

POWER TOOLS

This mobile revision pdf is based on detailed work found in the 'POWER TOOLS' section.

Tap on the green link button below to go to the complete website section



Tap the blue button to view equipment / processes covered by this Revision PDF



POWER TOOLS

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2. POWER SCREWDRIVERS

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4. SHEET SANDERS

5. PALM SANDERS

6. MACHINE / POWER ROUTERS

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10. THE ROTARY TOOL

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CORDED HAMMER DRILLS

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Corded drills are powered directly by plugging into the main electricity supply and this means that extra care must be taken regarding safety.

Corded drills usually have a front handle that can be fitted if required. It is strongly recommended that the front handle is fitted, as it provides extra support and makes it more likely that the drill will be used safely.

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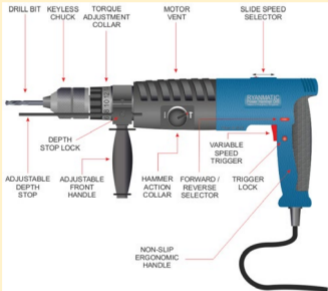


CORDED HAMMER DRILLS

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The parts of the corded power drill are identified below.

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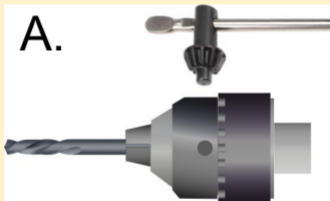


CORDED HAMMER DRILLS CHANGING DRILL BITS

V.Ryan © www.technologystudent.com 2019

A. Usually, the drill bit is changed by using a chuck key to loosen the chuck.

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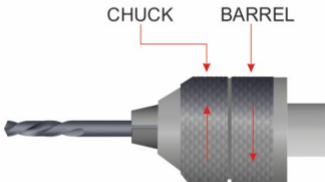


CORDED HAMMER DRILLS CHANGING DRILL BITS

V.Ryan © www.technologystudent.com 2019

B. Safety / self-locking chucks are very common. These do not need a chuck key and are used by simply turning the chuck and the barrel by hand.

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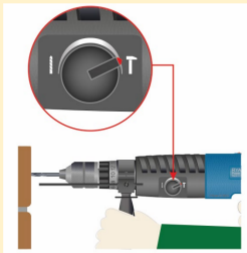


CORDED DRILLS HAMMER SETTING

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When drilling materials such as masonry and brick, the 'hammer' setting is switched on. When this setting is used, the drill bit rotates in a clockwise direction, but it is also driven backwards and forward, into the material.

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DRILL STANDS

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This drill stand is fine for light work, but for heavier work it is recommended that a Machine Drill / Bench Drill is used.

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DRILL BITS

V.Ryan © www.technologystudent.com 2019

Good quality drill bits are manufactured from High Speed Steel (HSS). This type of steel keeps its sharp edge for a long time and is capable of cutting through extremely resistant materials.

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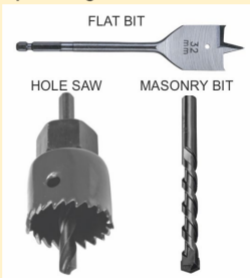


DRILL BITS

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Three more drill bits are shown below.
The hole saw is of particular use, if a large diameter hole is required.

Tap the image for more information



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MORE DRILL BITS

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Three more common drill bits are shown below. Each has its own function.

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PLUG CUTTER



FORSNER BIT



COUNTERSUNK BIT



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CORDLESS HAMMER DRILLS

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Cordless Drills are extremely popular because they are portable and yet powerful. A rechargeable battery (usually 12v to 18v) supplies the power and lasts for several hours, before recharging is necessary. They are safer than corded drills (no cord to trip over).

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CORDLESS HAMMER DRILLS

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A basic cordless drill is shown below. Even basic drills are provided with accessories. A rechargeable battery and charger are also included. The battery will need recharging every 1 to 2 hours of continuous use.

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SDS (SPECIAL DIRECT SYSTEM) DRILLS

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SDS Drills are extremely powerful. They have three basic functions - normal drilling, hammer action and chiselling. SDS Drills can hold large diameter drill bits, over the 13mm diameter limit of normal drills. However, SDS Drills are heavy and are unsuitable when working up a ladder.

Tap the image for more information

HEAVY DUTY DRILLING USING THE SDS DRILL



HEAVY DUTY CHISELLING USING THE SDS DRILL



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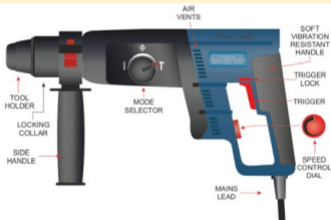


SDS (SPECIAL DIRECT SYSTEM) DRILLS

V.Ryan © www.technologystudent.com 2019

SDS Drills should not be used in one hand, it should be firmly supported by both hands, in order to take the weight. Adjustments to speed can be made by the speed control dial whilst 'hammer', 'normal' or 'chisel action' can be selected by altering the position of the lever at the top of the drill.

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POWER SCREWDRIVERS

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Everyone has used a manual screwdriver to turn a screw that refuses to move, or one that is very difficult to turn. The result is a sore or blistered hand. Power screwdrivers are the answer, especially if a large number of screws need to be fixed in position.

As a minimum, a battery charger and a number of screwdriver blades, will be part of the overall kit.

Tap the image for more information



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POWER SCREWDRIVERS

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Power Screwdrivers are usually variable speed and torque. The example below, has a speed control disc on the ON/OFF button. Pressing the **top** of the ON/OFF button turns the chuck and screwdriver blade in a clockwise direction. Alternatively, pressing the **bottom** of the ON/OFF button turns the chuck in an anti-clockwise direction.

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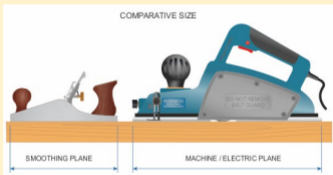


MACHINE / POWER PLANERS

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When the width or thickness of a piece of wood needs reducing by a small amount, a plane is normally used. If a large amount of wood needs removing or the piece is very long, using a smoothing plane or jack plane is time consuming. Another option is to use a machine plane. These are relatively cheap and save time and effort.

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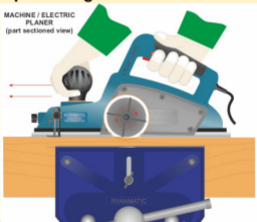


MACHINE / POWER PLANERS

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The machine plane seen below has cutters that revolve at 1800 rpm. It has four cutters mounted on a rotating drum. Always hold the plane with two hands. NEVER use the plane with one hand, as it is very easy to push it over the fingers of the second hand. NEVER steady the wood to be planed in one hand whilst controlling the plane with the other.

Tap the image for more information



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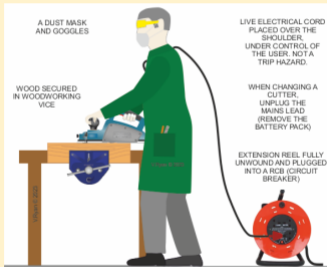


MACHINE / POWER PLANERS

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For information on the safe use of the machine / power planer, follow the link below.

Tap the image for more information



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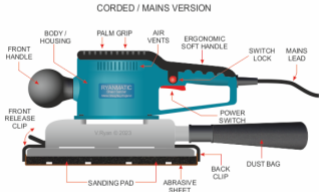


SHEET SANDERS

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Sheet sanders are used to sand / smooth wood surfaces. When sanding wood, glasspaper is 'clipped' into the sheet sander. If the surface requires a lot of sanding, then start with 'coarse' glasspaper rather than fine - as this will reduce the amount of time required. Fine glasspaper can be used to finish the surface so that it is smooth to touch. When in use the rectangular base vibrates at 1200 rpm (revolutions per minute)..

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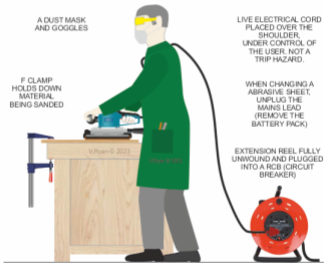


SHEET SANDERS

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For information on the safe use of sheet sanders, follow the link below.

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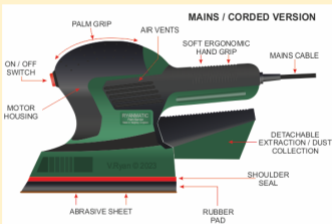


PALM SANDERS

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Palm sanders fit into the palm of one hand comfortably. They are lightweight, easy to control and cheap. The glasspaper sheet is normally fixed to the pad with velcro and this means that it can be replaced easily. They can be used to sand into corners.

Tap the image for more information



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PALM SANDERS

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For example, the diagram below, shows how the sander can be used in the 90 degree corner of a door panel. For safety information on the use of the palm sander, follow the link below.

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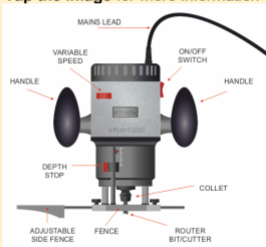


MACHINE / POWER ROUTERS

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Machine routers are extremely versatile machines. They are generally used to cut grooves in natural wood and manmade boards. They have a cutter that rotates at high speed - as the operator pushes the router forwards the cutter removes the wood in its path.

Tap the image for more information



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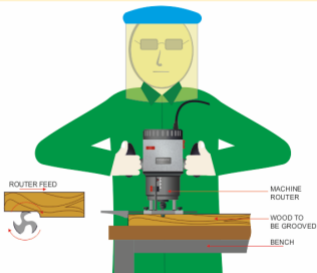


MACHINE / POWER ROUTERS

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For information regarding the safe use of machine routers, follow the link below.

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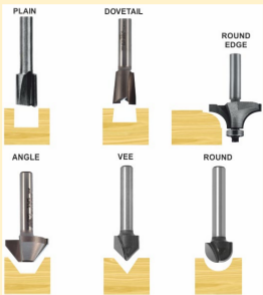


MACHINE / POWER ROUTERS

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A range of router bits and the sections they cut are shown below. Router bits are selected according to the 'profile' of the shape to be cut in the wood.

Tap the image for more information



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THE INVERTED ROUTER TABLE

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Machine routers can be bolted securely to a router table, which in turn, should be bolted to a substantial work bench / cabinet, specifically designed for this machine. This type of accessory, allows the user to concentrate on pushing the wood through / across the router's cutter.

Always wear the correct safety 'gear', including goggles / visor, a work coat / apron. Ensure that the fences and 'clamps / cramps are securely in place.

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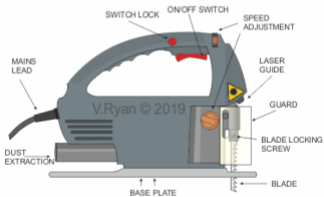


THE JIG SAW

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Jigsaws are general cutting and shaping tools. They are provided with a selection of blades, suitable for cutting and shaping a range of materials. They are ideal for cutting thin manmade boards such as plywood and MDF and they are capable of cutting detailed curves.

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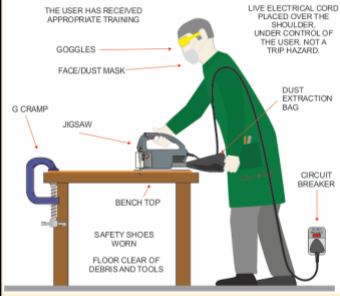


THE JIG SAW

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For information regarding the safe use of the jig saw, follow the link below.

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THE JIG SAW

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A selection of blades can be fitted to a jigsaw. The type of blade selected, depends on the material to be cut. For example, cutting an accurate and smooth curve in MDF, will mean that a fine blade, with at least 21 teeth per inch (TPI) will be fitted.

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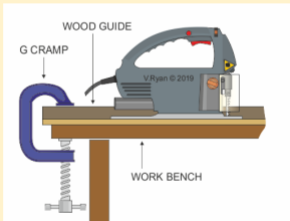


THE JIG SAW – CUTTING TECHNIQUES

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The wood to be cut and a guide, are G Cramped to a work bench, making it possible to cut in a straight and accurate line. The jigsaw is follows the guide whilst been pushed in the direction of the cut. Wood guides are very useful and they are safe if used properly.

Tap the image for more information on cutting techniques



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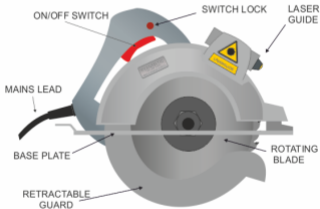


HAND HELD CIRCULAR SAW

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Circular saws are used for cutting woods to size . They are extremely powerful and are ideal for cutting manmade boards such as plywood and MDF and natural woods up to a size of approximately 30mm thickness. They must be used safely as an accident with this type of equipment can be very serious.

Tap the image for more information



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HAND HELD CIRCULAR SAW

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For information on the safe use of the hand held circular saw, follow the link below.

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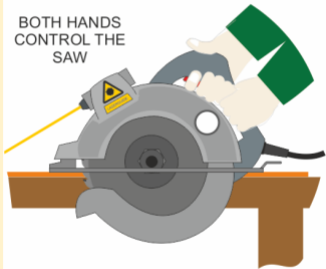
HAND HELD CIRCULAR SAW

V.Ryan © www.technologystudent.com 2019

The circular saw is normally used for heavy and substantial work where 'thick' materials are being used. It is advisable to use lighter tools such as jigsaws for less heavy work - this is a safer option.

Tap the image for more information

BOTH HANDS
CONTROL THE
SAW



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THE MULTI-CUTTER

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The Multi Cutter is a versatile tool with an oscillating cutter / blade. They are used for cutting, grinding and scraping, depending on the cutter fitted. They are very popular with trades people because they are so useful. They are supplied as mains corded or with a battery pack.

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THE MULTI-CUTTER

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When cutting, the speed is set according to the material being cut. When the 'ON' switch is pressed, the blade moves from side to side at a high speed, sawing through the material.

Waste material is ejected either side of the blade. A large variety of blade types are available. Each blade is selected according to the material being cut.

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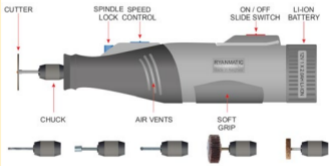


THE ROTARY TOOL

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Rotary tools are comfortable to hold and are ideal for fine, intricate work. They are often used for delicate carving and engraving. A flexible shaft attachment is a useful addition.

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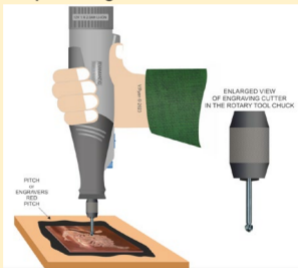


THE ROTARY TOOL

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Below an engraving tool is being used to 'engrave' a pattern / shape on the surface of a copper sheet. The copper is held firmly down by pitch or engravers red pitch.

Tap the image for more information



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THE ANGLE GRINDER

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The Angle Grinder is used for, cutting, grinding, polishing and cleaning a metal surface. The angle grinder can be used on materials such as 'metals', concrete, stone and tiles. Grinders are supplied as a mains corded version or a battery version and are available in a number of sizes.

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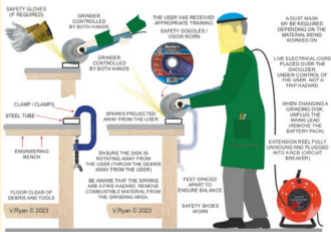


THE ANGLE GRINDER

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Fitting the handle to the right or left side of the housing OR to the top of the housing, allows the user to hold the grinder in a variety of positions. This makes grinding and cutting safer and more comfortable.

Tap the image for more information



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