

Abrasive Wheel Mounting from A Different Point of VIEW

Imagine you had a fine chinaware (ceramic) dinner plate with a hole in the center. Now take this ceramic plate and mount it on a high speed grinding machine. What are some of the issues which could cause this porcelain or ceramic plate to break? Below is a list of items to consider if you want to avoid breaking this chinaware (ceramic) dinner plate.

1.Receiving – If this chinaware (ceramic) dinner plate was shipped to your location, you would carefully inspect it and its package before you accepted it. If the plate or its package was damaged, you would refuse the shipment and return it.

2.Storage – You would store this chinaware (ceramic) dinner plate with the greatest care so that it would not be damaged. You may store it inside a cabinet, and even use cardboard or other similar materials between the plates to keep them from chipping, cracking or other such damage.

3.Handling – You would handle it with great care. You would not roll it, drop it, or abuse it in any other possible manner. If you accidentally bumped it, you would carefully inspect it for damage and may discard it.

4.Inspection – Before mounting on the high speed machine, you would carefully inspect it. Since it is glass, you would “ring test” it.

5.Speed – If the chinaware (ceramic) dinner plate had a maximum operating speed (MOS) written on it, you would make certain that the machine’s speed NEVER exceed the speed of the plate. You would not want to over stress this ceramic dinner plate.

6.Machine Spindle size – The spindle must be the correct size. If the spindle is too large it will take a pushing force to get the chinaware dinner plate onto the spindle. This extra force could damage the plate. If the spindle expands, the chinaware (ceramic) dinner plate will break. If you strike or bend the chinaware dinner plate to force it to fit, you will break it. If the spindle is too small, the chinaware (ceramic) dinner plate will be loose on the spindle and may move when pressure is applied to its outer edge. The spindle cannot be too big or too small!

7.Machine Spindle condition – In order to get the perfect clearance between the hole in the chinaware dinner plate and the machine spindle, the spindle must be clean and free of any foreign materials. Anything that would interfere with the proper fit of the hole in the plate must be removed.

8. Blotters – You are placing (mounting) a chinaware dinner plate between steel flanges, so you will want to protect that ceramic plate. The use of blotters (cushion material) is needed. They help to protect the sides of the plate. Forgetting to use the blotters, may cause the plate to

break. Never reuse old blotters and make sure they are big enough to cover the mounting flange.

9. Mounting Flanges – chinaware (ceramic) dinner plates cannot take bending, uneven pressure, or excessive stress at the hole. Therefore, the flanges must be large enough, matched, relieved, clean, and flat. There is very little room for error!

10. Flange Tightening – The flanges must be tightened evenly and using the correct amount of torque. Too little torque and the plate will slip and too much torque and you will crack the plate. Tighten the flange screws down evenly, hand tighten in a crisscross manner before they are torqued down. The flange pressure must be introduced to the side of the plate evenly, if you cock the flange, you may crack the dinner (ceramic) plate.

11. Machine Start-up – Since you are dealing with a chinaware (ceramic) dinner plate, you will want to allow the plate to run at full operating speed for one full minute before using. Do not allow anyone to stand in front of or in line with the plate during this test.

12. Impact during dressing or grinding – If you were to dress or “true” this chinaware (ceramic) plate, you would avoid bumping or impacting the plate. Know the “high” spot on the plate and avoid accidental impact. Use light contact when you “touch off” or make first contact with the ceramic plate. A sudden impact may crack and break the chinaware (ceramic) plate.

A glass bonded (vitrified) grinding wheel is not much different than a porcelain or ceramic plate. If you treat grinding wheels like you treat a chinaware dinner plate, you would greatly decrease the chance of an accidental wheel breakage. Grinding wheels can be very large and are very strong, but they are also very brittle!

When dealing with a grinding wheel, think of it as a large ceramic dinner plate. Handle and use it with great care and remember, as always play it safe at the wheel.