



Bench Mounted Power Tool Safety

General Safety

Bench or pedestal mounted power tools must be securely mounted to a solid surface prior to operation. Ensure that all safety guards are in place and properly adjusted, and that electrical cords are in good condition. No loose clothing or jewelry should be worn, and long hair should be secured. Safety glasses and hearing protection should be worn, and a face shield is appropriate with any material that can shatter. Gloves should typically not be worn when working with rotating or reciprocating tools, as they can pull hands into the equipment. Power should be disconnected prior to making repairs or adjustments to equipment.

Grinders

Bench grinders are an efficient way of shaping metal or removing rust and paint. When using a stone grinding wheel, never grind with the side of the disc unless it is specifically designed to do so. Never use a wheel with cracks or damage, as they can fly apart. Make sure the wheel is rated for the speed at which the grinder spins. Before installing a wheel, suspend it by its center hole and tap it with a nonmetallic object. If it rings, it is not cracked. If a dull thud is heard, it is cracked and should not be used. Bench grinders must also be equipped with tool rests no more than 1/8th inch away from the wheel and spark guards 1/4th inch away.

Drill Press

Drill presses (figure 1) allow for fast, repetitive, precise drilling. Always clamp the workpiece to the table and have the press set to the correct speed before drilling. Be sure the chuck key is removed from the chuck before turning on the power, and do not grab the chuck to stop the machine after turning off the power. When drilling a large hole, it is advisable to start with a smaller pilot hole and work up in steps to the final diameter.



Figure 1: Drill Press

Photo Source:

https://www.northerntool.com/images/product/2000x2000/426/426411_2000x2000.jpg

Table Saw

Table saws, like the one pictured in figure 2, are perfect for making long, precise rip cuts in wood. Always use a push stick if hands would otherwise be within two inches of the blades during a cut. Adjust the blade height so that it is only slightly (less than 1/4") above the material being cut. Hold the workpiece tight against the fence and support overhang to keep the wood from drooping. When a piece of wood is caught between the blade and the fence, it can be violently flung towards the user. Position your body so it is not in line with the blade. Never make crosscuts using the fence. Use a miter gauge instead. Always use the blade guard, riving knife, and anti-kickback pawls.



Figure 2: Table Saw

Photo Source: https://www.amazon.com/DEWALT-DW745-10-Inch-Job-Site-Capacity/dp/B000HXT2N6/ref=asc_df_B000HXT2N6/?tag=bingshoppinga-20&linkCode=df0&hvadid={creative}&hvpos={adposition}&hvnetw=o&hvra nd={random}&hvpone=&hvptwo=&hvqmt=e&hvdev=c&hvdvcmdl={device model}&hvlocint=&hvlocphy=&hvtargid=pla-4584001419724154&pvc=1



Chop Saw/Miter Saw

Chop saws or miter saws (figure 3) can be found in wood and metal cutting applications. When cutting metal, always clamp the workpiece firmly and cut with smooth even pressure. When cutting wood, always have sawing angles set tightly and accurately before cutting and hold the workpiece firmly against the fence. Use a hold stick to cut pieces smaller than two inches. Always support the end of the workpiece.

Figure 3: Miter Saw

Photo Source: https://c.shld.net/rpx/i/s/i/spin/10008020/prod_1415529512??hei=64&wid=64&qlt=50

Band Saw/Scroll Saw

Used for tight curves in decorative work, scroll saws cut with a reciprocating motion. Always use a sharp blade and ensure that it is installed tightly and correctly. Band saws (figure 4) are used for resawing or cutting curves in metal or wood. Metal cutting band saws are often automatic, using the weight of the saw itself to crosscut a piece of metal. Always be sure to have plenty of coolant in the machine and monitor the condition of the wheels and blade. If the blade ever overheats, replace it. Make sure the shutoff switch is in working order. Woodcutting band saws require the workpiece to be moved. Ensure the blade is sharp and not overheating, and the wheels are in good condition. Keep hands well clear of the blade and use a push stick if necessary.



Figure 4: Band Saw

Photo Source:

<http://i.ebayimg.com/images/i/322186118202-0-1/s-11000.jpg>

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Bench Mounted Power Tool Quiz

1. When using a grinder:
 - a. Always use the proper guards
 - b. Make sure the guards are adjusted properly
 - c. Both a and b
 - d. Guards are optional
2. True or false: Wear gloves when using a drill press.
 - a. True
 - b. False
3. When making crosscuts on the table saw:
 - a. Use the fence
 - b. Use a miter gauge
 - c. Use a bevel holder
 - d. Use a carbide toothed blade
4. When using a miter saw, make sure:
 - a. The cut angle is locked in firmly
 - b. The fence is locked in firmly
 - c. The blade is locked in firmly
5. If bandsaw wheels lose balance and vibrate:
 - a. Bend them straight again
 - b. Use lighter cutting pressure
 - c. Check them and their shafts for straightness, and replace the bent part

Bench Mounted Power Tool Quiz Key

1. C, Both A and B
2. B, False
3. B, Use a miter gauge
4. A, The cut angle is locked in firmly
5. C, Check them and their shafts for straightness and replace the bent part