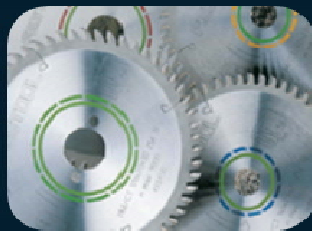


FESTOOL®

Understanding Plunge Cut Saws & Guide Rail Systems





Straight Talk...About Straight Cuts.

There are a lot of people who still believe you can only get straight, splinter-free cuts in a shop using expensive panel saws, table saws, and CNC equipment. Getting quality cuts with portable power tools doesn't have to be difficult or expensive. The truth is...that with the right tools, anyone can get great results in the shop or on the jobsite. Straight, splinter-free cuts are easy, once you know the secret.

Let's start with the basic causes of poor quality cuts. Unwieldy panels, arbor run-out, low quality blades, pinched kerfs, unsupported material, misaligned fences, poor visibility, and bad technique all lead to less than optimal results. To illustrate, let's start with the basic challenge of working with ¾" sheet goods. If you don't own a large shop with a dedicated panel saw or CNC equipment, you are probably going to try to cut the sheet down on a table saw. A typical sheet of ¾" plywood weighs between 70 and 100 pounds and cost between \$50 and \$100 or more. After making the cut, you will probably be disappointed, because the cut was not perfectly straight, the veneer has chipped-out, and the edges have tooth marks that require sanding before attaching trim material.

Some woodworkers compensate by cutting the parts oversized, and then re-cutting the pieces to final size when they are more manageable. Another solution is to invest in a lot of expensive accessories and additional equipment to minimize the problems. Let's face it, working this way wastes both time and material.

Is there a better way? There is, and you are about to learn the secret that more and more seasoned craftsmen are discovering every year. The secret, gives them a competitive advantage, while allowing them to work faster, easier, and smarter. They are able to reduce waste, and accomplish the same task more safely, and in less time than with traditional methods. So what is this secret? The secret is...the plunge cut saw, and guide rail system.

The Plunge Cut Saw and Guide Rail System

What is a plunge cut saw and guide rail system? Some people would describe it as a circular saw riding on a metal rail. This would be a gross understatement, and would overlook the major advantages that a plunge cut saw and guide rail system offer. Designed properly, a high quality plunge cut saw and guide rail system is a precision piece of equipment, as well thought out as most stationary equipment. The combination of a precision plunge cut saw, and a guide rail will create a system that generates precision cuts anywhere on a panel quickly and safely...cuts that should never be attempted with a traditional circular saw.

Festool's innovative plunge saws bring the functionality of a full-size panel saw to the jobsite. No more lifting a 77 lb. sheet over the top of a table saw. My work is more accurate and safer."

Brandon N., Illinois

The smooth pivoting action, and minimal blade exposure during the cut is ideal for starting a cut in the middle of a panel. This design allows the blade to pivot into the material smoothly and accurately. Precision cuts starting from any point are easily accomplished. The plunge cut/guide rail can be used to complete a number of familiar tasks: Ripping sheet goods, creating straight edges on rough stock, jointing boards, cutting to scribe lines on doors and cabinets, cross-cutting, and creating openings in panels, sections of flooring, and cabinets.

Typical Applications

Sheet Goods



Straight Edges



Scribe Lines



Precise Angles



Cross Cutting



Inside Cuts



Solid Surface



Flooring



Cut Outs



Things to Consider

Quality

As with most power tools...you usually get what you pay for. While every now and then, you might find a simple and inexpensive solution, rarely will you find a quality built tool at a discount price. How many times have you had to buy another tool, because you bought cheap instead of buying right? Let's face it... a quality tool, built with quality materials will cost you more than you might want to pay initially. But, the good news is that the difference in what you paid up front should end up saving you more money in the long-run.



Good design, tight tolerances, use of quality materials, and uncompromising attention to detail will almost always create a tool that you can enjoy for many years. Saws should use top quality motor bearings to support the shaft and extend the useful service life of the tool. All moving parts should operate smoothly and should be adjusted easily. Tight tolerances and a smooth plunging action are good indicators of the quality of the tool. Other things to consider: How strong is the warranty? What do owners say about the tools?

Does the brand have a good reputation for manufacturing quality tools? Does the company have a good service department in the unlikely event that there is a problem?

Straight Cuts

When used with a quality guide rail, plunge cut saws are hard to beat for straight cuts. The guide strip on the edge of the rail acts as a zero clearance surface, and can be used to place the saw blade exactly on the cut line. Being able to maintain an accurate cut line is important regardless of the bevel angle of the saw. A good saw will use a pivoting mechanism to ensure that the cut line stays exactly on the edge of the guide rail regardless of the saw's bevel angle setting.



The rails should be strong, light, and easy to adjust, and should come in a wide assortment of lengths with the ability to connect two or more to create custom lengths. Thin anti-slip bottom strips, and an easy way to clamp the rail down for added safety should be high priorities, as this will improve the cutting results significantly. Base plate adjustments should be easy to adjust, so that there is zero-play in the system, and tool-less adjustment knobs will make set-up easier.

Power

Having a strong and reliable motor is important to getting good results. How much power is enough to do the job? The answer depends on the job. If you are going to rip 3 inch hard maple boards all day, then you should get a larger saw with extra power. If, on the other hand, you will be making a few cuts in ¾" plywood, you might prefer the comfort of a smaller and lighter saw. While power ratings can be confusing, make sure you are comparing the saws continuous power rating under load, as some manufactures may only list the saws peak power rating, which will not give an accurate measurement of the saws performance in use.



Once you have decided your power needs, look for a saw that offers Multiple Material Control (MMC). This feature will provide the following benefits and safety features for your protection: variable speed selection, constant speed control, soft-start, temperature monitoring, and motor overload protection. With MMC you can select the perfect speed for the material you are cutting. Matching the speed of the blade to the material being cut will greatly improve your cutting results.

Depth of Cut

Selecting a saw with enough capacity to cut through the material you are working with is an important consideration. A saw with at least 1 ½" cut capacity should meet most end-users needs, as it should easily handle 5/4 stock or cut through two sheets of stacked ¾" plywood. However, if you will be cutting 8/4 or greater, a larger saw should be used with the trade-off coming in size and weight. Fine depth of cut adjustments will allow you to precisely position the blades depth of cut. Being able to cut through a piece of wood without damaging the under layer is valuable, so look for a saw that has an easy to use fine depth of cut control mechanism.



Splinter-Free/Burn-Free Cuts

When working with expensive materials like cabinet grade veneered plywood or MDF, it is important to have cuts that leave splinter-free edges without burn marks to eliminate re-work or to minimize the amount of time spent cleaning up the cut line. Good results depend on a number of factors like tool design, choice of blade, saw blade speed, and material support. A high quality plunge saw and rail system will give consistent splinter-free cuts year after year.





the blades position relative to the base, and riving knife.

Here are a few features that will help ensure high quality cuts. Look for easy tool-free saw to guide rail adjustments that ensure zero-play between the two. For the best quality cuts, use a system that has splinter guards on both sides of the blade (one on the rail, and one on the saw.) MMC electronics and a variable speed setting will ensure that a consistent and correct blade speed is used for the material being cut. A blade to base adjustment gives you the ability to adjust

[Tip: Adjusting the blade to be slightly toed-out at the back of the base plate will help eliminate potential burn marks. The difference from front to back should be less than the thickness of a business card. By making this adjustment, you can prevent the teeth at the back of the blade from coming in contact with the inside cut line.]



Anti-Kickback

Anti-Kickback protection is important. One source of kickback is created when the teeth at the back of the blade come in contact with the material being cut, causing the material to ride up on the blade, forcing the material to be thrown in the direction that the blade is rotating. Well designed solutions can both protect against kickback, and offer additional advantages. The use of a riving knife can help prevent kickback by keeping the saw kerf open, and the top of the back teeth covered, which greatly reduces the potential for kickback. The riving knife should move with the blade to keep the distance, or gap, between the knife and the teeth constant over the entire range of cutting depths.

Another anti-kickback device is the adjustable limit stop. This device works to hold the back of the saw base against the rail during a plunge cut. By placing the stop on the guide rail instead of the base of the machine, the saw can be pushed forward unrestricted through the rest of the cut after the initial plunge cut has been made, and the saw can be easily removed from the rail at any point. An added benefit of this design is that two separate stops can be placed on the rail to create positive stops at both the beginning and end of cut making repeat cuts of exactly the same length both easy and fast.



The inclusion of a slip clutch on larger plunge cut saws is one of the most innovative features introduced to this class of saw. This design allows the blade to disengage with the arbor if the blade binds in the material being cut. This can help reduce potential injuries, and prevent damage to the saw, eliminating unnecessary repairs caused by burnt motor windings or damaged arbor shafts. (Note: Using blades that have not been tested and approved by the manufacturer can damage the saw, and will void the warranty.)

Dust Extraction

When making any cut, a saw is going to generate a lot of sawdust. Fine dust that is ejected into the air can make you sneeze, cough, and experience other allergy-like symptoms. It's small, lands on everything in sight, and gets inside your tools. Experts agree that limiting our exposure is the best protection. Good dust extraction extends the life of your tools by reducing dust-induced tool fatigue. It improves your accuracy by giving you a clearer view of your cut lines, and helps create a healthier environment. Dust extraction should not be an afterthought, and is should be included in the design of the tool.



Good dust extraction should capture more than 92% of the sawdust being created, and it should not hinder the user when making a cut. Features like 360 degree rotating dust ports, which allow you to adjust the hose exit to the left or right side of the cut, and guide rail deflectors that prevent the hose from binding on the end of the guide rail are all nice features to consider. Being able to use larger hoses and higher air flow (cfm) will improve dust extraction considerably.

Blades



Professionals know that you need to match the design of the saw blade to the material being cut, and the operation being performed. Blades should be designed for cutting efficiency, long-life, and superior cutting results. Variable tooth spacing, laser expansion slots, large arbor holes, and properly tensioned blade blanks all reduce vibration and result in cleaner cuts.

For best results, use blades that incorporate fine-grain tungsten carbide tips, as they are robust, sharpen nicely, and wear well under the toughest conditions. Some manufacturers color code their blades to make choosing the right blade for the job easier. While a combination blade is useful for general work, don't compromise by buying a saw with a limited selection of saw blades. Make sure that you can purchase blades for both ripping and cross-cutting in various materials including hardwoods, softwoods, plywood, melamine, and soft metals like aluminum. Owning a wide selection of blades will improve results and expand the capabilities of the saw.

Other Considerations

A quality tool should be comfortable to use, and feel balanced in your hand. The use of soft grip materials, color coded switches and controls, and the use of tool-less adjustments combine to make the user experience much better. Detachable power cords can be convenient, as they allow you to disconnect from the power source at the saw instead of the receptacle. Antistatic hoses and attachments will reduce the amount of dust being distributed around the work area, and are considered safer by many users. Look for convenient time saving features like locking arbor spindles and one handed blade changes to make it faster and easier to switch to the proper blade when making different cuts.



Faster. Easier. Smarter

Consider the value of knowledge handed down through generations of professionals. For over three generations, Festool has created solutions for these individuals. The passion that drives these professionals to deliver the best finished product is the same passion that drives our engineers and designers to produce tools that stand out in their ability to exceed your expectations. In your trade, attention to detail is critical; so why work with something that hasn't been designed with the same amount of care?

From the system, to the tool, to the accessories and consumables; Festool products work hard, so that you can deliver your highest quality work. With an obsessive approach to delivering products that work together as a seamless system, Festool offers a broad range of products that work together as an extension of the tradesperson from the first-cut to clean-up.



Festool TS Saw Key Features

Festool TS saws deliver panel saw precision in a versatile, portable design. We invented the guide rail over 40 years ago, and have continuously set new and higher standards for precision cutting with our plunge cut saws.

Accuracy and splinter-free cuts on both sides of the blade



The guide rail and saw splinter guard create a zero clearance cutting surface that you can place directly on the material to be cut. This set-up is easier and faster than traditional methods, and results in cuts that are straight and clean. Unlike other saws, this combination of splinter guards creates chip-free surfaces on both sides of the cut in a single pass, so that you can use the off-cut side without needing to make a clean-up cut.

Power and precision in the palm of your hand



With the most power in its class, the TS 75 EQ puts incredible power at your disposal. 1600 watts of power, and a cutting depth of 2 3/4" make this the preferred choice for production runs and thick materials. Weighing in at less than 10 pounds, the TS 55 EQ has enough power to meet all, but the most demanding requirements. It easily cuts 5/4 material or two sheets of 3/4" plywood stacked. With more control and the ability to take the tool to the work, your table saw is sure to see less use. Both saws have a variable speed control and MMC electronics for superior performance in all materials.

Safety



The TS plunge cut saws have a number of safety features that make them superior to traditional circular saws and other plunge type saws. A riving knife helps prevent the back of the blade from creating kickback. Innovative limit stops can be used to keep the saw base from rising during a plunge cut, and can also be used as both beginning and ending stop guides. The pivoting plunge action is more natural and easier to control than the plunge action found on track saws, and the blade remains covered above the cutline when performing a plunge cut. Up to 96% of saw dust is captured when used with a Festool dust extractor.

Setting the standard for Precision



	TS 55 EQ	TS 75 EQ
Item #	561 174	561 188
Included in Package		
High Quality Carbide Blade	48 tooth (491 952)	36 tooth (493 198)
Guide Rail Included	55" (1400 mm)	75" (1900 mm)
Slip clutch	No	Yes
Splinter Guard	Yes	Yes
Limit Stop	Yes	Yes
Plug-it Power Cord	Yes	Yes
Systainer	SYS 4	SYS 5
Specifications		
Power Consumption	1200 watts / 10 amps 120v AC	1600 watts/ 13 amps 120 v AC
Saw Blade Speed	2,000 -5,000 rpm	1,350 – 3,550 rpm
Saw Blade Diameter	6 ¼" (160 mm)	8 ¼" (210 mm)
Bevel Cuts	0 - 45 degrees	0 – 45 degrees
Cutting Depth on Rail	1 15/16" (55 mm) @ 90 degrees 1 7/16" (37 mm) @ 45 degrees	2 ¾" (70 mm) @ 90 degrees 2 1/8" (55 mm) @ 45 degrees
Cutting Depth without Rail	2 1/8" (55mm) @ 90 degrees	2 15/16" (75 mm) @ 90 degrees
Arbor Size	.787" (20 mm)	1.101" (30 mm)
Weight	9.92 lbs. (4.5 kg)	13.6 lbs. (6.2 kg)

The quicker way for a cleaner cut

TS 55 EQ

Nothing beats the convenience of the TS 55 for cutting down panels. Big on power, small in size, the TS 55 makes quick work of sheet goods with greater accuracy and far more versatility than a panel saw. When mated to a MFT/3 (Festool's multifunction table), it rivals the precision and capability of most table saws and miter saws.

TS 75 EQ

Turn to the TS 75 when you need more capacity. MMC electronics mean that your cuts will be burn-free and glue-ready, even in thicker or stacked material. With 1600 watts of power and almost 2 ¾" of cutting capacity, cutting three or four sheets of ply at one time is a breeze.

Accessories that help you work faster, easier, smarter

Parallel guide

For guided cuts that run parallel to the edge of the board. This sturdy, and well designed attachment is a must have accessory. Use it to quickly trim the edges of boards to the right width.



Splinter guard

These disposable splinter guards, when used with a guiderail, create a zero clearance base for the TS saws. By supporting the fibers on both sides of the blade, you can get splinter-free cuts in the most difficult materials. Keep a splinter guard for each saw blade to ensure a perfect match with the blade's kerf.



Limit Stop

This well designed stop, helps reduce the risk of kickbacks by securing the back plate of the TS saw when making a plunge cut on a guide rail. When used in pairs, these limit stops can be used to mark the beginning and end of any cut made with guide rail.



Plug-It cord

These replaceable power cords can be used with most Festool portable tools. If you work in an environment where the power cord is at risk of being damaged, keeping a spare on hand can prevent a trip to the shop. Easy to use, and no wiring or soldering is required when replacing the original cord.

Guide rails

Guide rails are the heart of the TS cutting system. Perfectly straight cuts are easy with these engineering marvels. Festool offers the widest selection of guide rails with nine sizes, and two special rails for use with the Festool Router Pin Hole Kit. Multiple guide rails can be connected to make longer rails quickly and easily.



Guide rail accessory kit

This kit includes everything to make using your TS saw and guide rail more productive. The angle unit makes cutting perfect angles easy, and the deflector prevents the cord or dust extractor hose from catching on the end of the guide rail. Connectors allow you to join 2 guide rails together to make a longer rail. The kit comes packed in an award winning systainer 1, with the following items:

- Angle Unit
- Limit Stop & Splinter guard
- Deflector
- 2 connectors & steel clamps

Plunge Cut Saw Blades

Anatomy of a Festool saw blade

Festool plunge cut saw blades are engineered and designed for cutting efficiency, long-life, and superior cutting results. Festool offers seven different blades for various applications.



Standard Saw Blade – Tungsten-carbide, ATB saw blade for coarse cuts in wood, building panels, and soft plastics

Panther Saw Blade - Tungsten-carbide, ATB rip blade with radical hook angle and deep gullets for fast and easy rip cuts



Fine Tooth Saw Blade – Tungsten-carbide, ATB saw blade for fine cross cuts in sheet goods, melamine, hard and soft woods.

Universal Saw Blade – Tungsten-carbide, ATB saw blade for clean cuts in wood, construction panels and soft plastics. Fine rip blade for glue ready cuts.



Aluminum/Plastic Saw Blade – Tungsten-carbide triple-chip saw blade with negative hook for cutting aluminum and nonferrous metals, acrylics and hard plastics.

Solid Surface/Laminate Saw Blade – Tungsten-carbide triple-chip saw blade with positive hook specifically designed for cutting laminate flooring and solid surface countertop materials.



Steel/Multilayered Board Saw Blade – Tungsten-carbide, ATB saw blade specially designed for cutting steel cable ducts and mild steel up to 1/8".

Festool USA
Tooltechnic Systems, LLC

400 N. Enterprise Blvd.
Lebanon, IN 46052

Tel 888.337.8600
Fax 888.550.6425

www.festoolusa.com