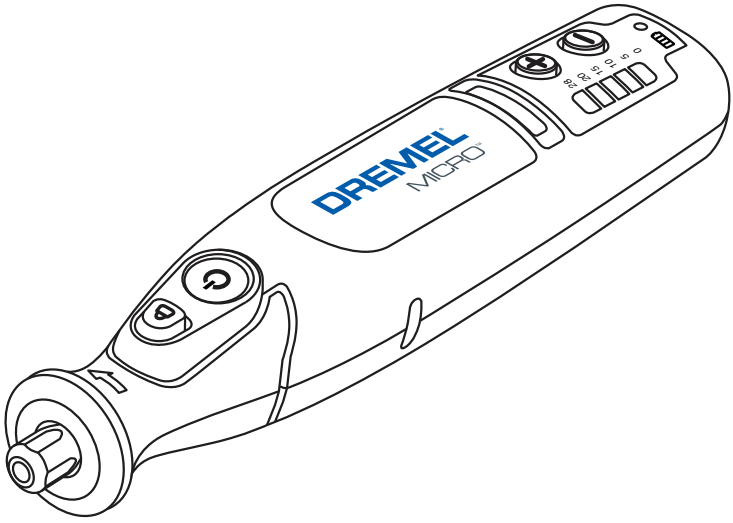
IMPORTANT:
Read Before Using

IMPORTANT :
Lire avant usage

IMPORTANTE:
Leer antes de usar

Operating/Safety Instructions
Consignes de sécurité/d'utilisation
Instrucciones de funcionamiento y seguridad

Micro
8050



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For English Version See page 2

Version française Voir page 31

Versión en español Ver la página 61

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 the power tool in damp locations is unavoidable, use a Ground Fault Circuit Interrupter (GFCI) protected supply. Use of an GFCI 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 energizing 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 jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry 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.

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 safety 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.

Battery tool use and care

Recharge only with the charger specified by the manufacturer. A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.

Use power tools only with specifically designated battery packs. Use of any other battery packs may create a risk of injury and fire.

When battery pack is not in use, keep it away from other metal objects like paper clips, coins, keys, nails, screws, or other small metal objects that can make a connection from one terminal to another. Shorting the battery terminals together may cause burns or a fire.

Under abusive conditions, liquid may be ejected from the battery, avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.

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.

Safety Rules for Rotary Tools

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

This power tool is intended to function as a grinder, sander, wire brush, 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.

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 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.

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.

The arbor size of wheels, flanges, backing pads or any other accessory must properly fit the spindle of the power tool. Accessories with arbor 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.

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

Safety Rules for Rotary Tools - (cont.)

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 shock the operator.

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.

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, backing pad, 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 at the point of the binding.

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 kickout. 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 torque reactions or 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 Rules for Rotary Tools - (cont.)

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.

Safety warnings specific for wire brushing operations:

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.

Allow brushes to run at operating speed for at least one minute before using them. 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.

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 use of these brushes and may become imbedded in your skin.

Additional Safety Warnings

GFCI and personal protection devices like electrician's rubber gloves and footwear will further enhance your personal safety.

Do not use AC only rated tools with a DC power supply. While the tool may appear to work, the electrical components of the AC rated tool are likely to fail and create a hazard to the operator.

Keep handles dry, clean and free from oil and grease. Slippery hands cannot safely control the power tool.

Develop a periodic maintenance schedule for your tool. When cleaning a tool be careful not to disassemble any portion of the tool since internal wires may be misplaced or pinched or safety guard return springs may be improperly mounted. Certain cleaning agents such as gasoline, carbon tetrachloride, ammonia, etc. may damage plastic parts.

Ensure the switch is in the off position before inserting battery pack. Inserting the battery pack into power tools that have the switch on invites accidents.

⚠ 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.

FCC Caution:

The manufacturer is not responsible for radio interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interference, and
2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE! This equipment has been tested and found to comply with the limits for a Class B digital devices, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Charger Safety Rules

1. **This manual contains instructions for battery charger model 887.** Do not substitute any other charger.

2. **Before using battery charger, read all instructions and cautionary markings on battery charger and product using battery.**

3. **Charge only Dremel Micro.** Other types of cordless tools may burst causing personal injury and damage.

4. **Charge tool in temperatures above +32 degrees F (0 degrees C) and below +113 degrees F (45 degrees C). Store tool in locations where temperatures will not exceed 120 degrees F (49 degrees C).** This is important to prevent serious damage to the battery cells.

5. **Do not recharge tool in damp or wet environment. Do not expose charger to rain or snow.** Water entering battery charger may result in electric shock or fire.

6. **Battery leakage may occur under extreme usage or temperature conditions. Avoid contact with skin and eyes.** The battery liquid is caustic and could cause chemical burns to tissues. If liquid comes in contact with skin, wash quickly with soap and water. If the liquid contacts your eyes, flush them with water for a minimum of 10 minutes and seek medical attention.

7. **Place charger on flat nonflammable surfaces and away from flammable materials when recharging tool.** Carpeting and other heat insulating surfaces block proper air circulation which may cause overheating of the charger and tool. If smoke or melting of the charger or tool is observed, unplug the charger immediately and do not use the tool or charger. Contact customer service immediately.

8. **Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.** Damaged plug and cord may result in electric shock or fire.

9. **Disconnect the charger by pulling the plug rather than the cord. Do not operate charger with damaged cord or plug; have them replaced immediately.** Damaged plug or cord may result in electric shock or fire.

10. **Do not insert tool in charger if tool housing is cracked.** Using damaged tool may result in electric shock or fire.

11. **Do not disassemble charger or operate the charger if it has received a sharp blow, been dropped or otherwise damaged in anyway.** Incorrect reassembly or damage may result in electric shock or fire.

12. **Before each use, check the battery charger, cable and plug. If damage is detected, do not use the battery charger. Never open the battery charger yourself, take it to a Dremel Factory Service Center, or qualified serviceman only using original spare parts.** Incorrect reassembly may result in electric shock or fire.

13. **Dremel Micro does not accept any attachment.**

14. **Do not store tool in charger.** Battery pack stored in charger over a long period of time could lead to battery pack damage and fire.

15. **Unplug charger from outlet before storage, attempting any maintenance or cleaning.** Such preventive safety measures reduce the risk of electric shock or fire.

16. **Keep the battery charger clean by blowing compressed air on charger vents and wiping the charger housing with a damp cloth.** Contamination may result in electric shock or fire.

17. **If substantial drop in operating time per charge is observed the tool battery may be nearing the end of its life.** Take the tool to a Dremel factory service center or qualified serviceman to replace battery with Dremel original spare parts.

Battery Care

⚠ WARNING **When tool is not in charger, keep it away from metal objects.** For example, to protect terminals from shorting, **DO NOT** place tool in a tool box or pocket with nails, screws, keys, etc. Fire or injury may result.

DO NOT PUT TOOL INTO FIRE OR EXPOSE TO HIGH HEAT. It may explode.

Battery Disposal

⚠ WARNING **Do not attempt to disassemble the tool or remove any component projecting from the tool.** Fire or injury may result. Prior to disposal, protect exposed terminals with heavy insulating tape to prevent shorting.

LITHIUM-ION BATTERIES

If equipped with a lithium-ion battery, the battery must be collected, recycled or disposed of in an environmentally sound manner.

"The EPA certified RBRC Battery Recycling Seal on the lithium-ion (Li-ion) battery indicates Robert Bosch Tool Corporation is voluntarily participating in an industry program to collect and recycle these batteries at the end of their useful life, when taken out of service in the United States or Canada. The RBRC program provides a convenient alterative to placing used Li-ion batteries into the trash or the municipal waste stream, which may be illegal in your area.

Please call 1-800-8-BATTERY for information on Li-ion battery recycling and disposal bans/restrictions in your area, or return your batteries to a Skil/Bosch/Dremel Service Center for recycling. Robert Bosch Tool Corporation's involvement in this program is part of our commitment to preserving our environment and conserving our natural resources."

Battery Removal Instructions

⚠ CAUTION Run motor until battery is completely discharged before attempting to remove battery from your tool.

1. Remove collet nut and collet.
2. Remove the six (6) housing screws with a phillips screwdriver.
3. Remove housing cover by lifting upward at backend of tool.
4. Disconnect lead wires from battery.
5. Wrap heavy insulating tape around battery terminals or enclose in a sealable plastic bag to prevent possible shorting.
6. Dispose of battery through your local waste removal authority or a Skil/Bosch/Dremel Service Center.

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
n	Rated speed	Maximum attainable speed
.../min	Revolutions or reciprocation per minute	Revolutions, strokes, surface speed, orbits etc. per minute
0	Off position	Zero speed, zero torque...
1, 2, 3, ... I, II, III,	Selector settings	Speed, torque or position settings. Higher number means greater speed
0	Infinitely variable selector with off	Speed is increasing from 0 setting
	Arrow	Action in the direction of arrow
~	Alternating current	Type or a characteristic of current
⎓	Direct current	Type or a characteristic of current
≂	Alternating or direct current	Type or a characteristic of current
⧈	Class II construction	Designates Double Insulated Construction tools.
⏚	Earthing terminal	Grounding terminal
	Warning symbol	Alerts user to warning messages
RECYCLE RBRC Li-ion 1.800.822.8837	Li-ion RBRC seal	Designates Li-ion battery recycling program
RECYCLE RBRC NiCd 1.800.822.8837	Ni-Cad RBRC seal	Designates Ni-Cad battery recycling program
	Read manual symbol	Alerts user to read manual
	Wear eye protection symbol	Alerts user to wear eye protection

Symbols (continued)

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.

This symbol designates that this tool is listed by Underwriters Laboratories.

This symbol designates that this component is recognized by Underwriters Laboratories.

This symbol designates that this tool is listed by Underwriters Laboratories, to United States and Canadian Standards.

This symbol designates that this tool is listed by the Canadian Standards Association.

This symbol designates that this tool is listed by the Canadian Standards Association, to United States and Canadian Standards.

This symbol designates that this tool is listed by the Intertek Testing Services, to United States and Canadian Standards.

This symbol designates that this tool complies to NOM Mexican Standards.

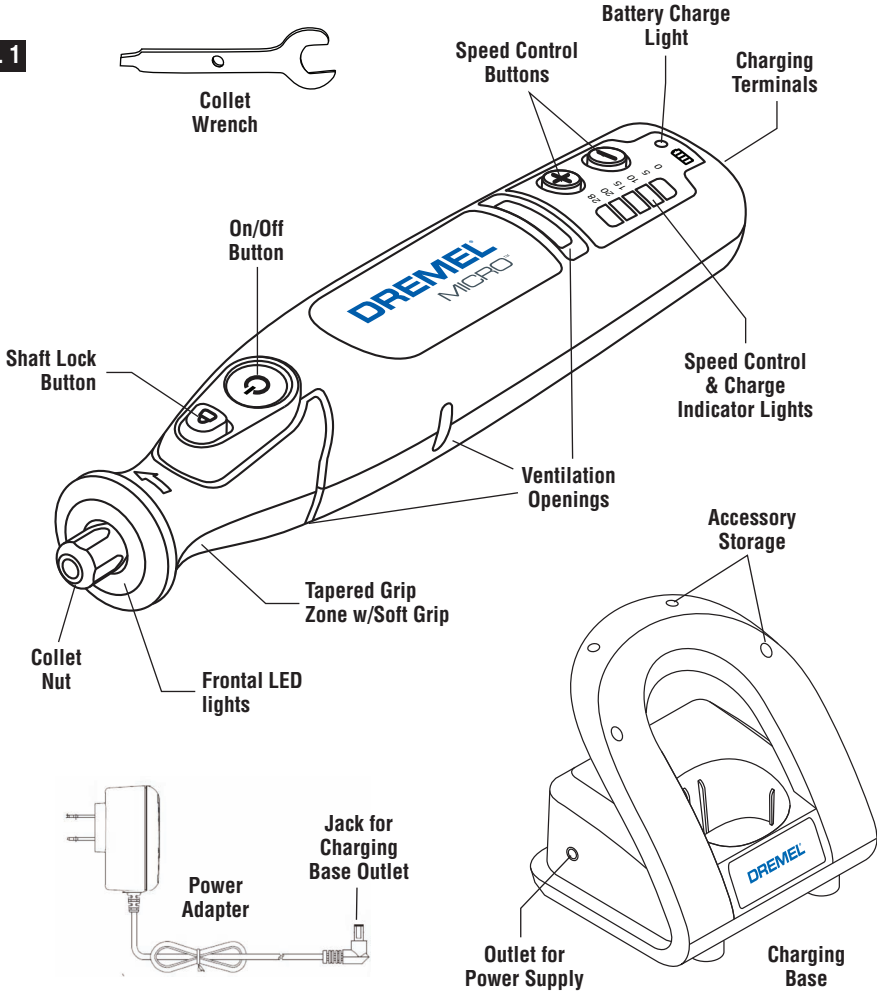
Functional Description and Specifications

⚠ WARNING **Battery tools are always in an operative condition.** Be aware of the possible hazards.

SAVE THESE INSTRUCTIONS

Micro Cordless Rotary Tool

FIG. 1



Micro Cordless Rotary Tool	
Model Number	8050
Voltage Rating	7.2V / 8V MAX
No Load Speed	n_0 5,000-28,000/min
Collet Capacities	1/32, 1/16", 3/32", 1/8"

Charger (Charging Base & Power Adapter)	
Model Number	887
Charge Time	3 Hrs 45 Min
Voltage Rating	120 V ∿ 60 Hz
Amperage Rating	270mA
Battery Chemistry	Lithium

Assembly

⚠ WARNING **Always be sure the tool is turned "OFF" before changing accessories, changing collets or servicing your cordless rotary tool.**

COLLET NUT

To loosen the collet nut, first press shaft lock button and rotate the shaft by hand until the lock engages the shaft preventing further rotation. Your Dremel Micro is equipped with a shaft lock mechanism. This mechanism engages the output shaft in 2 separate locations on the shaft for easier operation.

⚠ CAUTION **Do not engage lock while the Rotary Tool is running.**

With the shaft lock engaged, use the collet wrench to loosen the collet nut if necessary. The collet nut must be loosely threaded on when inserting an accessory. Change accessories by inserting the new one into the collet as far as possible to minimize runout and unbalance. With the shaft lock engaged, finger tighten the collet nut until the accessory shank is gripped by the collet. **Avoid excessive tightening of the collet nut when there is no bit inserted.**

COLLETS

Four different size collets (see illustration), to accommodate different shank sizes, are available for your Rotary Tool. To install a different collet, remove the collet nut and remove the old collet. Insert the unslotted end of the collet in the hole in the end of the tool shaft. Replace collet nut on the shaft.

⚠ CAUTION **Always use the collet which matches the shank size of the accessory you plan to use.** Never force a larger diameter shank into a collet.

Note: Most rotary tool kits do not include all four collets sizes.

BALANCING ACCESSORIES

For precision work, it is important that all accessories be in good balance (much the same as the tires on your automobile). To true up or balance an accessory, slightly loosen collet nut and give the accessory or collet a 1/4 turn. Retighten collet nut and run the Rotary Tool. You should be able to tell by the sound and feel if your accessory is running in balance. Continue adjusting in this fashion until best balance is achieved. To maintain balance on abrasive wheel points, before each use, with the wheel point secured in the collet, turn on the Rotary Tool and run the 415 Dressing Stone lightly against the revolving wheel point. This removes high spots and trues up the wheel point for good balance.

FIG. 2

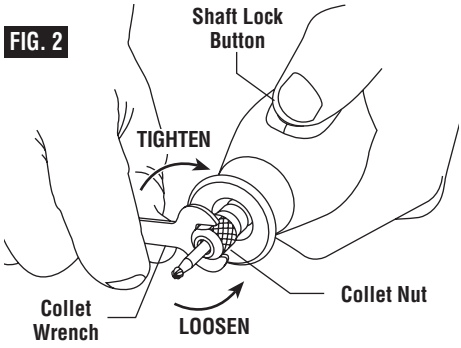
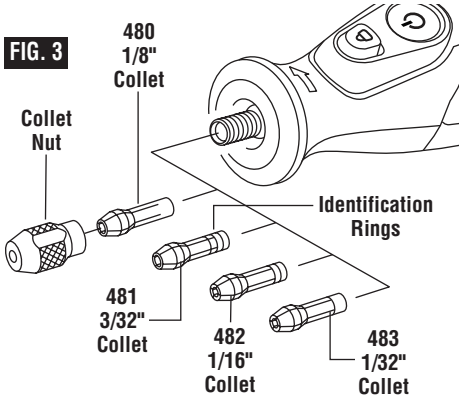


FIG. 3



COLLET IDENTIFICATION CHART

Collet sizes can be identified by the rings on the back end of collet.

1/32"	Collet has one (1) ring.
1/16"	Collet has two (2) rings.
3/32"	Collet has three (3) rings.
1/8"	Collet has no rings. **(Included in most tool kits on the tool)**

Operating Instructions

Dremel Micro - Introduction

Thank you for purchasing the new Dremel Micro the most precise and compact cordless tool produced by the worldwide leader in rotary tools. This product was designed by the many Dremel users who passionately use their rotary tools daily. The combination of design, ergonomics, and motor makes the Dremel Micro highly user friendly and ideal for precise work and demanding tasks.

1-Precise

The new Dremel tool is perfect for fine, detailed work where precision and control are needed. The compact and ergonomic housing is designed for you to hold between your thumb and forefinger so that the tool can be controlled like a pencil. When held in this position you can hardly feel the lightweight and compact tool in your hand! It is intended to be an extension of your hand and can be used comfortably for prolonged periods of time thanks also to the soft grip included in the front end of the housing. The ultra slim body and taper front-end allow you to grip the tool much closer to the work piece for a better maneuverability and control especially when working on intricate projects or in confined/tight areas. Yet, all tool components have been perfectly tuned to deliver the least amount of vibrations and accessory run out so that comfort and precision experience are best in class. The tool is also provided with front-end LED lights to illuminate the work piece for better visibility. Portability is another benefit of the compact design. Its small size and light weight offer the freedom to take the Dremel Micro anywhere.

2-Powerful

Power is another great benefit you will experience while working with Dremel Micro. Operations like engraving, sanding and polishing are always expected from a rotary tool. What might not be expected from such a small tool is the power to conduct light duty DIY tasks such as cutting screws and nails. This tool will surprise you: the combination of a compact and highly efficient DC motor, smaller Lithium-ion battery cells and smart electronics allow for tougher applications than you think. Powered by cutting edge Lithium Technology batteries and provided with a charging base, the Dremel Micro is always ready to be used for precise/detailed projects as well as quick fixes. The power adapter in combination with the charging base keep the tool fully charged at all times: it automatically stops when the batteries have reached 100% of their storage capacity so that the tool can be left onto the charging base for prolonged periods of time. This smart technology ensures enough run-time to complete a whole range of applications even if the tool is used intermittently. For cordless tools, in fact, it is critical that the battery does not drain quickly during storage otherwise you will experience the frustration of having to charge the tool before use.

3-Versatile

The Dremel Micro comes with a limited assortment of rotary accessories but it is fully compatible with the rest of the Dremel rotary accessory program. The versatility of the tool is represented by its ability to complete a wide spectrum of applications with the simple change of an accessory. Accessories come in a variety of shapes and permit you to do a number of different jobs. The LED lights on the topside of the battery housing facilitate the identification and selection of the optimal speed for each accessory. In addition, the shaft lock mechanism makes locking the output shaft easier for changing accessories. You will appreciate the many applications the Dremel Micro can easily tackle.

Rotary Tool Introduction

The Rotary Tool has a small, powerful electric motor, is comfortable in the hand, and is made to accept a large variety of accessories including abrasive wheels, drill bits, wire brushes, polishers, engraving cutters, cutting wheels. As you become familiar with the range of accessories and their uses, you will learn just how versatile the Rotary Tool is. You'll see dozens of uses you hadn't thought of before.

The real secret of the Rotary Tool is its speed. To understand the advantages of its high speed, you have to know that the standard portable electric drill runs at speeds up to 2,800 revolutions per minute. The Rotary Tool operates at speeds up to 28,000 revolutions per minute. The typical electric drill is a low-speed, high torque tool; the Rotary Tool is just the opposite – a high-speed, low torque tool. The major difference to the user is that in the high speed tools, the speed combined with the accessory mounted in the collet does the work. You don't apply pressure to the tool, but simply hold and

Operating Instructions (Cont.)

guide it. In the low speed tools, you not only guide the tool, but also apply pressure to it, as you do, for example, when drilling a hole.

It is this high speed, along with its compact size and wide variety of special accessories, that makes the Rotary Tool different from other tools. The speed enables it to do jobs low speed tools cannot do, such as cutting hardened steel, engraving glass, etc.

Getting the most out of your Rotary Tool is a matter of learning how to let this speed work for you. To learn about more uses and the versatility of Dremel accessories and attachments refer to this Owner's Manual or check our website at www.Dremel.com.

Using the Rotary Tool

The first step in learning to use the Rotary Tool is to get the "feel" of it. Hold it in your hand and feel its weight and balance. Feel the taper of the housing.

Always hold the tool away from your face. Accessories can be damaged during handling, and can fly apart as they come up to speed. This is not common, but it does happen.

CAUTION **Whenever you hold the tool, be careful not to cover the air vents with your hand. This blocks the air flow and causes the motor to overheat.**

For best control in close work, grip the Rotary Tool like a pencil between your thumb and forefinger (Figure 4).

The "Golf Grip" method of holding the tool can be used for more aggressive operations such as grinding a flat surface or using cutoff wheels (Figure 5).

Practice on scrap materials first to see how the Rotary Tool's high speed action performs. Keep in mind that the work is done by the speed of the tool and by the accessory in the collet. You should not lean on or push the tool during use.

Instead, lower the spinning accessory lightly to the work and allow it to touch the point at which you want cutting (or sanding or etching, etc.) to begin. Concentrate on guiding the tool over the work using very little pressure from your hand. Allow the accessory to do the work.

FIG. 4

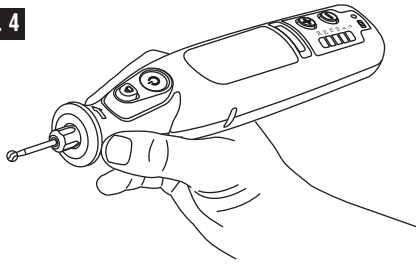
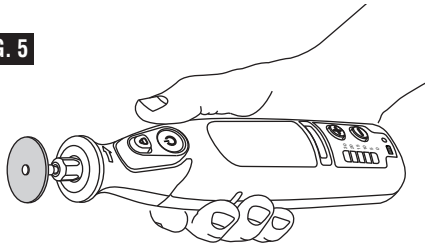


FIG. 5



Usually, it is best to make a series of passes with the tool rather than attempt to do all the work in one pass. To make a cut, for example, pass the tool back and forth over the work, much as you would a small paint brush. Cut a little material on each pass until you reach the desired depth. For most work, the gentle touch is best. With it, you have the best control, are less likely to make errors, and will get the most efficient work out of the accessory.

Questions or Problems? Call 1-800-437-3635
or check our website at www.Dremel.com

Operating Speeds

To select the right speed for each job, use a practice piece of material.

"ON/OFF" BUTTON

The tool is turned "ON" by the on/off blue button located on the topside of the tapered part of the housing.

TO TURN THE TOOL "ON" press and release the on/off blue button. The tool will start working at a speed of 15,000 rpm and the frontal LED light will turn on, If the on/off button is pressed but not released the tool and the frontal LED light won't turn on. Right after the tool is turned on you have the possibility to turn off the frontal LED light. Simply press the minus (–) blue speed control button 3 times and the frontal LED light will turn off. At this point the tool speed will be set at 5,000 rpm. To turn on the frontal LED light again simply turn off and then on again the tool.

TO TURN THE TOOL "OFF" press and release the on/off blue button. If for some reasons the on/off switch doesn't work there is always the option to alternatively turn off the tool by the following methods:

Press the minus (–) blue speed control button to bring the speed of the tool to the lowest speed level (5,000 RPM).

Hold the minus (–) blue speed control button for 5 seconds.

ELECTRONIC MONITORING

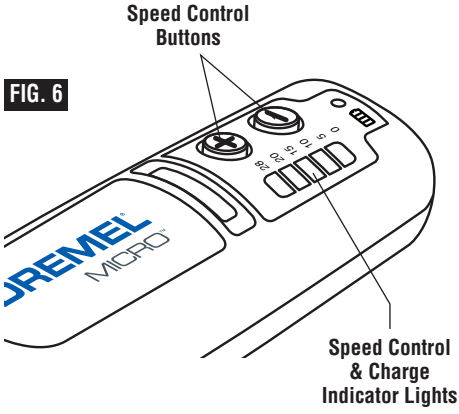
Your tool is equipped with an internal electronic monitoring system that helps to maximize motor and battery performance by limiting the current to the tool when overload and stall conditions occur. If you stall the tool for too long, or bind the bit in a work piece, especially at high speeds, the tool will automatically turn itself off thanks to the fallback built into it. Once this happens, simply take the tool out of the material you were stalled in, turn it back on again, adjust the speed if necessary, and continue using it. When the battery becomes close to empty, the tool may shut down automatically more frequent than normal. If this happens, it is time to recharge the tool.

SPEED CONTROL BUTTONS

Your Dremel Micro is equipped with speed control buttons. The speed may be adjusted during operation by pressing on the plus (+) or (-) minus blue buttons located on the topside of the battery housing. Speed will increment or decrement by 5,000 rpm from a minimum of 5,000 to a maximum of 28,000 rpm. The LED lights located alongside the blue buttons will illuminate according to the chosen speed. Every time the tool is turned off the speed set goes back to the medium level (15,000 rpm) so it might be necessary to increase/decrease the speed to the level that it was being used (e.g. 28,000 rpm) before the tool was turned off to keep working on the same application.

You can refer to the charts on pages 27–30 to determine the proper speed, based on the material being worked and the type of accessory being used. These charts enable you to select both the correct accessory and the optimum speed at a glance.

FIG. 6



Operating Speeds (Cont.)

The speed of Rotary Tool is controlled by setting the blue speed control buttons.

Settings for Approximate Revolutions

Speed Setting	Speed Range
5	5,000 RPM
10	10,000 RPM
*15	15,000 RPM
20	20,000 RPM
28	28,000 RPM

*15 is the maximum speed setting for wire brushes.

Needs for Slower Speeds

Certain materials, however, (some plastics and precious metals, for example) require a relatively slow speed because at high speed the friction of the accessory generates heat and may cause damage to the material.

Slow speeds (15,000 RPM or less) usually are best for polishing operations employing the felt polishing accessories. They may also be best for working on delicate projects as "eggery" work, delicate wood carving and fragile model parts. **All brushing applications require lower speeds to avoid wire discharge from the holder.**

Higher speeds are better for carving, cutting, shaping, cutting dadoes or rabbets in wood.

Hardwoods, metals and glass require high speed operation, and drilling should also be done at high speeds.

Many applications and accessories in our line will provide the best performance at full speed, but for certain materials, applications, and accessories, you need slower speeds, which is the reason our variable speed models are available.

To aid you in determining the optimum operational speed for different materials and different accessories, we have constructed a series of tables that appear on page 23, 24, 25 and 26. By referring to these tables, you can discover the recommended speeds for each type of accessory. Look these tables over and become familiar with them.

Ultimately, the best way to determine the correct speed for work on any material is to practice for a few minutes on a piece of scrap, even after referring to the chart. You can quickly learn that a slower or faster speed is more effective just by observing what happens as you make a pass or two at different speeds. When working with plastic, for example, start at a slow rate of speed and increase the speed until you observe that the plastic is melting at the point of contact. Then reduce the speed slightly to get the optimum working speed.

Some rules of thumb in regard to speed:

1. Plastic and other materials that melt at low temperatures should be cut at low speeds.
2. Polishing, buffing and cleaning with any type of bristle brush must be done at speeds not greater than 15,000 RPM to prevent damage to the brush from bristles flying toward operator.
3. Wood should be cut at high speed.
4. Iron or steel should be cut at high speed. If a high speed steel cutter starts to chatter — this normally means it is running too slow.
5. Aluminum, copper alloys, lead alloys, zinc alloys and tin may be cut at various speeds, depending on the type of cutting being done. Use paraffin or other suitable lubricant on the cutter to prevent the cut material from adhering to the cutter teeth.

Increasing the pressure on the tool is not the answer when it is not performing as you think it should. Perhaps you should be using a different accessory, and perhaps an adjustment in speed would solve the problem. Leaning on the tool does not help.

Your Dremel Micro can be used with all of the Dremel accessories, except router bits. While the tool will work with cut-off wheels, the reduced speed of this tool will not allow them to perform optimally. They can be used to cut soft materials such as wood or plastic, but cutting metals is not recommended. The Micro tool cannot be used with any of the Dremel line of attachments (attachments screw on to the nose of a rotary tool.)

Let speed do the work!

Use only Dremel®, high-performance accessories.

Charging Tool

FUEL GAUGE

This tool is equipped with a fuel gauge that tells you how much charge your battery has. A fully charged battery is indicated when the light is green. As the battery discharges, the light will turn orange. When the light is red, the battery is almost empty. When the battery is dead, the tool will automatically turn off. This will be a sudden stop as opposed to a gradual winding down of the tool. Simply recharge the tool and reuse.

Green Light - 100% charge remaining.

Orange Light – 50% charge remaining or the tool is being used in heavy applications (low battery voltage due to current draw).

Red Light - 25% charge remaining.

Red Flashing Light - tool is about to shut off or battery is too hot or too cold for use. Turn tool off and let battery return to normal operating temperature before resuming use.

IMPORTANT CHARGING NOTES

1. The charging base was designed to charge the tool only when the battery temperature is between 32˚F (0˚C) and 113˚F (45˚C). If the tool is too hot or too cold, the charging base will not charge the tool. (This may happen if the tool is hot from heavy use). When the tool temperature returns to between 32˚F (0˚C) and 113˚F (45˚C), the charging base will automatically begin charging.
2. A substantial drop in operating time per charge may mean that the battery is nearing the end of its life and should be replaced.
3. Remember to unplug the power adapter during storage period.
4. If tool does not charge properly:
   a. Check for voltage at outlet by plugging in some other electrical device.
   b. Check to see if outlet is connected to a light switch which turns power “off” when lights are turned off.
   c. Check charging base and power supply terminals for dirt. Clean with cotton swab and alcohol if necessary.
   d. If you still do not get proper charging, take or send tool to your local Dremel Service Center.

Note: Use of power supply not sold by Dremel will void the warranty.

Charging Tool (Cont.)

887 3 HOUR 45 MINUTE CHARGER

Your Dremel Micro does not come completely charged from the factory. Be sure to charge tool prior to initial use. Plug the power adapter jack onto the charging base and insert the power adapter plug into your standard power outlet. Place tool in charging base as shown in figure 7. The blue LED lights located on the topside of the tool housing will start scrolling top/down to signal the battery is receiving a charge. Charging will automatically stop when the tool is fully charged. When all the blue LED lights are off charging is complete. At this point the battery charge light will be green. The tool may be used even though the blue LED lights may still be scrolling top/down. The blue LED lights might require more time to stop scrolling depending on temperature.

The scope of the scrolling blue LED lights is to indicate that the tool is charging. It does not indicate the exact point of full charge. The blue LED lights will stop scrolling in less time if the tool was not completely discharged. In this case the battery charge light could be green, orange or red. When the battery pack is fully charged you can leave the tool in the charging base.

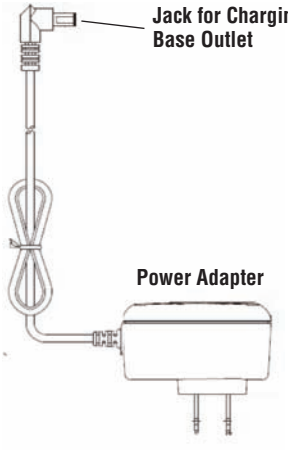
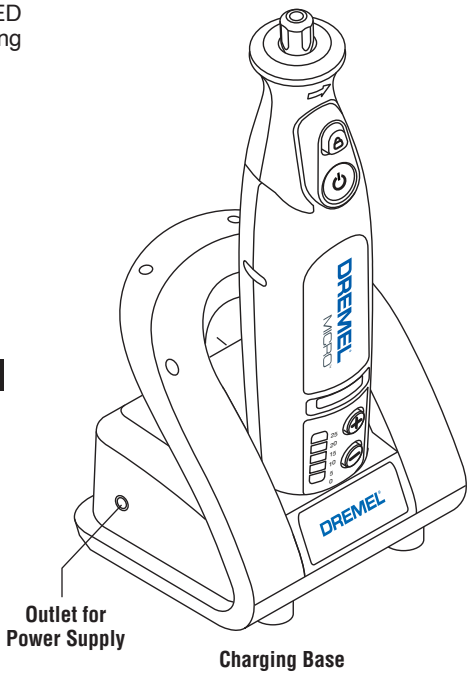


FIG. 7



Maintenance

Service

⚠ WARNING NO USER SERVICEABLE PARTS INSIDE. Preventive maintenance performed by unauthorized personnel may result in misplacing of internal wires and components which could cause serious hazard. We recommend that all tool service be performed by a Dremel Service Center. SERVICEMEN: Disconnect tool and/or charger from power source before servicing.

BATTERIES

Be alert for batteries that are nearing their end of life. If you notice decreased tool performance or significantly shorter running time between charges then it is time to replace the battery. Failure to do so can cause the tool to operate improperly or damage the charger.

D.C. MOTORS

The motor in your tool has been engineered for many hours of dependable service. To maintain peak efficiency of the motor, we recommend it be examined every six months. Only a genuine Dremel replacement motor specially designed for your tool should be used.

Cleaning

⚠ WARNING To avoid accidents, always be sure the tool is turned "OFF" before cleaning. The tool may be cleaned most effectively with compressed dry air. **Always wear safety goggles when cleaning tools with compressed air.**

Ventilation openings and switch levers must be kept clean and free of foreign matter. Do not attempt to clean by inserting pointed objects through opening.

⚠ CAUTION Certain cleaning agents and solvents damage plastic parts. Some of these are: gasoline, carbon tetrachloride, chlorinated cleaning solvents, ammonia and household detergents that contain ammonia.

Dremel Accessories

⚠ WARNING **Use only Dremel®, high-performance accessories.** Other accessories are not designed for this tool and may lead to personal injury or property damage.

The number and variety of accessories for the Rotary Tool are almost limitless. There is a category suited to almost any job you might have to do — and a variety of sizes and shapes within each category which enables you to get the perfect accessory for every need.

COLLETS

If you expect to use a variety of accessories, we recommend that in the beginning you purchase a complete set of four collets. Store these so that you will have the proper size of collet for any accessory or drill bit you want to use. **Currently, the 1/8", 3/32",1/32" and 1/16" collets accommodate all of the available Dremel accessories. 1/8" collets are included in most rotary tool kits.**

MANDRELS

A mandrel is a shank with a threaded or screw head, which are required when you use polishing accessories, cutting wheels, sanding discs, and polishing points. The reason mandrels are used is that sanding discs, cutting wheels and similar accessories must be replaced frequently. The mandrel is a permanent shank, allowing you to replace only the worn head when necessary, thus saving the expense of replacing the shaft each time.

Screw Mandrel No 401

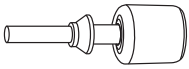
This is a screw mandrel used with the felt polishing tip and felt polishing wheels. 1/8" shank.

Small Screw Mandrel No 402

This is a mandrel with a small screw at its tip, and is used with emery and fiberglass cutting wheels, sanding discs and polishing wheels. 1/8" shank.

EZ Lock Mandrel No 402

The Dremel EZ Lock makes accessory changes easy as PULL - TWIST - RELEASE. The one-piece mandrel design simplifies the process of changing cutting wheels, buffs and detail abrasive brushes (EZ Lock compatible accessories).



EZ Drum™ Mandrel No EZ407SA

The Dremel EZ Drum makes accessory changes easy as PULL - INSERT - PRESS DOWN. The one-piece mandrel design simplifies the process of changing sanding bands.

High Speed Cutters

Available in many shapes, high speed cutters are used in carving, cutting and slotting in wood, plastics and soft metals such as aluminum, copper and brass. These are the accessories to use for freehand routing or carving in wood or plastic, and for precision cutting. Made of high quality steel. 1/8" shank.

Tungsten Carbide Cutters

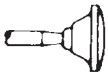
These are tough, long-lived cutters for use on hardened steel, fired ceramics and other very hard materials. They can be used for engraving on tools and garden equipment. 1/8" shanks.

Engraving Cutters

This group has a wide variety of sizes and shapes, and are made for intricate work on ceramics (greenware), wood carvings, jewelry and scrimshaw. They often are used in making complicated printed circuit boards. They should not be used on steel and other very hard materials but are excellent on wood, plastic and soft metals. 1/8" shank.

Dremel Accessories (Cont.)

Structured Tooth Tungsten Carbide Cutters
Fast cutting, needle-sharp teeth for greater material removal with minimum loading. Use on fiberglass, wood, plastic, epoxy and rubber. 1/8" shank.



Aluminum Oxide Grinding Stones (red/brown)
Round, pointed, flat — you name the shape and there is one available in this category. These are made of aluminum oxide and cover virtually every possible kind of grinding application. Use them for sharpening lawn mower blades, screwdriver tips, knives, scissors, chisels and other cutting tools. Use to remove flash from metal castings, deburring any metal after cutting, smoothing welded joints, grinding off rivets and removing rust. These grinding stones can be resharped with a dressing stone. In machine shops, high speed drills and cutters normally are ground with aluminum oxide wheels. 1/8" shank.

Silicon Carbide Grinding Stones (blue/green)
Tougher than aluminum oxide points, these are made especially for use on hard materials such as glass and ceramics. Typical uses might be the removal of stilt marks and excess glaze on ceramics and engraving on glass. 1/8" shank.

Diamond Wheel Points
Excellent for fine detail work on wood, jade, ceramic, glass and other hard material. Bits are covered with diamond particles. 1/8" shanks. (Not recommended for drilling)

Wire Brushes
Three different shapes of wire brushes are available. **For best results wire brushes should be used at speeds not greater than 15,000 RPM. Refer to Operating Speeds section for proper tool speed setting.** The three shapes come in three different materials: stainless steel, brass and carbon wire. The stainless steel perform well on pewter, aluminum, stainless steel, and other metals, without leaving "after-rust". Brass brushes are non sparking, and softer than steel; making them good for use on soft metal like gold, cooper and brass. The carbon wire brushes are good for general purpose cleaning.

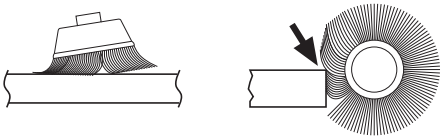
Bristle Brushes
These are excellent cleaning tools on silverware, jewelry and antiques. The three shapes make it possible to get into tight corners and other difficult places. Bristle brushes can be used with polishing compound for faster cleaning or polishing.

Dremel Accessories (Cont.)

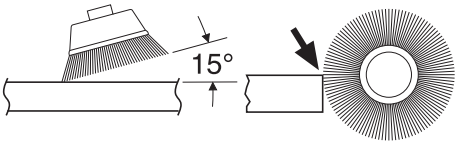
Brushing Pressure

1. Remember, the tips of a wire brush do the work. Operate the brush with the lightest pressure so only the tips of the wire come in contact with the work.
2. If heavier pressures are used, the wires will be overstressed, resulting in a wiping action; and if this is continued, the life of the brush will be shortened due to wire fatigue.
3. Apply the brush to the work in such a way that as much of the brush face as possible is in full contact with the work. Applying the side or edge of the brush to the work will result in wire breakage and shortened brush life.

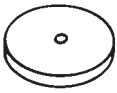
INCORRECT:
Excessive pressure can cause wire breakage.



CORRECT:
Wire tips doing the work.



EZ Lock™



Polishing Accessories

These include an impregnated polishing point and an impregnated polishing wheel for bringing metal surfaces to smooth finish; a felt polishing tip and felt polishing wheel, and cloth polishing wheel, all used for polishing plastics, metals, jewelry and small parts. Also included in this group is a polishing compound (No. 421) for use with the felt and cloth polishers.

Polishing points make a very smooth surface, but a high luster is obtained using felt or cloth wheels and polishing compound. **For best results polishing accessories should be used at speeds not greater than 15,000 RPM.**

No polishing compound is needed when using the 425 Polishing Wheel.

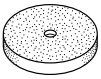
Aluminum Oxide Abrasive Wheels

Use to remove paint, deburr metal, polish stainless steel and other metals. Available in medium grit. 1/8" shank.

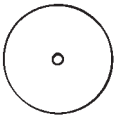
Sanding Accessories

Sanding discs in fine, medium and coarse grades are made to fit mandrel No. 402 and EZ407. They can be used for nearly any small sanding job you might have, from model making to fine furniture finishing. In addition, there is the drum sander, a tiny drum which fits into the Rotary Tool and makes it possible to shape wood, smooth fiberglass, sand inside curves and other difficult places, and other sanding jobs. You replace the sanding bands on the drum as they become worn and lose their grit. Bands come in fine medium and coarse grades. Flapwheels grind and polish flat or contoured surfaces. They are used most effectively as a finishing sander after heavier surface sanding and material removal is completed. Flapwheels come in fine and coarse grades. Buffs are a great finishing accessory for cleaning and light sanding. They work effectively on metal, glass, wood, aluminum and plastics. Coarse and medium buffs are sold together. All buffs are sold individually. **Do not exceed 15,000 RPM in speed. 1/8" shank.**

Dremel Accessories (Cont.)

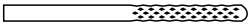


Grinding Wheel
Use for deburring, removing rust, and general purpose grinding. Use with Mandrel #402.



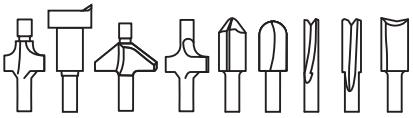
Cutting Wheels
These thin discs of emery or fiberglass are used for slicing, cutting off and similar operations. Use them for cutting off frozen bolt heads and nuts, or to reslot a screw head which has become so damaged that the screwdriver won't work in it. Fine for cutting BX cable, small rods, tubing, cable and cutting rectangular holes in sheet metal.

Drywall Cutting Bit
Gives you fast, clean cuts in drywall. Use with Dremel No 565/566 Cutting Guide attachment.



Tile Cutting Bit
Cuts ceramic wall tile, cement board, and plaster. Use with Dremel No 565/566 Cutting Guide attachment.

Spiral Cutting Bit
Cuts through all types of wood and wood composites. Use with Dremel No 565/566 Cutting Guide attachment.

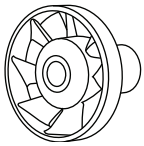


High Speed Router Bits
For routing, inlaying, and mortising in wood and other soft materials. Use with Dremel No. 335 Router attachment and No. 231 Shaper/Router table.

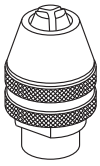
Brad Point Drill Bits
Titanium coated brad points stay on center and begin drilling immediately. For use on wood. Size 1/8", 5/32", 3/16", ¼" . 1/8" shank.

HSS Drill Bits
HSS drill bit for use in metal and plastic. Size 1/8", 7/64", 3/32", 5/64", 1/16", 3/64", 1/32". Shank size matches the drill bit size. Different collet size (481, 482, 483) or Dremel chuck (4486) required according to drill bit being used.

Glass Drill Bits
Diamond tipped drill bits for use on glass and ceramic wall tile. Lubricant included.

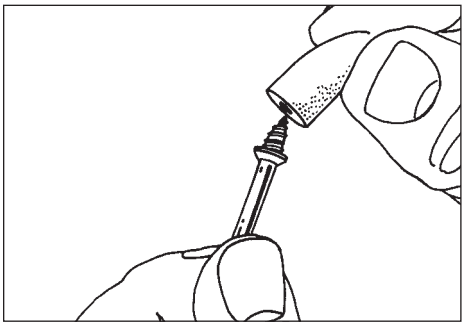


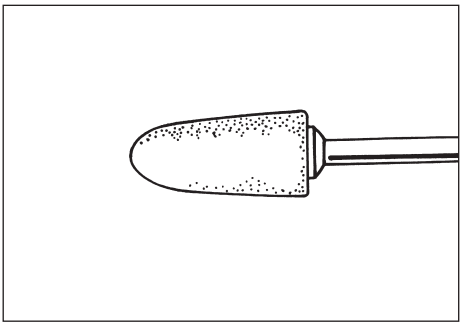
Collet Fan
Blows dust away for greater visibility to work piece. Great for sanding, engraving and carving. Do not use dust blower to stop or slow down the tool. Do not contact dust blower with fingers or workpiece during use.



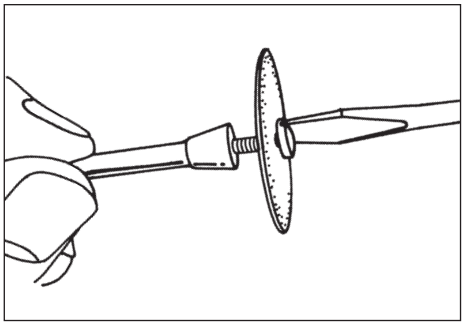
Dremel Chuck
This chuck allows you to quickly and easily change accessories on Dremel Rotary Tools without changing collets. Accepts accessories with 1/32" - 1/8" shank. Read instruction manual. Insert and securely tighten the shank of the accessory well within the jaws of the chuck.

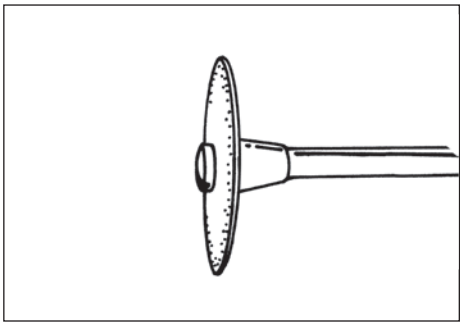
Replacing Screw Mandrel Accessories



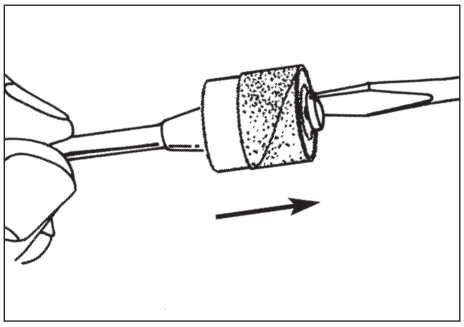


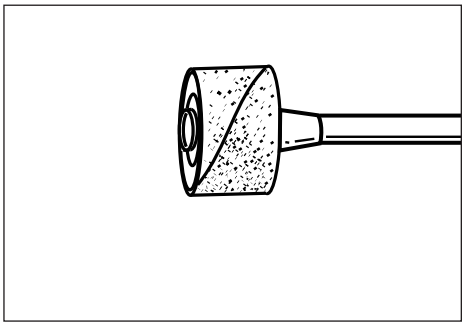
Mandrel No. 401 is used with the felt polishing tip and wheels. Thread the tip on to the screw carefully. The felt tip must thread down straight on the screw Mandrel, and be turned all the way to the collar.





Mandrel N° 402 has a small screw at its tip, and is used with emery cutting wheels and sanding discs. Higher speeds, usually maximum, are best for most work, including cutting steel. Which is shown here.





To replace a band on the **Drum Sander,** loosen the screw without removing it to contract the drum then slide the old band off. Slide the new sanding band on and then expand the drum by tightening the screw once again.

⚠ WARNING **Before each use, check to make certain that all components are assembled to accessory shank and that the drum is sufficiently expanded to secure the band during use.** If sanding band is loose on the drum during operation it may “fly” off and strike you or bystanders.

EZ Lock™ Operating Instructions

EZ Lock™ Mandrel No. EZ402 has a spring loaded sleeve and is used with cutting wheels, abrasive buffs and polishing cloth.

⚠ WARNING Always make sure the rotary tool is "OFF" before changing accessories. Incorrect seating of wheel on mandrel may lead to personal injury orproperty damage.

To load accessory:

1. Place EZ Lock™ mandrel into chuck as deep as possible as described on page 12.

   Note: there is a blue spacer on the mandrel that will bottom out on the EZ Change™ chuck, setting the mandrel to the correct depth.
2. Pull spring-loaded sleeve DOWN towards tool with one hand and hold. You can brace the tool on the body or work-bench for extra leverage (Fig. 1).
3. With the other hand, align bowtie shape on cut-off wheel with mandrel and make sure metal insert is facing away from the tool (Fig. 2).
4. Place wheel on the mandrel to a point just below the bowtie on the mandrel and twist 90 degrees until the bowtie shape on the wheel aligns with the sleeve. Release sleeve. Wheel should lock in place (Fig. 3).
5. When mounting sanding and polishing accessories, align bowtie with metal insert on bottom of accessory (Fig. 4 & 5).

To check for proper seating, hold collet lock button and twist accessory. Accessory will not be able to rotate on mandrel.

To unload accessory:

1. Pull spring-loaded sleeve DOWN toward tool with one hand (Fig. 1).
2. Hold sleeve down while twisting accessory 90 degrees.
3. Remove accessory.

During use

Avoid damage to EZ lock™ mandrel by not letting it contact the workpiece.

FIG. 1

FIG. 2

FIG. 3

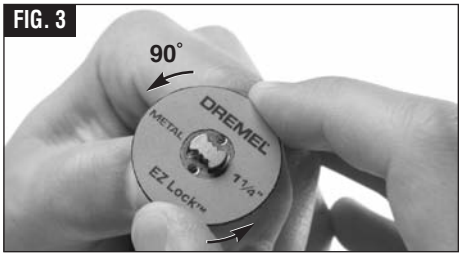


FIG. 4

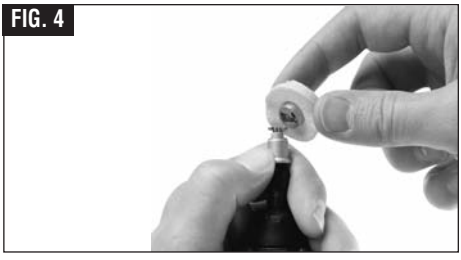
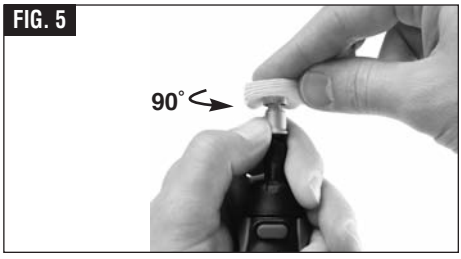


FIG. 5



EZ Drum™ Operating Instructions

EZ Drum™ Mandrel No. EZ407SA has a spring loaded sleeve and is used with sanding bands.

1. Place EZ Drum™ mandrel into chuck as deep as possible as possible as desscribed on page 10.

   Note: there is a blue spacer on the mandrel that will bottom out on the EZ Change™ chuck, setting the mandrel to the correct depth.

⚠ WARNING Always make sure the rotary tool is “OFF” before changing accessories. Incorrect seating of sanding band on mandrel may lead to personal injury orproperty damage.

To load accessory:

2. As indicated, place two fingers underneath the mandrel and pull firmly up. This will place the EZ Drum™ in the "unlocked" position (Fig. 1).
3. Keeping two fingers beneath the mandrel, slide the sanding band down until the entire blue mandrel is covered (Fig. 2).
4. To return to "locked" position, press firmly down on the top of the mandrel (Fig. 3).

Removing the sanding band on the mandrel:

1. Place two fingers underneath the mandrel and pull firmly up. This will place the EZ Drum™ in the "unlocked" position (Fig. 1).
2. Sanding band will now easily slide off mandrel. (Do not squeeze sanding band when removing from EZ Drum ™ mandrel. This can lead to rubber band pulling off mandrel and becoming inoperable (Fig. 3).

FIG. 1

FIG. 2

FIG. 3

Speed Settings

* Speed for light cuts; **Caution** - burning on deep grooves.
• Depending on cutting direction relative to grain.

Note: Each number settings listed in the speed charts = x 1000 RPM's

High Speed Cutters

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
100, 121, 131	25-30	25-30	12-17	12-17	18-24	-	-	-
114, 124, 134, 144	25-30	12-17	9-11	12-17	12-17	-	-	-
190	25-30	25-30	9-11	12-17	25-30	-	-	-
118, 191, 192, 193, 194	25-30	25-30	9-11	12-17	25-30	-	-	-
116, 117, 125, 196	25-30	12-17	9-11	12-17	12-17	-	-	-
115	25-30	25-30	9-11	12-17	12-17	-	-	-
198	25-30	18-24	9-11	12-17	12-17	-	-	-
199	25-30	18-24	9-11	12-17	12-17	-	-	-

Engraving Cutters

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
105, 108	25-30	25-30	18-24	9-11	12-17	-	-	-
106, 109,	25-30	25-30	12-17	9-11	12-17	-	-	-
107, 110	25-30	25-30	12-17	9-11	12-17	-	-	-
111	25-30*	25-30*	18-24*	9-11	12-17	-	-	-
112	25-30*	25-30*	12-17*	9-11	12-17	-	-	-
113	25-30*	25-30*	12-17*	9-11	12-17	-	-	-

Diamond Wheel Points

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
7103, 7105, 7117, 7120, 7122, 7123, 7134, 7144	25-30	18-24	-	-	-	25-30	25-30	25-30

Structured Tooth Tungsten Carbide Cutters

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
9931, 9932, 9933, 9934, 9935, 9936	25-30	18-24	9-11	-	12-17	-	-	-

Speed Settings (Continued)

* Speed for light cuts; **Caution** - burning on deep grooves.
• Depending on cutting direction relative to grain.

Note: Each number settings listed in the speed charts = x 1000 RPM's

Tungsten Carbide Cutters

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
9901, 9902, 9903, 9904, 9905, 9906, 9909, 9910, 9911, 9912	25-30	18-24	9-11	25-30	12-17	18-24	18-30	18-30

High Speed Router Bits

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
612, 640	25-30*	18-24 •	-	-	-	-	-	-
615, 617, 618,	25-30*	25-30 •	-	-	-	-	-	-
650, 652, 654	25-30*	18-24 •	-	-	-	-	-	-

Silicon Carbide Grinding Stones (blue/green)

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
83142, 83322, 83702, 84922, 85422, 85602, 85622	-	-	12-17	25-30	9-11	12-17	25-30	25-30

Abrasive Wheels/Points

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
516	9-17	9-17	-	18-24	12-17	-	-	-
500	9-17	9-17	-	8-24	9-17	-	-	-
EZ541GR	-	-	-	12-24	9-17	-	-	-

Aluminum oxide grinding stones (orange/bown)

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
541,903, 911, 921, 932, 941, 945, 952, 953, 954, 971, 997, 8153, 8175, 8193, 8215	25-30	25-30	-	18-24	9-11	12-17	25-30	-

Speed Settings (Continued)

* Speed for light cuts; **Caution** - burning on deep grooves.
• Depending on cutting direction relative to grain.

Note: Each number settings listed in the speed charts x 1000 RPM's

Chain Saw Sharpening Stones

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
453, 454, 455	-	-	-	25-30	-	-	-	-

Cutting Accessories

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
409, 420, 426 540, EZ409	-	-	15	25-30	25-30	25-30	25-30	-
543, EZ544	25-30	18-30	15	-	-	-	-	-
545, EZ545	18-30	18-24	-	-	-	12-24	12-24	-
560	For use on drywall. For best results, use at 30,000 rpm.							
561	12-30	12-30	15	-	25-30	-	-	-
562	-	-	-	-	-	-	25-30	
EZ456	-	-	-	25-30	25-30	-	-	-
EZ476	-	-	15	-	-	-	-	-

Polishing Accessories

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
461, 462, 463	-	-	-	18-24	18-24	18-24	18-24	18-24
414, 422, 429	-	-	-	12-17	12-17	12-17	12-17	12-17
425, 427	-	-	-	18-24	18-24	-	-	-
423E	-	-	-	12-24	5-8	5-8	5-8	12-24

Wire Brushes

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
403, 404, 405	9-11	9-11	5-11	12-15	5-8	-	-	-
428, 442, 443	9-11	9-11	5-8	9-11	9-11	-	-	-
530, 531, 532	-	9-11	-	9-11	-	-	-	-
535, 536, 537	9-11	9-11	-	9-11	9-11	9-11	-	-

Sanding Bands and Discs

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
430, 431, 438	5-30	5-30	5-17	25-30	25-30	5-30	5-30	-
439, 440, 444	5-30	5-30	5-17	25-30	25-30	5-30	5-30	-
407, 408, 432	5-30	5-30	5-17	25-30	25-30	5-30	5-30	-
411, 412, 413	12-17	12-17	5-8	-	5-8	-	-	-

Speed Settings (Continued)

* Speed for light cuts; **Caution** - burning on deep grooves.
• Depending on cutting direction relative to grain.

Note: Each number settings listed in the speed charts = x 1000 RPM's

Flapwheels

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
502, 503, 504, 505	25-30	18-24	5-8	25-30	18-30	-	-	-

Finishing Abrasive Buffs

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
511E, 512E	12-15	12-15	9-11	12-15	12-15	-	-	-

Detail Abrasive Brushes

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
EZ471SA, EZ472SA, EZ473SA	5-17	5-17	5-11	5-17	5-17	-	-	-

Drill Bit

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
150	25-30	18-30	5-11	-	12-17	-	-	-

Glass Drilling Bits

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
662DR, 663DR	-	-	-	-	-	5-17	5-17	5-17

Grout Removal Bits

Catalog Number	Soft Wood	Hard Wood	Laminates /Plastic	Steel	Aluminum, Brass, etc.	Shell/ Stone	Ceramic	Glass
569,570	For Use on Wall and Floor Grout					-	12-24	-