

# Instruction Manual

# **MAKO** Tools

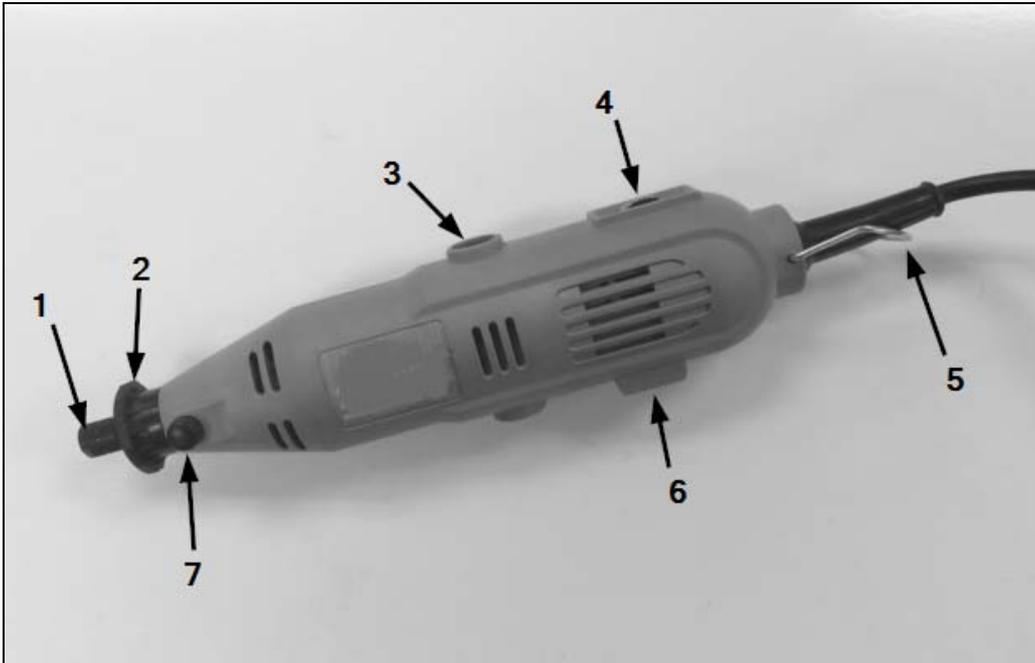
## **ROTARY TOOL**

Model SROM 1176



*Our tool range has you covered for DIY. Whatever the job, make light work of it with MAKO tools.*

## Product Features:



1. Collet Nut
2. Front Cover
3. Carbon Brush Cover
4. Variable Speed Knob
5. Suspension Hanger
6. On/Off Switch
7. Spindle Lock

**Dear Valued Customer,**

Thank you for purchasing this Mako Power Tool.

We are dedicated to providing quality Mako Power Tools at competitive prices. Whether you are serious about DIY or just a casual user, our range of power tools are perfect for any job.

**MAKO 2 YEAR DIY WARRANTY:**

All Mako Power Tools are backed by a comprehensive 2 year DIY warranty. If for any reason you experience a fault with this power tool, please contact the retailer that it was purchased from, present the receipt and warranty card (at the back of the operating manual), for a full refund or replacement. The warranty is void if damage is not attributable to normal wear and tear, if the tool is used commercially, the motor is overloaded or is tampered with, is damaged by accident or if it is bought second hand. Continued use after partial failure, or the use with the incorrect accessories will void the warranty.

This warranty excludes all Mako accessories, which are covered by their own appropriate warranties.

**MAKO TOOLS ARE FOR DIY USE ONLY. THEY ARE NOT DESIGNED OR APPROVED FOR INDUSTRIAL OR COMMERCIAL USE.**

**CONTENTS:**

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- **Mako Cordless Drill Operating Instructions**
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- **Mako Cordless Drill Technical Data**

**DESCRIPTION OF SYMBOLS:**



Please read all of the safety and operating instructions carefully before using this rotary tool. Please pay particular attention to all sections of this User Guide that carry warning symbols and notices.

	Observe caution and safety notes!
	Caution - electric shock! Danger to life!
$n_0$	No-load speed.
V~	AC Voltage
	Wear hearing protection, dust protection mask, protective glasses and protective gloves.
	Keep children away from electrical power tools!
	Protect electrical power tools from moisture!
	Check that the device, mains lead and plug are in good condition!
	Safety class II
	Do not dispose of in household refuse. Dispose of packaging and appliance in an environmentally friendly way! Contact recycling center for proper disposal.

## 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.*

### 1) Work area safety

- a) **Keep work area clean and well lit.** *Cluttered or dark areas invite accidents.*
- b) **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.*
- c) **Keep children and bystanders away while operating a power tool.** *Distractions can cause you to lose control.*

### 2) Electrical safety

- a) **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.*
- b) **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.*
- c) **Do not expose power tools to rain or wet conditions.** *Water entering a power tool will increase the risk of electric shock.*
- d) **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.*
- e) **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.*
- f) **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.*

### 3) Personal safety

- a) **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.*
- b) **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.*
- c) **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.*
- d) **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.*
- e) **Do not overreach. Keep proper footing and balance at all times.** *This enables better control of the power tool in unexpected situations.*
- f) **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.*
- g) **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.*

#### 4) Power tool use and care

- a) **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.*
- b) **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.*
- c) **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 safety measures reduce the risk of starting the power tool accidentally.*
- d) **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.*
- e) **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.*
- f) **Keep cutting tools sharp and clean.** *Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.*
- g) **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.*

#### 5) Service

- a) **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.*

#### **SAFETY WARNINGS COMMON FOR GRINDING, SANDING, WIRE BRUSHING, POLISHING OR ABRASIVE CUTTING-OFF OPERATIONS:**

- a) **This power tool is intended to function as a grinder, sander, wire brush, polisher 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.*
- b) **Operations such as grinding, sanding, wire brushing, polishing or cutting-off 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.*
- c) **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.*
- d) **The rated speed of the accessory must be at least equal to the maximum speed marked on the power tool.** *Accessories running faster than their rated speed can break and fly apart.*
- e) **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 guarded or controlled.*
- f) **The arbour size of wheels, flanges, backing pads or any other accessory must properly fit the spindle of the power tool.** *Accessories with arbour holes that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control.*
- g) **Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, backing pad 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.*
- h) **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 filtering particles generated by your operation. Prolonged exposure to high intensity noise may cause hearing loss.

- i) **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.
- j) **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 shock the operator. NOTE The above warning may be omitted if polishing is the only recommended operation
- k) **Position the cord clear of the spinning accessory.** If you lose control, the cord maybe cut or snagged and your hand or arm may be pulled into the spinning accessory.
- l) **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.
- m) **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.
- n) **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.
- o) **Do not operate the power tool near flammable materials.** Sparks could ignite these materials.
- p) **Do not use accessories that require liquid coolants.** Using water or other liquid coolants may result in electrocution or shock.

#### **KICKBACK AND RELATED WARNINGS**

- a) **Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces. Always use auxiliary handle, if provided, for maximum control over kickback or torque reaction during start-up.** The operator can control torque reactions or kickback forces, if proper precautions are taken.
- b) **Never place your hand near the rotating accessory.** Accessory may kickback over your hand.
- c) **Do not position your body in the area where power tool will move if kickback occurs.** Kickback will propel the tool in direction opposite to the wheel's movement at the point of snagging.
- d) **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.
- e) **Do not attach a saw chain woodcarving blade or toothed saw blade.** Such blades create frequent kickback and loss of control.

#### **SAFETY WARNINGS SPECIFIC FOR GRINDING AND ABRASIVE CUTTING-OFF OPERATIONS:**

- a) **Use only wheel types that are recommended for your power tool and the specific guard designed for the selected wheel.** Wheels for which the power tool was not designed cannot be adequately guarded and are unsafe.
- b) **Wheels must be used only for recommended applications. For example: do not grind with the side of cut-off wheel.** Abrasive cut-off wheels are intended for peripheral grinding, side forces applied to these wheels may cause them to shatter.
- c) **Always use undamaged wheel flanges that are of correct size and shape for your selected wheel.** Proper wheel flanges support the wheel thus reducing the possibility of wheel breakage. Flanges for cut-off wheels may be different from grinding wheel flanges.
- d) **Do not use worn down wheels from larger power tools.** Wheel intended for larger power tool is not suitable for the higher speed of a smaller tool and may burst.

#### **Additional Safety Warnings Specific for Abrasive Cutting-Off Operations:**

- a) **Do not “jam” the 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 binding of the wheel in the cut and the possibility of kickback or wheel breakage.*
- b) **Do not position your body in line with and behind the rotating wheel.** *When the wheel, at the point of operation, is moving away from your body, the possible kickback may propel the spinning wheel and the power tool directly at you.*
- c) **When wheel is binding 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 binding.*
- d) **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.*
- e) **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.*
- f) **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.*

#### **SAFETY WARNINGS SPECIFIC FOR SANDING OPERATIONS:**

- a) **Do not use excessively oversized sanding disc paper. Follow manufacturer’s recommendations, when selecting sanding paper.** *Larger sanding paper extending beyond the sanding pad presents a laceration hazard and may cause snagging, tearing of the disc, or kickback.*

#### **SAFETY WARNINGS SPECIFIC FOR POLISHING OPERATIONS:**

- a) **Do not allow any loose portion of the polishing bonnet or its attachment strings to spin freely. Tuck away or trim any loose attachment strings.** *Loose and spinning attachment strings can entangle your fingers or snag on the workpiece.*

#### **SAFETY WARNINGS SPECIFIC FOR WIRE BRUSHING OPERATIONS:**

- a) **Be aware that wire bristles are thrown by the brush even during ordinary operation. Do not overstress the wires by applying excessive load to the brush.** *The wire bristles can easily penetrate light clothing and/or skin.*
- b) **If the use of a guard is recommended for wire brushing do not allow any interference of the wire wheel or brush with the guard.** *Wire wheel or brush may expand in diameter due to work load and centrifugal forces.*

**It is recommended that the power tool is always supplied via a residual current device with a rated current of 30mA or less.**



**Wear hearing protection while operating the power tool.**



**Wear eye protection while operating the power tool.**



**Use a dust mask or respirator for applications which generate dust.**



**WARNING: Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:**

- Lead from lead-based paints,
- Crystalline silica from bricks and cement and other masonry products, and
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

#### **Intended Use:**

This rotary tool is intended for DIY use only, for light drilling, grinding, sanding and polishing, as well as for engraving, cutting and wire brushing on most metals, glass, wood and ceramics.

## **MAKO ROTARY TOOL OPERATING INSTRUCTIONS**

#### **Before Use:**

- Before fitting, changing or adjusting any accessory, unplug the tool from the mains to avoid unintentional starting.
- Check the accessory being used is suitable for purpose, undamaged, and fits the tool without modification.

#### **On/Off Switch:**

To switch on the tool, press the switch to “**I**”.

To switch off, press the switch to “**O**”.

#### **Variable speed:**

Adjust the tool's speed by rotation the Variable Speed Knob between 1 and MAX to suit the work being done.

**Caution:** Operating the machine at a low speed or with a heavy load for a long time will increase the risk that the motor will be overheated. To prevent overheating, let the motor cool down regularly. (Run with no load for several minutes).

**Caution:** Never adjust the speed while working!

#### **Spindle Lock:**

Pressing the Spindle Lock will prevent spindle rotation while changing tool bits.

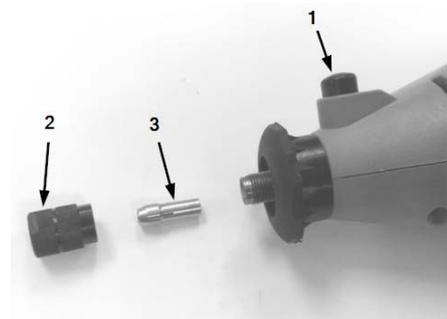


**WARNING:** DO NOT operate the Spindle Lock while the tool is in use. This will cause damage to the tool and may cause injury.

#### **Collet Fitting:**

5 different Collets are provided for fitting various accessories. Ensure that the correctly sized Collet is selected for the tool bit to be used. To fit or change Collets:

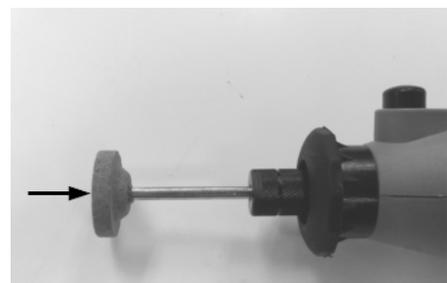
1. Ensure tool is turned OFF and the plug is removed from the socket.
2. Press the Spindle Lock and rotate the spindle by hand until the lock engages fully.
3. Use the provided spanner, loosen the Collet Nut and remove it.
4. Fit or remove the Collet as required.
5. Fit the Collet nut and tighten.



**DO NOT attempt to use the motor to tighten bits – friction burns or other injury to the hand can be caused.**

#### **Changing Type 1 Accessories:**

(fixed shank accessories such as drill bits, grinding wheels, brushes)



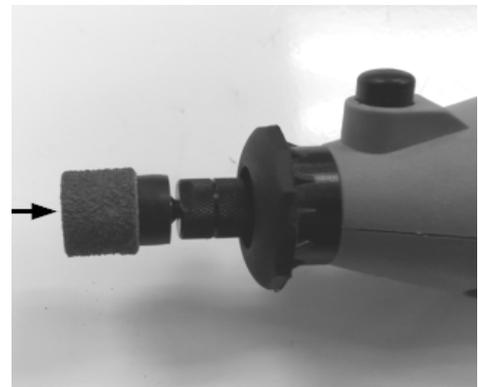
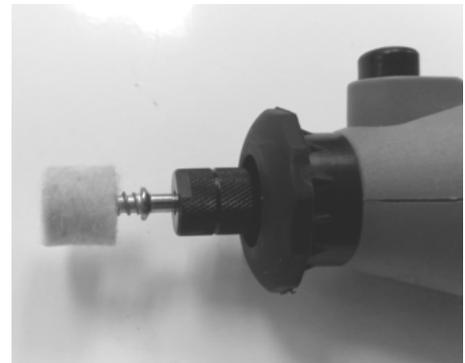
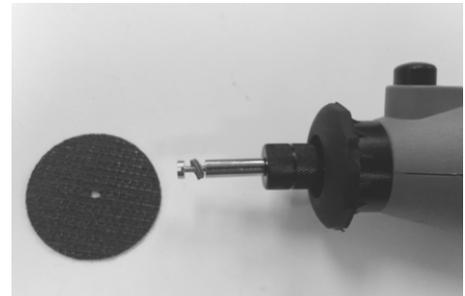
1. Ensure tool is turned OFF and the plug is removed from the socket.
2. Press the Spindle Lock and rotate the spindle by hand until the lock engages fully.
3. Use the provided spanner, loosen the Collet Nut and remove it.
4. Release the Spindle Lock and insert the shank of the Accessory into the Collet. Use the correct sized Collet and ensure that the accessory is fully inserted.
5. Lock the spindle again and tighten the Collet Nut finger tight and then nip it up with the spanner. *Do not over-tighten; the tool will be damaged.*

### Changing Type 2 Accessories:

(accessories fitted to a fixed mandrel, such as sanding tubes, cut-off wheels, polishing mops)

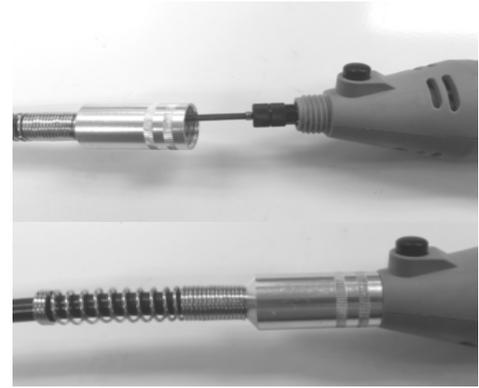
Different types of mandrels are provided to suit different types of accessory -

- For accessories with small center hole – cut-off wheels, grinding discs, sanding discs:
  1. Ensure tool is turned OFF and the plug is removed from the socket.
  2. Press the Spindle Lock and rotate the spindle by hand until the lock engages fully.
  3. Fit the mandrel to the Collet Chuck as for Type 1 Accessory.
  4. Unscrew the fixing screw in the end of the mandrel and fit the disc. Ensure the disc is correctly located on the mandrel. Replace the screw.
  5. Press the Spindle Lock and tighten the screw.
- For accessories with no center hole – cloth or wool polishing mops:
  1. Ensure tool is turned OFF and the plug is removed from the socket.
  2. Press the Spindle Lock and rotate the spindle by hand until the lock engages fully.
  3. Fit the mandrel with the self-tapping screw end to the Collet Chuck as for Type 1 Accessory.
  4. Center the mop on the screw and turn onto the mandrel.
  5. Press the Spindle Lock and tighten the mop down fully down onto the screw.
- For sanding bands:
  1. Ensure tool is turned OFF and the plug is removed from the socket.
  2. Press the Spindle Lock and rotate the spindle by hand until the lock engages fully.
  3. Fit the mandrel with the rubber sleeve to the Collet Chuck as for Type 1 Accessory.
  4. Slide the sanding band onto the rubber sleeve on the mandrel.
  5. Press the Spindle Lock and tighten the screw to expand the rubber tire inside the band.



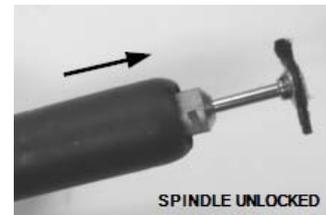
### Fitting the Flexible Shaft:

1. Remove the Front Cover from the tool by turning it anti-clockwise.
2. Loosen the collet nut until there is no pressure on the collet.
3. Partially withdraw the inner transmission cable from the flexible shaft.
4. Insert the inner cable as far into the collet as it will go.
5. Press the Spindle Lock and tighten the collet nut with the spanner.
6. Screw on the Flexible Shaft threaded cover to the front of the tool by tuning it clockwise. *Screw on hand tight only.*



### Fitting Accessories to the Flexible Shaft:

1. Slide and rotate the Outer Sleeve back from the Collet Nut until it moves as far as the base of the Collet Nut. This locks the spindle of the Flexible Shaft.
2. Insert the accessory shaft, in the same manner as previously described under "Changing Accessories", and tighten with the spanner..
3. Release the Outer Sleeve to unlock the spindle.



**Caution:** Do not bend the Flexible Shaft into a radius of less than 150mm. Excessive curvature will cause permanent damage or over-heating in use. When not in use, keep the Flexible Shaft in a suitable clean dry container or bag. Lubricate with a couple drops of light oil occasionally.



**Caution:** Do not loosen or tighten the Collet Nut without first locking the Flexible Shaft as described above. The Flexible Shaft may be damaged otherwise.

### WORKING ADVICE:

- Allow the tool to cool down after running it for a long period, or under moderate load. Run unloaded for several minutes to increase ventilation.
- Grinding and cutting discs become very hot in use. Do not touch or attempt to change them until they have cooled down.
- Don't use the tool near flammable materials – hot sparks could ignite materials or cause personal injury.
- Use a shallow angle – 15° to 30° - when using grinding discs to prevent hogging in and surface damage.
- Do not use worn out, torn or otherwise damaged grinding, cutting or sanding tools. Replace them with new ones immediately.
- Do not apply heavy pressure to the work. Allow the tool to work at its own rate for best results.

## MAINTENANCE AND CLEANING

To clean the tool, use a dry or moist, but not wet, towel. Many cleaning agents contain chemical substances which may cause damage to the plastic parts of the tool. Do not use any strong or inflammable cleaners such as petrol, paint thinner, turpentine or similar cleaning agents.

Always keep air ventilation holes free of dust deposits to prevent overheating. Wear a dust mask and use a soft brush to clean the ventilation holes.

**Servicing this tool must be done by a qualified person only.** *Service or maintenance performed by unqualified personnel could result in a risk of injury.*

**If the tool does not work properly, return the tool to a service facility for repair.**

**If the Supply Cord of this power tool is damaged, it must be replaced by a specially prepared cord available through the service organisation.**

## DISPOSAL:



**Do not dispose of electrical appliances with your domestic waste!** Dispose of it in your local recycling containers, or at your local recycling station.

## TECHNICAL DATA

ROTARY TOOL	SROM1176
Voltage Rating	230-240V, 50Hz 130W
No-load Speed $n_0$	8,000-33,000min <sup>-1</sup>
Chuck Capacity	1.6 – 3.2mm diameter