

SawStop Saws are the most advanced saws in the world. Each saw is equipped with a safety system that detects when someone accidentally contacts the spinning saw blade, and then stops the blade in milliseconds. In most cases, such an accident would result in just a nick on a SawStop saw, instead of the devastating injury which would likely occur on an ordinary saw. The photo at the right shows what happens on a SawStop saw when a hotdog (representing a finger) hits the spinning blade at a speed of about 1 foot per second.

Hot Dog Demo



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The SawStop safety system includes an electronic detection system that detects when a person contacts the blade. The system induces an electrical signal onto the blade and then monitors that signal for changes. The human body has a relatively large inherent electrical capacitance and conductivity which cause the signal to drop when a person contacts the blade. Wood has a relatively small inherent capacitance and conductivity and does not cause the signal to drop.

This drawing shows the changes in the electrical signal when a finger touched the teeth of a spinning saw blade during an actual test.



The line represents the electrical signal which dropped quickly when the blade touched the finger. The dips in the signal line illustrate the changes in the electrical signal that were detected as two successive teeth touched the finger. When the detection system sees dips like these, it knows a person has touched the blade.

How It Works



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A fast-acting brake stops the blade when contact is detected. The brake includes a heavy-duty spring to push a block of aluminum, called a brake pawl, into the teeth of the blade to stop the blade from spinning. The spring is held in compression by a fuse wire until contact is detected. When contact is detected, the system sends a surge of electricity through the fuse wire to burn the wire and release the spring. The spring pushes the brake pawl into the teeth of the spinning blade, and the teeth cut into the aluminum and bind, thereby stopping the blade. All this happens in about 3–5 milliseconds, or 1/200th of a second. At the same time, the angular momentum of the blade causes the blade to retract below the table and the power to the motor is shut off.

The brake mechanism is shown in the drawing to the right. The arrow shows how the aluminum brake pawl pivots into the teeth of the blade. The brake pawl is part of a replaceable cartridge that includes the spring, fuse wire and electronics necessary to burn the fuse wire. An optional dado cartridge provides the same protection for dado cuts.



The standard and dado brake cartridges are single-use components that must be changed if the brake is ever activated. Changing a brake cartridge is fast and easy, no more complicated than changing the blade.

Every year in the United States there are tens of thousands of serious injuries on table saws. These injuries change people's lives and they cost society billions of dollars in medical expenses, lost wages, worker's compensation, increased insurance rates, lost productivity, etc.

The US Consumer Product Safety Commission reports that every year table saws are involved in:

Over 60,000 injuries      Over 3,000 amputations      \$2 billion in injury-related costs

**That's one injury every 9 minutes!**

The Power Tool Institute, an association of power tool manufacturers, estimates there are currently 6 million table saws in use in the United States. Given 60,000 annual injuries, then one out of every 100 table saws will be involved in a serious accident each year, and one out of every 10 table saws will be involved in a serious accident during the next ten years. With numbers like that, the risk of someone suffering a serious injury on a table saw is alarming.

SawStop saws are designed to address this risk. Every SawStop saw includes **revolutionary new technology** to detect when an accident occurs and stop the blade in milliseconds.

The SawStop technology has received **numerous awards** including:

- *TIME Magazine Best New Inventions 2006*
- *2006 Popular Mechanics Breakthrough Awards*
- *2006 Author's Best Overall Choice*      *Fine Woodworking*
- *2006 Editor's Choice Award of Quality*      *Workbench Magazine*
- *2005 Midwest Expo Hallmark Achievement*
- *2005 AWFS Sequoia Award*
- *Readers' Choice Award - WoodShop News*
- *IWF Challengers Award*
- *Product Safety Commendation, US Consumer Products Safety Commission*
- *Best of What's New - Popular Science*
- *Top Ten Tools - Workbench*
- *Editor's Choice Award - Tools of the Trade*

