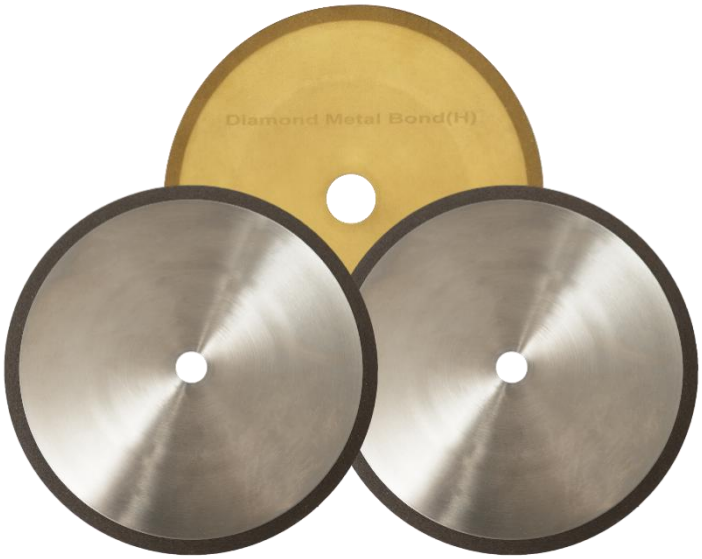
Diamond Wafering Blades



一、Introduction

Diamond wafering blades can be used to cut highly hard and brittle materials, and are widely used for cutting materials such as ceramics, glass, gemstones, semiconductors , circuit boards (PCB) and so on. Diamond saw blades consist of two main parts: the matrix and the cutter head. The matrix is the main support part of the bonded the cutter head, while the cutter head is the part that cuts in the process of use, the cutter head will be consumed in use, while the matrix will not, the reason why the cutter head can play a role in cutting is because of the diamond contained in it, diamond, as the hardest substance, which is friction in the cutter head to cut the processed object, and diamond particles are wrapped by the inlaid material in the internal of the cutter head.

Diamond particles can be bonded by sintered, welded or electroplated type; the bonding material can be metal-based or resin-based; diamond particles of different sizes and concentrations can be wrapped in the bonding material to obtain the required cutting performance. Different parameters of diamond wafering blades are suitable for different materials, and the specially developed diamond wafering blades have excellent cutting effect for the corresponding materials.

According to the different materials of metallographic specimens, our company has developed a series of metallographic diamond wafering blades which are specially adapted for metallographic cutting.Various

specifications are complete, suitable for metallographic sample cutting machines of various models and specifications at home and abroad. It can fully replace similar products of professional foreign companies.

All cutting blades are made with excellent workmanship and specially selected diamond abrasives, which allow a large linear speed, more than 50 m/s, and are not brittle; Sharp cutting, minimal cutting heat, and shallow heat-affected layer of the sample minimize interference and provide the perfect prerequisite for the next step in metallographic sample preparation.

二、Technical parameter

Series	Material	Scope of application	Specification
DP	Metal-based, Nickel-diamond plated edges	PCB、plastic、fiber composites resin、soft non-ferrous metals	100*12.7*0.4 125*12.7*0.4 150*12.7*0.5 180*12.7*0.8 200*22.0*1.0 250*32.0*1.5 300*32*2.0
DR	Resin-based	Hard and brittle materials，ceramics、composites、carbides and exotic metals	
DM	Metal-based	Hard and brittle materials，glass、ceramics、stone	
CBN-R	Resin-based	Hard ferrous metal，high speeds	
CBN-M	Metal-based	Hard steel、cobalt alloy、nickel alloy、lead alloy，lower speeds	

三、Instructions

1. Installation

(1) Select the appropriate diamond wafering blades according to the material, hardness, etc. of the material to be cut before use；

(2) Use a flanged with a diameter of not less than 1/4 of the blades diameter to compress the diamond wafering blade，Make sure there is a tight fit between the contact surfaces, screw in the screw, and tighten the screw with the ejector pin and wrench.Adjust the coolant spout to ensure that the cutting blade and workpiece are effectively cooled during cutting.

(3) The runout value of the saw blade and flange must reach the specified value after installation before use.

2. Unload

Use the ejector rod and wrench to loosen the screw, then unscrew the screw, remove the flange carefully remove the blade along the middle seam of the fixture, and store it properly.

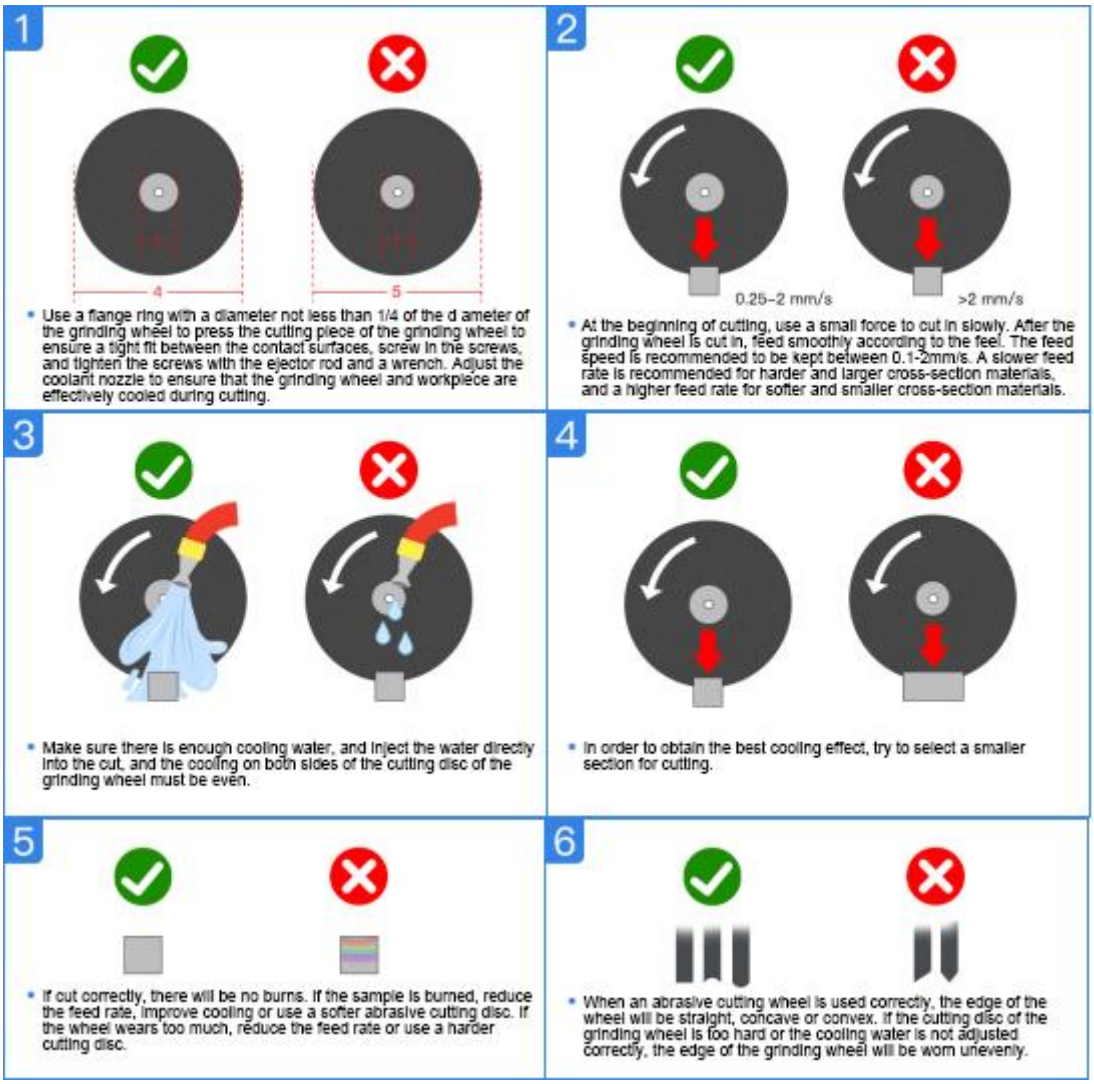
3. Use

(1) At the beginning of cutting, use a small force to cut in slowly, and after the blade is cut in, feed it smoothly according to the feel, and the feed rate is recommended to be between 0.1~2mm/s. A slower feed rate is recommended for harder and larger cross-section materials, and a higher feed rate for softer and smaller cross-section materials.

(2) Make sure you have enough cooling water and inject the water directly into the cut. Cooling must be uniform on both sides of the wheel cutting disc.

(3) In order to obtain the best cooling effect, try to choose a smaller section for cutting.

(4) If cut correctly, there will be no burn. If the sample is burnt, reduce the feed rate, improve cooling system. If the blade wears too much, reduce the feed rate or rpm.



四、Precautions

1. Before working, you must wear labor protection equipment and check whether the equipment has a qualified grounding wire.

2. To check and confirm whether the grinding wheel cutting machine is intact and whether the grinding wheel piece has deformation, cracks, chipping and other defects, and prohibit the use of diseased equipment and unqualified grinding wheel pieces.

3. The blade is only allowed to be installed and used in one piece, and it is strictly forbidden to install and use two or more pieces at the same time.

4. When cutting materials, do not use excessive force or sudden impact, and turn off the power immediately when there is an abnormal situation.

5、When working, if you find abnormal sound and vibration, roughness of the cutting surface, or odor, you must immediately terminate the operation, timely inspection, troubleshooting to avoid accidents.

6、When replacing the blade, wait for the equipment to stop stably, and check the blade.

7、Note that diamond abrasive cutting discs should not be used to cut steel materials, but should be replaced by cutting discs using cubic boron nitride (CBN) abrasives.

8、To choose a suitable cutting blade according to the cut sample, you can choose according to the products provided above.

9、Store diamond wafering blades in a place out of direct sunlight and moisture, and in a horizontal position。

10、Diamond wafering blade should be installed as required, and the test start operation should be smooth before starting to work

11、The workpiece must be clamped to avoid loosening, otherwise it will cause the vibration of the cutting blade during cutting, and the partial instantaneous force of the cutting blade will exceed its bearing limit and an explosion accident will occur。

12、It is strictly forbidden to sand objects on the cutting blade

13、The clamping device should be safe and reliable to prevent accidents when the workpiece is loose.

14、When cutting, the operator should cut evenly and avoid the front of the cutting blade to prevent accidents due to improper operation of the cutting blade.

五、Common usage problems and solutions

Common Problem	Possible Reason	Corresponding Solution
Saw blade deflection	1、Uneven force on both sides of the cutting blade caused by the debris of the material to be cut being intermingled in the cutting seam.	1、Ensure good coolant flushing, use pulse cutting mode.
	2、The flange diameter is too small or both sides of the flange diameter is not consistent.	2、Adjust or replace the flange.
	3、Foreign matter trapped between saw blade and flange, not properly installed.	3、Clean up foreign objects and install correctly according to instructions.
Uneven wear on both sides of the cutter head	1、Saw blade tilt.	1、Install correctly and correct saw blade tilt.
	2、The amount of water is not the same on both sides of the saw blade.	2、Check the cooling water system.
Dull, cutting without moving	1、Cutting blade bond is too hard.	1、Select a cutting blade with a softer bond.
	2、Diamond particles are too fine concentration is too high.	2、Select cutting blades with larger grit size and lower diamond concentration.
	3、Incorrectly matched cutting blade and material, e.g., using a diamond abrasive cutting blade to cut steel materials.	3、Select the correct diamond cutting blades and avoid diamond abrasive blades for steel materials.
Lots of burrs after cutting	1，Cutting speed is too fast	1、Reduce cutting speed
Vibration of the blade	1、The balance of the blade is not good	1、Please replace the cutting blade.
	2、Improper maintenance of the cutter (e.g. excessive bearing wear)	2、Replace the bearings
	3、Improper clamping of the cutting blade, resulting in the blade not being mounted at the center.	3、Check the cutter bearings, and check operation after the cutting blade is clamped.
Workpiece Skewing	1、The flatness of the cutting blade is out of specification and there is deflection when rotating.	1、Replace the cutting blade with one that has a satisfactory flatness.
	2、Uneven grinding force on both sides of the cutting blade.	2、Cutting coolant is sprayed evenly on both sides of the cutting blade.

六、Storage method

1、Diamond saw blades, if not used immediately, should be placed flat or use the inner hole to hang it up, flat diamond saw blades can not be stacked on other items or footsteps, and pay attention to moisture, rust and corrosion.

2、Do not touch the cutter head of the diamond saw blade with your hand, because the manufacturer usually sprays a layer of antirust paint on the cutter head, and if you touch it with your hand, it is easy to make the antirust paint flake off, which will make the cutter head of the diamond saw blade be exposed to the air and oxidize, which will lead to rust, affecting the appearance of the diamond saw blade.

3、When the diamond saw blade is no longer sharp and the cutting surface is rough, it must be resharpened in time. Sharpening can not change the original angle, and destroy the dynamic balance.

4、 Take and put the diamond cutting blade must not impact, fall, because this may make the cutting blade deformation and thus scrapped, especially the resin-based diamond cutting blade, its to the head is very easy to break.