



Safe Operating Procedures – Drills

Incorrect use of drills can cause serious injury.

Do not use unless you have been shown how to safely operate this power tool and all Safe Operating Procedures and Precautions are being followed.

REQUIRED PPE

- | | | |
|------------------------------|---------------------------------------|-----------------------------------|
| - Gloves | - Safety Eyewear or Face Shield | - Ear Muffs or Hearing Protection |
| - Safety Footwear | - Protective Clothing (Close Fitting) | - Contain long/loose hair |
| - Remove any rings/jewellery | - Dust Mask | |

Before using check....

- **Declutter the workspace.** Ensure you have a safe clear area in which to work free of trip hazards, obstacles, or other people.
- **Ensure sufficient lighting of work area.** A head torch works well to ensure there is sufficient lighting of the area where you are working to avoid eye strain and accidents due to poor light
- **Power cord, extension lead, socket.** Ensure all electrical leads/cords/sockets are safe for use and is connected through a RCD. Ensure drill has a current test tag
- **The right drill bit.** Do not use bits or attachments which wobble or vibrate. Ensure your drill bit is sharp, a blunt drill bit can mean you use excessive force. Make sure the bits are properly tightened in the drill chuck. Refer to attachment.
- **Disconnect Drill.** Always disconnect drill (remove battery if cordless) before changing or adjusting bit.
- **Tighten chuck.**
- **Overheating.** Keep air vents in the drill free of any dust or materials so that the drill motor is well ventilated and will not overheat.
- **Side Handle.** Ensure this is tightly screwed into the tool
- **Reduce pressure** on the drill just before breaking through the other side of the piece you are drilling.
- **Assembly.** Never use high speed drill bits without cooling or lubrication. Never use a hole saw without the centre pilot drill bit. Never reach under or around the workpiece while you are drilling.
- **Keep a proper footing and balance.**
- **Power Lock Switch.** Make sure that the lock switch is not engaged on the trigger. When the pressure is released the trigger needs to switch off to ensure that if the drill comes out of your hands it immediately stops.
- **Two hands.** Never drill with one hand while holding the job with the other.

Selecting a drill bit

Standard twist drill – Usually constructed out of high-speed steel (HSS). This type of drill is suited for use with steels and plastics. The smaller diameter drills are commonly used to drill fine holes in timber, such as pilot holes for screws. These drills are often reground to provide a sharper point.

Brad or spur bit - The recommended bit for drilling holes in timber, e.g. dowelling. Brad bits improve accuracy because they are easy to establish in the start position, will self-centre and do not wander when the drilling starts. The spurs will also scribe the timber around the outer edge of the hole ensuring a cleaner cut.

Auger bit - The screw point allows for an accurate start to drilling while the wide edge of the drill's twist helps to maintain direction, especially for deeper holes or holes at an angle. The open spiral allows the fast removal of shavings.

Flat or spade bit - These are commonly used to drill larger diameter holes. They are relatively inexpensive and quite versatile.

Forstner bits - Holes drilled with a forstner bit are clean, accurate and flat-bottomed. The drill is guided by its rim and can be used to bore half a hole, on the edge of a board, or overlapping holes.

These bits are unaffected by grain, knots or defects in the timber. A saw tooth bit, with a cutting edge and saw teeth around the rim, are useful for drilling end-grain and thin timber.

Countersink/counter bore set - These bits are used to drill a pilot hole and countersink, or counter bore hole, in one operation. The adjustable stop collar allows for variation in the depth of the hole.

Masonry - As the name suggests, these are designed for drilling into brick, block, stone, quarry tiles or concrete. The cutting tip is often made from tungsten carbide bonded to a spiralled steel shaft.

Masonry drills are usually used in a power drill; although they can be used with a lot of effort in a hand brace.

Most masonry bits can be used with a hammer action power drill, but always check as the action is quite punishing on the bit and cheaper bits have been known to shatter when subjected to the pounding. Always use a slow rotational speed for drilling into harder materials to avoid overheating the tip, and frequently withdraw the bit to remove dust.

Tile - A bit for drilling ceramic tiles and glass, it has a ground tungsten carbide tip. They can be used with a hand drill, but are best used in a variable speed power drill on a slow speed. When drilling, some form of lubricant should be used to keep the tip cool.

Ceramic tiles can also be drilled using a masonry bit if it is used at slow speed and without hammer action.

Safety when using

- **Familiarise yourself with the drill before turning on and pre-use checks have been done.** Make sure you are aware of exactly where power on/off switch is and that all pre-use safety checks/processes have been followed.
- **Make sure the pilot tip of the drill bit is in contact with the work piece before the switch is turned on.**
- **Hold the tool firmly at all times.** One hand firmly on the housing and the other on the side handle.
- **PPE.** Ensure all PPE used – refer PPE list at beginning of this Safe Use Guide
- **Keep hands away from rotating parts.**
- **Do not leave the tool running. Operate the tool only when hand-held**
- **Do not apply excessive force.** This could cause the drill bit to break and to lose your grip on the drill.
- **Do not touch the work piece immediately after operation; it may be extremely hot and could burn your skin.**
- **After using the tool ensure the drill rotation comes to a complete stop before setting the tool down. Setting the tool down with the drill rotating can cause personal injury or damage to other surfaces.**

Instruction Manual

DNA Electrical currently has 1x 240v drill allocated per van. Each drill should have a complete instruction manual inside the box with the drill.

Personal cordless drills are the responsibility of the owner.

See Drill Bit explanation sheet on following page.

Drill Bits

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Brad or spur bit - The recommended bit for drilling holes in timber, e.g. dowelling. Brad bits improve accuracy because they are easy to establish in the start position, will self-centre and do not wander when the drilling starts. The spurs will also scribe the timber around the outer edge of the hole ensuring a cleaner cut.



Combination auger bit: The screw point allows for an accurate start to drilling while the wide edge of this drill's twist helps to maintain direction, especially for deeper holes or holes at an angle. The open spiral allows the fast removal of shavings.



Flat or spade bit: These are commonly used to drill larger diameter holes. They are relatively inexpensive and quite versatile.



Forstner bits: Holes drilled with a forstner bit are clean, accurate and flat-bottomed. The drill is guided by its rim and can be used to bore half a hole, on the edge of a board, or overlapping holes. These bits are unaffected by grain, knots or defects in the timber. A saw tooth bit, with a cutting edge and saw teeth around the rim, are useful for drilling end-grain and thin timber.



Countersink/counter bore set: These bits are used to drill a pilot hole and countersink, or counter bore hole, in one operation. The adjustable stop collar allows for variation in the depth of the hole.



Hole saw: Used to drill holes through a range of thin materials, including plastics and steel. They can be purchased individually or in sets. Care must be taken to prevent them from overheating during use.



Maintenance

- Keep sharp and free from rust.
- Store separately in a rack or container.