XEBEC Stone™ Flexible Shaft Disk 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 apparatus, failure or detaching of the grindstone part, workpieces breaking, etc.
- Fragments, grinding 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 apparatus, failure or detaching of the grindstone part, workpieces breaking, etc.
- Machining at a constant point for a prolonged time causes the tip of the tool to become hot which presents the risk of operator loss of sight or injury resulting from failure or detaching of the grindstone part. 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.
- Use the tool suitable to the hole diameter. There is the risk of operator loss of sight or injury resulting from this product detaching from the processing apparatus, failure or detaching of the grindstone part, parts breaking, etc., if a tool not suitable to the hole diameter is used, such as if the grindstone diameter is too small, etc.
- If either the cutting load setting or rotational speed exceeds the maximum (cutting load setting is 4N), there is the risk of operator loss of sight or injury resulting from this product detaching from the machining apparatus, failure or detaching of the grindstone part, parts breaking, etc.
- Use the tool only in the forward rotation (clockwise viewed from the top of the grindstone). If the tool is used in the reverse rotation, there is the risk of operator loss of sight or injury resulting from failure or detaching of the grindstone part, parts breaking, etc.

NOTICE Furthermore, as a result of the situations described above, there is also the risk of damage to machining tools, jigs, and workpieces.

Operator Safety Protection

⚠ Use of protective equipment

Be sure to wear personal protective gear including goggles, masks, gloves, and earmuffs to prevent injuries common during machining. Wear clothing with long sleeves or other clothing that does not expose the skin, and fasten the cuffs and hems tightly.

⚠ 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.
- In particular be careful that children do not enter the work area.
- 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 grinding particles

Fragments, grinding 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 is changed, and check that there is no looseness, vibration, or other abnormality of the machine and the part where the product is installed.
If any abnormality occurs, replace the dedicated shaft.
Replacement time : Replace the shaft when it has been used for a total of 300 hours with a cutting load of 1N.

Precautions for Use

Installation onto processing equipment and rotary tools

⚠ WARNING: When installing onto processing equipment, grip the tool shank by 30mm or more. If gripped with a grip length other than the specified one, this product may fall from the processing equipment due to vibrations during the machining. There is the risk that this may cause operator loss of sight or injury.

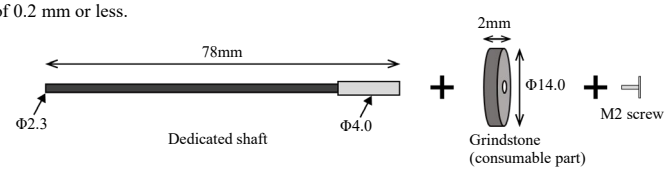
- When used in a machining center, etc., abrasive material and cutting particles that occur during work can fly into the sliding parts of the device. Use a dust collector, etc., to collect dust and make sure the device is clean. If the dust is not collected properly and the device is not clean while the device is being used, there is a possibility that abrasive material and cutting particles from this product can have an adverse effect on the machine tool.
- When installing, use a chuck that is correct for the shank diameter.
- Install and use on processing equipment that can control the rotational speed and the depth of cut.
- This tool cannot be used with a pneumatic rotary tool.

Features

- Separating the shaft and the grindstone improved cost performance while taking advantage of the features of the conventional XEBEC stone™ flexible shaft. It is suitable for deburring of grooves and deep holes.
- Since the entire surface of the grindstone has grinding capability, deburring and polishing can be performed using any part of the grindstone, such as the circumferential surface, front surface, and back surface.
- A long shank and disk-shaped grindstone of this tool enabled deburring grooves in deep holes. Since this tool has a soft contact with the workpiece and the grindstone does not easily bounce, it does not inadvertently damage any part other than the deburring points.

How to Use

This product is optimal for removal of post-machining fine burrs with a burr root thickness of 0.2 mm or less.



Components
- Grindstone : Φ14.0×2.0t, equivalent to #220
- Shaft : 78mm (full length)
- Mounting screw : low head M2 screw [mounting torque 0.3Nm (recommended)]

Cutting load setting

- A guideline is 1 to 2N (100 to 200gf, bending displacement 0.1 to 0.2mm), an amount which produces gentle cutting contact with the workpiece.
- Use with a cutting load on the workpiece of 4 N (400gf, bending displacement 0.5 mm) or less.

Conditions for use

- Rotational speed : MAX 5000min^{-1}
- Processing load : MAX 4N (approx. 400gf), depth of cut MAX 0.5mm
- Direction of rotation : Use only in the forward rotation (clockwise viewed from the top of the grindstone).

Grindstone

Grit size (color)	Product code	Head diameter × thickness (mm)	Maximum rotational speed (min^{-1})
Equivalent to #220 (gray)	CH-PM-14D	Φ14 × 2	5000

Dedicated shaft

Product code	Shank diameter (mm)	Full length (mm)	Mounting screw	Maximum rotational speed (min^{-1})
CH-D-SH	Φ2.3	78	M2 × 6	5000

Dry and wet machining

This tool can be used for both dry and wet machining, however wet machining prevents clogging and improves machining efficiency

Truing, dressing

If the grindstone shape became deformed as a result of use, rotate the tool while gently pressing the head part onto a diamond disc blade to correct the shape.

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