



ABRASIVE WHEEL ADVICE: BENCH GRINDER WHEELS VITRIFIED

Rotating abrasive wheels for use on powered machinery are by their nature dangerous items and the risk of breakage is inherent in every wheel.

Abrasive wheels should be handled and used with extreme care before and during use. It is essential that the operator fully understands the correct methods of storing, handling, mounting and testing these products prior to use.

This information sheet is provided as a guide and is designed to help you use this form of abrasive product safely.

If an abrasive wheel has been purchased for personal use then it is your responsibility for its safe mounting and use, this applies to you and any other people in the immediate vicinity. If an abrasive wheel is supplied or you operate machinery using abrasive wheels as part of your employment you must be properly trained, as required under the PUWER Regulations and hold a certificate to do so.

Training -Regulation PUWER requires all persons using, supervising and managing work equipment to receive adequate training for the purposes of health and safety. HSG17 suggests the components that should be included in a training programme and recommends that a record of training be kept.

Full details of the PUWER regulation can be found at the following website.

<http://www.hse.gov.uk/work-equipment-machinery/puwer.htm>

Bench Grinder Wheels (Vitrified) Mounting and Testing Prior to use.

All abrasive cutting wheels must be mounted correctly and tested before first use. It is the operator's responsibility to ensure these wheels are fitted and tested in accordance to best practise as set out in the PUWER regulation.

ALWAYS

- Always handle and store vitrified grinding wheels with care. Vitrified/glass bonded products are very strong but also brittle.
- Always follow the manufacturer's recommendations when handling, grinding, maintaining and storing abrasive wheels.
- Always ensure you have the correct type and size wheel for the machine by checking the markings on both.
- Always check the machines speed against established safe operating speed marked on the wheel.
- Always carry out a visual check of the wheel for any sign of cracks or damage before mounting.
- Always carry out a 'Ring Test' in addition to any visual inspection of the wheel, before mounting on the grinder.

RING TEST:

The soundness of a wheel should always be checked before mounting to ensure their integrity. The 'Ring Test' is carried out in the following manner.

- 1) The wheel must be clean, dry and free of any contamination otherwise the sound will be deadened.
- 2) Suspend the wheel by putting a small pin or your finger through the centre arbor hole in the wheel.
- 3) Tap the flat side of the wheel with a light non-metallic implement, such as the handle of a screw driver, at a point 45 degrees from the vertical centre line on each side of the wheel and 1 to 2 inches from the edge of the wheel. A clear metallic ring should be emitted if the wheel is sound.
- 4) Rotate the wheel 45 degrees and repeat the test until the entire wheel has been checked.
- 5) The ring test depends on the fact that a crack in the wheel will normally change the sound emitted when the wheel is lightly tapped. An undamaged wheel will give a clear tone. If cracked, there will be a dead sound and not a clear ring.

Please note both visual and ring tests do not guarantee a wheels integrity and a safe start up and run test should always be performed before the wheels is use.

- Always use mounting blotters as supplied by the wheel manufacturer.
- Always inspect mounting flanges, these should be of equal size and a relief should be present around the wheel's hole. Flanges must be of the correct diameter and equal to or greater than one-third the wheel's diameter.
- Always use flanges that are in a good condition clean, flat, and smooth.
- Always ensure that any wheel bushing if used is fitted correctly, bushing should be slightly less than the width of the wheel and blotter as the power to drive the wheel must be transmitted through the flange assembly.
- Always make sure the bench grinder has the proper wheel guard. Bench grinder should have side guards that cover the spindle, end nut, and flanges and must cover 75% of the wheel's diameter.
- Always ensure all safety guards are correctly adjusted and in place
- Always make sure your bench grinders adjustable work rest is kept adjusted to 1/8 inch or less from the wheel's grinding face.
- Always make sure your bench grinder has an adjustable guard/spark arrestor and set it to 1/4 inch or less from the wheel's grinding face.
- Always check the wheel clearance by turning the wheel by hand ensuring it has free movement, before turning on the power after fitting.
- Always test a newly mounted wheel, allowing it to run at its operating speed for one minute before grinding.

DO NOT: stand in front of or in line with the grinder when it is first started or when the grinding wheel is rotating after a new wheel has been fitted. During the above first test, if the wheel is damaged in any way it will most likely break during the initial start up and running period. **If any undue vibrations occur, switch off the grinder immediately and remove the wheel.**

- Always keep your work area clean and free of anything that could accidentally strike or make contact with the grinding wheel.

- Always wear proper personal protection such as eye and face protection, apron, gloves, safety shoes, etc.
- Always keep your grinding wheel face open and free of metal build-up. Dress the wheel regularly with a wheel dresser to remove foreign metals and to open the wheel face to expose new sharp abrasive grains.

DO NOT

- **DO NOT** use wheels that have been dropped or been otherwise damaged or have not passed a "Ring Test".
- **DO NOT** force a wheel onto a grinder or alter the size of the wheel's mounting hole without using the correct bushes, get one that will fit properly.
- **DO NOT** exceed the speed marked on the grinding wheel.
- **DO NOT** use mounting flanges on which the bearing surfaces are not clean, flat, and smooth.
- **DO NOT** tighten the mounting nut excessively. Tighten the nut just enough to prevent wheel slippage.
- **DO NOT** start the machine until the safety guard is properly and securely in place.
- **DO NOT** Attempt to adjust the work rest or guard/spark arrestor while the grinding wheel is rotating.
- **DO NOT** stand in front of or in line with a grinding wheel whenever a bench grinding machine is started.
- **DO NOT** grind on the side of the wheel or jam the work into the wheel
- **DO NOT** grind material for which the wheel is not designed.
- **DO NOT** use this wheel if you have not reviewed all of the safety materials and have not been properly trained in the use of the tool and wheel.
- **DO NOT** wear loose clothing, dangling jewellery and make sure that loose hair is tied properly back.