

PROXXON

Precision Rotary Tool FBS 115/E



3080767

Conforms to
ANSI/UL 60745-1
ANSI/UL 60745-2-1

Certified to

CAN/CSA-C22.2 No. 60745-1-04
CAN/CSA-C22.2 No. 60745-2-1-04

Manual

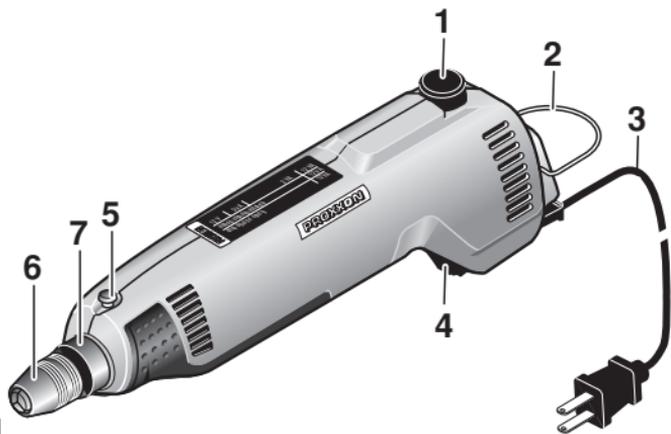


Fig. 1

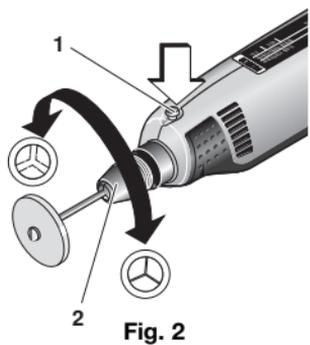


Fig. 2



Fig. 3

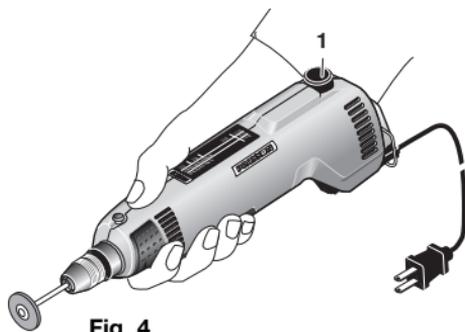


Fig. 4

Dear Customer,

Before putting the machine into operation, read the following safety rules and operating instructions.

For your safety: Never connect the plug to the power source receptacle until the assembly and adjustment steps are completed, and you have read and understood the safety and operating instructions.

To avoid injury from unexpected starting or electrical shock, do not plug the power cord into a power source receptacle during unpacking and assembly. This cord must remain unplugged whenever you are working on the precision rotary tool.

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, jewellery, or long hair can be caught in moving parts.

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

A wrench or a key that is left attached to a rotating part of the tool may result in 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.

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 powersource 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 serious personal 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.
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 cutter, or tungsten carbide cutter grabs, the work usually breaks.

Symbols

Important: Some of the following symbols may be used on your tool. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to operate the tool better and safer.

Symbol	Name	Designation/Explanation
V	Volts	Voltage (potential)
A	Amperes	Current
Hz	Hertz	Frequency (cycles per second)
W	Watt	Power
kg	Kilograms	Weight
min	Minutes	Time
s	Seconds	Time
Ø	Diameter	Size of drill bits, grinding wheels, etc.
n ₀	No load speed	Rotational speed, at no load
.../min	Revolutions or reciprocation per minute	Revolutions, strokes, surface speed, orbits etc. per minute
1, 2, 3, ...	Selector settings	Speed, torque or position settings. Higher number means greater speed
	Infinitely variable selector	Speed is increasing from narrow end
	Arrow	Action in the direction of arrow
~	Alternating current	Type or a characteristic of current
	Class II construction	Designates Double Insulated Construction tools.

The quiet-running permanent-magnet motor provides powerful torque over the entire speed range. The anti-lash precision ball bearings of the drill spindle facilitate optimal run out turning. The spindle head is turned out for easy mounting of PROXXON collets (available as accessory).

Technical data

Dimensions:	
Length:	approx. 200 mm
Weight:	approx. 400 g
Chuck capacity:	0.5 to 3.2 mm
Spindle collar:	Ø 20 mm
Motor:	
Rotational speed	5,000-20,000/min
Voltage	~115 V, 60 Hz
Power consumption	approx. 100 W
Noise emission	≤ 70dB (A)
Vibration at handle	≤ 2.5 m/s ²

 Class II Equipment

Accessories:

Length:	6 1/2" with chuck (220 mm)
Weight:	1.1 lb (500 g)
Chuck capacity:	3/8" - 1/2" (9.5 - 12.7 mm)
Spindle collar:	3/4" (19 mm) recommended maximum speed
Motor:	
Rotational speed	5,000-20,000 rpm
Voltage	115 V, 60 Hz
Set of abrasive pencils 2 pce.	20,000/min ~ 115,000 Hz
Set of grinding wheels 2 pce.	20,000/min ~ 30,000/min

Operating instructions

Noise emission

Vibration at handle

1/8 hp (100 W)

≤ 70 dB (A)

≤ 2.5 m/s²

Clamping and changing the tools

 Class II Equipment (Double insulation)

For your own safety, do not plug the tool into the power source receptacle or insert the switch key, until the parts are correctly installed and adjustments have been made.

To avoid injury from accidental start, make sure the switch is in the OFF position and the plug is not connected to the power source receptacle before changing any parts or tools (i. e. cutter)

Never press lock button **1** (Fig. 2) with machine running.

1. Slightly turn drill chuck **2** (Fig. 2) and simultaneously press lock button (1) until the latter engages.
2. Open chuck and change bit.

When clamping drill bits, insert to minimize projecting length. Long shafts bend easily and degrade run out.

We recommend PROXXON collets for optimal true running.

Using the machine

Important!

To avoid possible injury, keep the guard in place and in working order when operating the tool.

Always wear protective goggles when using the machine.

Warning!

Never use damaged grinding wheels or bent shafts.

1. Switch on machine at switch **4** (Fig. 1) and set the appropriate operating speed at button 1 (Fig. 1).

Note:

Optimum grinding results are achieved through uniform speed and not by applying excessive pressure.

Small cutters/bits = high speed,

Large cutters/bits = low speed.

2. When cutting or engraving, hold the machine as if it were a pen (Fig. 3), being careful not to occlude the vent slits.
3. For roughing down, grip the machine as if it were a hammer (Fig. 4).

Care and maintenance

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

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 rotary 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 rotary tool may create a hazard unless repair is done by a qualified service technician. Repair service is available at your PROXXON service center (You find the address at address at the back of this manual).

	recommended speed
Aluminum-Oxide Mounted points, 2 pc.	20.000 rpm
Set of each one Aluminum-Oxide and Silicon Carbide Grinding Wheel	20.000 rpm
Spring steel cut-off blade, Ø 7/8", 1 pc.	18.000 rpm
Aluminum-Oxide Cut-Off Wheels, Ø 7/8", 20 pc., incl. mandrel	20.000 rpm
HSS Twist Drill Set, 7 pc.	20.000 rpm
Brass Wheel Brush, Ø 7/8", 1 pc.	12.000 rpm
Sanding Bands, 150 grit, 5 pc. incl. mandrel	20.000 rpm