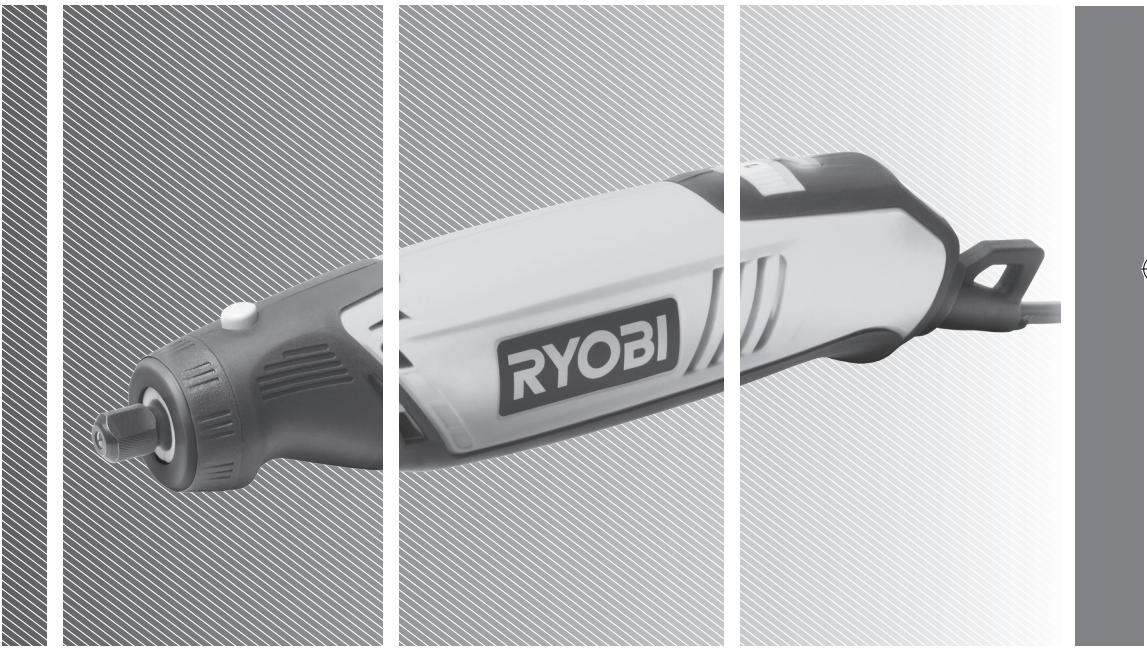
RYOBI



RRT090-230

IMPORTANT!

It is essential that you read the instructions in this manual before assembling, operating, and maintaining the product.

Subject to technical modifications.

Safety, performance, and dependability have been given top priority in the design of your rotary tool.

INTENDED USE

The rotary tool is intended to be used only by adults who have read and understood the instructions and warnings in this manual, and can be considered responsible for their actions.

With appropriate accessories fitted, the product is designed to perform cutting, grinding, sanding, sculpting, polishing, buffing, etching, engraving and drilling.

The product is intended for consumer use only.

Do not use the product for any other purpose. Use of the product for operations different from intended could result in a hazardous situation.

GENERAL POWER TOOL SAFETY WARNINGS

⚠ **WARNING! Read all safety warnings and all instructions.** Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

The term “power tool’’ in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

WORK AREA SAFETY

- **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

ELECTRICAL SAFETY

- **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

PERSONAL SAFETY

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- **Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.
- **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
- **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.
- **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** A careless action can cause severe injury within a fraction of a second.

POWER TOOL USE AND CARE

- **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive saftey measures reduce the risk of starting the power tool accidentally.
- **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.

- **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.
- **Keep handles and grasping surfaces dry, clean and free from oil and grease.** Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

SERVICE

- **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

ROTARY TOOL SAFETY WARNINGS

Safety warnings common for grinding, sanding, polishing, carving or abrasive cutting-off operations

- **This power tool is intended to function as a grinder, sander, polisher, carving or cut-off tool. Read all safety warnings, instructions, illustrations and specifications provided with this power tool.** Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.
- **Operations such as wire brushing are not recommended to be performed with this power tool.** Operations for which the power tool was not designed may create a hazard and cause personal injury
- **Do not use accessories which are not specifically designed and recommended by the tool manufacturer.** Just because the accessory can be attached to your power tool, it does not assure safe operation.
- **The rated speed of the grinding accessories must be at least equal to the maximum speed marked on the power tool.** Grinding accessories running faster than their rated speed can break and fly apart.
- **The outside diameter and the thickness of your accessory must be within the capacity rating of your power tool.** Incorrectly sized accessories cannot be adequately controlled.
- **The arbour size of wheels, sanding drums or any other accessory must properly fit the spindle or collet of the power tool.** Accessories that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control.
- **Mandrel mounted wheels, sanding drums, cutters or other accessories must be fully inserted into the collet or chuck.** If the mandrel is insufficiently held and/or the overhang of the wheel is too long, the mounted wheel may become loose and be ejected at high velocity.
- **Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, sanding drum for cracks, tear or excess wear, wire brush for loose or cracked wires. If power tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute.** Damaged accessories will normally break apart during this test time.
- **Wear personal protective equipment. Depending on application, use face shield, safety goggles or safety glasses. As appropriate wear dust mask, hearing protectors, gloves and workshop apron capable of stopping small abrasive or workpiece fragments.** The eye protection must be capable of stopping flying debris generated by various operations. The dust mask or respirator must be capable of filtrating particles generated by your operation. Prolonged exposure to high intensity noise may cause hearing loss.
- **Keep bystanders a safe distance away from work area. Anyone entering the work area must wear personal protective equipment.** Fragments of workpiece or of a broken accessory may fly away and cause injury beyond immediate area of operation.
- **Hold power tool by insulated gripping surfaces only, when performing an operation where the cutting accessory may contact hidden wiring or its own cord.** Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and could give the operator an electric shock.
- **Always hold the tool firmly in your hand(s) during the start-up.** The reaction torque of the motor, as it accelerates to full speed, can cause the tool to twist.
- **Use clamps to support workpiece whenever practical. Never hold a small workpiece in one hand and the tool in the other hand while in use.** Clamping a small workpiece allows you to use your hand(s) to control the tool. Round material such as dowel rods, pipes or tubing have a tendency to roll while being cut, and may cause the bit to bind or jump toward you.
- **Position the cord clear of the spinning accessory.** If you lose control, the cord may be cut or snagged and your hand or arm may be pulled into the spinning accessory.
- **Never lay the power tool down until the accessory has come to a complete stop.** The spinning accessory may grab the surface and pull the power tool out of your control.
- **After changing the bits or making any adjustments, make sure the collet nut, chuck or any other adjustment devices are securely tightened.** Loose adjustment devices can unexpectedly shift, causing loss of control, loose rotating components will be violently thrown.
- **Do not run the power tool while carrying it at your side.** Accidental contact with the spinning accessory could snag your clothing, pulling the accessory into your body.
- **Regularly clean the power tool's air vents.** The motor's fan will draw the dust inside the housing and

excessive accumulation of powdered metal may cause electrical hazards.

- **Do not operate the power tool near flammable materials.** Sparks could ignite these materials.
- **Do not use accessories that require liquid coolants.** Using water or other liquid coolants may result in electrocution or shock.

KICKBACK AND RELATED WARNINGS

Kickback is a sudden reaction to a pinched or snagged rotating wheel, sanding band, brush or any other accessory. Pinching or snagging causes rapid stalling of the rotating accessory which in turn causes the uncontrolled power tool to be forced in the direction opposite of the accessory's rotation.

For example, if an abrasive wheel is snagged or pinched by the workpiece, the edge of the wheel that is entering into the pinch point can dig into the surface of the material causing the wheel to climb out or kick out. The wheel may either jump toward or away from the operator, depending on direction of the wheel's movement at the point of pinching. Abrasive wheels may also break under these conditions.

Kickback is the result of power tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below.

- **Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces.** The operator can control kickback forces, if proper precautions are taken.
- **Use special care when working corners, sharp edges etc. Avoid bouncing and snagging the accessory.** Corners, sharp edges or bouncing have a tendency to snag the rotating accessory and cause loss of control or kickback.
- **Do not attach a toothed saw blade.** Such blades create frequent kickback and loss of control.
- **Always feed the bit into the material in the same direction as the cutting edge is exiting from the material (which is the same direction as the chips are thrown).** Feeding the tool in the wrong direction causes the cutting edge of the bit to climb out of the work and pull the tool in the direction of this feed.
- **When using rotary files, cut-off wheels, high-speed cutters or tungsten carbide cutters, always have the work securely clamped.** These wheels will grab if they become slightly canted in the groove, and can kickback. When a cut-off wheel grabs, the wheel itself usually breaks. When a rotary file, high-speed cutter or tungsten carbide cutter grabs, it may jump from the groove and you could lose control of the tool.

Safety warnings specific for grinding and abrasive cutting-off operations

- **Use only wheel types that are recommended for your power tool and only for recommended applications. For example: do not grind with the side of a cut-off wheel.** Abrasive cut-off wheels are intended for peripheral grinding, side forces applied to these wheels may cause them to shatter.
- **For threaded abrasive cones and plugs use only undamaged wheel mandrels with an unrelieved shoulder flange that are of correct size and length.** Proper mandrels will reduce the possibility of breakage.
- **Do not "jam" a cut-off wheel or apply excessive pressure. Do not attempt to make an excessive depth of cut.** Overstressing the wheel increases the loading and susceptibility to twisting or snagging of the wheel in the cut and the possibility of kickback or wheel breakage.
- **Do not position your hand in line with and behind the rotating wheel.** When the wheel, at the point of operation, is moving away from your hand, the possible kickback may propel the spinning wheel and the power tool directly at you.
- **When wheel is pinched, snagged or when interrupting a cut for any reason, switch off the power tool and hold the power tool motionless until the wheel comes to a complete stop. Never attempt to remove the cut-off wheel from the cut while the wheel is in motion otherwise kickback may occur.** Investigate and take corrective action to eliminate the cause of wheel pinching or snagging.
- **Do not restart the cutting operation in the workpiece. Let the wheel reach full speed and carefully re-enter the cut.** The wheel may bind, walk up or kickback if the power tool is restarted in the workpiece.
- **Support panels or any oversized workpiece to minimize the risk of wheel pinching and kickback.** Large workpieces tend to sag under their own weight. Supports must be placed under the workpiece near the line of cut and near the edge of the workpiece on both sides of the wheel.
- **Use extra caution when making a "pocket cut" into existing walls or other blind areas.** The protruding wheel may cut gas or water pipes, electrical wiring or objects that can cause kickback.

ADDITIONAL SAFETY WARNINGS

- **The product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the product by a person responsible for their safety. Children should be supervised to ensure that they do not play with the product.**
- We recommend that the product always be supplied via a residual current device (RCD) with a rated residual current of 30 mA or less.
- **Inspect for and remove all nails from the workpiece before using the product.** Following this rule will reduce the risk of serious personal injury.
- **Do not reach in the area of the spinning bit.** The proximity of the spinning bit to your hand may not always be obvious.
- **The product is not intended for use as a dental drill or in human or veterinary medical applications.** Serious injury may result.
- **Do not grind or sand heat flammable materials.** Sparks from the wheel could ignite these materials.
- **Do not bend the flex shaft with a radius less than 13 mm. The risk of overheating will increase substantially.**
- **Clamp workpiece with a clamping device.** Unclamped workpieces can cause severe injury and damage.

- Injuries may be caused, or aggravated, by prolonged use of a tool. When using any tool for prolonged periods, ensure you take regular breaks.

MAINTENANCE

- The product should never be connected to a power supply when assembling parts, making adjustments, cleaning, performing maintenance, or when the product is not in use. Disconnecting the product from the power supply will prevent accidental starting that could cause serious injury.
- When servicing, use only original manufacturer's replacement parts, accessories and attachments. Use of any other parts may create a hazard or cause product damage.
- Avoid using solvents when cleaning plastic parts. Most plastics are susceptible to various types of commercial solvents and may be damaged by their use. Use clean cloths to remove dirt, carbon dust, etc.
- If the power cord is damaged, it must be replaced by an authorised service centre in order to avoid a hazard.
- Do not at any time let brake fluids, gasoline, petroleum-based products, penetrating oils, etc., come in contact with plastic parts. Chemicals can damage, weaken or destroy plastic which may result in serious personal injury.
- For greater safety and reliability, all repairs should be performed by an authorised service centre.

SYMBOLS ON THE PRODUCT


Safety alert

V Volts

Hz Hertz

∿ Alternating Current

W Watts

n Rated speed

min^{-1} Revolutions or reciprocations per minute


Class II tool, double insulation


Regulatory Compliance Mark (RCM). Product meets applicable regulatory requirements.


Please read the instructions carefully before starting the product.


Wear eye protection.


Wear dust mask.


Secure long hair above shoulder level to prevent entanglement in moving parts.


Do not dispose of waste electrical and electronic equipment as unsorted municipal waste. Waste electrical and electronic equipment must be collected separately. Waste light sources have to be removed from the equipment. Check with your local authority or retailer for recycling advice and collection point. According to local regulations, retailers may have an obligation to take back waste electrical and electronic equipment free of charge. Your contribution to the reuse and recycling of waste electrical and electronic equipment helps to reduce the demand of raw materials. Waste electrical and electronic equipment contain valuable and recyclable materials, which can adversely impact the environment and the human health if not disposed of in an environmentally compatible manner. Delete personal data from waste equipment, if any.

SYMBOLS IN THIS MANUAL


Note


Parts or accessories sold separately


Lock


Unlock


Off


On


Speed, minimum


Speed, maximum

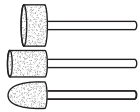
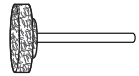
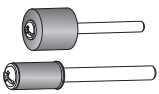
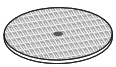
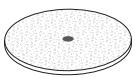
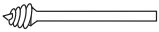
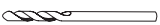
Without force

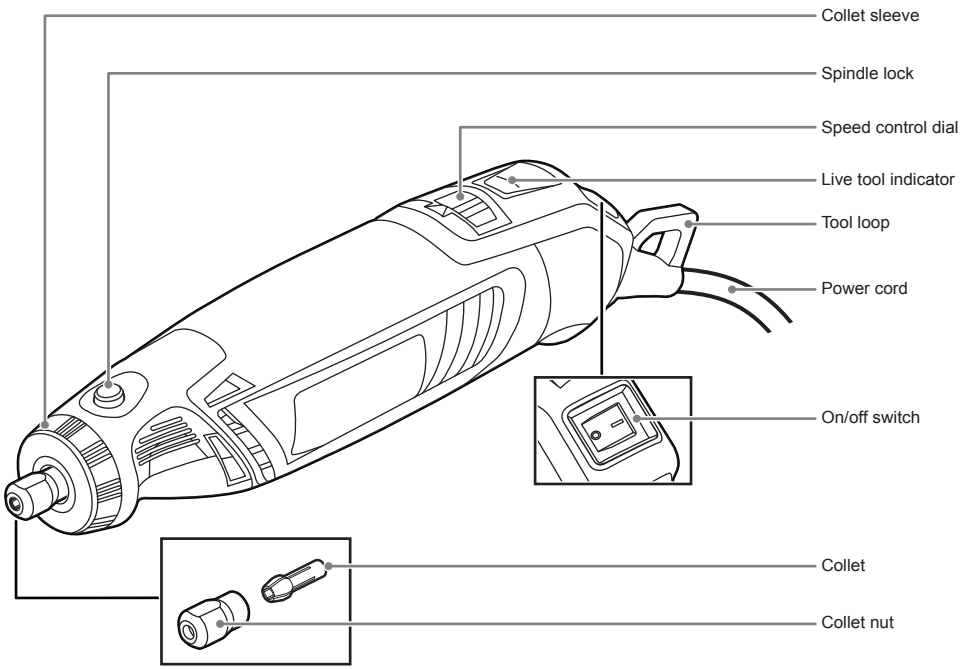
With force

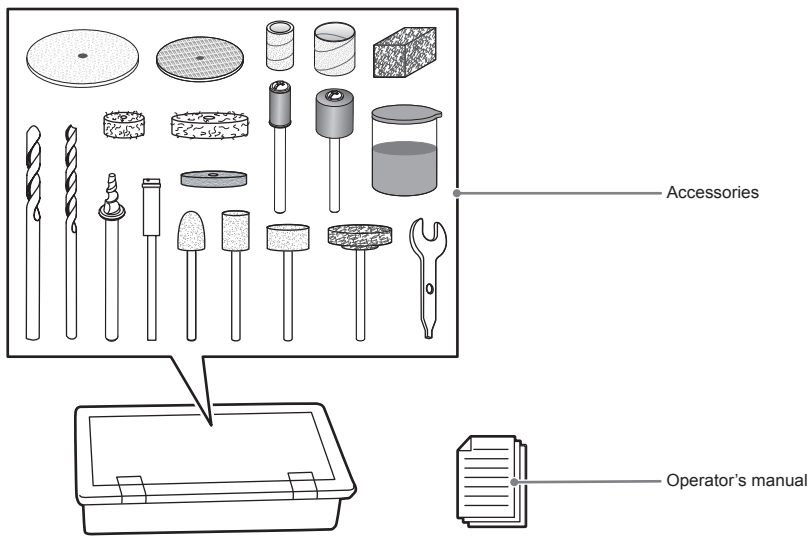
SPEED DIAL SETTINGS

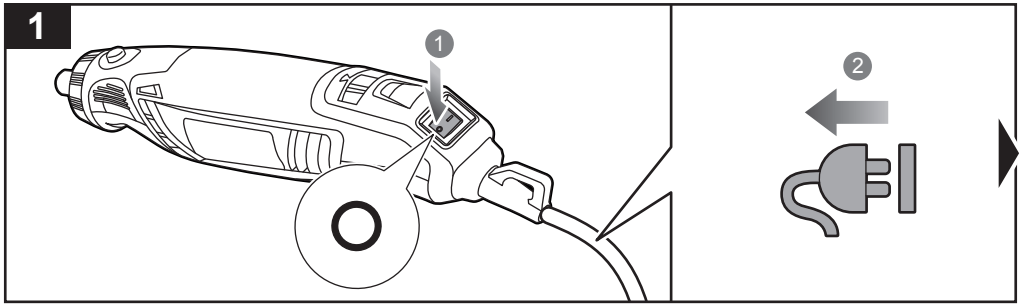
Type of Accessory	Soft Wood	Hard Wood	Laminates Plastics	Steel	Aluminum, Brass, Etc.	Shell / Stone	Ceramic	Glass
Cut-off Discs	—	—	—	1-3	—	—	—	—
Fiberglass Cut-off Wheel	—	—	1-3	—	1-5	—	—	—
Sanding Drums	3-MAX	3-MAX	1-3	4-MAX	4-MAX	—	—	—
Felt Polishing Wheels	—	—	—	3-5	3-5	3-5	3-5	3-5
Aluminum Oxide Grinding Stones	—	—	—	3-5	—	—	—	—
Silicon Carbide Grinding Stone	—	—	—	—	1-2	1-2	4-MAX	4-MAX
Drill Bit	4-MAX	4-MAX	1-3	4-MAX	4-MAX	—	—	—
Drywall Cutting Bit	4-MAX (Drywall only)							

ACCESSORY

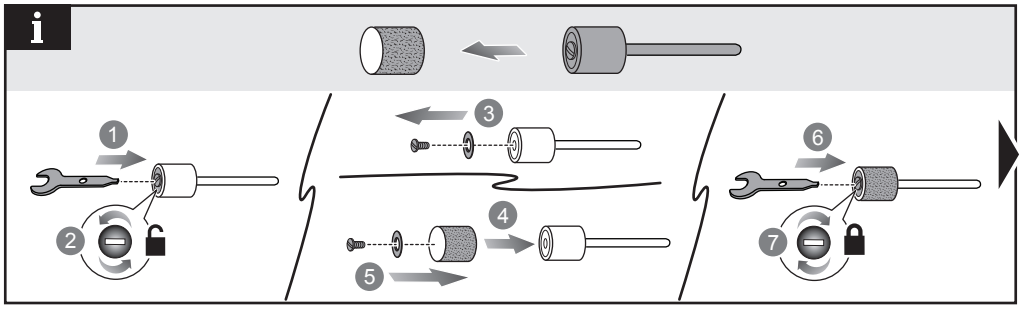
Figure	Accessory	Application
	Collet (Ø 3.2 mm) Collet (Ø 1.6 mm)	Attaching bits
	Orange 120-grit aluminum oxide grinding wheel bits (Ø 3.2 mm shank/collet)	Ferrous materials: casting, welds, rivets, rust
	Green 120-grit silicon carbide grinding wheel bit (Ø 3.2 mm shank/collet)	Non-ferrous materials: stone, ceramics, porcelain, glass
	Drum sander mandrel (Ø 6.4 mm) (Ø 3.2 mm shank/collet) Drum sander mandrel (Ø 12.7 mm) (Ø 3.2 mm shank/collet)	Attaching sanding drums
	Polishing compound vial	Polishing and brightening metals and plastics
	Cut-off discs (Ø 23.8 mm x Ø 0.8 mm)	Cutting ferrous materials
	Pink 220-grit aluminum oxide grinding wheel (Ø 19 mm)	Ferrous materials: casting, welds, rivets, rust
	Sanding drums (60-grit and 120-grit) (Ø 6.4 mm x Ø 12.7 mm) Sanding drums (60-grit and 120-grit) (Ø 12.7 mm x Ø 12.7 mm)	Sanding wood, metals and plastics
	Silicon carbide dressing stone	Bringing shape back to parabolic shaped grinding attachments
	Felt polishing wheels (Ø 12.7 mm) Felt polishing wheels (Ø 25.4 mm)	Polishing and buffing metals, stone, glass, and ceramics
	Fiberglass cut-off wheel (Ø 31.8 mm)	Cutting and trimming metals, plastics and ceramics
	Screw mandrel (Ø 3.2 mm shank/collet)	Attaching felt attachments
	Mandrel (Ø 3.2 mm shank/collet)	Attaching cut-off discs, cut-off wheels, grinding wheels, and emery wheels
	High speed steel drill bit (Ø 1.6 mm shank/collet)	Drilling
	Drywall cutting bit (Ø 3.2 mm shank/collet)	Cutting drywall
	Wrench	Removing attachments


Collet sleeve
Spindle lock
Speed control dial
Live tool indicator
Tool loop
Power cord
On/off switch
Collet
Collet nut


Accessories
Operator's manual

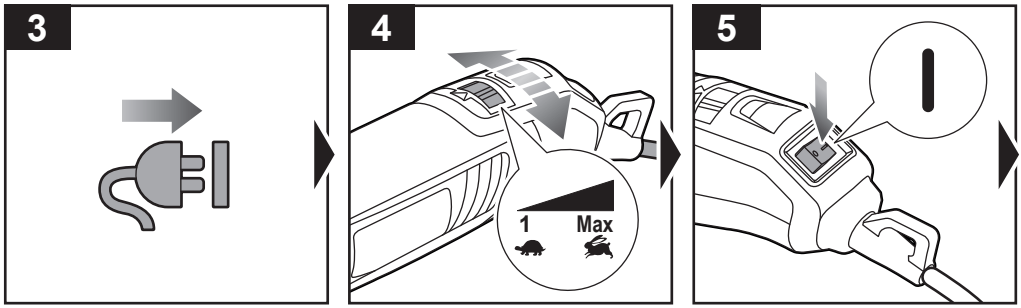


1. Press the on/off switch to the "O" position.
2. Disconnect the product from the power supply.



NOTE: Insert the sanding drum into the drum sander mandrel.

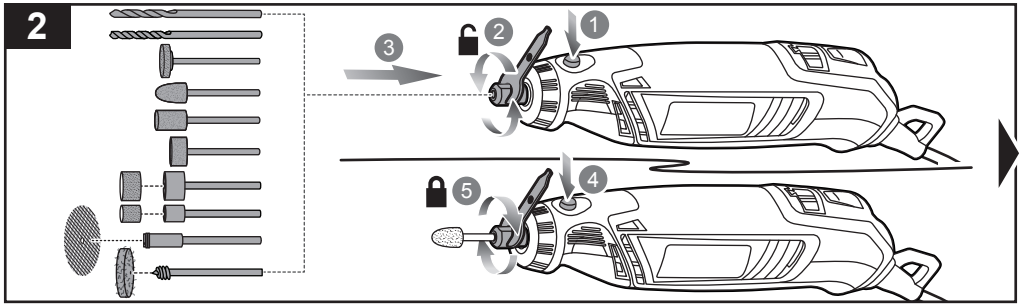
1. Insert the flat end of the wrench (included) into the slot of the screw on top of the drum sander mandrel.
2. Turn counterclockwise to unlock.
3. Remove the screw and washer from the drum sander mandrel.
4. Align the sanding drum and washer with the drum sander mandrel
5. Insert the screw to hold these parts in place.
6. Insert the wrench into the slot of the screw.
7. Turn clockwise to tighten the screw and secure the drum sander mandrel



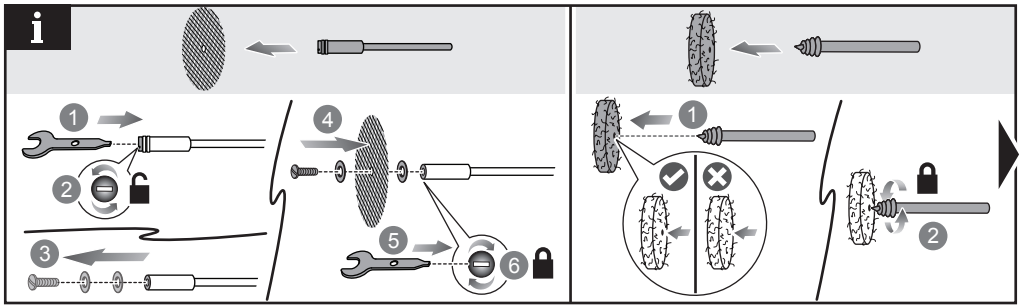
Connect the product to a power supply.

Slide the speed control dial to adjust the speed.

Press the on/off switch to the "I" position.



1. Press and hold the spindle lock button, and turn the shaft by hand until the spindle lock engages.
2. With the spindle lock engaged, place the included wrench on the bottom threaded end of the quick-change collet. Turn the quick-change collet counterclockwise to unlock.
3. Select an accessory that fits the collet and that is suitable for the intended application. Fully insert the accessory into the collet. Pull out the accessory about 1/16 in. to allow for expansion when the accessory gets hot.
4. Press and hold the spindle lock button.
5. Turn the collet sleeve clockwise until the clicking sound stops and the collet secures the accessory.

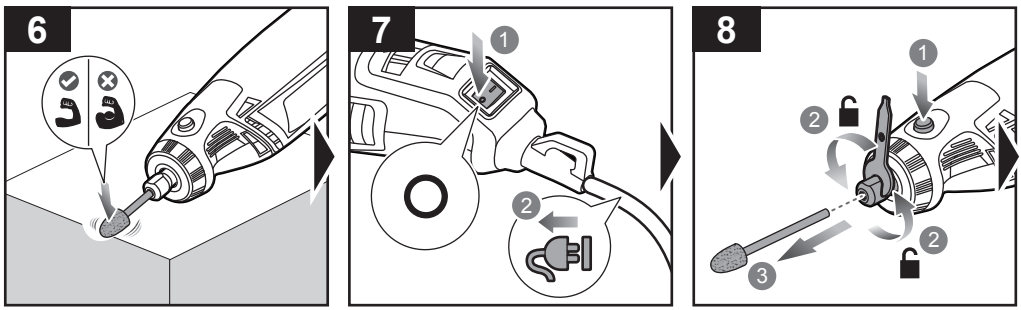


NOTE: Use the cut-off discs with the standard rotary mandrel.

1. Insert the flat end of the wrench (included) into the slot of the screw on top of the standard rotary mandrel.
2. Turn counterclockwise to loosen the screw.
3. Remove the screw and washers from the rotary mandrel.
4. Align the washers and drum sander with the rotary mandrel, and insert the screw to hold these parts in place.
5. Insert the wrench into the slot of the screw.
6. Turn clockwise to tighten the screw and secure the cut-off disc.

NOTE: Use the felt polishing wheel with the screw mandrel.

1. Align the screw mandrel to the hole of the felt polishing wheel.
2. Turn the screw mandrel counterclockwise to tighten and secure the felt polishing wheel.



Start operating the product. Do not use force.

1. Press the on/off switch to the "O" position.
2. Disconnect the product from the power supply.

1. Press the spindle lock button.
2. Turn the collet nut counterclockwise with the wrench.
3. Remove the accessories.

20230922v1

PRODUCT SPECIFICATIONS

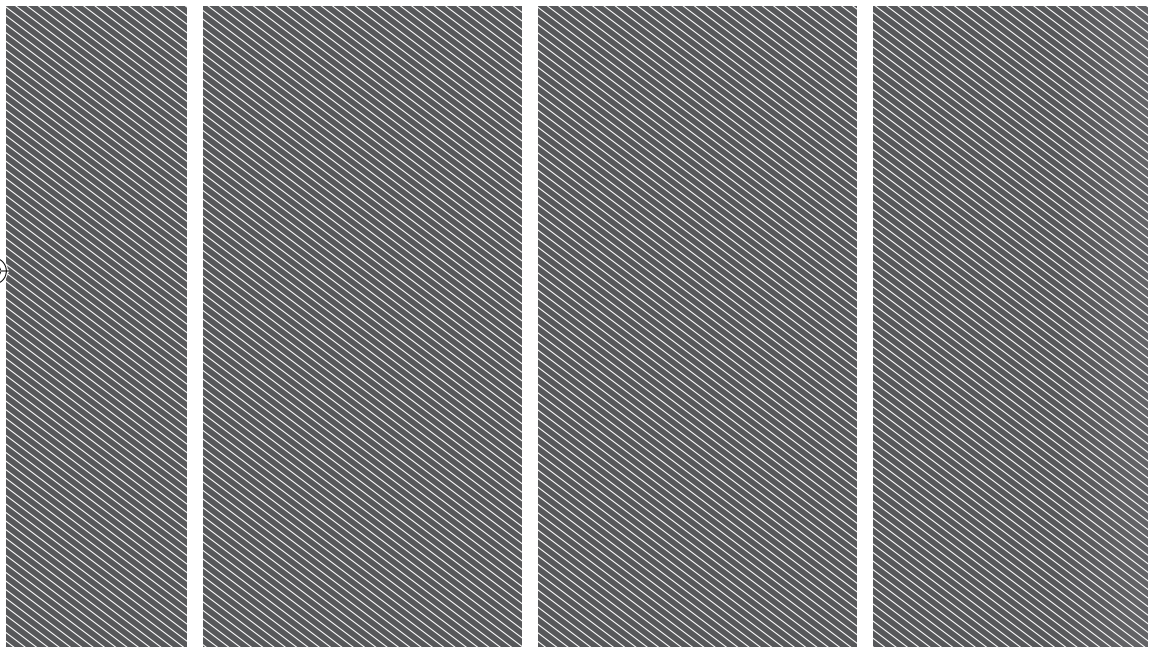
Rotary tool	
Model	RRT090-230
Voltage	220 V - 240 V ∿ 50 Hz
Input	90 W
Rated speed	10,000 - 38,500 (RPM) min^{-1}
Collet	3.2 mm max.
Size of spindle thread	5/18 - 40 UNF
Weight	0.73 kg
Measured sound values determined according to EN 60745:	
Noise emission level (in accordance with EN 60745-1)	
A-weighted sound pressure level	L_{pA} = 78.5 dB(A)
Uncertainty	K = 3 dB
A-weighted sound power level	L_{WA} = 89.5 dB(A)
Uncertainty	K = 3 dB
Vibration total values (triaxial vector sum) determined according to EN 60745:	
Surface grinding	
Vibration emission level	a_h = 8.3 m/s^2
Uncertainty	K = 1.5 m/s^2

⚠ **WARNING!** The declared vibration total values and the declared noise emission values given in this instruction manual have been measured in accordance with a standardised test and may be used to compare one tool with another. They may be used for a preliminary assessment of exposure.

The declared vibration and noise emission values represent the main applications of the tool. However, if the tool is used for different applications, used with different accessories, or poorly maintained, the vibration and noise emission may differ. These conditions may significantly increase the exposure levels over the total working period.

An estimation of the level of exposure to vibration and noise should take into account the times when the tool is turned off or when it is running idle. These conditions may significantly reduce the exposure level over the total working period.

Identify additional safety measures to protect the operator from the effects of vibration and noise, such as maintaining the tool and the accessories, keeping the hands warm (in case of vibration), and organising work patterns.



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