Machine Guarding for Table Saws

Guarding Table Saws

This article addresses the need for table saw guarding and types of guarding that can be used.

Table saws injure upwards of 30,000 people per year, incurring an estimated treatment cost of over $2 billion annually. Injuries range from severe lacerations to full amputations of fingers and hands. The results of these injuries are often life-long disability and loss of function of injured hands due to missing fingers, severed tendons and loss of sense of touch due to nerve damage.

Types of Table Saw Injuries

There are three main mechanisms of injury that table saws present:

1. Entanglement or in-running nip point hazards from belt-driven saws with rear-mounted motors.
2. Contact with the blade, causing lacerations of varying severity.
3. Kickback, when a work piece binds, or rides up on the revolving saw blade, and is violently and powerfully thrown back toward the user.

The Basics of Table Saw Safety

DRIVE BELTS

Belt-driven saws with exposed belts and pulleys should be guarded with a sturdy cover over the belts and pulleys.

BLADE CONTACT

OSHA has specific rules for table saw guarding that are described in 29CFR1910.213 and 1926.304.

In general, blade guards are required on table saws whenever ripping or cross-cutting is done. Some OEM guards on cheaper saws don't work very well due to the fact that they are secured to the saw behind the blade with a thin metal blade called a splitter to help prevent kickback. Cheap, flimsy and flexible blade guard parts create frustration, sometimes catch and interfere with work being fed through the saw and often are the reason guards are removed.

Dado cuts are another reason guards of the OEM type are often removed. Dado cuts are those that create grooves or channels in the work piece but do not cut all the way through it. The rear-mount type blade guard and splitter prevent the work piece from being pushed all the way through. If your shop routinely makes dado cuts, you should look into retrofit type guards known as "Overarm Blade Guards." These guards do not attach at the rear of the saw, so they do not interfere with dado or any other kind of cut. And as a bonus, many of them have dust collection ports to help keep sawdust in control. Another saw accessory, called a riving knife, mounts on the blade mechanism, so it raises and lowers with the blade, making it easier to use than a conventional blade guard's splitter.

KICKBACK

To help prevent kickback while ripping wood, a riving knife or a splitter prevents the saw kerf (cut) from closing on and pinching the blade, or twisting, which causes the work piece to be violently thrown backwards out of the saw. Serious injuries and even fatalities have been caused by saw kickback. These devices should always be on the saw when ripping.

Another device sometimes used is a set of anti-kickback pawls that are hinged to the blade guard mechanism and drag on the wood. This prevents it from moving backwards.

Many of the aftermarket suppliers of conventional guards also can supply splitters and/or riving knives. Suppliers can be readily located online using search terms such as "Table Saw Safety Devices" or associated terms. Always use due diligence when dealing with third parties.

FLESH-SENSING TECHNOLOGY (SAWSTOP BRAND TABLESAWS)

Some shops acquire saws equipped with a proprietary mechanism that detects if flesh contacts the blade and instantaneously fires a blade brake and retraction cartridge. Operating at very high speed, the saw blade is not only stopped in a fraction of a second, but is also retracted down and away from the user. Injuries are much less severe, sometimes only a minor scratch.

Because of the safety technology built into these saws, some shops remove the blade guard and splitter/riving knife in the belief that the technology will provide adequate safety. While it is a major stride in table saw safety, guards and splitters/riving knives must remain installed on the machine for several reasons:

- The blade-brake technology does not control kick back, which can be every bit as serious as a blade cut.
- If the saw user is pushing the work piece into the saw with force and slips into the blade, the hand/fingers are pushed into the saw faster and with greater force. While this is not as bad as a conventional saw, it can still cause very serious lacerations before the blade is retracted and braked.
- To prevent the saw from accidentally braking due to cuts being made on damp wood, there is a manual override switch on the saw. This could be turned off and inadvertently left off without the next user noticing.

For these reasons, the manufacturer of the SawStop brand table saw recommends that the blade guard, riving knife and all other safety accessories remain in place.*

**Please note the above information is intended to provide your organization a place to start when complying with the OSHA Machinery and Machine Standard. This article is not intended to provide authoritative answers in OSHA compliance. To ensure OSHA compliance, please reference the full OSHA Standard.*

For a summary guide to table saw safety, please visit: https://www.osha.gov/SLTC/etools/machineguarding/saws/tablesaws.html.

For additional resources and other safety and risk management subjects, visit the AmTrust Loss Control website: https://amtrustfinancial.com/loss-control

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