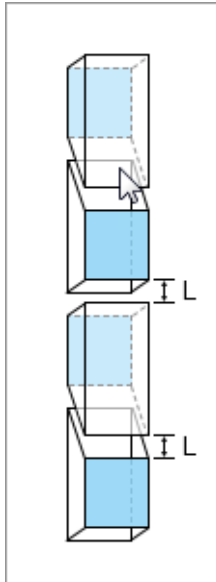
Its schematic diagram is as follows:



- Front-back

With this method, the tube rotates 180° in Y-axis direction.

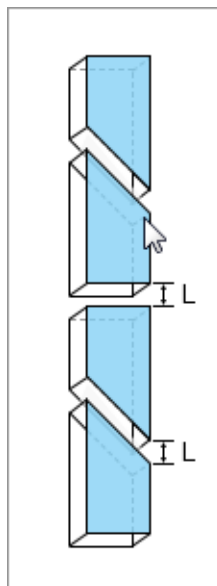
Its schematic diagram is as follows:



- Left-right

With this method, the tube rotates 180° in X-axis direction, which equals to the current tube face rotates 180°.

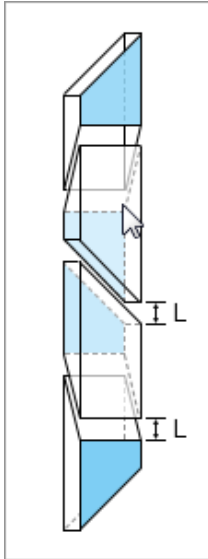
Its schematic diagram is as follows:



- Front-back-left-right

With this method, the tube rotates  $180^\circ$  from forwards to backwards and then rotates  $180^\circ$  from left to right.

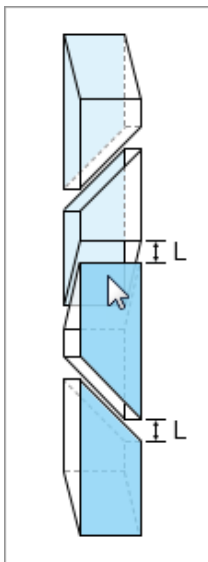
Its schematic diagram is as follows:



- Left-right-front-back

With this method, the tube rotates  $180^\circ$  from left to right and then rotates  $180^\circ$  from forwards to backwards.

Its schematic diagram is as follows:

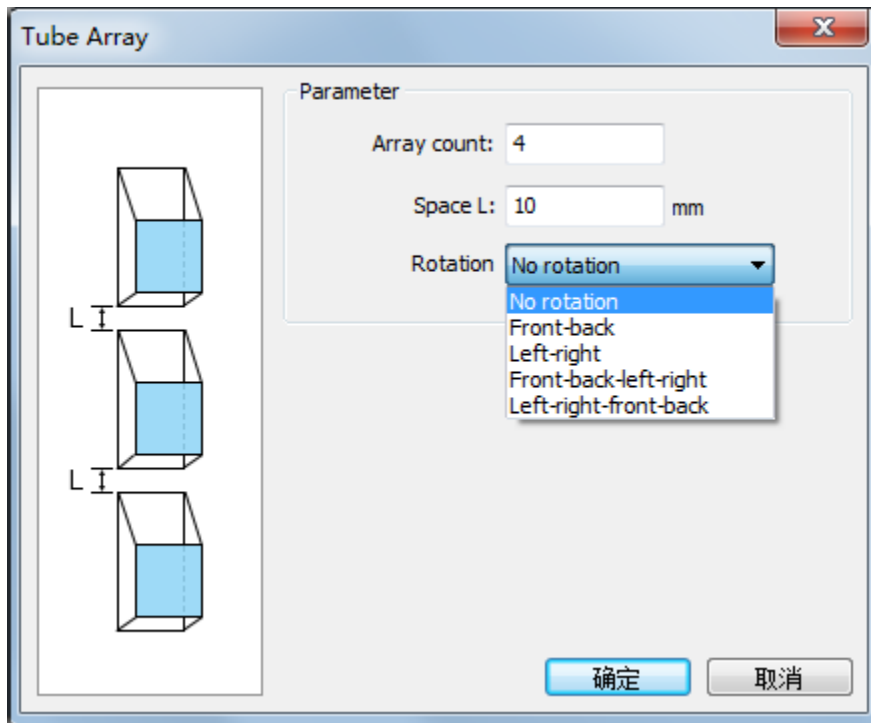


## Operation

Before doing tube array, please ensure the shape of tube is rectangular.

To do tube array, do the following:

1. Select the object that needs to do array in **drawing** window.
2. Click **Nest** → **Tube Array**. Dialog box **Tube Array** pops up:



3. Set array parameters:
  - **Array count:** Total number of array.
  - **Space:** Y-axis spacing between array objects.
  - **Rotation:** Five options are available. Refer to **Function** part for detail.
4. Click **OK** to save setting.

**Note:** If the array length exceeds the tube length, ignore it. The length of array objects can exceeds the length of tube.