



# **XEBEC Brush Turning (Square Shank Type) Instruction Manual**

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Thank you for purchasing the XEBEC Brush Turning.

Please read this instruction manual before using the product and keep it in a safe place for easy access whenever needed.

## Table of contents

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<b>XEBEC Brush Turning Square Shank Type ...</b>	<b>4</b>
<b>Safety Precautions.....</b>	<b>5</b>
<b>Features .....</b>	<b>7</b>
<b>Product Contents .....</b>	<b>8</b>
<b>Product Specifications .....</b>	<b>9</b>
<b>How to Set the Brush Angle.....</b>	<b>11</b>
<b>How to Assemble .....</b>	<b>12</b>
<b>Installation Example on a Turning Machine .</b>	<b>14</b>
<b>Machining Parameters.....</b>	<b>15</b>
<b>How to Use .....</b>	<b>21</b>



# XEBEC Brush Turning Square Shank Type



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# Safety Precautions

## Warning and Caution Logos

The meanings of the indications and symbols related to matters which must be observed in to ensure the safety of this product are as detailed below.

### Warning and Caution Logos

 <b>WARNING</b>	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury
 <b>CAUTION</b>	CAUTION indicates practices that may cause injuries and damage

### Symbols









Obey all safety messages that follow this symbol to avoid possible injury or death.



This is the safety alert symbol. It is used to alert you to potential physical injury hazards.

## Operator Safety Protection

	 <b>WARNING</b>
	<p>Using this product can result in severe injuries and damage. To prevent these, take appropriate safety measures and use the product with caution.</p> <ul style="list-style-type: none"> <li>• The product may break, fracture or be dislodged from the machine tool causing operator injury or loss of sight. It may also cause damage to the machine tool, jig, fixture or workpiece.</li> <li>• Dust and cutting chips generated when using this product can cause blindness and injury.</li> <li>• Dust and particles generated by this product can cause lung damage, skin irritation, and allergies.</li> </ul>
	<p>Discontinue use immediately in the event of abnormal vibration or other abnormal conditions. Continued use of the product under abnormal conditions may cause it to break or be dislodged, resulting in potential injury or loss of sight.</p>
	<p>The tip of the tool may become overheated when it is applied to a workpiece for a prolonged period of time. This may result in ceramic fiber bristles breaking loose and possible operator injury or loss of sight. Adjust the machining time to prevent the workpiece from overheating. DO NOT touch the machined area of the workpiece with bare hands.</p>
	<p>Ensure the product is used within the standard machining parameters.</p> <p>Exceeding these parameters may cause the product to break, fracture, or be dislodged from the machine tool, leading to operator injury or loss of sight.</p>
	<p>When setting the depth of cut, make sure that there is no interference between this product and the workpiece.</p> <p>Interference may cause bristles and other components of this product to break, fracture or be dislodged from the machine tool and cause operator injuries or loss of sight.</p>

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## Safety Precautions

### Chips and Dust

Use a dust collector or other means to collect cutting chips, dust, and other substances to prevent them from scattering into the surrounding environment.

### Attention to the Work Area



- Install an enclosure to prevent persons other than the operator from entering the work area, and ensure that all persons in the work area are wearing protective gears.
- Children should not be allowed to enter the work area.
- Keep the work area floor clean at all times to prevent the risk of slipping or tripping on cutting chips, dust, cutting fluids, coolant, or other substances.
- Be aware of the fire risk caused by heating, sparks, or other factors when using this product. Do not use the product in the proximity of flammable liquids or in explosion-proof areas. Allow all fire prevention measures.

## Pre-Use Inspection

**Perform a test run after setting up the Brush on the machine, making sure it is secured firmly, and there is no vibration or other abnormalities.**

**Make sure that the Brush is free of any visible damage or abnormality prior to use.**

## Notes for When Setting up This Product on the Machine

	 <b>WARNING</b>
	<p>Refer to the instruction manual of the machine and tool holder when setting up the Brush on the machine.</p> <p>If the product is not clamped properly, this product may be dislodged from the tool holder during in operation, causing operator blindness or injury.</p>

- Dust and chips generated by using the product can affect the sliding parts of the machine tool. Make sure to remove dust and chips by using a sludge collection system, an oil skimmer or other means.
- Make sure to use a tool holder that is the right size for the square shank of this product.
- Make sure to use the product on a machine tool that can control rotational speed.

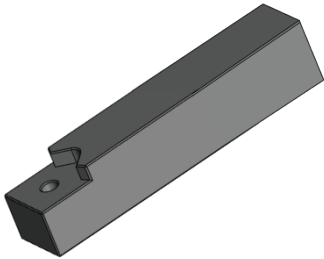
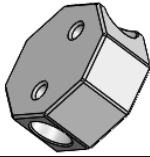



# Features

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- This product removes burrs with a maximum root thickness of 0.1 mm in a turning operation on CNC lathes without live tooling.
- The Brush can be indexed in 11 different positions.


# Product Contents

Listed below are parts and a tool included with this product. Make sure all are present.

	Name	Quantity
Parts	Shank 	1
	Head 	1
	M2.6 - 10 set screw 	1
	M6 - 12 set screw 	1
Tool	Hex key for M2.6 screws 	1



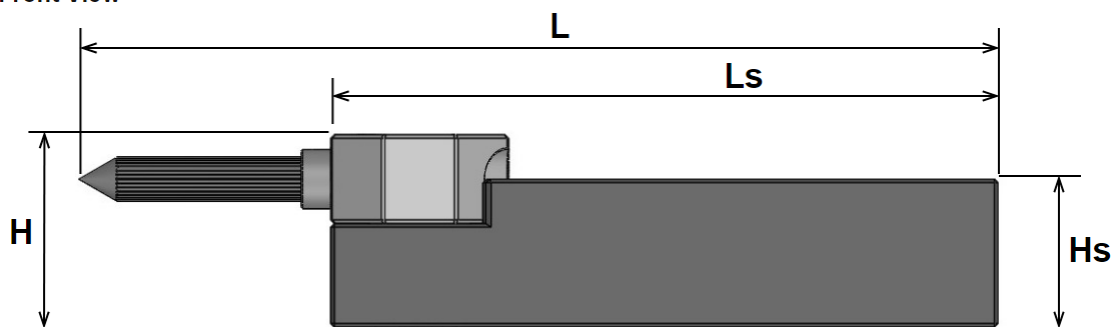
# Product Specifications

Holder Product Code	Matching Brush	Shank Height Hs (mm)	Overall Height H (mm)	Shank Width Ws (mm)	Overall Width W (mm)	Shank length Ls (mm)	Overall Length L (mm)
TM-SH-S2020	A11-TB06	20	26	20	24	90	124
TM-SH-S2525	A21-TB06 A32-TB06 	25	31	25	24	100	134

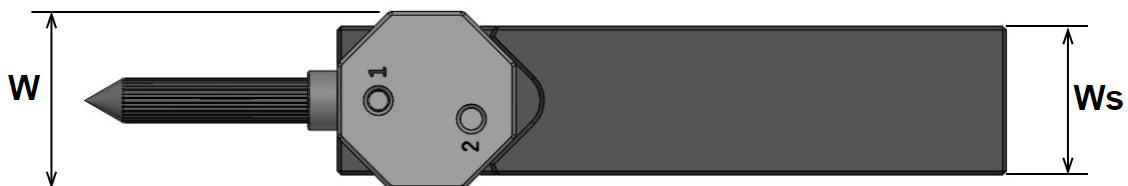
\*Overall length is the length of the product when the Brush is new.

TM-SH-S2020

**Front View**

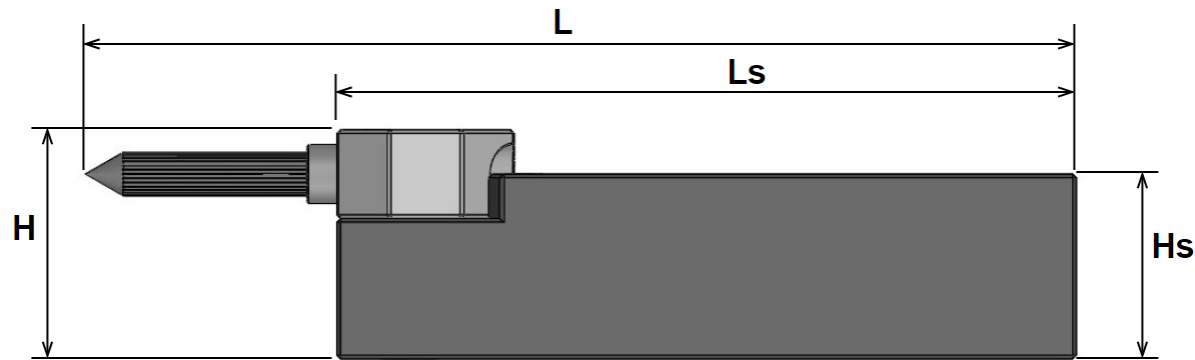


**Top View**

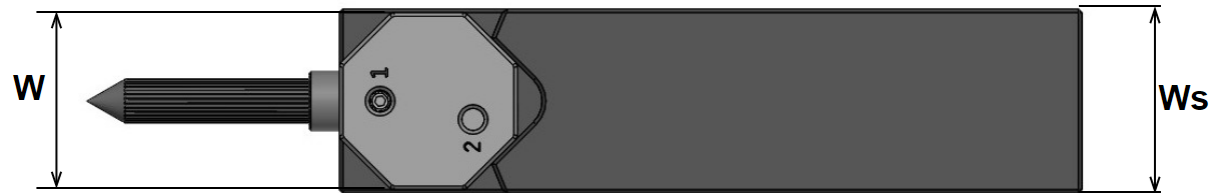


TM-SH-S2525

Front View



Top View

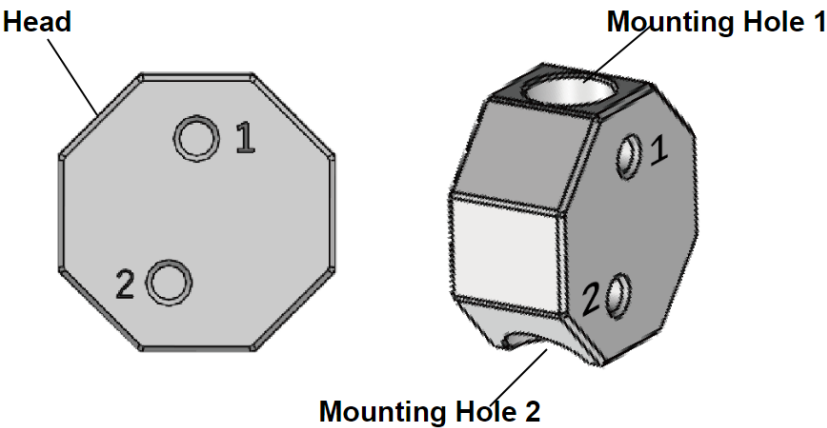


# How to Set the Brush Angle

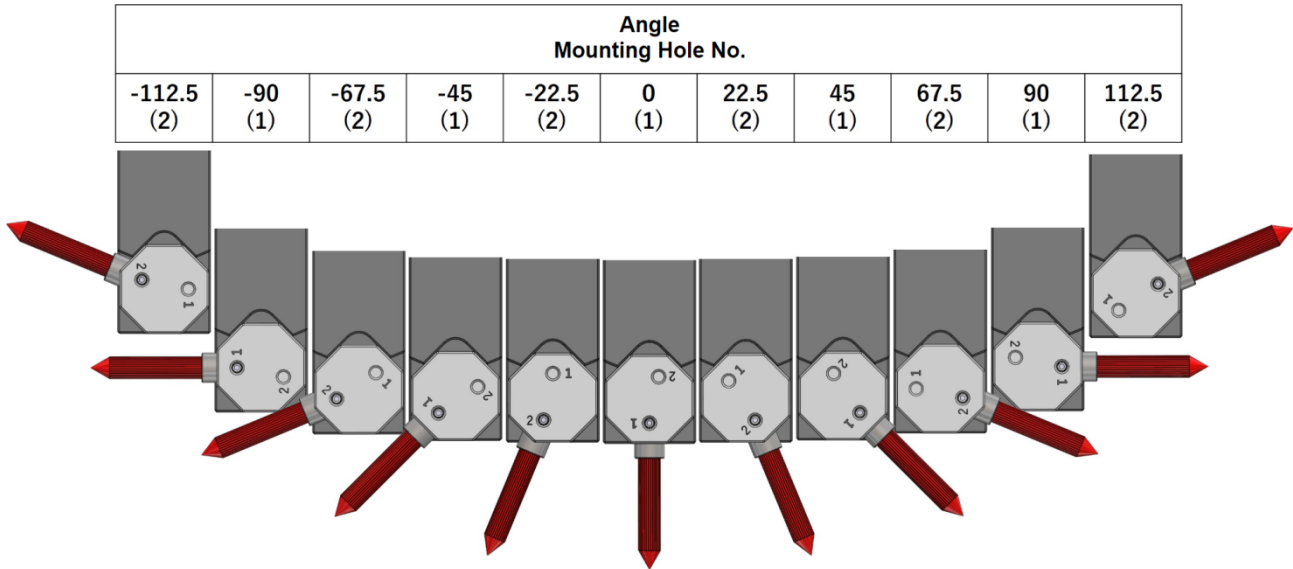
The Brush can be indexed in **11 different positions** as shown below.  
The Brush angle is determined by the Brush mounting position and the mounting orientation of of the head.  
Refer to the figure below to set the Brush angle.

### Brush Mounting Hole

There are two brush mounting holes on the head. They are numbered 1 and 2.



### Mounting Hole / Head Orientation



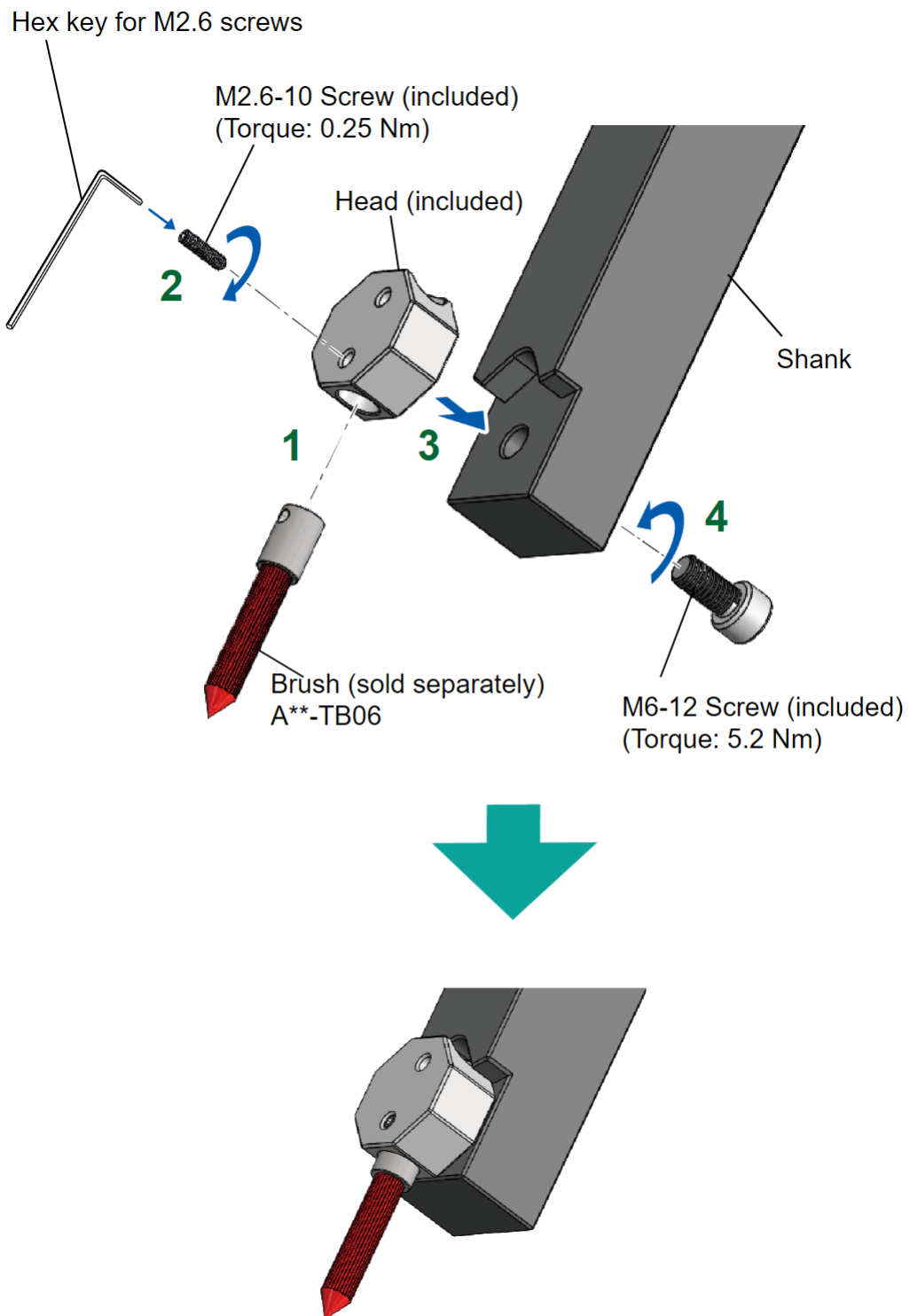
# How to Assemble



Set the Brush angle before assembling. ► [How to Set the Brush Angle](#) (P.11)

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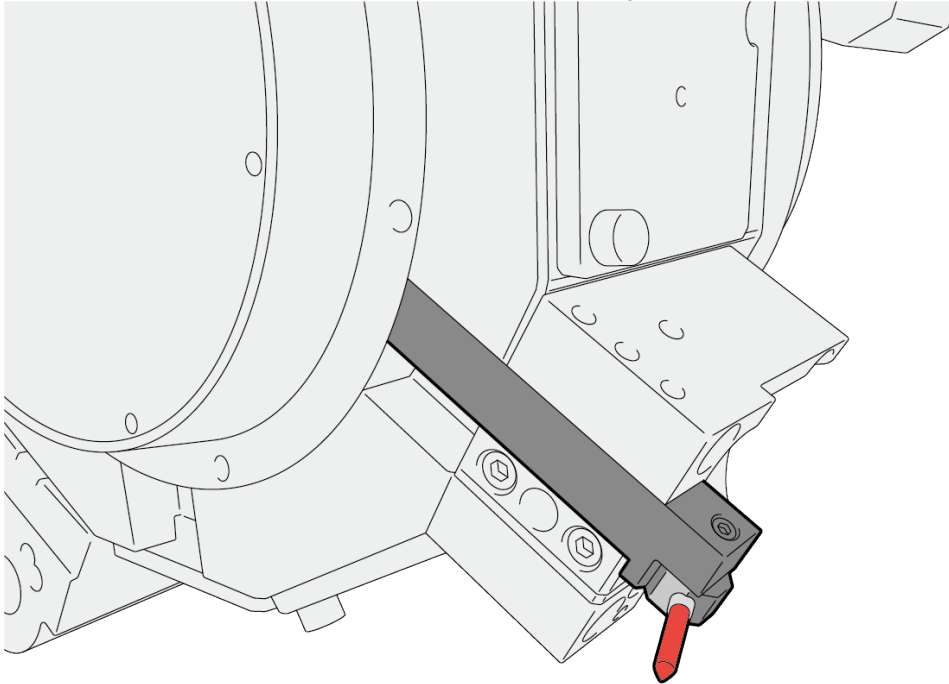
- 1 Insert the Brush A\*\*-TB06 (sold separately) into the mounting hole of the Head (included with this product).  
(The mounting hole numbers correspond to different Brush angles. Insert the tool into the mounting hole corresponding to the desired Brush angle.)
- 2 Fasten the Brush to the head using the M2.6-10 screw with the Hex Key to 0.25 Nm.
- 3 Mount the head to the shank in the desired orientation.
- 4 Fasten the Head to the shank using the M6-12 screw to 5.2 Nm.



# Installation Example on a Turning Machine

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The figure below shows how this product is installed on a turning machine. Refer to the instruction manual of the machine when setting up this product.



# Machining Parameters

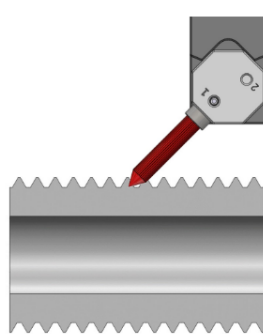
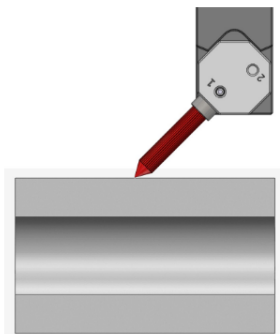
	Standard machining parameters	Starting machining parameters
Cutting speed (m/min)	60 - 250	150
Feed per revolution (mm/rev)	0.1 - 0.5	0.3
Depth of cut (mm)	0.5 - 2.0	For continuous surface: 1.0 For intermittent surface: 0.5



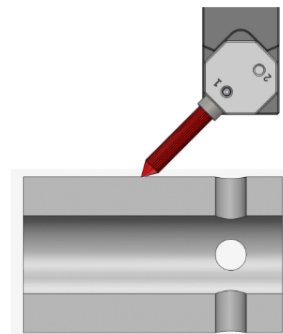
Maximum depth of cut varies depending on the Brush angle ([Maximum Depth of Cut \(P.18\)](#)).  
Do not exceed the maximum depth of cut specified for the Brush angle in use

When using the product on an intermittent surface, the maximum depth of cut is 0.5 mm. The figure below shows examples of continuous and intermittent surfaces.

## Continuous Surface

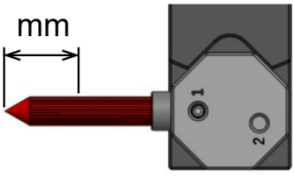
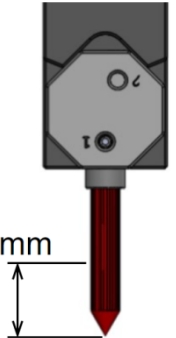
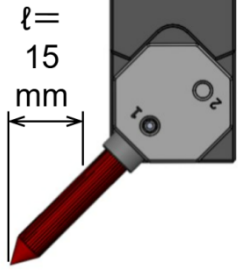
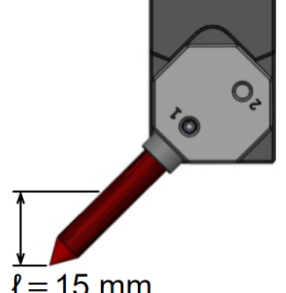
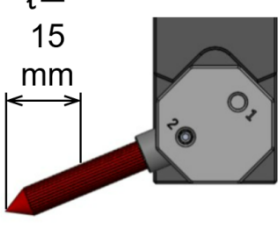
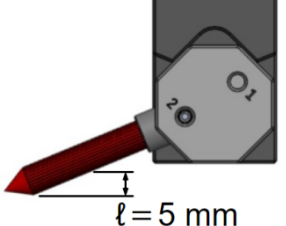
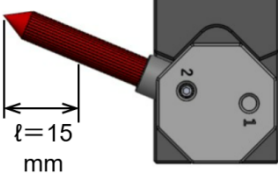
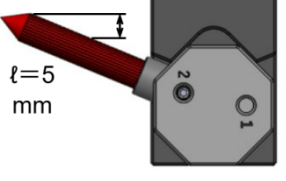


## Intermittent Surface



The holder will collide with the workpiece and the tool may be damaged if the Brush is used when shorter than the usable bristle height ( $\ell$ ).

Always refer to the chart below to determine the correct usable bristle height ( $\ell$ ) for the Brush angle used and the type of machining.

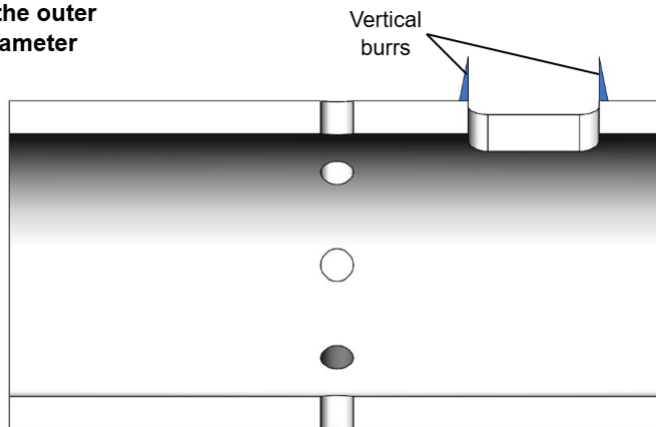
Brush Angle	Usable Bristle Lengths ( $\ell$ ) by Workpiece Area	
	End Face	Outer Diameter
90°/0°	$\ell = 15$ mm 	 $\ell = 15$ mm
22.5°	<b>NoImage</b>	<b>NoImage</b>
45°	$\ell = 15$ mm 	 $\ell = 15$ mm
67.5°	$\ell = 15$ mm 	 $\ell = 5$ mm
112.5°	 $\ell = 15$ mm	 $\ell = 5$ mm



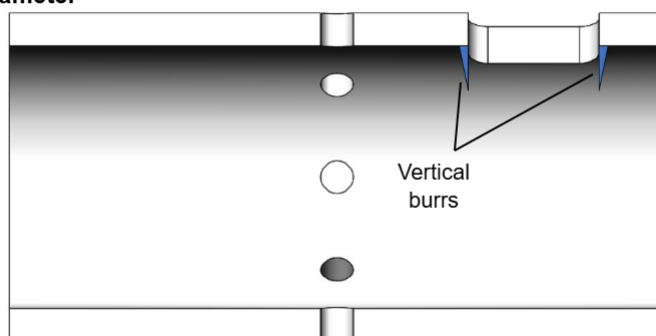


- The direction of workpiece rotation may affect how burrs are removed. Rotate the workpiece in CW (clockwise) and CCW (counterclockwise) directions as needed.
- Minimize burr size as much as possible before using the product. If burrs are too large, tool wear will be accelerated and the tool life shortened.
- As shown in the figure below, burrs are more easily removed when they protrude vertically from the workpiece surface.

#### Vertical burrs on the outer diameter



#### Vertical burrs on the inner diameter



- If burrs remain, try:
  - Decreasing the feed per revolution
  - Increasing the number of passes

## Maximum Depth of Cut

Max depth of cut varies depending on the Brush angle.



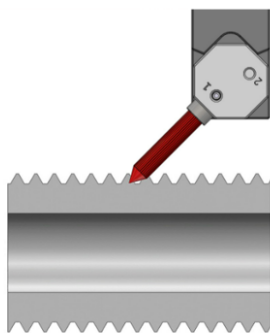
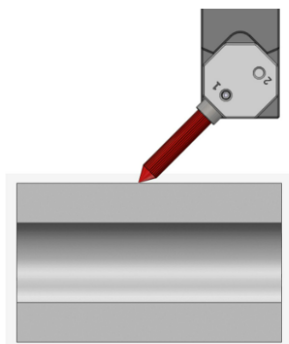
Consider the burr root thickness when adjusting the depth of cut (burr root thickness must be 0.1 mm or less). Burr root thickness adds to the depth of cut, which may cause the maximum depth of cut to be exceeded, and the Brush breaking.

When using the product on an intermittent surface, the maximum depth of cut is 0.5 mm. The figure below shows examples of continuous and intermittent surfaces.

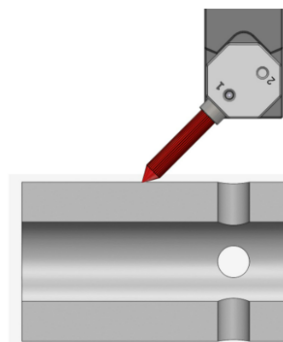
**Continuous Surface**

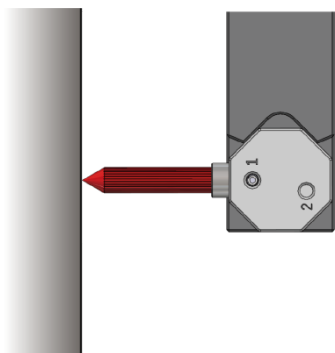
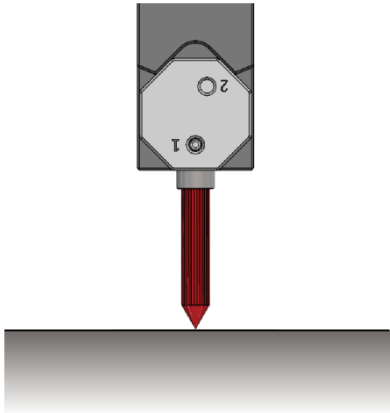


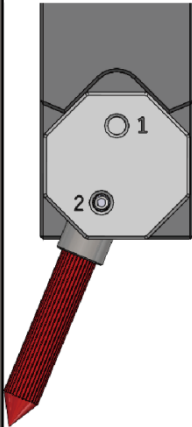
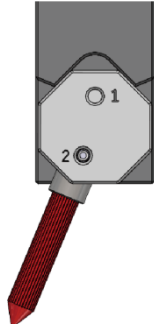
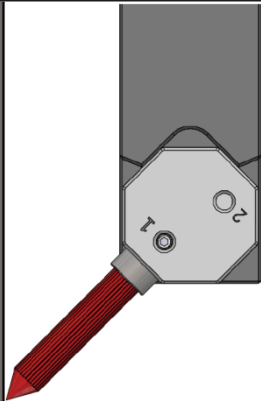
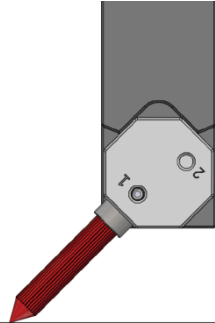
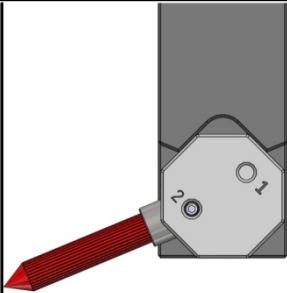
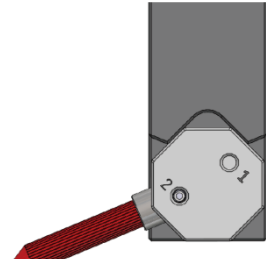
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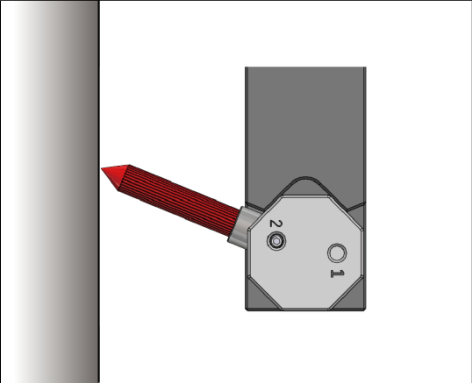
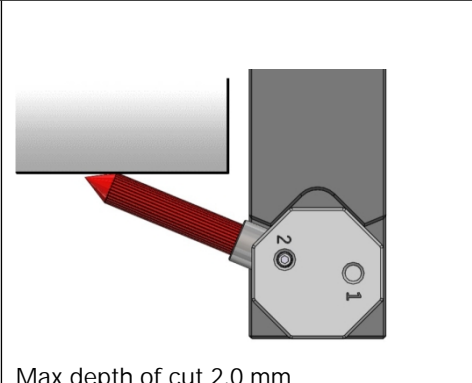


**Intermittent Surface**



Brush Angle	Workpiece Area	
	End Face	Outer Diameter
90°/0°	 <p>Max depth of cut 0.5 mm</p>	 <p>Max depth of cut 0.5 mm</p>

Brush Angle	Workpiece Area	
	End Face	Outer Diameter
22.5°	 <p>Max depth of cut 2.0 mm</p>	 <p>Max depth of cut 1.0 mm</p>
45°	 <p>Max depth of cut 1.5 mm</p>	 <p>Max depth of cut 1.5 mm</p>
67.5°	 <p>Max depth of cut 1.0 mm</p>	 <p>Max depth of cut 2.0 mm</p>

Brush Angle	Workpiece Area	
	End Face	Outer Diameter
112.5°	 <p>Max depth of cut 1.0 mm</p>	 <p>Max depth of cut 2.0 mm</p>

# How to Use



Using this product in the forward feed direction may damage the bristles, resulting in operator injury or loss of sight.

Mount the product securely on the CNC lathe. Use it on a rotating workpiece in a reverse feed direction as shown in the video below.

## Usage Examples

Mount the product securely on the turning machine. Apply it to the rotating workpiece, so that it engages with the surface in the direction as shown in the figures below.

Brush Angle (Brush Mounting Hole No.)	Target Deburring Area	Direction of Tool Travel (→)
45° (No.1)	Outer diameter	
45° (No.1)	External Thread	

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August 2025

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