

# Safely Operating the Ultimate Grinder

***“Don’t learn safety by accident”***

Key Points:

- DO NOT BREATHE ROCK DUST
- DO NOT START OR RUN THE ULTIMATE GRINDER WITHOUT A SANDING BELT INSTALLED ON THE X-PANDING DRUM

Generally the operation of The Ultimate Grinder is very safe as long as you DO NOT BREATHE ROCK DUST and follow some general safety practices outlined in this document.

## **Inherent Dangers: (Power tool safety)**

We have highlighted these concerns that specifically apply to The Ultimate Grinder. The remaining are general safety concerns while operating any power tool and are included just as a reminder to operate your lapidary shop in a safe manner.

- DO NOT START OR RUN THE ULTIMATE GRINDER WITHOUT A SANDING BELT INSTALLED ON THE X-PANDING DRUM
  - Damage can be caused by excessive centrifugal forces to the Xpanding drum if the machine is turned on without a sanding belt installed on the drum!
- Inhalation of ROCK DUST! - DO NOT BREATHE ROCK DUST – Always wear a properly fitted respirator that is in excellent condition and equipped with dust filtering cartridge(s).
- Abrasions from contacting moving sanding surfaces.
- Kinetic energy due to heavy parts in high speed motion.
- Electrical appliance – associated issues with proper grounding and circuit types and sizes
- Hearing
- Eye Protection
- Ergonomic concerns from manual operation with body in harmful positions
- Repetitive motion
- Cluttered work area
- Unattended small children

<b>ALWAYS</b>	<b>NEVER</b>
-setup and operate dry sanders in well ventilated area.	-stage any item including work pieces in the vicinity of the spinning drums.
- wear a proper fitting, breathing respirator	-turn on the Ultimate Grinder without a sanding belt installed on the Xpanding drum.
-wear safety glasses	-allow small children near an operating power tool.
-follow general safety guidelines for operating power tools.	-operate the sander for long periods of time without a break or changing your range of motion.
-establish a grip on the work piece that will keep your hands and fingers from contacting the rotating abrasive sand paper.	-operate the sander if you do not have good clearance around sanding surface areas.
-operate the sander with your body in the proper stance and position.	-leave the tool plugged in while not in use
-use good lighting	-leave the tool running unattended

Now that you have reviewed the inherent dangers of sanding with The Ultimate Grinder and established some operating safety guidelines for operating power tools in general, let's look at ways to avoid any potential dangers.

Location Goal: Establish a SAFE work station by setting up a well ventilated and clutter free area. The Ultimate grinder should be located and operated in a well ventilated area. This area can be indoors in an exhausted room or supplied with a ducted ventilation system that provides adequate exhaust flow to remove the airborne rock dust particulates generated by the sanding action.

Alternatively the best ventilation is found by moving the Ultimate Grinder that is securely mounted on a movable pedestal outdoors to a flat stable area.

Where ever you set up The Ultimate Grinder the work station should be kept free of clutter and should not be used as a storage area for any non-sanding related tools or items. This will ensure that you have free clearance around your work area to minimize any accidental tripping on or bumping something with your elbows while operating the sander. A clutter free area will also remove distractions as you concentrate on your sanding. You should never place any item near the spinning drum or disc as unexpected contact with the high speed surfaces might occur.

## **SETUP**

***Goal: Securely mounted at proper height on a dedicated stand with adequate access to the sanding surfaces in a well ventilated area.***

Mounting the Ultimate Grinder at the proper height is important for you to avoid discomfort that can result from excessive strain on your back, shoulders, elbows and wrists from operating the sander in an awkward stance or position. As a starting reference point mount The Ultimate Grinder with the center of the arbor shaft at a height that is an inch or so below your hip bone as you stand up straight. This will put the center of the wheels slightly below your belt line. We find that this is a good starting point for the mounting height. Your own experience might require raising or lowering the grinder slightly to maximize your operating comfort.

Once you determine the optimum mounting height The Ultimate Grinder should be screwed to a stable platform or base. It is best to create a dedicated small, sturdy platform, stand or bench for The Ultimate Grinder. We recommend that the dimension of the top of your stand be only slightly larger than the base of The Ultimate. This will remove temptation to set miscellaneous items or work pieces down near the rotating parts and force you to stage your work in progress on carts or nearby work benches.

Some of our customers have added 2 wheels to the base of the stand so that they can tip the stand onto the wheels to move it outdoors for use.

**Circuit:** During start up for about 3 – 5 seconds the Ultimate Grinder draws about 30 amps so you will need a dedicated 20 amp circuit for the sander. While running the Ultimate Grinder draws only about 5 amps. Most local codes require a ground fault circuit for equipment operated outdoors, or in a wet environment. These circuits, even if not required by local codes, are good protection for you when you operate any tool.

**Floor pads:** We recommend the use of operator fatigue reducing pads located on the floor of the operator's space around The Ultimate Grinder. This provides 2 benefits. First these pads do reduce the standing fatigue to the operator. Second, the pads will help reduce damage to you valuable lapidary specimen if dropped during the sanding process.

**Safety Equipment:** Remember when you are setting your budget to buy the personal protective equipment "Safety isn't expensive, it's priceless". Make a wise decision when you pick out and purchase your minimum safety gear that is listed below. -

#### **MINIMUM SAFETY EQUIPMENT:**

##### **Respirator:**

Don't skimp on your breathing respirator. Don't just buy a "dust mask" from a handyman store but a high quality respirator made for continued use and absolute protection. Make sure that the respirator is properly fitted for you. Store it in a handy place near The Ultimate Grinder and make a habit of wearing it whenever you use your sander.

##### **Eye protection:**

The same philosophy as the respirator applies to the use of safety glasses. Don't skimp. Make sure they fit and keep them handy by the sander and always wear them when sanding.

##### **Hearing protection:** *A sound investment*

We recommend the use of hearing protection if operating the Ultimate Grinder for more than 5 minutes.

##### **Local antiseptic salve and band aids:**

Keep a supply of salve and bandages close at hand in your shop. Slight abrasions to your fingertips and parts of your hands are likely while learning to use the sander. The abrasions are superficial and heal quickly and frankly are part of the learning curve. Having band aids handy makes it easy to cover your wound and keep sanding. Wash thoroughly and dry the abrasion with a clean cloth, a small dab of antiseptic cream and fully covered with a band aid and you are back to work and your wound will heal quickly.

**Steel toed safety shoes:**

are not required to run the sander but might be a good idea if you work a lot with heavier pieces.

**OPERATING NOTES:**

**NEVER PLUG IN OR TURN ON THE ULTIMATE GRINDER WITHOUT A SANDING BELT INSTALLED ON THE XPANDING DRUM.**

*CAUTION: THE SANDING SURFACES ARE MOVING AT VERY HIGH SPEEDS! Sudden abrasions or cuts will occur if your skin touches these high speed sanding surfaces.*

The ultimate runs a very high surface sanding speeds and will cause abrasions if the spinning drums are contacted. These abrasions are generally minor and much less severe as caused by spinning saw blades or router bits. None the less try to avoid contacting the surfaces of the operating sanding drums while holding your work piece. This will require positioning your grip on the work piece to keep fingers from contacting the drums. You may have to work the piece in a manner to keep your hand to the outside of the drum and turn the piece over to do half at a time.

**Working your piece = safely sanding your rock**

*Goal: Proper stance and grip to minimize strain on your body and chance contact of your skin to the sanding surfaces.*

**Body stance:**

The area where you setup the Ultimate Grinder must allow access to the Grinding Platter so that your waist is parallel to the platter or 90 degrees to the arbor shaft. This will allow you to hold the heavier work pieces supporting the rock to be sanded with your abdomen and not just your arms and wrists. This means that you must have enough open space to the right side of the Ultimate to allow you to stand and easily hold a work piece to the grinding platter..

Equally as important is open access to the front of The Ultimate Grinder so that you can place your waist parallel to the shaft to position the center line of the Xpanding drum to the center line of your body through your belly button. This will allow you to grip your work piece equally with both hands and arms and again use your abdomen to help carry the weight of heavier pieces.

**Lighting:**

is both a safety concern and needed to see when the sanding step is complete. A set of the construction lighting available at you local hardware store is a good source of lighting if you overhead lights are inadequate in your shop.

**YOUR INPUT IS VALUABLE**

We welcome your participation in our safety program. Please provide any input that you feel will benefit our readers and users. We will share your ideas in this space. Also please share anything that has worked well for you and things to avoid!