



MERLIN 2[®]

Extended Neck Mini-Angle Grinder

SAFETY INSTRUCTIONS



DWA Series A Model #1F-Fixed Speed

DWA Series A Model #1V-Variable Speed

DWA Series A Model #2F-Fixed Speed

DWA Series A Model #2V-Variable Speed

WARNING

Read all safety warnings and instructions.

Failure to follow the warnings and instructions may result in electric shock, fire, and/or serious injury.

Save all warnings and these instructions for future reference.

Before putting the grinder into operation, please read all the enclosed safety rules and operating instructions.



To reduce risk of injury, user must read instruction manual.



Always Wear Eye Protection



Always Wear Gloves



Always Wear Hearing Protection



Class II Tool—Double Insulated



WARNING: This product can expose you to chemicals including wood dust, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more info go to www.P65Warnings.ca.gov.

ABOUT THE SYMBOLS: Various symbols are used in this manual and on the product itself to ensure correct usage, to prevent danger to the user and others, and to prevent property damage. The meanings of these symbols are described above. It is important that you read these descriptions thoroughly and fully understand the contents.



MERLIN 2

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WORK AREA SAFETY: Keep your 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.

Use clamps to support work piece whenever practical. Never hold a small work piece in one hand and the tool in the other hand while in use. Clamping a small work piece allows you to use your hand(s) to control the tool. Round material such as dowel rods, pipes or tubing have a tendency to roll while being cut, and may cause the bit to bind or jump toward you.

ELECTRICAL SAFETY: If replacement of the power supply cord is necessary, this has to be done by the manufacturer in order to avoid a safety hazard.

Avoid accidental starting. Be sure the power switch is in the off position before plugging the tool in. Plugging in a tool that has the power switched on is dangerous. Do not carry the tool with your finger on the power switch.

Power tool plugs must match the outlet. Never modify the plug in any way. Do not use an adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock.

Insert the power cord plug into an outlet of the correct voltage that matches the configuration of the power cord plug prongs. Never modify the plug or outlet in any way.

Avoid body contact with earthed or grounded surfaces, such as pipes, fences, etc. There is an increased risk of electric shock if your body is earthed or grounded.

Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.

Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.

When operating a power tool outdoors, use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.

If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply. *Use of an RCD reduces the risk of electric shock.*

PERSONAL SAFETY: Stay alert, watch what you're 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 the tool may result in serious personal injury.

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.

Do not reach in the area of the rotating wheel. The proximity of the rotating wheel to your hand may not always be obvious. Do not touch the disc or attempt to remove any material from the disc while it is still spinning.

Use personal protective equipment. Always wear eye protection. Protective equipment such as dust mask, non skid safety shoes, hardhat, 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, 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.

<p>Disconnect the plug from the power source before performing any maintenance or service work.</p>

MAINTENANCE AND 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 and never compromised.

Only qualified repair personnel from King Arthur's Tools must perform tool service. Please contact KAT for service instructions should repairs be required. Service or maintenance performed by unqualified personnel could result in a risk of injury and could void the warranty.

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.

Regularly clean the power tools air vents/ventilation slots. The motor's fan will draw the material dust inside the housing and excessive accumulation of powdered metal may cause electrical hazards.

Regularly clean the power tools air vents using compressed air. Ensure all ventilation slots are free from obstruction for optimal air flow and motor cooling. Excessive accumulation of foreign particles inside the motor housing can cause overheating.

The exterior of the tool may be cleaned with a damp cloth and mild detergent.

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 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 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 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.

Do not operate the power tool near flammable materials. Sparks could ignite these materials.

Maintain a firm grip of the power tool and position your body and arm to allow you to resist kickback forces. The operator can control kickback forces, if proper precautions are taken.

Use special care when working corners, sharp edges etc. Avoid bouncing and snagging the accessory. Corners, sharp edges or bouncing have a tendency to snag the rotating accessory and cause loss of control or kickback.

Do not attach a toothed saw blade. Such blades create frequent kickback and loss of control.

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.

Always hold the tool firmly in your hand(s) during the start-up. The reaction torque of the motor, as it accelerates to full speed, can cause the tool to twist.

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.

<p>Disconnect the plug from its power source before changing the accessory.</p>

Merlin 2 DWA Series A Extended Neck Mini Angle Grinders

Model #1V Variable Speed 110-115 Volt
(Adjustable dial allows speed control)

Model #1F Fixed Speed 110 -115 Volt
(Fixed speed model, no speed dial)

Model #2V Variable Speed 220-230 Volt
(Adjustable dial allows speed control)

Model #2F Fixed Speed 220-230 Volt
(Fixed speed model, no speed dial)

IDENTIFYING YOUR MERLIN2 UNIT

ALL MERLIN2 UNITS

Size: Disc diameter: 2"/50mm; Length: 11.5 inches/292mm
Weight: 1.3 lb/550 grams; Power: 1.0 amp/100 Watt

The following list identifies different Merlin2 power unit models:

1 - VARIABLE SPEED 110-115 VOLT 50/60HZ

Merlin2 Model # 10005 - Universal Carving Set

Merlin2 Model # 10025 - Premium Set

Merlin2 Model # 10111 - Deluxe Set

Merlin2 Model # 10115 - Nick Agar Signature Set

Rotational Speeds: Motor rated from 4,000 to 18,000 rpm

Accessories rated from 4,000 to 15,000 rpm.

Will run at varying speeds from 4,000 to 15,000 rpm, under load, depending on the speed control setting.

2 - FIXED SPEED 110-115 VOLT 50/60HZ

Merlin2 Model # 10030 - Universal Carving Set

Rotational Speeds: Motor rated from 0 to 18,000 rpm

Accessories rated from 0 to 15,000 rpm.

May run at different maximum speeds depending on the accessory.

3 - VARIABLE SPEED 220-230 VOLT 50/60HZ

Merlin2 Model # 10040 - Universal Carving Set

Merlin2 Model # 10140 - Universal Carving Set, without chain saw blade

Merlin2 Model # 10037 - Premium Set

Merlin2 Model #10112 - Deluxe Set

Merlin2 Model # 10116 - Nick Agar Signature Set

Merlin2 Model #10119 - Nick Agar Signature Set, without chainsaw blade.

Rotational Speeds: Motor rated from 4,000 to 18,000.

Accessories rated from 4,000 to 15,000 rpm.

Will run at varying speeds from 4,000 to 15,000 rpm, under load, depending on the speed control setting.

4 - FIXED SPEED 220-240 VOLT 50/60HZ

Merlin2 Model # 10041 - Universal Carving Set

Rotational Speeds: Motor rated from 0 to 18,000 rpm

Accessories rated from 0 to 15,000 rpm.

May run at different maximum speeds depending on the accessory.

SAFETY GUARD INSTRUCTIONS

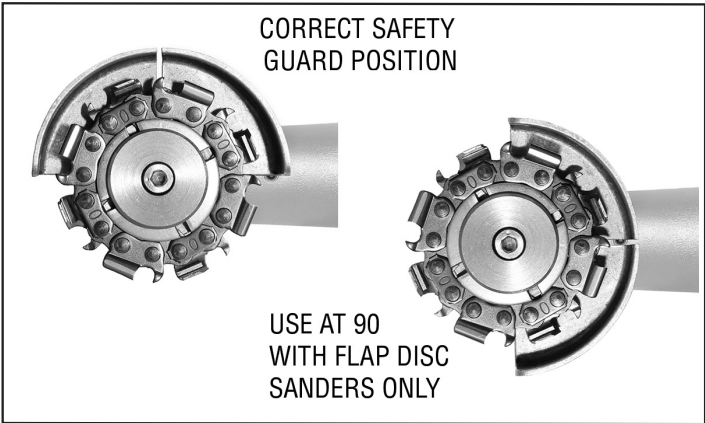
VERY IMPORTANT: Most angle grinders come fitted with “The World’s Smallest Chain Saw” - our 8 tooth miniature chainsaw blade - and is ready for use. Merlin2 comes with the position of the safety guard in the correct position for use.

NEVER ATTEMPT TO REMOVE THE SAFETY GUARD

- 1) WHEN USING THE CHAINSAW BLADE, CARBIDE DISCS, GRINDING WHEEL AND CUTOFF WHEEL, ALWAYS OPERATE THEM WITH THE GUARD IN THE 23° TO 45° POSITION.
- 2) WHEN USING FLAP DISC SANDERS ONLY, THE SAFETY GUARD CAN ALSO BE ADJUSTED TO THE 90° POSITION. FOR ALL OTHER ACCESSORIES NOT MENTIONED HERE, THE GUARD MUST BE IN THE 23° TO 45° POSITION.
- 3) THE RISK OF KICKBACK OR BINDING, HOWEVER SMALL, IS GREATLY INCREASED WITH NO SAFETY GUARD. YOU CAN ADJUST THE POSITION OF THE GUARD BUT DON'T ATTEMPT TO REMOVE IT.

IMPORTANT: If you remove the safety guard:

- a) you WILL void the warranty and
- b) we INSIST that you DO NOT use these accessories.

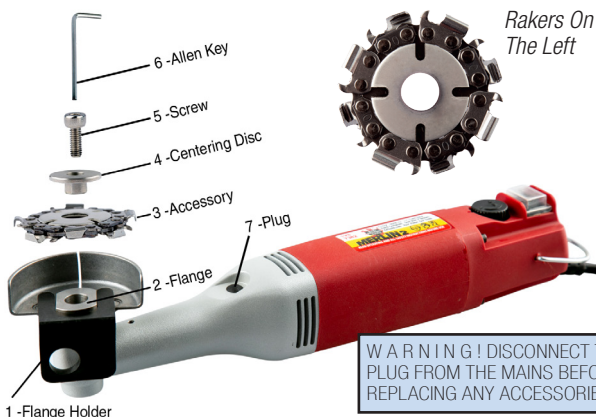


VOIDS WARRANTY

VOIDING THE WARRANTY: The aluminum cast safety guard is an integral part of the gear head. It is primarily for safety and was also designed not to be removed and to provide structural stability to reinforce the cast aluminum collar on the gear housing. By removing the safety guard you are: 1) seriously exposing yourself to injury and 2) voiding the warranty.

IN THE EVENT OF MERLIN2 UNIT FAILURE, CONTACT:

King Arthur's Tools, 3645 Hartsfield Road, Tallahassee FL 32303
Phone: 850-877-7650 • Email: chance@katools.com



REPLACING SAW CHAIN BLADE, CARBIDE DISCS, GRINDING AND CUTOFF WHEEL ACCESSORIES:

Outlined below is the procedure for the above accessories to be correctly fitted to the mini-grinder. **The original locking button has been eliminated and replaced by a plastic plug.** This must never be removed or it will expose the inner workings of the gear head and allow wood shavings and debris to enter the hole. There is a new two-sided flange at the head of the grinder which is held by the Flange Holder to assemble and disassemble accessories, as follows.



1. Secure the Flange Holder 1 to the Flange 2. It is easier with the hole on the Flange Holder 1 facing down as shown.

2. Use the Allen Key 6 to screw or unscrew accessories by fitting it into the small Fastening Screw 5 which fits through the Centering Disc 4, while simultaneously holding the Flange Holder 1 still. The centering disc has a 10mm raised shoulder.

3. For disassembly, turn the Fastening Screw 5 counter clockwise. When the screw is loose, carefully remove the Centering Disc 4 and Fastening Screw 5 from the Accessory and put all three items in a safe, handy place.

4. For assembly, get the required new accessory, (all of which have a 10mm center hole), fit the Centering Disc and Fastening Screw into the hole of the accessory. With your other hand, ensure the Flange Holder 1 is secured to the Flange 2 and held so the Flange doesn't spin freely. Line up the Fastening Screw, Centering Disc and Accessory with the hole on the grinder and gently tighten clockwise with the Allen Key.

5. When mounting the saw-chain assembly, make sure the chain is secured between the discs and the chain is facing the right direction with the raker on the left. Another check is to make sure that the number 25 stamped on tang of the chain is face down.

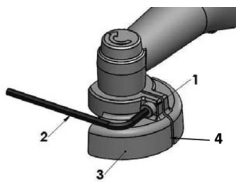
6. The bottom saw-chain disc sits on (not over) the double sided Flange 2 (which is part of the grinder).

7. Simply tighten the Screw 5 clockwise with the Allen Key 6 to hold the chain/disc. With your other hand, ensure the Flange Holder 1 is secured to the Flange 2 and held so the Flange doesn't spin freely, making sure the saw chain blade assembly is centered for proper balance. Do not over-tighten! A quick on/off test will allow you to check this visually. Re-adjust chain and discs as necessary. It's ready to use .

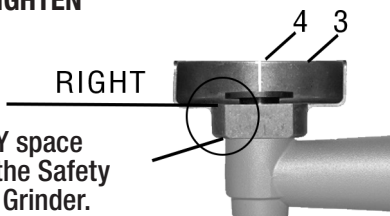
ADJUSTING THE SAFETY GUARD

Disconnect the plug from its power source before adjusting the safety guard.

1. Release the set screw (#1) using the hex key (#2).
2. Turn the safety guard (#3) to either the 90°, or to the 23° position, making sure it will protect your fingers during operation.
3. Re-tighten the set screw (#1) and check that the safety guard (#3) is properly and securely seated on the tool. **DO NOT OVER-TIGHTEN**

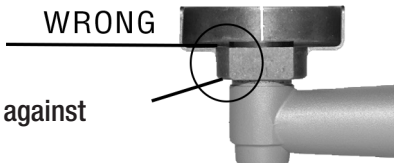


The Fitting Piece **SHOULD BE ABOVE** the Safety Guard.



There should not be ANY space between the bottom of the Safety Guard and the lip of the Grinder.

The Fitting Piece **SHOULD NOT TOUCH** the Safety Guard.



Do not leave a space. Fully seat Safety Guard against the lip of the Grinder.

The Slit/Opening (#4) in the safety guard (#3) **DOES NOT** have to be completely closed or the two sides pulled together for the guard to be tight and secure. Tighten enough to keep the Safety Guard (#3) from moving.

HOLDING THE TOOL: Once you've turned the grinder on, if you're a **RIGHT HANDED** person:

1. Place your left thumb behind and over the upper part of the grinder gear head holding the spinning accessory, with the four other fingers resting gently under the gear head.
2. Your right hand is generally placed at the rear of the grinder, on the red body. This hand is used to turn, maneuver and apply light pressure to the work piece while the left hand is used to guide Merlin2.

If you're **LEFT HANDED**, reverse the hand position.

1. Place your right thumb behind and over the upper part of the grinder gear head holding the spinning accessory, with the four other fingers resting gently under the gear head.
2. Your left hand is generally placed at the rear of the grinder, on the red body. This hand is used to turn, maneuver and apply light pressure to the work piece while the right hand is used to guide the Merlin2 grinder.

AT ALL TIMES, AVOID BLOCKING THE AIR VENTS.

AVOID OVERHEATING: Do not overwork the power tool. The power tool is intended to be used for short intervals with a short rest period between uses. Length of duration the tool can be used is conditioned on the type of material density and the end-users aggressiveness. If you sense the power tool's beginning to overheat, switch the tool off and allow it to cool. Overheating can lead to motor failure.

GENERAL SAFETY INSTRUCTIONS: This power tool is intended to function as a grinder, sander, carving or cut-off tool. Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

Operations for which the power tool was not designed may create a hazard and cause personal injury.

Do not use accessories which are not specifically designed and recommended by the tool manufacturer. Just because the accessory can be attached to your power tool, it does not assure safe operation.

The rated speed of the grinding accessories must be at least equal to the maximum speed marked on the power tool. Grinding accessories running faster than their rated speed can break and fly apart.

Do not use accessories that require liquid coolants. Using water or other liquid coolants may result in electrocution or shock.

Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, sanding discs for cracks, tear or excess wear. If power tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute. Damaged accessories will normally break apart during this test time.

Wear personal protective equipment. Depending on application, use face shield, safety goggles or safety glasses, hearing protectors and gloves. As appropriate, wear dust mask and workshop apron capable of stopping small abrasive or work piece fragments. The eye protection must be capable of stopping flying debris generated by various operations. The dust mask or respirator must be capable of filtering particles generated by your operation. Prolonged exposure to high intensity noise may cause hearing loss.

Keep bystanders a safe distance away from work area. Anyone entering the work area must wear personal protective equipment. Fragments of work piece or of a broken accessory may fly away and cause injury beyond immediate area of operation.

Hold power tool by the plastic gripping surface only, when performing an operation where the cutting accessory may contact hidden wiring or its own cord. *Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and could give the operator an electric shock.*

GRINDING AND CUT-OFF OPERATION: 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.

Do not ‘jam’ a cut-off wheel or apply excessive pressure. Do not attempt to make an excessive depth of cut. Over-stressing 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 this 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 work piece. 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 work piece.

Support panels or any oversized work piece to minimize the risk of wheel pinching and kickback. Large work pieces tend to sag under their own weight. Supports must be placed under the work piece near the line of cut and near the edge of the work piece 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.



MERLIN2[®]

Extended Neck Mini-Angle Grinder

OPERATING INSTRUCTIONS

**SPECIFIC DWA GRINDERS
COVER THE FOLLOWING
MERLIN2 MODELS:**

110–115 VOLT

Model #10005

Universal Carving Set Variable Speed

Model #10030

Universal Carving Set Fixed Speed

Model #10025

Premium Set Variable Speed

Model #10111

Deluxe Set Variable Speed

Model #10115

Nick Agar Signature Series Variable Speed

220–230 VOLT

Model #10040

Universal Carving Set Variable Speed

Model #10140

Universal Carving Set Variable Speed,
Without Chainsaw blade

Model #10041

Universal Carving Set Fixed Speed

Model #10037

Premium Set Variable Speed

Model #10112

Deluxe Set Variable Speed

Model #10116

Nick Agar Signature Series Variable Speed

Model #10119

Nick Agar Signature Series Variable Speed,
Without Chainsaw Blade





MERLIN 2

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Congratulations and thank you for purchasing the Merlin2® Mini Angle Grinder, the power unit common to the Universal Carving Set, Premium Set, Deluxe Set and Nick Agar Signature Series.

INTRODUCTION

This instruction primarily covers the use of the mini angle grinder in both variable or fixed speed models as used in all the above sets.

A brief history: In June 2014 we announced the all new Merlin2 miniature angle grinder range, now made in the USA, which replaced our original Merlin powered by the Proxxon long neck angle grinder. In June 2016, we announced the addition of the Deluxe Set and Nick Agar Signature Series. **Our insatiable goal to learn and make continual forward progress has NOW resulted in the third major improvement to all models of the Merlin2 miniature angle grinder.** Retaining the same body design, the new Merlin2 includes:

- 1) **The new motor has 25% more power**, speed and torque, plus increased stall speed than the original motor. It goes from a no load speed of 13,000 rpm to 20,000 rpm. Under load, depending on the accessory, it has gone from 10,000 to 15,000 rpm. The variable speed models have a new circuit board which controls the motor speed to run from a minimum of 4,000 ± rpm. With the increased power, there is enough torque to overcome snagging and stalling. **Because the motor is 25% more powerful, it runs 25% faster!** This in turn makes the accessory rotate up 25% faster. You can now plunge cut using the 8-tooth sawchain blade! The new motor provides a much smoother woodcarving – turning experience.
- 2) **A new system for assembly and disassembly of accessories** replaces the previous Lockdown Switch/Allen Key method. Users could inadvertently press the lockdown switch in the gear head while the machine was running, damaging internal gear head components. A plug replaces the lockdown switch. **The simple new system uses a double-sided Flange and Flange Holder**, in conjunction with the Allen Key.
- 3) A **clear, plastic boot placed over the on/off switch** reduces the problem of saw dust and debris infiltrating the switch, potentially clogging the internal switch and motor parts. We still recommend blowing out the vents and motor chamber on a regular basis.

We are also excited to introduce the **Merlin Sanding Stars, 16 new Hook & Loop (H&L) sanding accessories** which are attached to our soft (#10063) and medium (#10064) backing pads. These add a whole new dimension to the sanding and finishing process, vastly increasing Merlin2's versatility. And it opens doors to sanding techniques that other sanders just won't allow. With their patented New Wave or star design, these discs consist of 6 oversize Extreme Orange discs, 6 oversize Abranet discs and 4 – 2" Scuff and Buff discs.

Merlin2's lightweight grinder has the **flexibility** and **versatility** to work on projects that traditional tools don't usually allow. Plus now you have all these accessories that fit one great tool. Merlin2 is easy to carry around, easy to handle and maneuver, with **precise control** and **pinpoint accuracy**. And it opens doors to sanding techniques that other sanders just won't allow.

In 2016, with the introduction of the Deluxe Set and Nick Agar Signature Series, we were able to enhance the Merlin2 mini angle grinder with new accessories as a result of our invention of the new Hexagonal Threaded Connector (HTC) attached to our Backing Pad,. This enabled the expansion of our range by another thirty five (35) new accessories. The **Deluxe Set** contains a special selection of forty five (45) - 2" (50mm) accessories. It's not just the quantity – the HTC Backing Pad opened up the reality to using Merlin2 with Hook and Loop, 3M Roloc™, Quick Change, Surface Conditioning Discs and Bristle Discs, in addition to King Arthur's Tools traditional accessories. The **Nick Agar Signature Series** contains 52 accessories including four (4) exclusive all surface, flat profile tungsten carbide accessories, ranging from extreme coarse to fine. These discs were co-designed by Nick Agar, one of the world's most talented artists working in wood and Arthur Aveling, President of KAT. Also included are Hook and Loop, 3M Roloc™, Quick Change, Surface Conditioning and Bristle Discs, all carefully selected for wood turning and woodcarving. All products in the Signature Series have been tested and approved by Nick Agar.

All these accessories **hugely expand** the use of Merlin2 to working in most woodworking and metal working applications that require cutting, sculpting, shaping, carving, sanding, finishing, polishing, chamfering, paint and rust removal, cutting small metal components and deburring. Merlin2 now becomes an **exceptional crossover power tool** that can be used in most wood turning, woodcarving, intarsia, taxidermy, model making, tool making, mold making as well as many other miniature woodworking and metal working projects. Merlin2's accessories can be used on wood, fiberglass, plastic, foam, bone, antlers, steel, non-ferrous metals, glass and ceramics.

CROSSOVER FROM AIR POWER TO ELECTRIC: Another important feature is that many of these accessories have traditionally been used on air powered tools. The HTC Backing Pad converts them to the electric power of Merlin2 which now becomes an exceptional crossover power tool that can be used in materials, applications and industries or hobbies as described above.

ADVANTAGES: Merlin2 crosses over boundaries by now putting the versatility of traditional air powered accessories on a variable speed electric power tool. With its small size, light weight, low noise and low vibration, Merlin2 is as simple as plugging in a power cord versus using a noisy air compressor, which not everyone owns. All Quick Change (QC) accessories in this set, sanding discs, surface conditioning discs, bristle discs and buffing pad are all fitted and removed using a half (1/2) turn on, half (1/2) turn off motion. Make sure the accessory fits snugly to the HTC backing pad prior to use.

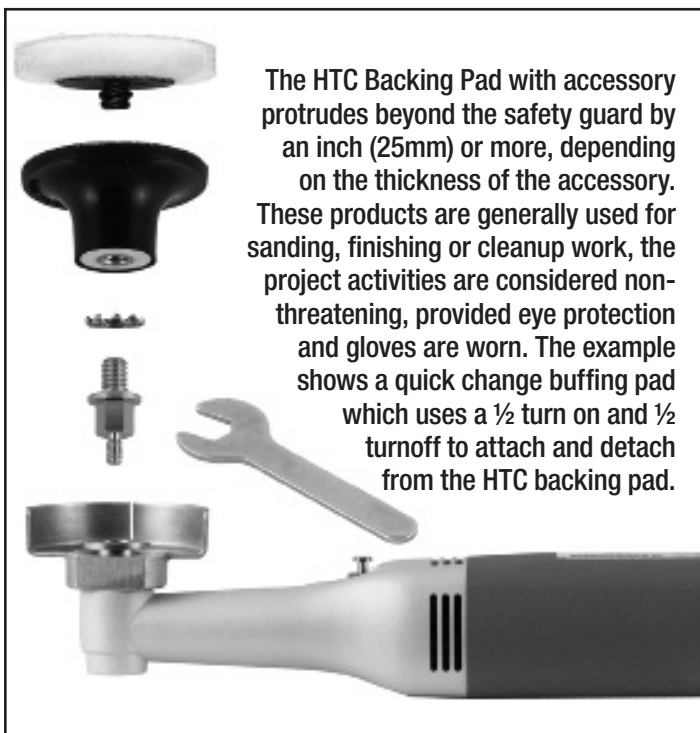
MERLIN2 ACCESSORY ADAPTER, SCREW AND ALLEN KEY: The Allen key used for assembly and disassembly of many accessories is attached to the Merlin2 gear head. Keep this essential tool in a safe place.

The eight (8) tooth chain, all the original and new tungsten carbide discs, hook and loop soft and medium backing pads securing top quality Rhynogrip Indasa sanding discs, felt buffing pad, cutoff wheel and grinding wheel are all fitted using the Centering Disc and Allen key as described on page S-7. The Deluxe Set has seven (7) – 2" (50mm) sandpaper discs ranging from 80 grit to 600 grit. The Nick Agar Signature Series has nine (9) oversize 2.2" (56mm) sandpaper discs ranging from 80 grit to 1200 grit. Four new sensational all surface, flat, tungsten carbide discs from extreme coarse (purple), coarse (blue), medium (red), to fine (green), are also included in the Signature Series. These carbide discs can also be used with great effect and control on more powerful, single speed mini grinders.

After changing any accessory or making any adjustments, make sure the Allen key or any screws are securely tightened but not overtightened.

HTC BACKING PAD: Attach one end of the HTC (1/4 inch/6.35mm screw) with the star washer to the back of a 2" (50mm) Backing Pad. The opposite end screws into Merlin2, tightened with the supplied spanner. The HTC has enabled us to add many carefully selected additional products and secures many Quick Change and 3M Roloc™ (1/2 turn on/off) accessories.

SANDING: The objective of sanding is to remove dents, gouges rough marks, ridges and high spots which are caused by woodworking and metal working machines or power carving tools, to achieve the smoothness and finish you want. The most efficient system of doing this is to



The HTC Backing Pad with accessory protrudes beyond the safety guard by an inch (25mm) or more, depending on the thickness of the accessory. These products are generally used for sanding, finishing or cleanup work, the project activities are considered non-threatening, provided eye protection and gloves are worn. The example shows a quick change buffering pad which uses a ½ turn on and ½ turnoff to attach and detach from the HTC backing pad.

begin sanding with a coarse enough grit of sandpaper to cut through and remove the problems quickly, then sand out the coarse-grit scratches with finer and finer grits until you reach the smoothness you want. With the quick change and hook & loop grit accessories available from King Arthur's Tools or in a variety of Merlin2 sets, you can start at 24 grit and finish with 1,200 grit.

BRISTLE DISCS: Made by 3M, the two Roloc™ quick change coarse (green) and medium (yellow) discs, fitted to the HTC backing pad are safe to use on metal or wood, performing with minimal vibration and noise. Traditionally used for metal working, they are extremely useful for cleaning bark and debris from naturally undulating wood. Their "fingers" curl around, through and over any shape. Use for small bark removal, cleaning, deburring, blending, finishing, polishing, cleaning and for coating, defect, scratch and rust removal. The bristle discs can also be used instead of wire brushes for automotive use on aluminum and metal. They remove coatings, sealant and adhesives quickly, leaving a clean surface ready for subsequent operations.

SURFACE CONDITIONING DISCS: These three Roloc™ quick change coarse, medium and fine accessories, fit on the HTC backing pad and help make tough jobs easier. Achieve burr-free, paintable finish in fewer steps without damaging the base material. Used on metal, the non-woven, open web, durable construction is designed to resist loading and greatly increase the life of the disc. They effectively clean, finish, blend and deburr.

List of accessories available from King Arthur's Tools and suitable for use with the Merlin2 power unit:

- 10009 - Round Coarse Red Carbide Disc
- 10010 - Round Medium Yellow Carbide Disc
- 10011 - Round Fine Garnet Carbide Disc
- 10012 - Flat Green Carbide Face & Edge Disc
- 10042 - 60 Grit AO Flap Disc Sander
- 10043 - 120 Grit AO Flap Disc Sander
- 10044 - 240 Grit AO Flap Disc Sander
- 10045 - 320 Grit AO Flap Disc Sander
- 10046 - 600 Grit AO Flap Disc Sander
- 10047 - Aluminum Oxide Grinding Wheel
- 10048 - Fiberglass Cutting Disc
- 10054 - 2" (50mm) QC Aluminum Oxide 24 Grit Sanding Disc
- 10055 - 2" (50mm) QC Aluminum Oxide 60 Grit Sanding Disc
- 10056 - 2" (50mm) QC Aluminum Oxide 120 Grit Sanding Disc
- 10057 - 2" (50mm) QC Aluminum Oxide 240 Grit Sanding Disc
- 10058 - 2" (50mm) QC Surface Conditioning Disc Blue - Fine
- 10059 - 2" (50mm) QC Surface Conditioning Disc Maroon- Medium
- 10060 - 2" (50mm) QC Surface Conditioning Disc Brown – Coarse
- 10061 - 2" (50mm) QC Bristle 50 Grit – Coarse Green
- 10062 - 2" (50mm) QC Bristle 80 Grit – Medium Yellow
- 10063 - 2" (50mm) H & L Backing Pad – Soft
- 10064 - 2" (50mm) H & L Backing Pad – Medium
- 10065 - 2" (50mm) QC Buffing Pad
- 10066 - 2" (50mm) H & L Sanding Disc 80 Grit
- 10067 - 2" (50mm) H & L Sanding Disc 120 Grit
- 10068 - 2" (50mm) H & L Sanding Disc 180 Grit
- 10069 - 2" (50mm) H & L Sanding Disc 240 Grit
- 10070 - 2" (50mm) H & L Sanding Disc 320 Grit
- 10071 - 2" (50mm) H & L Sanding Disc 400 Grit
- 10072 - 2" (50mm) H & L Sanding Disc 600 Grit
- 10075 - 2.2" (56mm) H&L Sanding Disc 80 Grit
- 10076 - 2.2" (56mm) H&L Sanding Disc 120 Grit
- 10077 - 2.2" (56mm) H&L Sanding Disc 180 Grit
- 10078 - 2.2" (56mm) H&L Sanding Disc 240 Grit
- 10079 - 2.2" (56mm) H&L Sanding Disc 320 Grit
- 10080 - 2.2" (56mm) H&L Sanding Disc 400 Grit
- 10081 - 2.2" (56mm) H&L Sanding Disc 600 Grit
- 10082 - 2.2" (56mm) H&L Sanding Disc 800 Grit
- 10083 - 2.2" (56mm) H&L Sanding Disc 1200 Grit
- 10086 - 2" (50mm) Extreme Purple All Surface Flat Thick Disc
- 10087 - 2" (50mm) Coarse Blue All Surface Flat Thin Disc
- 10088 - 2" (50mm) Medium Red All Surface Flat Thick Disc
- 10089 - 2" (50mm) Fine Green All Surface Flat Thin Disc
- 10091 - HTC Backing Pad Assembly includes spanner
- 10201 - Merlin Sanding Star 2" (50mm) Extreme Orange H&L 40Grit
- 10202 - Merlin Sanding Star 2" (50mm) Extreme Orange H&L 60Grit
- 10203 - Merlin Sanding Star 2" (50mm) Extreme Orange H&L 80Grit
- 10204 - Merlin Sanding Star 2" (50mm) Extreme Orange H&L 120Grit
- 10205 - Merlin Sanding Star 2" (50mm) Extreme Orange H&L 180Grit
- 10206 - Merlin Sanding Star 2" (50mm) Extreme Orange H&L 240Grit
- 10207 - Merlin Sanding Star 2" (50mm) 80 Grit Abranet H&L Disc
- 10208 - Merlin Sanding Star 2" (50mm) 120 Grit Abranet H&L Disc
- 10209 - Merlin Sanding Star 2" (50mm) 180 Grit Abranet H&L Disc
- 10210 - Merlin Sanding Star 2" (50mm) 240 Grit Abranet H&L Disc
- 10211 - Merlin Sanding Star 2" (50mm) 320 Grit Abranet H&L Disc
- 10212 - Merlin Sanding Star 2" (50mm) 400 Grit Abranet H&L Disc
- 10213 - Merlin Sanding Star 2" (50mm) Scuff&Buff Green 180G H&L Disc
- 10214 - Merlin Sanding Star 2" (50mm) Scuff&Buff Maroon 300G H&L Disc
- 10215 - Merlin Sanding Star 2" (50mm) Scuff&Buff Grey 600G H&L Disc
- 10216 - Merlin Sanding Star 2" (50mm) Scuff&Buff White Polish H&L Disc
- 21008 - 8 Tooth Chainsaw Blade (fitted to Merlin2 on most models)
- 2104MW - 4 Tooth Tungsten Carbide Chainsaw Blade

KICKBACK AND RELATED WARNINGS: Kickback is a sudden reaction or snagged rotating wheel, backing pad, disc 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 a rotating wheel is snagged or pinched by the work piece, the edge of the wheel that is entering into the pinch point can dig into the surface of the material, causing the wheel to climb out or kick out. The wheel may either jump toward or away from the operator, depending on the 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 operating procedures and conditions. This can be avoided by taking proper precautions as described below.

1) Inspect your workpiece before cutting. When cutting irregularly shaped objects, plan your work so it will not slip, pinch the grinder and be torn from your hand. For example, if carving wood, make sure there are no nails or foreign objects in the work piece. These alien materials may cause the grinder to jump.

2) Avoid bouncing and snagging the accessories, especially when working corners, sharp edges, etc. This can cause loss of control and kickback.

3) Maintain a firm, relaxed grip on the Merlin2 power unit and position your body and arm to allow you to resist kickback forces, however small they may be with the light weight Merlin2 mini grinder. The operator can control torque reactions or kickback forces if proper precautions are taken.

4) Never place your hand near the rotating accessory. It may kickback over your hand.

5) Do not position your body in the area where the power unit will move if kickback occurs. Kickback will propel the tool in a direction opposite to the wheel's movement at the point of snagging.

6) Use special care when working corners and sharp edges. Avoid bouncing and snagging the accessory. All described have a tendency to snag the rotating accessory and cause loss of control or kickback.

SPECIFIC SAFETY RULES: Be aware of the switch location, when placing the tool down or when picking the tool up. The protective wall guard around the on/off switch greatly reduces this happening but be aware of your surroundings to prevent unintentional switch activation.

Do not grind or sand near flammable materials. Sparks from the wheel could ignite these materials.

In the USA, 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.

W A R N I N G ! Do not use the unit on materials which contain asbestos.

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.

ON/OFF SWITCH



VARIABLE SPEED UNIT



FIXED SPEED UNIT

1. There is a clear plastic boot over both the **ON/OFF SWITCH** and protective wall guard around the **ON/OFF SWITCH**. This greatly reduces the constant problem of saw dust and debris infiltrating the switch, potentially clogging the internal switch and motor parts. We will highly recommend blowing out the vents and motor chamber on a regular basis, however, the boot should reduce switch and motor failures. The boot and protective wall guard prevents unintentional switch activation. Be aware of the switch location and your surrounds to prevent this from happening.

2. Variable speed models have a speed dial located above the **ON/OFF switch**, allowing user to set a speed appropriate for the accessory and the job to be done.

3. Fixed speed models maintain a uniform speed appropriate to the accessory. Switch the power tool to the **ON** position just prior to using the power tool.

ASSEMBLY OF CHAIN AND DISCS: The two discs secure the saw chain circlet between them on both 8 tooth (shown) and 4 tooth circlet. When mounting the saw chain assembly, make sure the chain is secured between the discs and the chain is facing the right direction with the raker on the left. Another check is to make sure that the number 25 stamped on tang of the chain is face down.



NOTE DIRECTION OF RAKER POINT
IMPORTANT: IF ASSEMBLED IN
REVERSE TO MOTOR DIRECTION,
MERLIN2® WILL NOT CUT, LEAVING
BURN MARKS ON THE PIECE.

GRINDING WHEEL USE (#10047):

Good grinding performance can only be achieved using the correct and constant rotational speed. To achieve the best results when grinding metal (e.g. sharpening mower blades), apply the grinding disc to the grinding surface at an angle of between 30° and 40° and move evenly back and forth over the metal. Do not try to bend the grinding disc into the cutting surface during cutting work.

CUTTING WHEEL USE (#10048):

The fiberglass cutoff disc is designed to cut through metal rods and metal. Taxidermists will love it. Do not use it for rough-out work as there is a high risk of fracture! Use the tungsten carbide or chain saw accessories for all rough-out applications.

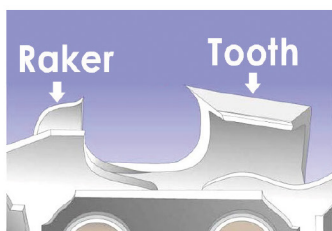
MAINTENANCE:

Disconnect the plug from the mains before performing any maintenance or cleaning work. After use, clean the unit thoroughly, removing all wood shavings, grinding dust, etc. with a brush or a soft cloth. Ensure all ventilation slots are free from obstruction for optimal air flow and motor cooling. Regularly clean the tool's air vents by compressed air. Excessive accumulation of wood, sawdust, powdered metal, or other foreign particles inside the motor housing may cause overheating or electrical failures.

SHARPENING THE CHAINSAW TEETH

Keeping the Merlin2 chainsaw teeth properly sharpened makes wood removal, shaping and sculpting safer and easier, as well as extending the life of the tool. Follow these steps to sharpen the eight teeth.

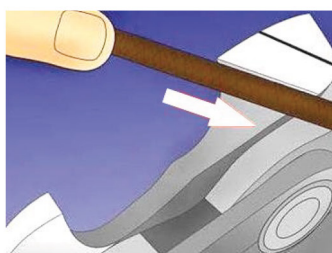
Before you begin, clean all dirt and debris from the chain teeth and discs. Make sure the file you are using is a 5/32" (4 mm) chainsaw file or the same size diamond file.



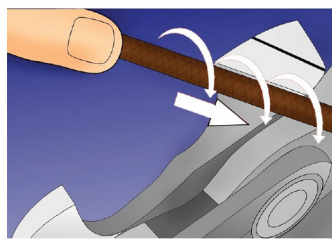
Check the clearance of the rakers (the curved hook shaped links between the teeth). They should clear each tooth by about 1/10" (2.5mm). File down any raker that sits too high.



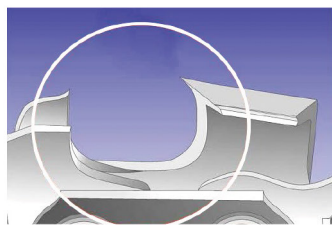
Use a marking pen to mark your first tooth.



Set your file in the notch on the front of the first tooth. The curve of the file should exactly fit the curve of the tooth and the top of the file should be flush with the top of the tooth. Hold the file at the same angle that the tooth was originally filed.



Slide the file across the face of the tooth, using a moderate twisting motion to discharge metal chips (filings). Push the file from the longer side of the tooth to the shorter side. Continue the same process as you move from one tooth to the next.



Inspect the chain, paying specific attention to the teeth. If any of the teeth are damaged, overly worn, missing, chipped, broken, or bent you will need to replace the chain as it could be dangerous to use.

LIMITED WARRANTY of Merlin2® Long Neck Angle Grinder

King Arthur's Tools ("Seller") warrants to the original purchaser only, that the mini angle grinder, which is the power unit for the Merlin2 Carving Set, Premium Set, Deluxe Set and Nick Agar Signature Series will be free from defects in material or workmanship for a period of one year from the date of purchase. Seller's sole obligation and your exclusive remedy under this limited warranty and, to the extent permitted by law, any warranty or condition implied by law, shall be the repair or replacement of parts, without charge, which are defective in material or workmanship and which have not been misused, carelessly handled, or repaired by persons other than Seller and Authorized Service Station.

In the unlikely event of a failure of a product to conform to this written warranty, please take the following action:

1. DO NOT return your product to the place of purchase.
2. Securely package the product by itself and return the product only, freight prepaid, along with:
 - a) A copy of your dated proof of purchase (please keep a copy for yourself).
 - b) A written statement about the nature of the problem.
 - c) Your name, address and phone number to: King Arthur's Tools, 3645 Hartsfield Road, Tallahassee, FL 32303

We recommend that the package be insured against loss or in transit damage for which we cannot be responsible.

Damage to the product resulting from tampering, accident, abuse, negligence, unauthorized repairs or alterations, unapproved attachments or other causes unrelated to problems with material or workmanship are not covered by this warranty. Any implied warranties shall be limited in duration to one year from date of purchase. No employee, agent, dealer or other person is authorized to give any warranties on behalf of Merlin2 products from King Arthur's Tools. King Arthur's Tools makes no other warranty of any kind whatever, express or implied, and all implied warranties of merchantability and fitness for a particular purpose which exceed the above mentioned obligation are hereby disclaimed by King Arthur's Tools and excluded from this limited warranty. Some states in the U.S. and some Canadian provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. In no event shall Seller be liable for any incidental or consequential damages (including but not limited to liability for loss of profits) arising from incidental or consequential damages. This limited warranty applies only to the King Arthur's Tools Merlin2 angle grinder and the accessories included in the Merlin2 Carving Set, Premium Set, Deluxe Set and Nick Agar Signature Series miniature woodcarving sets sold within the United States of America, Canada and the Commonwealth of Puerto Rico. For warranty coverage within other countries contact your local Merlin2 distributor. Repairs made necessary by normal wear or abuse, or repair for product outside the warranty period, if they can be made, will be charged at regular service prices found on the website www.katools.com

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