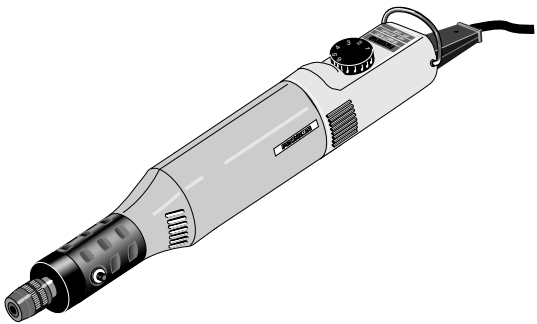
PROXXON

MICROMOT 50 (E)



Manual

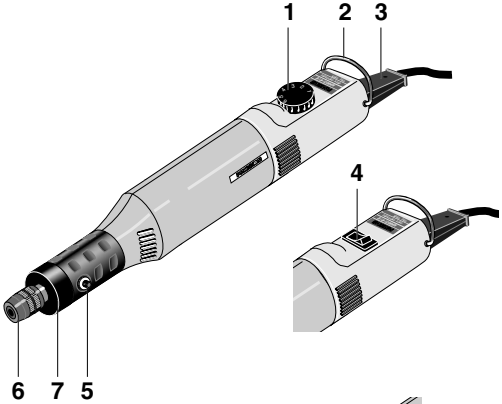


Fig. 1

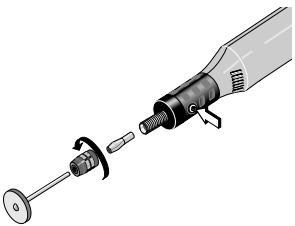


Fig. 2

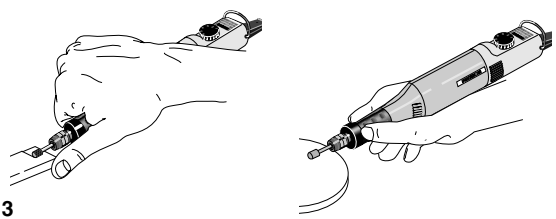


Fig. 3

Foreword

Dear Customer,

Before putting the machine into operation, read the enclosed safety rules and operating instructions!

This manual comprises:

Please note!

Using this manual will

- help you to understand the machine,
- avoid malfunctions caused by faulty operation,
- increase the lifetime of the machine.

Always keep this manual close at hand.

Do not operate the equipment unless you are fully familiar with it. Follow the instructions.

The manufacturer will not assume liability for safe functioning

- if the unit is used in a way which does not comply with the usual modes of operation,
- if it is used for purposes other than those mentioned in these instructions,
- if the safety regulations are not observed.

No warranty claims can be lodged for damage resulting from

- operating errors,
- insufficient maintenance.

Please observe the safety regulations for your own safety.

Use only original spare parts.

We reserve the right for technical modifications without prior notification.

We wish you much success with your drilling and milling machine 40 (E).

GENERAL SAFETY RULES

Warning! Read and understand all instructions.

Failure to follow all instructions listed below, may result in electric shock, fire and/or serious personal injury.

Save these instructions.

Work Area:

Keep your work area clean and well lit.

Cluttered benches and 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 bystanders, children, and visitors away while operating a power tool. Distractions can cause you to lose control.

Electrical Safety:

Double Insulated tools are equipped with a polarized plug (one blade is wider than the other).

This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet.

Do not change the plug in any way.

Double Insulation eliminates the need for the three wire grounded power cord and grounded power supply system. 

Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock, if your body is 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 to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately. Damaged cords increase the risk of electric shock.

When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W."

These cords are rated for outdoor use and reduce 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 tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.

Dress properly. Do not wear loose clothing or jewelry.

Contain long hair. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.

Avoid accidental starting. Be sure switch is off before plugging in.

Carrying tools with your finger on the switch or plugging in tools that have the switch on invites accidents.

Remove adjusting keys or wrenches before turning the tool on. A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.

Do not overreach. Keep proper footing and balance at all times. Proper footing and balance enables better control of the tool in unexpected situations.

Use safety equipment. Always wear eye protection.

Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

Tool Use and Care:

Use clamps or other practical way to secure and support the workpiece to a stable platform.

Holding the work by hand or against your body is unstable and may lead to loss of control.

Do not force tool. Use the correct tool for your application. The correct tool will do the job better and safer at the rate for which it is designed.

Do not use tool, if switch does not turn it on or off.

Any tool that cannot be controlled with the switch is dangerous and must be repaired.

Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.

Store idle tools out of reach of children and other untrained persons. Tools are dangerous in the hands of untrained users.

Maintain tools with care. Keep cutting tools sharp and clean.

Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control.

Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools operation. If damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools.

Use only accessories that are recommended by the manufacturer for your model.

Accessories that may be suitable for one tool, may become hazardous when used on another tool.

Service

Tool service must be performed only by qualified repair personnel. Service or maintenance performed by unqualified personnel could result in a risk of injury.

When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance section of this manual.

Use of unauthorized parts or failure to follow Maintenance Instructions may create a risk of electric shock or injury. Certain cleaning agents such as gasoline, carbon tetrachloride, ammonia etc. may damage plastic parts.

SPECIFIC SAFETY RULES FOR ROTARY TOOLS

Hold tool by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord.

Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator. If cutting into existing walls or other blind areas where electrical wiring may exist is unavoidable, disconnect all fuses or circuit breakers feeding this worksite.

Accessories must be rated for at least the speed recommended on the tool warning label. Wheels and other accessories running over rated speed can fly apart and cause injury.

Always disconnect the power cord from the power source before making any adjustments or attaching any accessories.

You may unexpectedly cause tool to start leading to serious personal injury.

Be aware of the switch location, when placing the tool down or when picking the tool up.

You may accidentally activate the switch.

Always wear safety goggles and dust mask. Use the tool only in ventilated area.

Using personal safety devices and working in safe environment reduces risk of injury.

After changing the bits or making any adjustments, make sure the collet nut and any other adjustment devices are securely tightened.

Loose adjustment device can unexpectedly shift, causing loss of control, loose rotating components will be violently thrown.

Do not reach in the area of the spinning bit.

The proximity of the spinning bit to your hand may not always be obvious.

Allow brushes to run at operating speed for at least one minute before using wheel. During this time no one is to stand in front or in line with the brush.

Loose bristles or wires will be discharged during the run in time.

Wire and bristle brushes must never be operated at speeds greater than 15,000/min. Direct the discharge of the spinning wire brush away from you.

Small particles and tiny wire fragments may be discharged at high velocity during the "cleaning" action with these brushes and may become embedded in your skin. Bristles or wires will be discharged from the brush at high speeds.

Carefully handle both the tool and individual grinding wheels to avoid chipping or tracking. Install a new wheel if tool is dropped while grinding. Do not use a wheel that may be damaged.

Fragments from a wheel that bursts during operation will fly away at great velocity possibly striking you or bystanders.

Never use dull or damaged bits. Sharp bits must be handled with care.

Damaged bits can snap during use. Dull bits require more force to push the tool, possibly causing the bit to break.

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. Allow for sufficient space between your hand and the spinning bit.

Round material such as dowel rods, pipes or tubing have a tendency to roll while being cut, and may cause the bit to "bite" or jump toward you. Clamping a small workpiece allows you to use both hands to control the tool.

Inspect your workpiece before cutting. When cutting irregularly shaped workpieces, plan your work so it will not slip and pinch the bit and be torn from your hand.

For example, if carving wood, make sure there are no nails or foreign objects in the workpiece. Nails or foreign objects can cause the bit to jump.

Never start the tool when the bit is engaged in the material. The bit cutting edge may grab the material causing loss of control of the cutter.

Avoid bouncing and snagging the wheel, especially when working corners, sharp edges etc. This can cause loss of control and kick-back.

The direction of feed with the bit into the material when carving, routing or cutting is very important. 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.

If the workpiece or bit becomes jammed or bogged down, turn the tool off by the switch. Wait for all moving parts to stop and unplug the tool, then work to free the jammed material.

If the switch of the tool is left on, the tool could restart unexpectedly causing seriouspersonal injury.

Do not leave a running tool unattended, turn power off.

Only when tool comes to a complete stop, it is safe to put it down.

Do not grind or sand near flammable materials.

Sparks from the wheel could ignite these materials.

Do not touch the bit or collet after use.

After use the bit and collet are too hot to be touched by bare hands.

Regularly clean the tool's air vents by compressed air.

Excessive accumulation of powdered metal inside the motor housing may cause electrical failures.

Do not allow familiarity gained from frequent use of your rotary tool to become commonplace. Always remember that a careless fraction of a second is sufficient to inflict severe injury.

Do not alter or misuse tool.

Any alteration or modification is a misuse and may result in serious personal injury.

This product is not intended for use as a dental drill or in medical applications.

Serious personal injury may result.

When using steel saws, cutoff wheels, high speed cutters or tungsten carbide cutters, always have the work securely clamped. Never attempt to hold the work with one hand while using any of these accessories.

The reason is that these wheels will grab if they become slightly canted in the groove, and can kick-back causing loss of control resulting in serious injury. Your second hand should be used to steady and guide the hand holding the tool. When a cutoff wheel grabs, the wheel itself usually breaks. When the steel saw, high speed cutters or tungsten carbide cutters grab, it may jump from the groove and you could lose control of the tool.

SAFETY REGULATIONS

Attention!

Please read and apply the following safety regulations thoroughly before starting to work with the machine, thereby protecting yourself and others.

– Keep the working area clean and tidy.
– Do not use electrical tools in rain, under wet conditions or in the vicinity of inflammable liquids or gases.
– Avoid contact with grounded parts such as pipes, radiators cookers and refridgerators.
– Keep children away from the working area.
– Always wear goggles.
– Wear a breathing mask under dusty working conditions.
– Store unused tools in a locked room out of the reach of children.
– Before starting to work check the machine for any obvious faults, replace damaged parts.
– Do not overload the machine.
– Do not use too weak tools for too hard work.
– Do not carry the machine by the power cable.
– Protect the power cable against heat and sharp edges.
– Fasten and clamp the work piece securely.
– Replace blunt tools
– Clean the machine after use.
– Always disconnect the power cable if the machine is not in use, when changing tools or in case of repairs.
– Repairs in the electric system should be carried out by a specialist.
– Use only accessories and spare parts which are mentioned in these instructions or are recommended by the manufacturer.

Description of the machine

Note:

The set 38515 icludes additionally:
1 Power unit
1 set of tools, see page 8
1 flexible shaft, see also page 8

Legend

1. ON - OFF switch with speed control (MM 50/E only)
2. Retainer
3. Connecting cable
4. ON - OFF switch (MM 50 only)
5. Lock button
6. Clamping nut with collet
7. Housing cap

Functional Description

The PROXXON Rotary Tool Micromot 50 / Micromot 50/E is the ideal tool for precise drilling, milling, grinding, polishing, brushing. It can be used for cutting, for engraving and to remove rust. For hobby electronics, model making, precision mechanics, jewellery shops, opticians, arts, tool and mould making. For marking tools and cameras. It can be used on steel, non-ferrous metals, glass, plastic materials, wood, minerals and ceramics. The drill spindle is supported in a precision ball bearing which eliminates any play. Excellent handling because of the pen-type grip. The machine is reliably driven by a high torque motor. Type 50/E is fitted with an electronic speed regulator.

Technical data

Length:	approx. 9" (220 mm)
Weight:	approx. 1/2 lb (230 g)
Spindle collar:	Ø 3/4" (20 mm)
Motor:	
Speed (50):	20 000 rpm
Speed (50/E):	5000 to 20 000 rpm
Voltage:	12 to 18 V
Power draw:	approx. 40 W
Noise level:	≤ 70 dB (A)

Operation

Clamping, changing tools

Warning:

Never press the locking pin (arrow Fig. 2) while the machine is running.

– Turn the clamping nut 1 (Fig. 2) lightly while pressing the lock button until the pin engages.

– Open the collet and change the bit.

Clamp all tools as short as possible. Shafts, which stick out too far will easily bend causing the machine to vibrate.

Power supply:

Use only power units with a minimum power of 1 A. We strongly recommend to use the PROXXON adaptors type NG 2 (S/E) or the NG 5/E or the included power suppy (only 38515).

Warning:

Do not use a power unit with external speed control in combination with the Micromot 50/E !

1. Push the non-reversible plug into the power unit.

In case of overloading the PROXXON-power unit will switch off automatically. Pull the mains plug out and let the power unit cool down for some minutes.

Working with the machine

Warning:

Always wear goggles!

Do not use any broken grinding discs or bent shafts!

Wear a breathing mask when working under dusty conditions!

2. Start the machine on switch 4 (Fig. 1) or set the correct speed (50/E only) with the button 1

Note:

High performance is not achieved by high pressure but by even speed!

Small tools = high speed

Big tools = low speed

3. For delicate work hold the tool like a pen (Fig. 3). Keep the ventilation slots open.

4. For rough work hold the machine like a hammer

The electronic speed regulation works only with non-stabilized power units (like for example all PROXXON-power units). In connection with a battery the machine will only run at high speed.

Accessories:

WARNING!

An external speed control should never be used with this tool.

For complete information regarding PROXXON accessories, ask for our equipment catalog at the address provided on the last page beneath the warranty information.

These collets are supplied with the device 28500/-10:

1/32" = 0,8 to 1,0 mm;

3/32" = 2,2 to 2,4 mm;

7/64" = 2,8 to 3,0 mm

For 38515 additionally:

1/16" = 1,3 to 1,5 mm;

5/64" = 1,8 to 2,0 mm;

1/8" = 3,0 to 3,2 mm

Operating Speeds for Accessories

Your tool is equipped with an electronic feedback system (only 50/E), that helps to keep the preselected rotating speed virtually constant between no-load and load conditions.

WARNING!

Always wear eye protection when operating the unit with the brass brushes !

WARNING!

Only use accessories and spare parts recommended by PROXXON (Observe the max. permitted rotational speed!).

The following table shows you the recommended and the maximum speed for different accessories, supplied for your PROXXON Micromot-device (only 38515):

	Recommended:	Maximum:
Brass Brushes	12.000 rpm	15.000 rpm
Grinding wheels		
Aluminium oxide:	20.000 rpm	30.000 rpm
Silicon carbide	20.000 rpm	30.000 rpm
Spring steel saw blade:	15.000-18.000 rpm	20.000 rpm
Cut-off wheels:	20.000 rpm	20.000 rpm
Aluminium oxide grinding bits:	20.000 rpm	70.000 rpm
Diamond milling bit:	18.000-20.000 rpm	300.000 rpm
Fine cutter:	20.000-25.000 rpm	100.000 rpm
Drills:		
Micro-drill 1/64“ (0,5 mm)		
Soft material:	5.000-8.000 rpm	10.000 rpm
Hard material:	1.500-2.000 rpm	
Micro-drill 1/32“ (1,0 mm)		
Soft material:	5.000-8.000 rpm	65.000 rpm
Hard material:	1.500-2.000 rpm	

Care and maintenance

After use:

Warning!

When finished using the machine, unplug it and remove any dust clinging to vent slits.

Clean the unit thoroughly, removing all grinding dust with a brush or a soft cloth. Ensure all ventilation slots are free from obstruction.

Warning!

Turn switch OFF and always remove plug from power source before making any adjustments or repairs.

If any part is missing or damaged, do not plug the tool in, until the missing or damaged part is replaced, and assembly is complete. To avoid electrical shock, use only identical replacement parts when servicing double insulated tools.

All electrical or mechanical repairs should be done only by qualified service technicians.

When servicing, use only PROXXON replacement parts.

Use of any other parts may create a hazard or cause product damage.

Any attempt to repair or replace electrical parts on this tool may create a hazard unless repair is done by a qualified service technician.

Repair service is available at your PROXXON service center

(You will find the address at address on the back of this manual).