TBT 07-09-2025 Power Tools and Equipment - Mounting Abrasive Wheels

OSHA Training Toolbox Talk: Portable Tool and Equipment Safety – Mounting Abrasive Wheels [Reference 1910.243 / 1926.303]

Portable hand-held grinders are relatively small tools, but they can pack a lot of punch - especially if the abrasive wheel shatters when the grinder is running! But many common accidents can be avoided by following these steps when installing an abrasive wheel onto a portable grinder.

First, check the label on the abrasive wheel to make certain it is intended to be used on the type of material you will be using it on. There are some general-purpose wheels, but many are intended to be used only on specific types of materials, such as specific metals (like aluminum or carbon steel), masonry, or concrete. Also be aware that some abrasive wheels are designed only for grinding, while others are designed to be used for cutting. So only use the abrasive wheel for the purpose and material for which it is intended, or it could break or shatter.

Then check the diameter of the abrasive wheel, as well as its maximum rated speed, to make sure it is suitable for use with your grinder. The speed ratings for an abrasive wheel and for your grinder are usually expressed in revolutions per minute, or RPM’s. Placing an under-rated abrasive wheel on a grinder that turns faster than the rated speed of that wheel can cause it to break apart and send small pieces of the wheel flying! Also, make sure the arbor size (center hole) of your abrasive wheel is the right size for your grinder. If the arbor hole is too small and you must force it onto the grinder, the wheel could crack. And if the arbor hole is too large, the wheel could become unbalanced when you turn on your grinder and then break apart.

Next, check the wheel to see if it has any visible damage or breaks. You should also check for hidden cracks by “sounding” the abrasive wheel; this is also called a “ring test”. Balance the abrasive wheel on your finger, or even better, on a metal object such as the shaft of a screwdriver. Then strike the abrasive wheel with the wooden handle of a screwdriver on one side and listen for a “ringing” noise; this indicates that portion of the wheel is not cracked. But if you hear a dead “thud” sound, this means the wheel could be cracked and shouldn’t be used. Repeat this test by rotating the wheel a quarter turn and then sounding all areas of the wheel.

Finally, take care not to over-tighten the retaining ring that holds the abrasive wheel onto the grinder, as applying too much torque can cause the wheel to crack. And of course, also make certain the guard has been properly reinstalled on your grinder. And when you first use a portable

hand-held grinder with a new wheel installed, always position the grinder so that if you turn it on and the wheel happens to break, the particles will be deflected away from you.

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