



Dremel

A **rotary tool** (more commonly referred to by the brand name “**dremel**”) is used for grinding away material, usually metal but it can be used for hard woods and plastics as well. The tip of the dremel spins at a very high speed, up to 35,000 revolutions per minute. Different attachments can be used to achieve different effects.

SAFETY

- **Shop Buddy:** You are not allowed to work alone while using the dremel. A buddy is there to ensure your safety and to call for help if needed. Your buddy *does not have to be* trained on the tool, but if untrained, they are not allowed to use the equipment.
- **Eye Protection:** The dremel can send sawdust, wood chips and other fragments flying – safety glasses protect your eyes from harmful material.
- **Close-Toed Shoes:** Tools, pieces of wood and other sharp objects can fall and close-toed shoes will protect your feet from cuts, bruises and even breaks.
- **Long Pants:** Long pants will protect your legs from cuts, bruises and splinters that might come from handling wood.
- **No Jewelry:** Rings, bracelets, dangling necklaces, watches, headphones and sweatshirt strings can all get caught in the spinning disc, which can drag you into the machine.

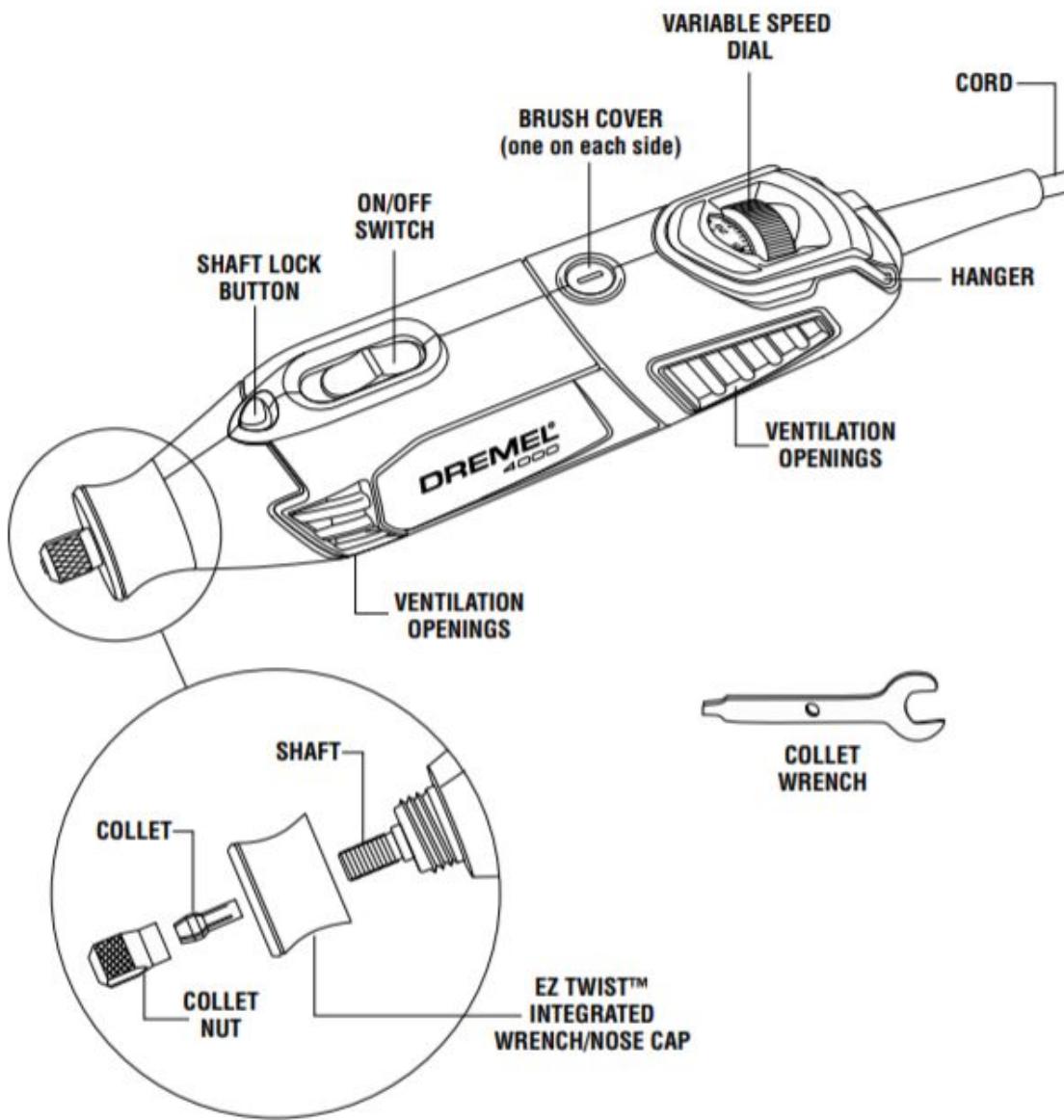
- **Long Hair Secured:** Like jewelry, long hair can also get entangled in the tool, and potentially drag you towards the dremel.
- **No Food or Drink:** Sawdust and woodchips, in addition to the glues and paints used on the wood, can get into your food or drink and be toxic. Residue from food or drink can also make the tools and machines messy.
- **No Metal:** Using the dremel on metal will destroy the tool and produce sparks, which can ignite sawdust, resulting in a fire or explosion.
- **Safe Bystanders:** If you are using these tools outside of the Woodshop, which likely means you are in the workspace, make sure everyone around you is safe. A good rule of thumb is that everyone within a 10' radius needs to be wearing PPE and needs to be aware of what's happening – as engaged as you would expect from someone in the Woodshop. Unless they are helping you, it is usually easiest to find a space farther from anyone else in the space.

For the Dremel specifically...

- **Choose Attachment:** Each attachment serves a different purpose. Make sure you get the right attachment for the job. Using the wrong attachment is very dangerous and can ruin the tool. For instance, don't try to grind with a cutting wheel, or try to cut with a grinding wheel.

MACHINE ANATOMY

- **Shaft:** This is the part that rotates.
- **Shaft Lock Button:** Prevents the shaft from rotating freely, which makes it easier to change attachments.
- **Collet & Collet Nut:** This part is removed to secure an attachment.
- **Variable Speed Dial:** Controls the speed, from 5,000 to 35,000 rpm.
- **Ventilation Openings:** Intake and expel air to cool the motor.



OPERATING THE MACHINE

1. Make sure your piece is secured such that it won't move around under the power of the dremel.
 - a. For small pieces this means you want to clamp it to a stable table, including any of the tables in the main Foundry workspace.

- b. Large enough pieces may be stable enough under their own weight, and won't need clamps.
 - c. If you're not sure if it needs clamps, use clamps.
2. Choose the right attachment and attach it securely – see the “attachments” section below.
3. When you turn the dremel on, it will feel like it's fighting you due to the torque. Make sure your grip is correct. Holding the tool like a pencil gives you more precision, but isn't a very strong grip. This is best for slower speeds and more precise operations. Holding the tool like a golf club is much stronger, but makes it hard to do close work. Hold it like this for operations with higher speeds, or where power is more important than precision.
4. Turn the dremel on and let it get to speed before you touch it to the piece. You don't want the dremel to have to accelerate when it's in contact with the piece; this will cause it to kick.
5. Press the dremel attachment to the piece. Since the dremel is light, it will probably kick when it touches the piece – be ready for it. The dremel is usually used on very tough materials, so you'll have to push pretty hard.

Troubleshooting

1. If you use the dremel on metal, it will create sparks. Sparks caused by grinding or cutting metal this way may glow, but they don't carry enough heat to burn you. They are hot enough to ignite sawdust, however. If you are using the dremel on metal, you should do it outside the Woodshop where you won't risk catching anything on fire.

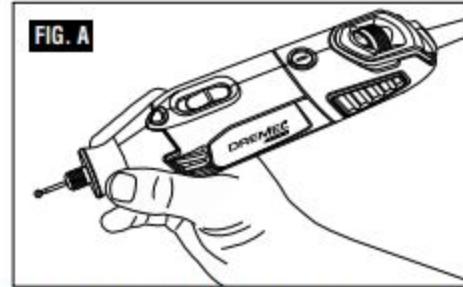


FIG. A
For best control in close work, grip the Rotary Tool like a pencil between your thumb and forefinger.

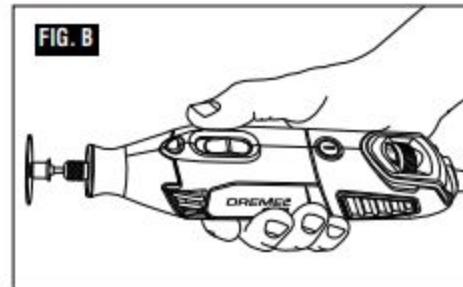


FIG. B
The “Golf Grip” method of holding the tool is used for more aggressive operations such as grinding a flat surface or using cutoff wheels.

2. Holding the dremel so that the edge of the wheel is flat against the piece engages the attachment in the most effective way. For a grinding wheel this maximizes contact area, and for a cutting wheel this gives you a clean cut that is unlikely to slip.