

# XEBEC Brush™ Wheel Type Instruction Manual

Read this instruction manual before using this product. Failure to do so can result in serious injury or death. This instruction manual must be kept in the vicinity of the machine at all times so that it is accessible to the operator.

## SAFETY PRECAUTIONS

Be sure to observe the contents of this manual. Using the product in a way that is not consistent with the contents of this manual may result in serious injury or death.

### WARNING

- There is the risk of operator loss of sight or injury resulting from this product detaching from the processing equipments, bristles breaking off, workpieces breaking, etc.
- Fragments, cutting particles, burrs, etc., occur due to processing with this product, and these can pierce the eyes or skin of workers causing loss of sight and injury.
- Dust occurring as a result of processing with this product can cause lung damage, irritate skin, and bring on allergic reactions.
- Even if there is no problem at the pre-work check, if vibration or other abnormality occurs during use, discontinue use immediately. Continuing to use the product when there is an abnormality presents the risk of operator loss of sight or injury resulting from this product detaching from the processing equipments, bristles breaking off, workpieces breaking, etc.
- If either the rotational speed or depth of cut exceeds the maximum, there is the risk of operator loss of sight or injury resulting from this product detaching from the processing equipments, bristles breaking off, workpieces breaking, etc.
- Machining at a constant point for a prolonged time causes the brush to become hot which presents the risk of operator loss of sight or injury resulting from bristles coming loose or breaking off. Adjust the processing times on locations being processed so that it does not become hot. Also be careful not to touch the locations being processed directly with bare hands after use.

### NOTICE

As a result of the above, there is also the risk of damage to machines, jigs, and workpieces.



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## Operator Safety Protection

### ▲ Use of protective equipment

Wear personal protective gear including goggles, masks, gloves, and earmuffs to prevent loss of sight, injury, or lung damage caused by damaged parts flying off the product. Wear clothing with long sleeves or other clothing that does not expose the skin, and fasten the cuffs and hems tightly. (Also wear personal protective equipment when using the brush in a machining center, etc.)

### ▲ Attention to the work area

- Install an enclosure so that persons other than the operator do not enter the work area, and ensure that all persons, if any, in the work area are wearing protective equipment.
- Keep the floor of the work area clean at all times to prevent the risk of slipping or tripping on dust, cutting particles, oil, water, or other substance.
- There is the risk of fire caused by heating, sparks, or other factor resulting from use of the product. Do not use the product close to a flammable liquid or in an explosive atmosphere. Also be sure to enact fire prevention measures.

### ▲ Precaution regarding cutting particles

Fragments, cutting particles, and other substances generated during work will be scattered into the surrounding area. Be sure to use a dust collector or other means to collect them.

## Pre-Work Check

Perform test operation for 1 minute or more before starting work, and for 3 minutes or more after the machine tool or product was changed, and check that there is no looseness, vibration, or other abnormality of the machine and the part where the product is installed.

## Precautions for Use

### Installation onto a machining center or other machine

- When the product is used with precision machining equipment, there is the risk that cutting particles may have an adverse effect on the equipment sliding parts. Be sure to properly collect cutting particles and wash thoroughly.

### ▲ WARNING: Ensure that the shank is attached to the brush main unit properly.

Machining while they are not attached properly presents the risk of damage to machining equipment, jigs, and workpieces and operator loss of sight or injury resulting from the brush detaching, breaking or fracturing, or bristles breaking off or fracturing.

### ▲ WARNING: When installing the main unit onto machining equipment, insert the shank by 30mm or more and chuck firmly.

Machining while the chucking allowance of the shank is less than 30 mm or when chucking is not done properly presents the risk of damage to machining equipment, jigs, and workpieces and operator loss of sight or injury resulting from the shank detaching, breaking or fracturing.

- Use only the dedicated shank.
- When installing, use a chuck that is correct for the shank diameter.
- Use only the dedicated fastening screw to attach the shank.

This document can also be viewed at the following website.  
<http://www.xebec-tech.com/>

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## Features

- CNC deburring can be achieved by installing onto a machining center, robot, drilling machine, or other machining equipment.
- The tip of the bristle removes burrs and finishes the edges. After cutting process, this product removes burrs with the burr root thickness of 0.1mm or less.
- The original brush material (ceramic fibers) enables consistent deburring and polishing capability without changes to the cutting performance or brush shape.
- The product can be used for both dry and wet machining.

## Attaching the Shank to the Brush Main Unit

1. Match the end of the dedicated shank with the hole in the brush main unit, then push the dedicated shank to the very back of the hole.
2. Use the fastening screw (included) to fasten the brush main unit and the dedicated shank.
  - Tightening torque: 1.5 N m
  - Use a hexagonal wrench (optional) to tighten the fastening screw.
  - Damage to the brush main unit may result if it is tightened too much.

## How to Use

Use on machining equipment that can control the rotational speed and the depth of cut.

### Maximums for processing conditions

Product code	Cutting speed (m/min)	Feed per bundle (mm/bundle)	Depth of cut (mm)	Rotational speed (min <sup>-1</sup> )
W-A11-50 / W-A11-75	350	1.5	0.5	3000

### Initial processing conditions

- Initially, use with the initial processing conditions shown in the table below.
- If burrs are not removed, adjust the processing conditions, keeping them under the maximums.

Product code	Cutting speed (m/min)	Rotational speed (min <sup>-1</sup> )	Feed per bundle (mm/bundle)	Depth of cut (mm)	Feed speed (mm/min)
W-A11-50	250	1600	0.5	0.2	4800
W-A11-75	250	1000	0.5	0.2	3000

### Appropriate rotational speed, depth of cut

- The product is most effective when machining with the tip of the bristle. The depth of cut should be 0.2 mm as a guide and set the maximum to 0.5 mm.
- If used with an excessive rotational speed or depth of cut, there will be significant progress of wear and breakage of the bristles, resulting in shorter brush life.
- As the length of the bristle becomes shorter as a result of use, bristle stiffness increases and this means that bristles can break easier, and furthermore, there is a tendency for grinding power to rise and conformability to decrease. Adjust the grinding power and conformability by reducing the rotational speed and the depth of cut.
- The length of the bristles will shorten with use, so maintain a constant depth of cut with the tool radius compensation.

### Appropriate feed per bundle

- If burrs are not removed, reduce the feed per bundle by 10% to 20% at a time.
- To increase the tool life, increase the feed per bundle by 10% to 20% at a time.

### Truing, dressing

If the brush shape deforms as a result of use, correct the shape by gently pressing the brush tip onto a diamond disc blade while rotating the brush.

## Product Specifications

### Brush main unit

Product code	Brush diameter (mm)	Bundle count	Bristle (Color)
W-A11-50	Φ50	6	A11 (Red)
W-A11-75	Φ75	6	

### Dedicated shank

Product code	Shank length (mm)	Shank diameter (mm)
W-SH-M	70	8
W-SH-L	150	12