FESTOOL

Domino® DF 500 Tenon Joiner

Tenon Joiner Supplemental Extended User's Manual

Important: *Read and understand all instructions before using this tool.*

Warranty

Conditions of 1+2 Warranty

You are entitled to a free extended warranty (1 year + 2 years = 3 years) for your Festool® power tool. Festool shall be responsible for all shipping costs during the first year of the warranty. During the second and third year of the warranty the customer is responsible for shipping the tool to Festool. Festool will pay for return shipping to the customer using UPS Ground Service. All warranty service is valid 3 years from the date of purchase on your receipt or invoice.

Festool Limited Warranty

This warranty is valid on the pre-condition that the tool is used and operated in compliance with the Festool operating instructions. Festool warrants, only to the original consumer purchaser, that the specified tool will be free from defects in materials and workmanship for a term of one year from the date of procurement. Festool makes no other warranty, express or implied, for Festool portable power tools. No agent, representative, distributor, dealer or employee of Festool has the authority to increase or otherwise change the obligations or limitations of this warranty. The obligations of Festool in its sole discretion under this warranty shall be limited to the repair or replacement of any Festool portable power tool that is found to be defective as packaged with the User Manual.

Excluded from coverage under this warranty are: normal wear and tear; damages caused by misuse, abuse or neglect; damage caused by anything other than defects in material and workmanship. This warranty does not apply to accessory items such as circular saw blades, drill bits, router bits, jigsaw blades, sanding belts, and grinding wheels. Also excluded are "wearing parts", such as carbon brushes, lamellas of air tools, rubber collars and seals, sanding discs and pads, and batteries.

Festool portable power tools requiring replacement or repair are to be returned with the receipt of purchase to Festool (call 800-554-8741 for address details).

IN NO EVENT SHALL FESTOOL BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED WHATSOEVER. ALL WARRANTIES IMPLIED BY STATE LAW, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY LIMITED TO THE DURATION OF THREE YEARS.

Some states in the U.S. and some Canadian provinces do not allow the limitations on how long an implied warranty lasts, so the above limitation may not apply to you. With the exception of any warranties implied by state or province law as hereby limited, the foregoing express limited warranty is exclusive and in lieu of all other warranties, guarantees, agreements and similar obligations of Festool. This warranty gives you specific legal rights and you may also have other rights which vary from state to state in the U.S., and province to province in Canada.

Liability Statement

This product has been built to the high standards of Festool. Please do not attempt to operate or repair this equipment without adequate training. Any use, operation, or repair in contravention of this document is at your own risk. By acceptance of this system you hereby assume all liability consequent to your use or misuse of this equipment. Festool assumes no liability for incidental, special, or consequential damage of any kind. Equipment specifications, applications, and options are subject to change at the sole discretion of Festool without notice.

Proprietary Notice

Written and Illustrated by Rick Christopherson.

www.festoolusa.com

Contents

General Safety Rules

⚠WARNING: Read and understand all instructions listed below. Failure to heed instructions may result in personal injury, electrocution, or fire hazard.

Save These Instructions

Work Area Safety

- **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
- **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
- **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control.

Electrical Safety

- **Double insulated tools are equipped with a polarized plug (one blade is wider than the other).** This plug will fit in a polarized outlet only one way. If the plug does not fit fully into the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way. Double insulation eliminates the need for the three wire grounded power cord.
- **Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is grounded.
- **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- **Do not abuse the cord.** Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately. Damaged cords increase the risk of electric shock.

Extension Cords

All due care should be practiced while using extension cords with this tool.

- **When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W".** These cords are rated for outdoor use and reduce the risk of electric shock.
- **Never use an extension cord that is damaged, such as cuts, exposed wires, or bent/missing prongs.**
- **Use only extension cords rated for the purpose.**
- **Use only extension cords rated for the amperage of this tool and the length of the cord.** Using too small of an extension cord can cause the tool to lose power and damage the tool.

Extension Cord Ratings	
Cord Length	**Size (AWG)**
<50 Ft.	14
50-100 Ft.	12
100-150 Ft.	10
>150 Ft.	Not recommended

Personal Safety

- **Stay alert, watch what you are doing, and use common sense when operating a power tool. Do not use the tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
- **Avoid accidental starting. Be sure the switch is off before plugging in the power cord.** Carrying tools with your finger on the switch or plugging in tools that have the switch on invites accidents.
- **Remove adjusting keys or wrenches before turning the tool on.** A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.
- **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.
- **Use safety equipment. Always wear eye protection.** Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions. (Ordinary glasses are NOT proper eye protection.)
- **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of these devices can reduce dust-related hazards.

Tool Use and Care

- **Use clamps or other practical way to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
- **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
- **Do not use the tool if the switch does not turn it on or off.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
- **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
- **Maintain tools with care. Keep cutting tools sharp and clean.** Properly maintained tools with sharp cutting edges are less likely to bind and are easier to control.
- **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.

- **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.
- **Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended can be hazardous.

Service

- **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
- **When servicing a tool, use only identical replacement parts.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.

Specific Safety Rules for Tenon Joiners

⚠WARNING: Risk of personal injury.

- **Keep hands away from the cutting area.** Never place your hand on the front face of the fence while the tool is running.
- **Never operate the joiner without the fence attached.** When the fence is removed from the joiner, the spinning and oscillating cutter is exposed and can cause serious injury.
- **Use only Festool authorized mortising bits.** Non-approved mortising bits can come loose during operation.
- **Never use dull or damaged mortising bits.** Dull or damaged mortising bits can cause the tool to lurch sideways unexpectedly and lead to a loss of control of the power tool.
- **Do not operate the tool if the spring-loaded fence does not return to its forward rest position.** The fence covers the mortising bit and prevents accidental contact. If the slides of the fence do not move freely, have the tool serviced immediately.
- **Wait for the cutter to stop before setting the tool down.** An exposed cutter may engage the surface leading to possible loss of control and serious injury.
- **Use clamps or other practical way to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
- **Wear eye and hearing protection.** Always use safety glasses. Every day eyeglasses are NOT safety glasses. USE CERTIFIED SAFETY EQUIPMENT. Eye protection equipment should comply with ANSI Z87.1 standards. Hearing equipment should comply with ANSI S3.19 standards.

Respiratory Exposure Warning

Various dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known (to the State of California) to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
- crystalline silica from bricks, cement, and other masonry products,
- arsenic and chromium from chemically-treated lumber.

The risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.

Tool Description

Technical Specifications

Power Consumption	420 Watts (3.5 amps @ 120 volts)
Motor Speed	24,300 RPM (no load)
Mortising Depth, Max.	28mm (1.1“)
Mortising Width, Max.	23mm (0.9”) + bit diameter
Mortising Bit Range	5mm, 6mm, 8mm, 10mm
Spindle Thread	M6 x 0.75
Weight	3.2 kg (7 lbs)

All metric dimensions are binding. Mortising bit dimensions are critical for safe operation, and are presented in metric units only.

Symbols

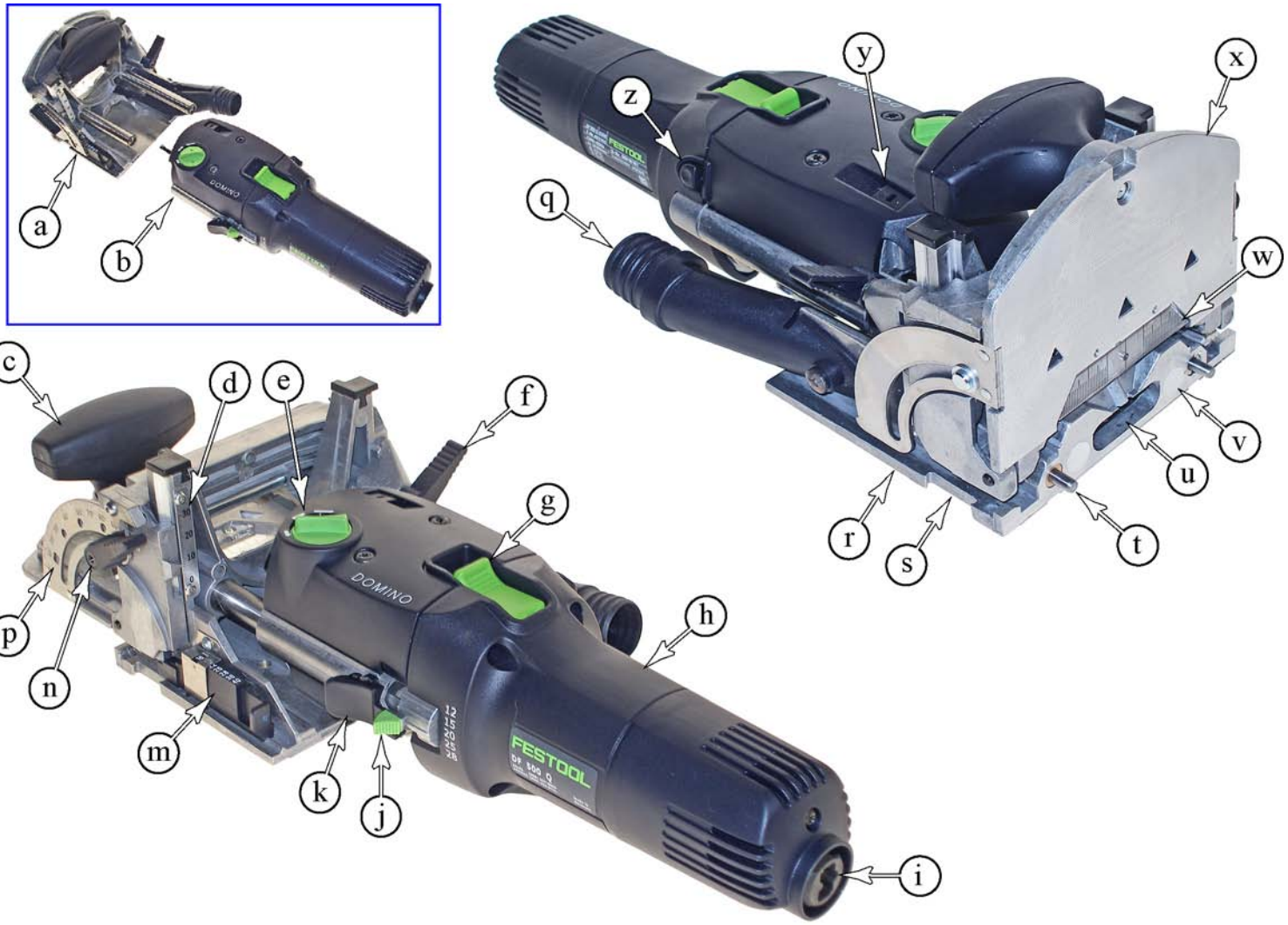
V	Volts
W	Watts
Hz	Hertz
~	Alternating Current (AC)
n_o	No-load Speed
Ø	Diameter
⧈	Class II Double Insulated

Intended Use

The Domino tenon jointer is designed to produce mortises in soft and hard wood, chip board, plywood and fiber boards. All applications beyond this are regarded as improper use. The tool should not be altered or used for any other purpose other than as specified in these operating instructions. Using the tool in contravention to this manual will void your warranty and may lead to injury. The user shall be responsible and liable for damages and accidents resulting from misuse or abuse of this tool.

Functional Description

The Domino DF 500 Tenon Joiner is used to cut mortises in wood for floating tenon joinery. Mortise and tenon joinery is one of the oldest and strongest methods of joining pieces of wood together. The Domino tenon joiner greatly simplifies the task of cutting mating mortises in workpieces to be connected together. A rotating and oscillating cutter sweeps across the workpiece to quickly and effortlessly cut a uniform mortise, in which a Domino floating tenon is inserted.



Item	Name or Description	Ref. Page(s)
a	Fence Body	9, 20
b	Motor Housing	9, 20
c	Auxiliary Handle	14, 15
d	Fence Height Gauge	8, 14, 15
e	Mortise Width Dial	8, 13
f	Fence Height Locking Lever	8
g	Power Switch	11
h	Main Handle (barrel grip)	---
i	Plug It® Power Inlet	10
j	Depth Adjust Lever	8
k	Depth Adjust Lock	8
m	Board Thickness Gauge	8

Item	Name or Description	Ref. Page(s)
n	Fence Angle Locking Lever	7
p	Fence Angle Gauge	7, 15
q	Dust Collection Port	11
r	Baseplate	7, 17
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y	Fence Body Release Lever	9
z	Spindle Lock	9

Setup

Setting Up a New Domino Joiner

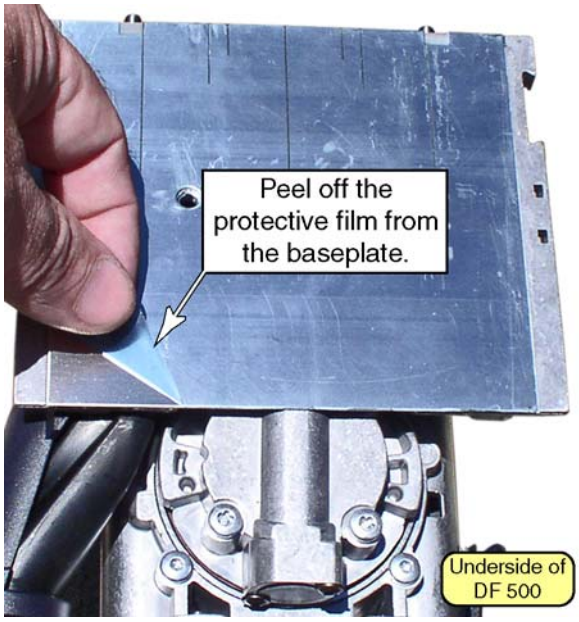
Congratulations on your purchase of a new Festool Domino Tenon Joiner. The Domino joiner is the finest portable loose tenon joiner in the world. Before using your new Domino joiner, make sure you fully read and understand all of the precautions and safety information presented in this manual.

WARNING: Always disconnect the tool from the power supply before making any inspections or adjustments, or before installing or removing any accessory!

1. With the joiner unplugged, inspect the mortising bit. Make sure it is not bent, chipped, or otherwise damaged, and make sure the bit is fully tightened on the spindle. (Refer to "Changing the Mortising Bit" on page 9 for more information).

WARNING: Check regularly whether the mortising bit is in good condition. Mortising bits that are bent or damaged should no longer be used.

2. Peel off the protective film from the bottom of the joiner baseplate.
3. Set up the joiner for the appropriate type of operation as described throughout the remainder of this section.
4. Make sure that the fence height and angle locking levers are properly tightened.



5. Install the power cord into the Plug-It receptacle on the joiner (refer to page 10 for more information).
6. Before you use the joiner, make sure to read the Overview, General Notes, and Tips section on page 10.

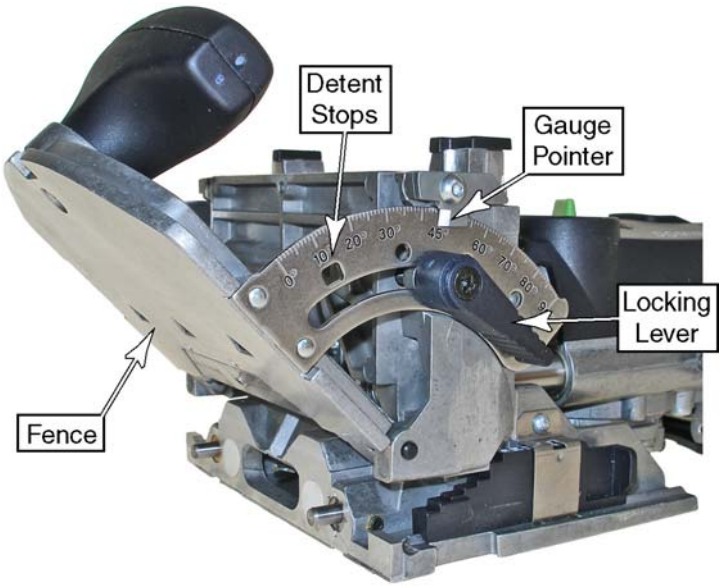
Setting the Fence Angle

Some joints require the fence to be set to an angle from the mortising bit. The most common application is for making a mitered joint (see page 15).

1. Unplug the joiner for safety.
2. Loosen the fence angle locking lever by rotating it counterclockwise about ¼-turn.
3. Rotate the fence face to the desired angle, and tighten the locking lever.

Notes:

- The fence has detent stops at 22½, 45, 67½, and 90 degrees.
- Use the gauge pointer for setting the fence to angles other than the ones listed above.
- For greater stability, the locking lever clamps down on both right and left sides of the fence.



Number of sides	Mitersaw Angle	Domino Angle
3 – Triangle	60	30
4 – Square	45	45
5 – Pentagon	36	54

Number of sides	Mitersaw Angle	Domino Angle
6 – Hexagon	30	60
7 – Heptagon	25.7	64.3
8 – Octagon	22.5	67.5

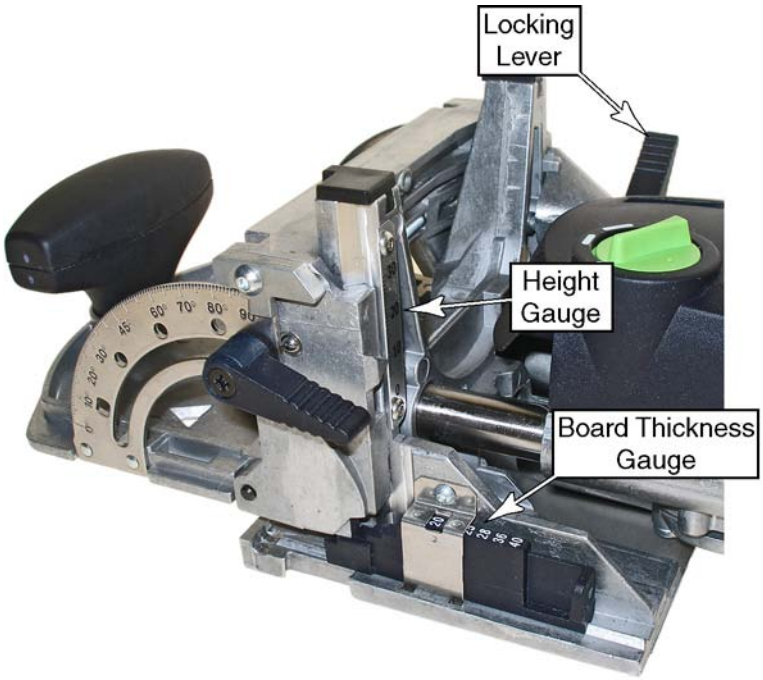
Setting the Fence Height

The height of the fence needs to be adjusted depending on the type of joint being made and the thickness of the material being joined. Refer to the Applications section beginning on page 13 for more information about the optimal fence height for the specific application. There are two features available for setting the fence height; the height gauge and the board thickness gauge.

Height Gauge: The height gauge shows the distance between the bottom of the fence face and the centerline of the mortising bit. Use this gauge to set the mortise height relative to the surface of the workpiece.

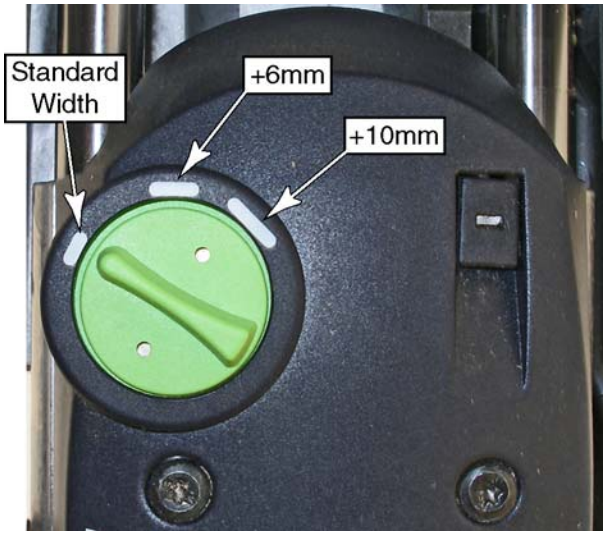
Board Thickness Gauge: The numbers printed on the gauge represent the thickness of the workpiece (in mm) and the mortise height will be centered in the workpiece. Use this gauge for setting the fence height based on the thickness of the workpiece without needing to calculate the center distance. **Do not** use the board thickness gauge for mitered joints, because this will place the mortise too close to the edge of the joint.

1. Loosen the fence height locking lever by turning it ¼-turn counterclockwise.
2. To use the board thickness gauge:
   a. Raise the fence above the board thickness gauge.
   b. Slide the gauge in or out until the thickness of the workpiece (in mm) is shown in the window.
   c. Lower the fence down until it touches the gauge.
   d. Tighten the locking lever.
3. To use the height gauge:
   a. Make sure the board thickness gauge is retracted out of the way.
   b. Raise or lower the fence until the pointer is pointing to the desired height on the gauge.
   c. Tighten the locking lever.



Setting the Mortise Width

The width of the mortise slot can be increased to permit some side-to-side flexibility in the tenon position. In the standard (smallest) position, the Domino tenon will fit snugly into the mortise slot. In the middle position, the mortise slot will be 6 mm wider than the Domino tenon. In the widest position the mortise slot will be 10 mm wider than the Domino tenon.

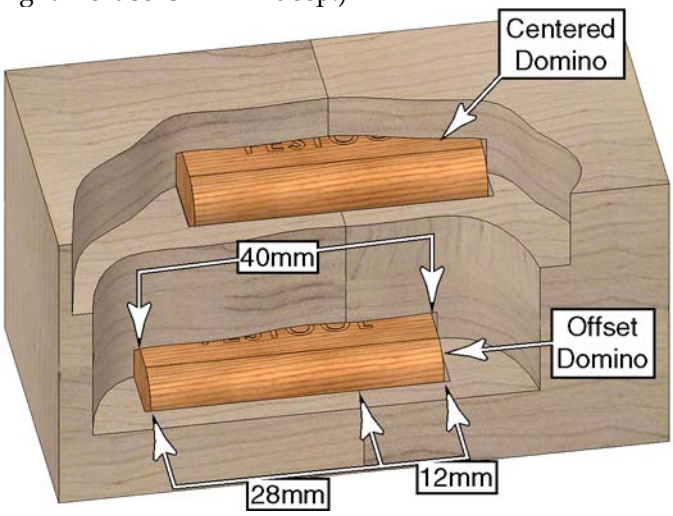


Important Notes

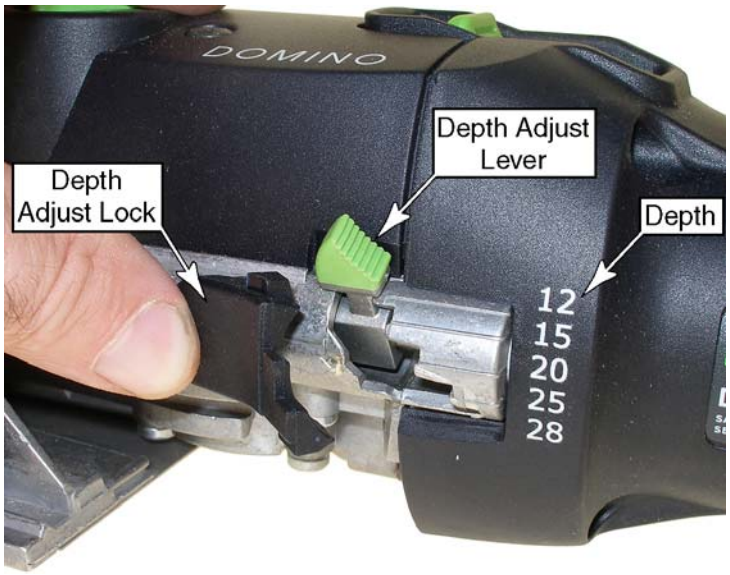
- Never force the dial to turn.
- Rotate the adjustment dial only when the motor is running.
- Never rotate the dial during a plunging operation. This can bend or break the mortising bit, and can also damage the machine.

Setting the Mortise Depth

The mortising depth determines how deep into the workpiece the mortising bit penetrates. This needs to be adjusted for different sized tenons. In most cases, the tenon should be centered across the joint, and the depth of the mortise should be ½ the length of the tenon. However, in some cases you may want to have more of the tenon in one piece than the other (lower Domino tenon pictured below). In this case, the sum of the two depths must equal the length of the tenon. (In the offset tenon example below, the Domino tenon is 40 mm long, the left mortise is 28 mm deep, and the right mortise is 12 mm deep.)



1. Press in on the depth adjust lock.
2. Move the depth adjust lever to the stepped position of the desired depth.
3. Release the depth adjust lock.

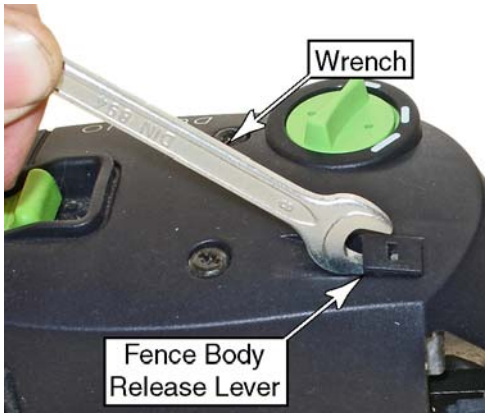


Changing the Mortising Bit

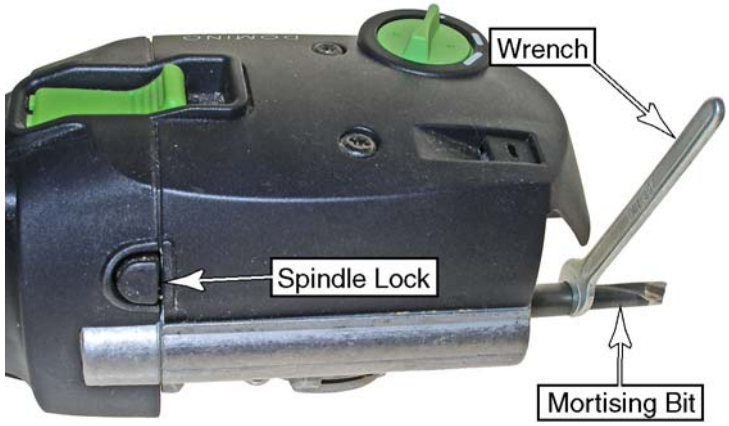
Different mortising bits are available for a variety of Domino tenon sizes. The DF500 comes equipped with a 5mm bit, and 6, 8, and 10 mm bits are available as an option.

WARNING: Always unplug the tool before changing mortising bits, or removing the fence body from the motor housing.

1. Using the provided 8mm wrench, pry up on the fence body release lever, and slide the fence body off the motor housing. (The inset photograph on page 6 shows the fence body and motor housing when separated.)



2. Press and hold the spindle lock button. This stops the spindle from turning while you loosen the mortising bit.
3. Loosen the mortising bit by turning it counterclockwise (standard right-hand thread).



4. Insert a new mortising bit, and start the threads by hand to avoid cross-threading.
5. Press in on the spindle lock while tightening the bit. Do not over tighten the bit.
6. Carefully reinstall the fence body onto the motor housing, and push the fence body in until the latch clicks.
   - Make sure there is no sawdust inside the guide tubes before inserting the fence body.
   - Be careful not to damage the linear bearings (hollow tubes) when reinstalling the fence body. If it does not slide on easy, it means the fence is skewed with respect to the bearings.

Operation

Overview, General Notes, and Tips

Getting Started

Because the look and feel of the Domino joiner may already be familiar to you, or similar to other tools you may have used in the past, you might be tempted to forego a basic introduction to using the tool. However, unlike other tools of similar look and feel, the Domino machine is extremely precise in its operation. For this reason, it is recommended that you spend some time practicing using the Domino joiner before you begin using it for your fine woodworking projects.

The old adage that *practice makes perfect* is very applicable to all of our woodworking skills, and is even more important when dealing with precision systems such as Domino. Even though the Domino machine is easy to learn and easy to use, it is always a good idea to make several practice cuts to learn the nuances of the tool before you put it to use.

Choosing the Right Domino Tenon Size

Because the Domino system is a form of the classic mortise and tenon joinery, it should follow much of the same guidelines of mortise and tenon joinery. Here are some guidelines to assist you in making your choices:

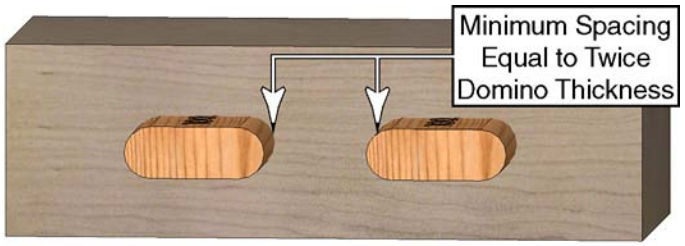
- When the strength of your workpieces is comparable to the strength of the Domino tenon (e.g. general hard woods) then the thickness of the Domino tenon should be approximately 1/3 the thickness of the workpieces.
- It is acceptable to use a tenon that is slightly thicker than 1/3 when the width of the Domino tenon is relatively narrow compared to the width of the joint. This is why 8mm Domino tenons are the most common for joining ¾-inch lumber.
- For softer woods, such as pine, the joint will be stronger when the tenon is 1/3 or slightly less.
- For plywoods, especially low-grade construction plywoods, the Domino tenon is much stronger than the surrounding wood, so it is best to maximize the strength of the substrate by minimizing the thickness of the tenon.

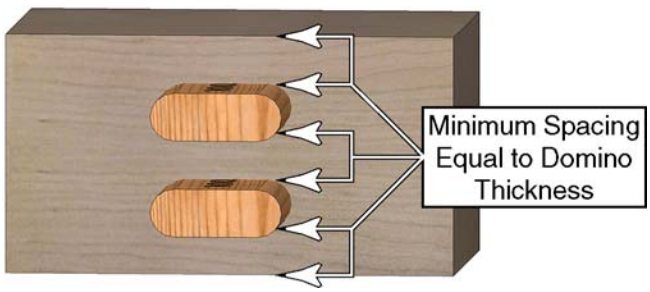
Domino Tenon Placement Guidelines

There are no steadfast rules on where tenons should be placed, especially when they are used for alignment purposes. For edge joining boards, a typical placement might be 6 to 8 inches apart.

However, when tenons are used to strengthen a joint, you might be tempted to place the tenons too close together. This can actually weaken the joint by removing too much of the substrate material.

- A wide mortise weakens the substrate, so it is better to have several narrow mortises with uncut space in between, than it is to have a single wide mortise with several tenons side-by-side.
  - When placing several tenons close together, leave at least twice the tenon thickness between mortise holes. As a general rule, this means the minimum tenon spacing should be about 10 mm to 20 mm, but they can be spaced much wider.
- When creating stacked mortises for extra thick lumber, an extension of the "1/3 rule" mentioned above still applies. Specifically, the distance between mortises, and the distance between a mortise and the wood surface should all be equal to (or larger than) the thickness of the tenon.

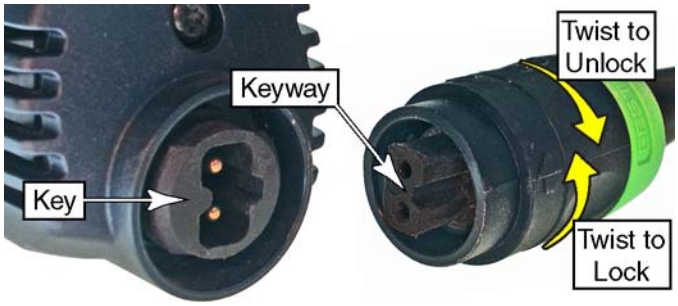




Plug-It® Power Cord

The Domino joiner comes equipped with a removable Plug-It power cord. To install the power cord, insert the cord into the inlet on the tool with the key and keyway aligned, and twist the locking ring. Reverse the procedure to remove the cord.

Note: Turn the outer locking ring ¼-turn to fully engage or disengage the cord.



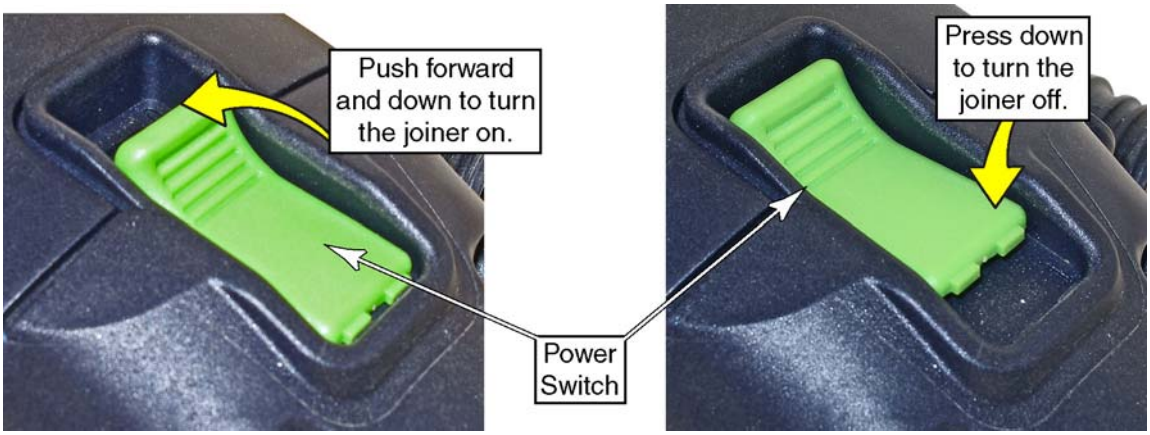
Turning On the Joiner

WARNING: Never turn the tool on when the Fence Body is removed, as this exposes the spinning cutter.

Before turning the tool on, make sure all adjustment handles are locked and the tool is safe to turn on.

The power switch for the Domino joiner locks into the On position when activated. When working with the tool for the first time, it is recommended that you become familiar with the operation of the switch before you plug the tool in to a power outlet.

To turn the joiner on, push forward and down on the power switch. To turn the joiner off, press down on the back of the power switch to release the latch.

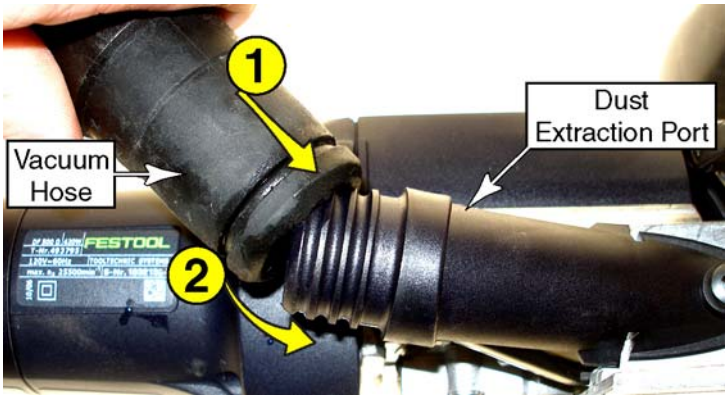


Using Dust Extraction

The Domino machine is intended to be used with a dust extraction system. Using the machine without dust extraction will cause it to clog with wood chips.

When installing a Festool dust extraction hose onto the dust port of the machine, it is easiest to insert the hose at an angle and then push it on the rest of the way as shown to the right.

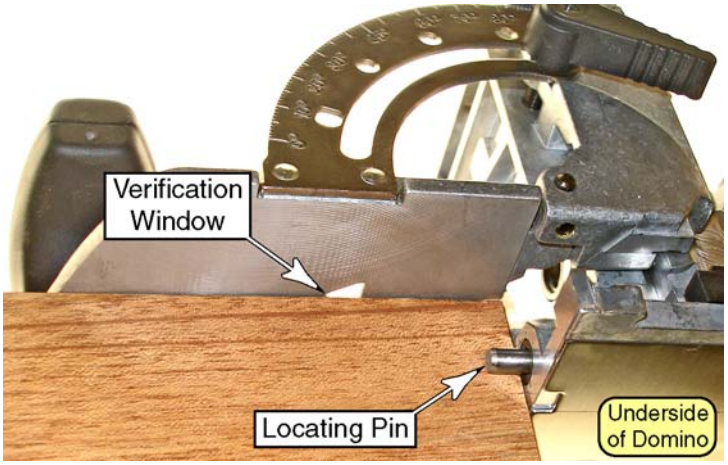
If you have another vacuum system and the hose does not fit the dust extraction port, a Festool hose will fit many other brands of vacuums.



Using the Locating Pins

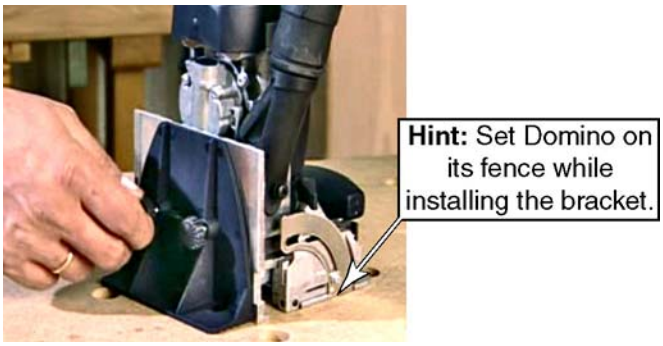
The locating pins on the front of the fence are used to register the tool against the edge of the workpiece or against a previously machined mortise slot. This provides rapid and precise placement of the tool on the workpiece.

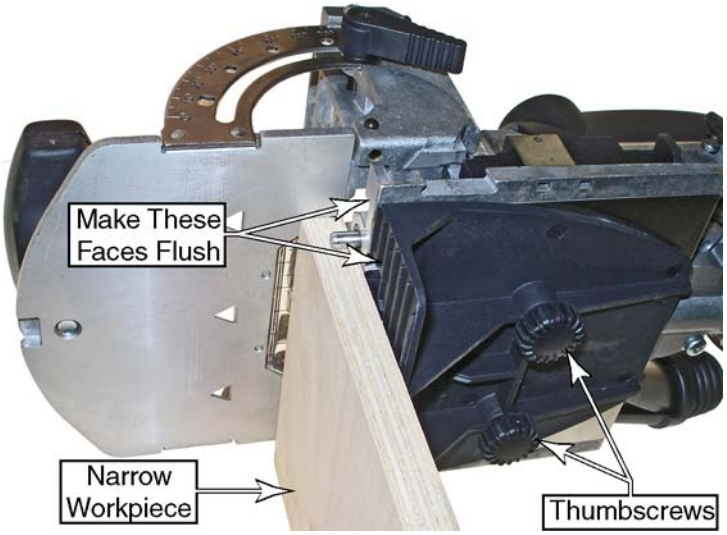
- When the locating pin is against the edge of the workpiece, the edge will be visible in the point of the verification window on the fence.
- The distance between the locating pin and the center of the mortise slot is 37mm (1-7/16 inch).
- The locating pins can also be used to register the next mortise by inserting the pin into a previous mortise slot.



Using the Base Support Bracket

The base support bracket stabilizes the joiner when mortising on the face of a narrow board as shown to the right. The base support bracket mounts to the underside of the joiner with two thumbscrews. Before tightening the thumbscrews, check to make sure the face of the support bracket is flush with the face of the joiner.

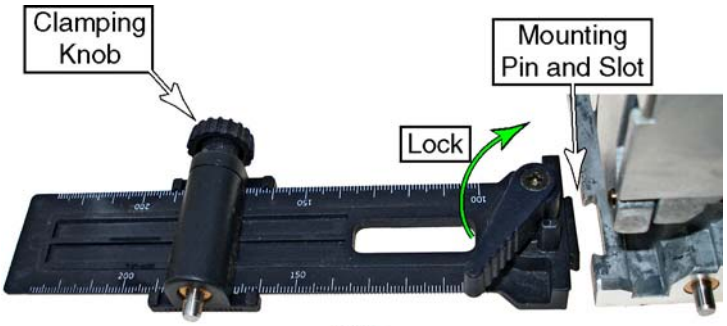


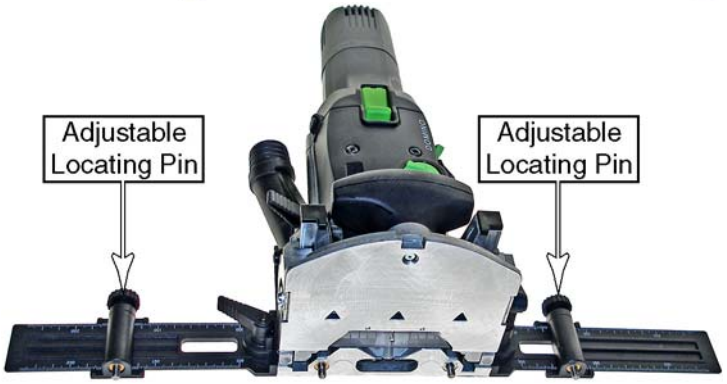


Using the Optional Outrigger Guides

The optional outrigger guides extend the position of the locating pins for wider tenon spacing. These are also adjustable so the spacing can be tailored to the needs of the specific application.

The two outriggers are specific for right and left-hand mounting, such that the locking levers point toward the rear when locked. If you install the adjustable locating pins backward, the locking levers will point forward when locked, and this will interfere with the workpiece. If this happens, remove the locating pins from the outrigger arms and turn them around.





Setup

1. With the locking handle rotated toward the front of the joiner (as shown in the upper photograph) insert the mounting pin into the slot from below.
2. Turn the locking lever toward the rear to lock the outrigger to the base of the joiner.
3. Loosen the clamping knob on the adjustable locating pin and slide the pin to the desired position.
4. Before tightening the clamping knob, make sure both pointers on the locating pin are pointing to the same measurement on the outrigger arm.
5. For most applications, make sure both right and left locating pins are the same distance from the joiner.
6. As shown in the lower right photograph, the outrigger locating pin can be used to register a mortise from the edge of a previous mortise.

Using the Optional Narrow Frame Fence

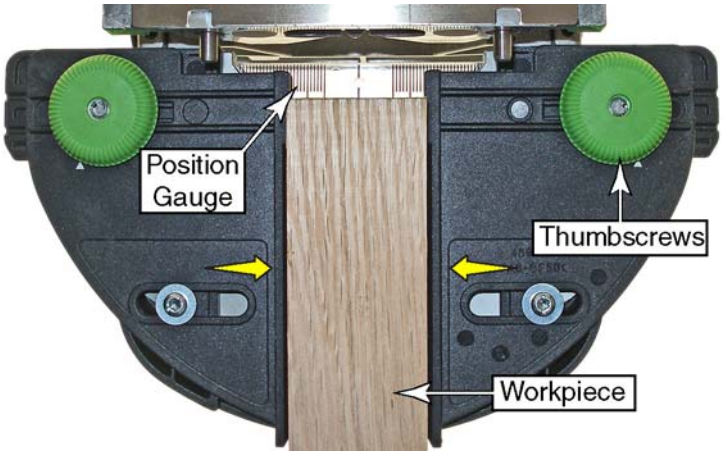
The optional narrow frame fence is used to securely hold small workpieces for cutting mortises.

Installing the Narrow Frame Fence

1. With the fence tilted to 90 degrees, slide the narrow frame fence over the fence face of the Domino joiner as shown. Make sure the narrow frame fence is fully seated onto the joiner's fence.
2. Slide the two latch tabs inward.
3. Tighten the two thumbscrews.

Setting the Fence Width

1. Loosen the two green thumbscrews on the bottom of the fence.
2. Place the workpiece between the two guides and slide the guides inward.
3. Use the position gauge on the Domino joiner fence face to center the workpiece.
4. With the side guides tight to the workpiece and the workpiece centered in the position gauge, tighten the two thumbscrews.
5. **Hint**: Make note of where the workpiece lines up on the horizontal position gauge, and use the position gauge when cutting the mortise on the mating frame for a T-joint frame.

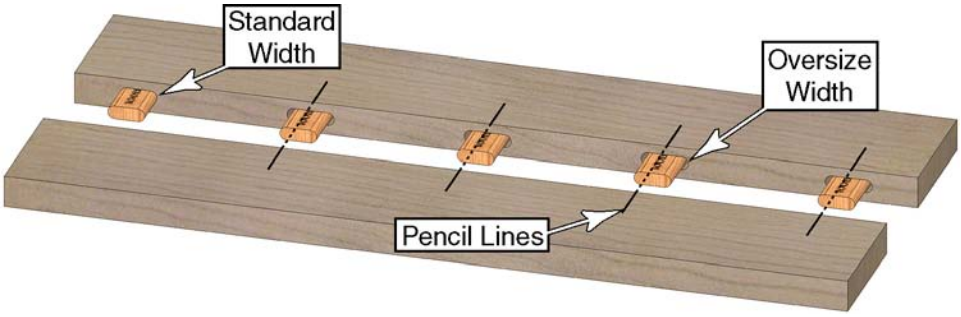


Applications

Edge Joining Boards

Edge joining boards is a common method for creating wide boards from a series of narrower boards. The Domino tenons add strength to the joint and also assist in aligning the boards to be flush.

For edge joining boards, a series of tenons are placed down the length of the joint. The first tenon is used to register the two boards horizontally, so it is milled at standard width. The remaining tenons align the boards flush and may be milled with an oversize width.



Tips for Successful Joining

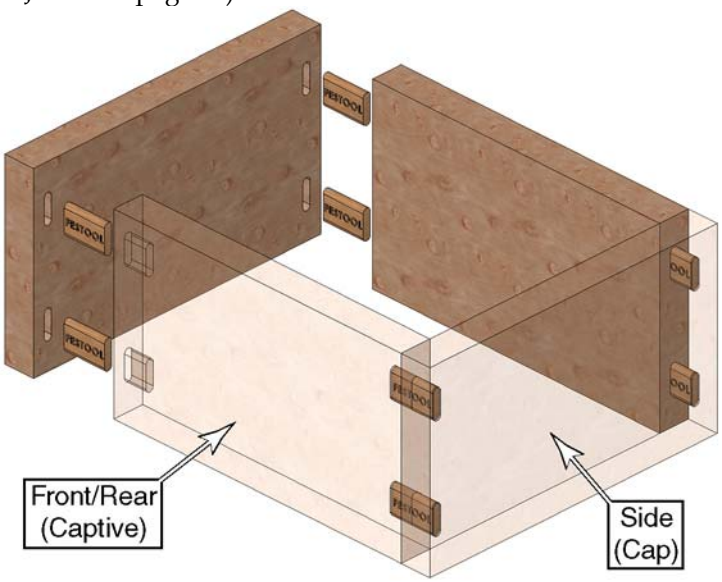
- Use the locating pins (page 11) for the first mortise slot with the mortise width dial set to the narrow setting (page 8).
- For subsequent mortise slots you can keep the mortise width at the minimum setting, but you may find it easier to set the mortise width dial to the next widest setting.
- Place the mortise slots 6 to 12 inches apart for standard joints, but this spacing should be decreased for joining plywoods or when a stronger joint is needed.
- Instead of marking the mortise placements with pencil lines, you can use the optional outrigger guides (page 12) to evenly space the mortises down the length of the boards. To do this, use the outrigger locating pin in the previous mortise slot.

Making Butt Box Joints

Butt box joints are typically used in general box construction or for drawer construction. The Domino tenons strengthen the joint without the need for additional fasteners. The example below highlights drawer construction, but the same techniques are used on other types of box construction.

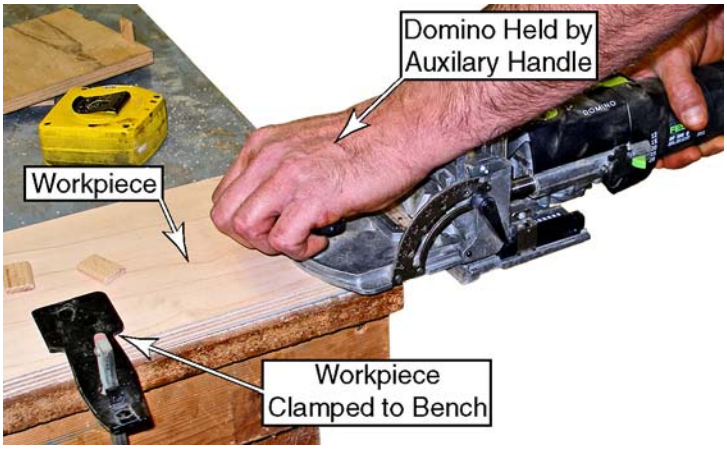
Construction Tips

- For drawer construction with a separate drawer front, the front and rear of the box should be *Captive*, as shown below.
  - The drawer front is installed onto the drawer box after the box has been assembled.
  - This increases the strength of the drawer because the tenons are in shear (perpendicular) to the operation of opening and closing the drawer.
  - The ends of the side boards are concealed by the separate drawer front.
- For drawer construction without a separate drawer front, the Sides should be *Captive* and the Front/Rear should be the *Caps* (the reverse of the image below).
- For cabinet carcase construction, the Top/Bottom of the carcase should be *Captive* (also see Making Carcase Butt Joints on page 17).



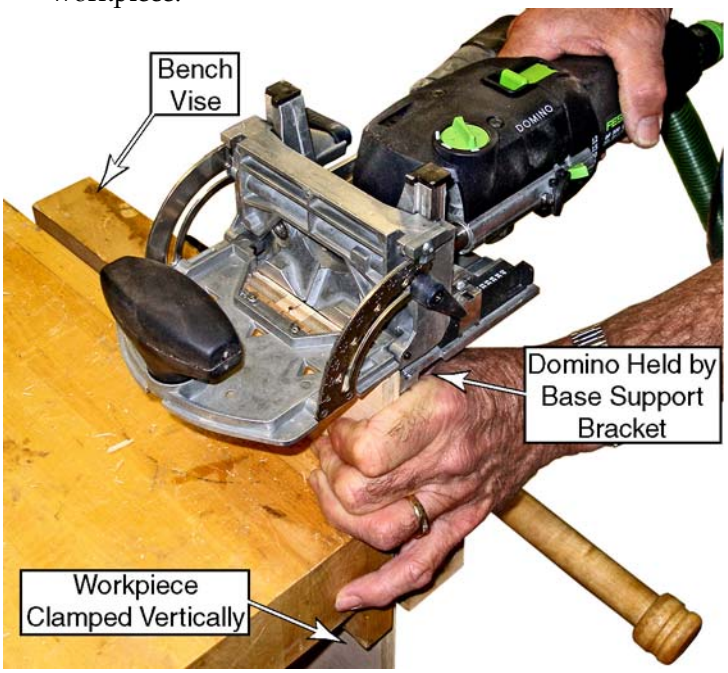
Machining the Captive-Side Tenons

1. Choose a Domino tenon size to be less than or equal to 1/3 of the board's thickness.
2. Set the height of the fence so the Domino tenons are in the center of the board's thickness.
3. Set the mortise depth according to the instructions on page 9.
   - Note that if your workpieces are thin, you may need to offset the tenon from center as shown in the picture on page 9.
   - For very thin material that you use frequently for drawer sides, you may consider setting up a special plunge depth stop described on page 19.
4. Clamp the *Captive* boards flat to your workbench.
5. Align the tenon position using the locating pins (refer to the picture on page 11).
6. Grasp the Domino joiner by the auxiliary handle, hold it firmly down to the workpiece, and slowly plunge the cutter into the edge of the workpiece.



Machining the Cap-Side Tenons

1. Don't change the fence height from the previous operation. It is used to register the mortise placement from the edge of the board.
2. Install the Base Support Bracket as described on page 12.
3. If necessary, change the mortise depth setting.
4. Clamp the workpiece in a vertical position as shown.
5. When plunging, grasp the Domino joiner at the Base Support Bracket and hold it firmly against the face of the workpiece.

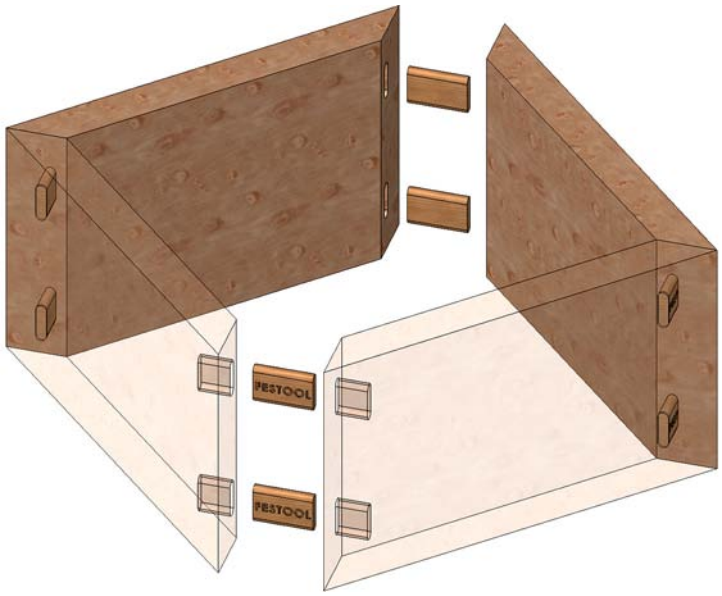


Making Miter Box Joints

Generally miter box joints are fairly weak because the joint is predominately endgrain to endgrain. Tenons significantly increase the strength of the joint and make it easier to assemble and clamp the pieces.

Construction Tips

- For thinner materials, keep the mortise close to the inside corner. This minimizes the chances for boring all the way through the workpiece.
- For very thin materials, it may be necessary to shorten the Domino tenon length as described on page 19.
- For thicker materials, stacked mortises can be used as shown in the picture to the right.



Setup and Machining

1. Tilt the fence to the appropriate angle. (Refer to the table on page 7 for miter angles for multi-sided boxes.)
2. Lower the fence to the desired height. Note that the mortise should be close to the inside corner to avoid penetrating through the workpiece.
3. Plunge the joiner as shown below.
   - The stacked mortises are used for thicker stock.
   - Grasp the joiner by the auxiliary handle for best control.

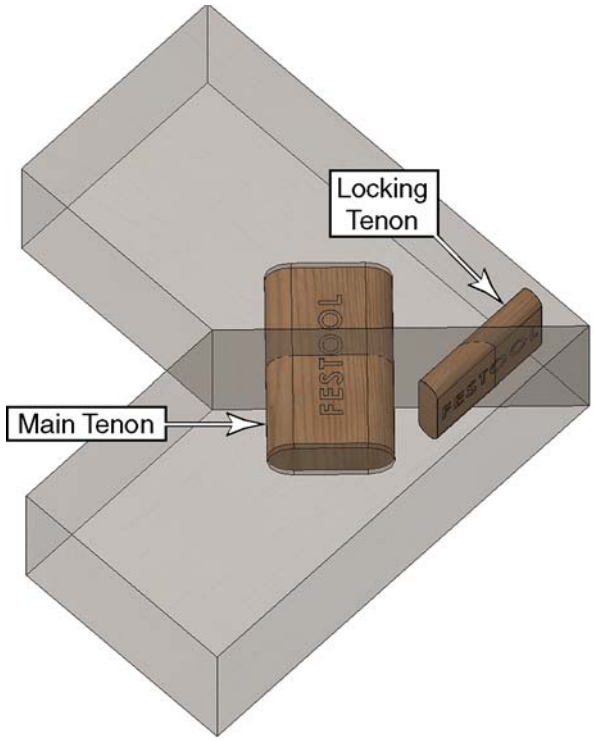
Making Lock Tenon Joints

A locked tenon joint is any type of joint with two or more tenons at opposing angles. Once the opposing tenon(s) are inserted, the joint cannot be disassembled. With the exception of the Three-way Locked Miter Joint (page 18) at least one of the tenons must be exposed so it can be inserted after the joint is assembled. This is referred to as the Locking Tenon.

There are many variations of a locked tenon joint, but the simplest involve a mitered corner in a box or flat frame. The miter angle provides an easy reference for the two tenon angles.

In the example shown to the right, a standard miter joint is constructed using a large Domino tenon for strength in the main joint. The locking tenon is a 5mm x 30mm Domino tenon.

The mortise for the locking tenon is milled with the joiner's plunge depth set to 28mm. This mortise is typically milled after the joint is assembled, but it is possible to mill the mortise in each piece separately.



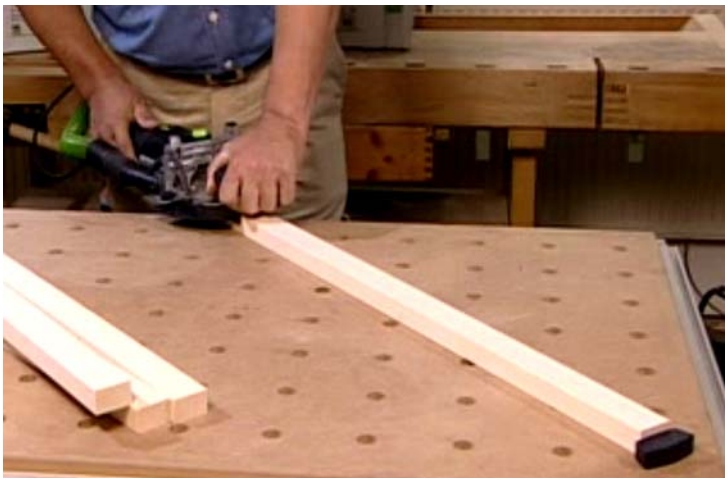
Making Frame Joints

Domino tenons can be used to quickly fabricate reinforced frames of all types.

Butt Joint Frames

When making butt joint frames, such as cabinet faceframes, use pencil lines to lay out the position of the tenons. Use the sight glass (see page 21 for more information) on the joiner's fence to position the joiner over the pencil line.

For narrow frame stock, the optional narrow frame fence can be used to securely hold the workpiece (shown below).



Cope and Stick (Stile and Rail) Frames

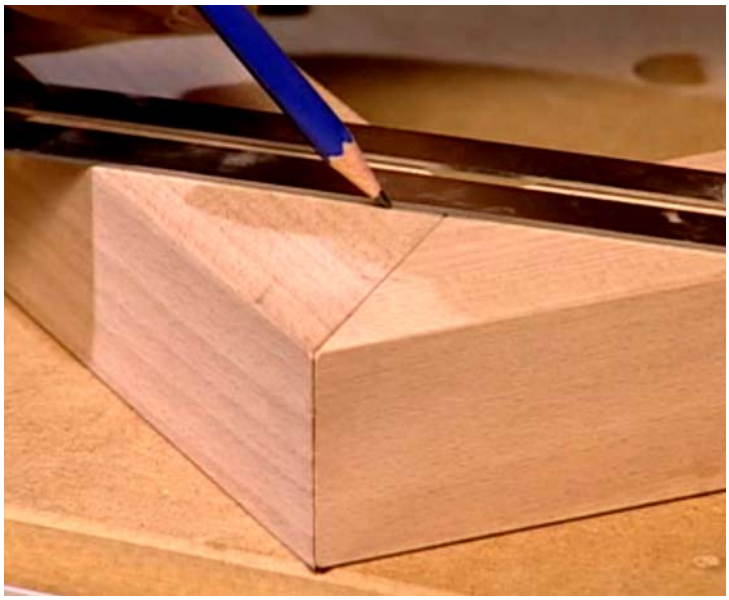
Domino tenons can also be used to strengthen cope and stick frame construction too (bottom right picture). This is typically found in raised panel door frames.

It is important to note that the two frame pieces overlap, so the depth of the mortise needs to be extended. The amount that each mortise needs to be extended is one-half the amount of overlap.

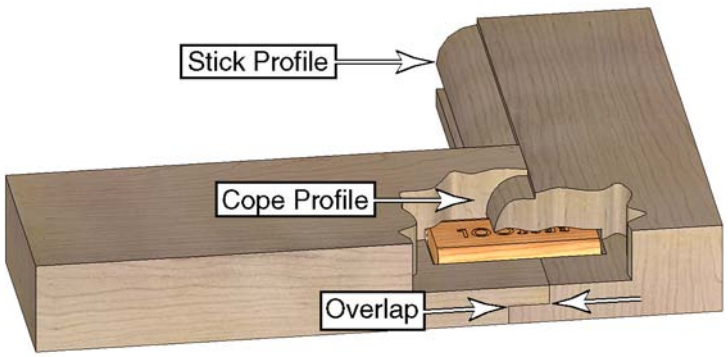
Example: A typical stile and rail router bit set has a profile width (overlap) of 3/8-inch (about 10mm). For a 40mm long tenon, instead of plunging 20mm deep, you should increase this to 25mm for both workpieces.

Mitered Frames

When making mitered frames, position the tenon closer to the inside corner. This reduces the likelihood of cutting the mortise all the way through the workpiece.

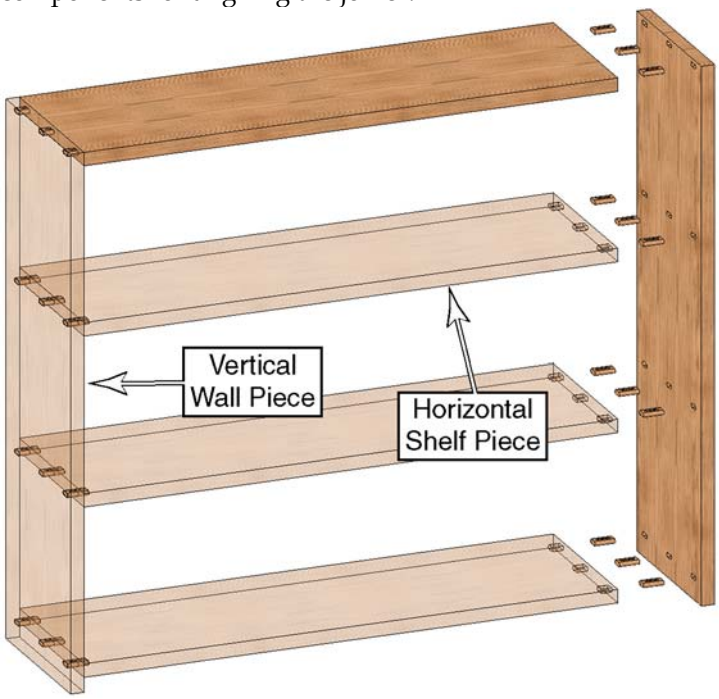


Make sure to securely clamp the workpiece to the bench when mortising a mitered joint.



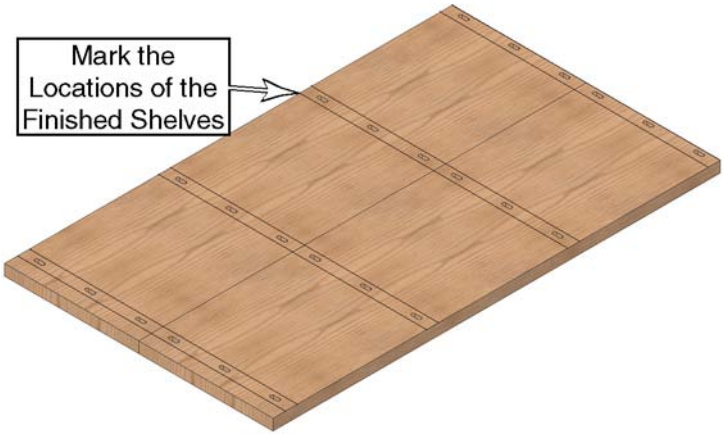
Making Carcase Butt Joints

Using tenoned butt joints is an effective method for constructing a cabinet carcase. The tenons provide a strong support for each of the horizontal partitions of the cabinet. The simplicity of this method is that you use the carcase components for aligning the joiner.



Setup and Machining

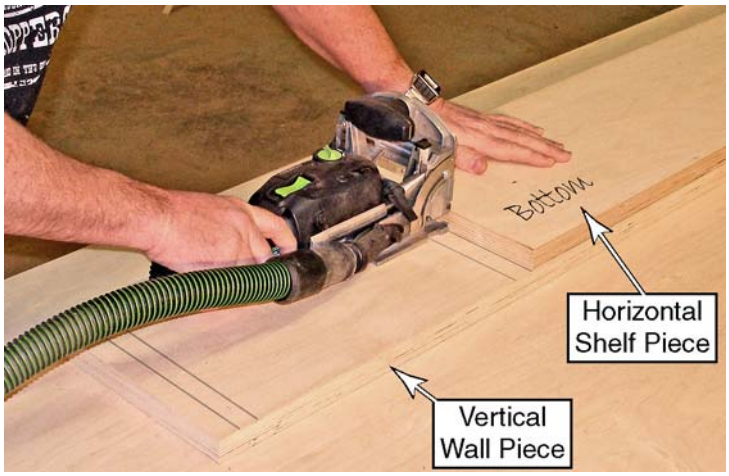
1. Lay the vertical wall pieces on your workbench, and draw lines across both pieces to indicate where the shelves will be located. Note that it is easier to avoid mistakes later on by drawing double lines, with one line above the shelf and one line below the shelf as shown.



2. For reference, label the top and bottom face of each shelf. This is so your left- and right-hand mortises are referenced from the same face of each shelf.
3. Working with one shelf at a time, lay the horizontal shelf on top of the vertical wall so its edge lines up with the outside pencil line for that shelf location.

   Hint: Stand the shelf vertical on the side wall piece and in the position it will eventually be secured (between the double pencil lines), and carefully tip the shelf flat, into the position shown in the photographs below. For greater shelf-strength, keep the tenons closer to the bottom-side of the shelf:

   - If the shelf is thick (greater than 20mm), tip it down with the top-side facing up.
   - If the shelf is thin (less than 20mm), tip it down with the bottom-side facing up.
4. Clamp the two pieces together to prevent them from moving.
5. With the Domino baseplate resting on the face of the wall-piece, plunge the joiner into the edge of the shelf. Do not use the fence for height positioning.



6. With the joiner standing upright and its baseplate against the edge of the shelf, plunge downward into the side wall of the cabinet.
7. Repeat these steps for each of the shelves.
8. When you repeat this process for the other side wall, make sure you keep the same side of the shelf facing up.

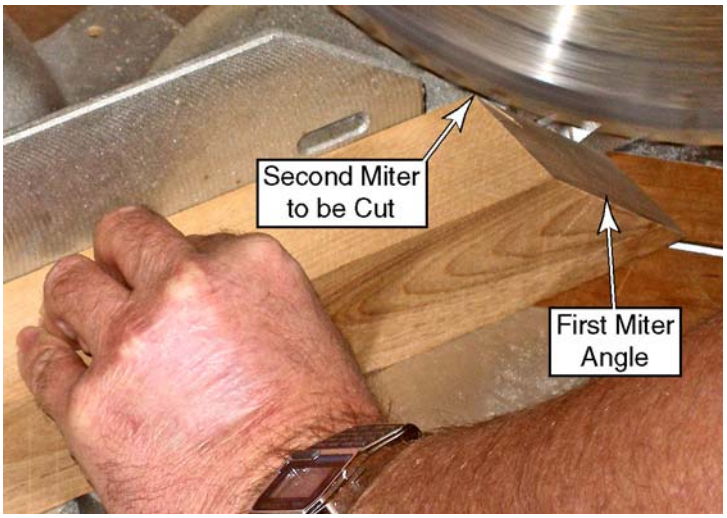
Making Three-Way Lock Miter Joints

Three-way miter joints have been around for ages as a way of creating a corner joint without having any endgrain visible. Using the Domino Tenon Joiner, you can create easy to construct, locking, three-way miters.

The key to these joints is that they require floating tenons at 45 degrees to the main body of the wood. Unlike non-locking joints, no single piece can be removed from the joint without separating all three pieces. The joint must be assembled or disassembled all at once.

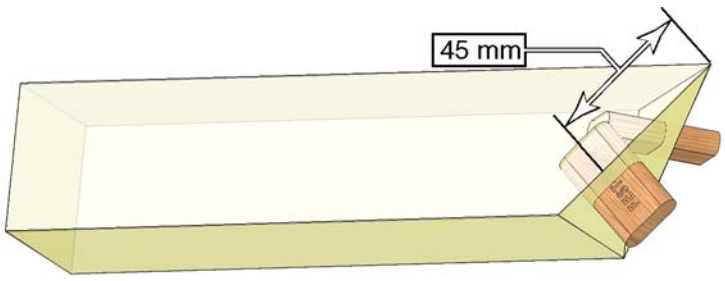
The first step in creating the joint is creating the frame stock. Each piece of the frame must be square in profile. In this example, the frame stock is 2 inches by 2 inches. Smaller stock can be used, but you may have to trim the corners of the tenons where they intersect (the transparent image in the middle-right shows the Domino tenons just barely touching).

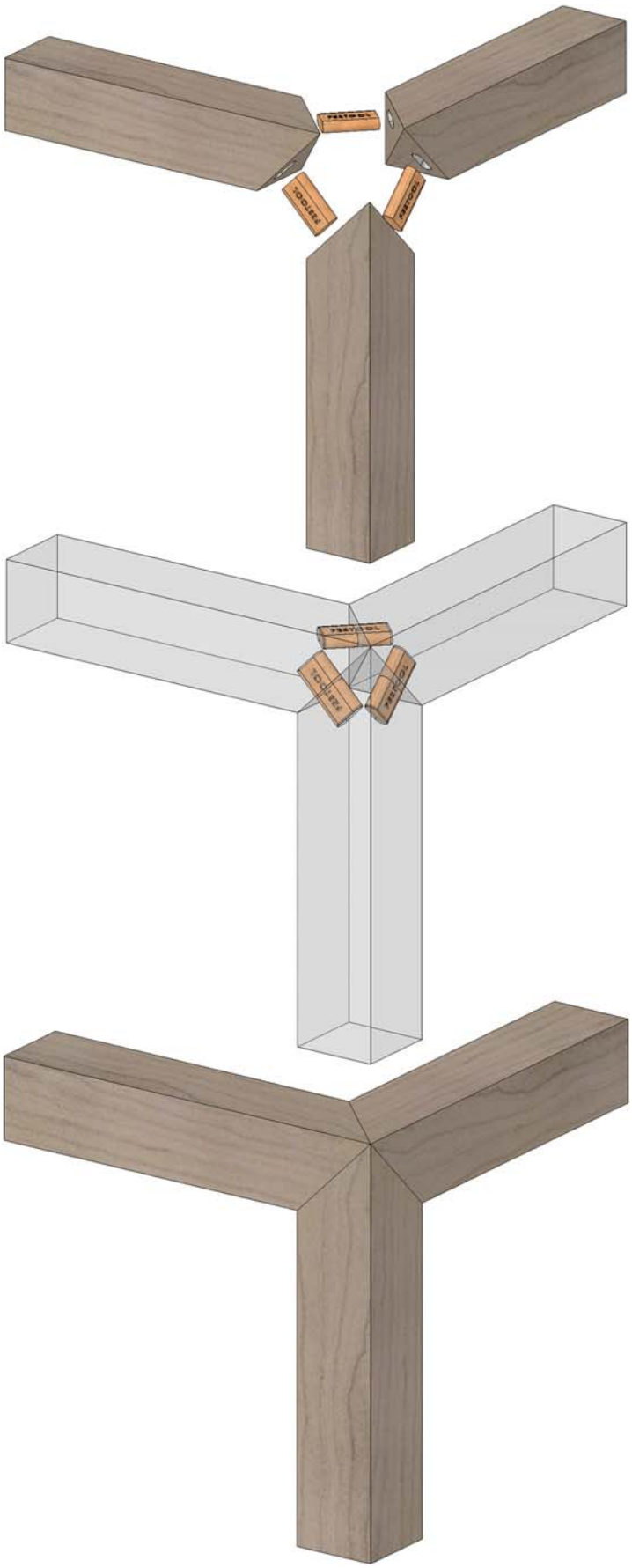
The square frame stock then needs to be mitered. Each piece is mitered at 45 degrees from two different faces, creating a pointed, double miter.



With the frame stock cut and mitered, set up the Domino joiner. The following settings are based on using 8x40mm tenons in 2-inch by 2-inch frame stock:

1. Set the fence height between 8mm and 10mm.
2. Set the plunge depth to 20mm.
3. Set the mortise width to the minimum setting.
4. Using a sharp pencil, mark each mortise location at 45mm (1 ¾ inch) from the point of the miter (see image below).
5. Plunge a mortise slot at the pencil line of each piece.
6. Assemble all three frame members simultaneously.



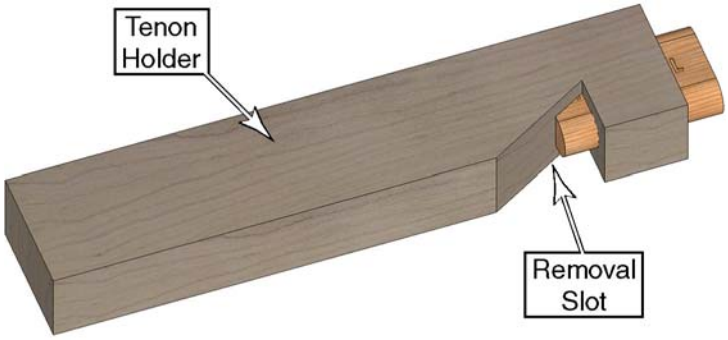


Shortening a Domino Tenon's Length

There may be times when you need a large Domino tenon, but the length of the tenon does not fit your application. It is important to firmly and safely hold the tenon while you cut it to length.

WARNING: Never attempt to cut a Domino tenon's length without using a mechanical holder. Holding the tenon with your hand poses an extremely serious risk of personal injury.

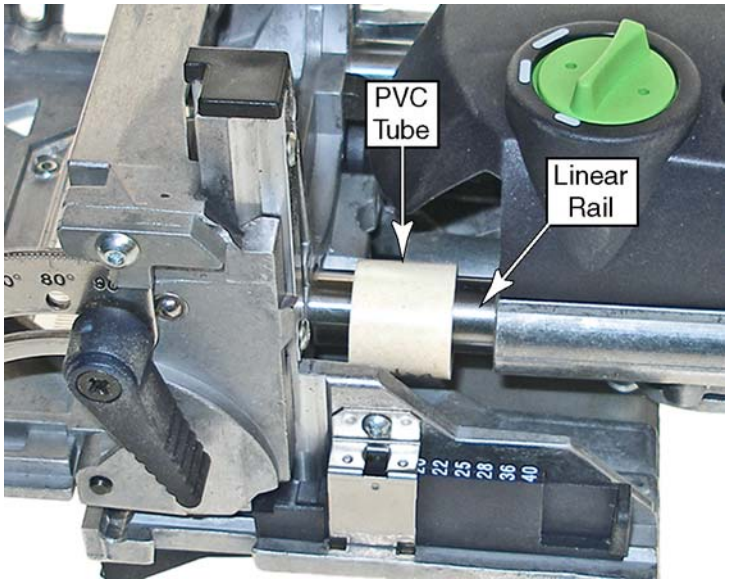
To make the simple tenon holder shown to the right, mill a full-depth tenon slot into the end of a board, and then cut out a notch in the side. This notch allows you to push the shortened tenon out of the mortise slot after it has been cut to length.



Creating Special Plunge Depths

Sometimes it may be necessary to use a plunge depth different from the normally available depth settings. One example of this is creating a Butt Box Joint (see page 14) for thin drawer material. This can also be used for inlaying decorative faux through tenons or other inlay work. Custom limit stops can be made from ½-inch PVC tube purchased at your local hardware store.

- Make sure to use a soft plastic such as PVC to prevent scratching the stainless steel linear rail.
- The tube is inserted over the linear rail closest to the Depth Adjust Lever.
- The length of the tube needs to be 28 mm (1 3/32 inch) minus the desired plunge depth. So for a 10 mm plunge, you would need an 18 mm sleeve (⅜" plunge = 23/32" sleeve).



Plunge Depth	Sleeve Length
1/4	27/32
9/32	13/16
5/16	25/32

Plunge Depth	Sleeve Length
11/32	3/4
3/8	23/32
13/32	11/16

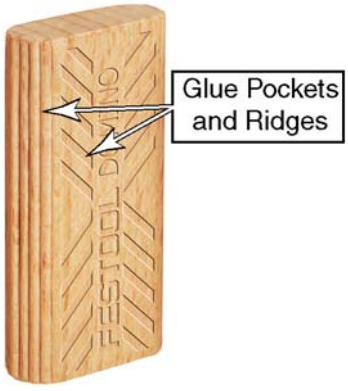
Plunge Depth	Sleeve Length
7/16	21/32
15/32	5/8
1/2	19/32

Tips for Appyling Glue

There are many different ways to apply glue to joints, however, how you apply glue can have an impact on the quality of the joint or the ease of assembly.

- For a longer glue open-time on complex assemblies, apply the glue generously to the workpieces. The thicker the glue, the longer time it will take to skin over (see image below). Excess glue can be cleaned off after completion.
- Apply glue to the workpiece face and the mortise slots before inserting the tenons into the slots.

When applying glue for the tenons, you can either apply glue into the mortise slots, or spread a thin layer across the Domino tenons. For applications where the tenon is the primary structure holding the joint together, you should apply the glue to the tenon. The Domino tenons have small glue pockets and ridges that will hold glue as the tenon slides into the mortise slot.



Maintenance

Any maintenance or repair work that requires opening of the motor or gear housing should be carried out only by an authorized Customer Service Center (see your dealer for information on locating a service center). Maintenance or repair work carried out by an unauthorized person can lead to improper connection of electrical wires, misadjustment, or damage to components, which can result in injury.

To prevent injury or electrocution, always unplug the tool from the power supply outlet before performing any maintenance or repair work on the tool!

Do not use compressed air to clean the motor housing of the tool, as you could inject foreign objects into the motor through the ventilation openings. Compressed air may be used on other components, but personal safety protection should be employed (hearing, vision, and respiratory).

Certain cleaning agents and solvents are harmful to plastic parts. Some of these include, but are not limited to: Gasoline, Acetone, Methyl Ethyl Ketone (MEK), Carbonyl Chloride, cleaning solutions containing Chlorine, Ammonia, and household cleaners containing Ammonia.

Routine Maintenance

The Domino tenon joiner does not require much routine maintenance except for cleaning. For best performance and long life of the Domino tenon joiner, keep the machine clean.

- To ensure proper cooling of the tool and motor, the cooling vents in the motor housing must always be kept clear and clean. Keep the motor cooling inlets at the back of the handle clean and free from sawdust.
- Keep the linear rails clean and free from sawdust.
- Always use the Domino joiner with a dust collection system.
- Periodically inspect the mortising bit(s) for damage, wear, or dullness. Re-sharpen the bits as necessary.

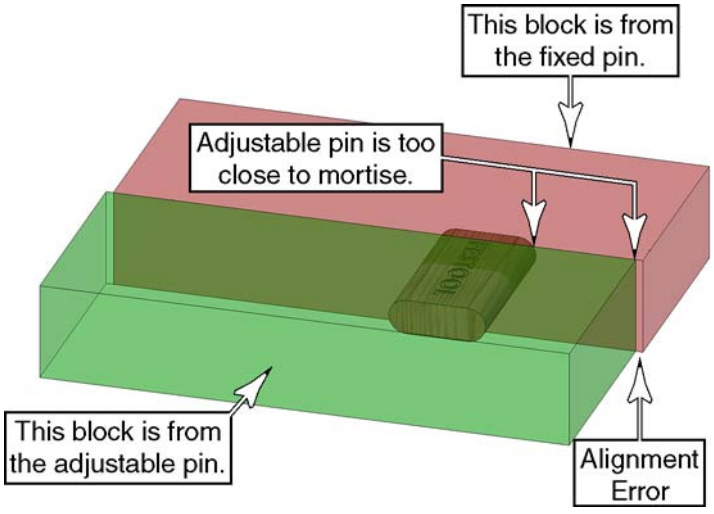
Cleaning and Maintenance

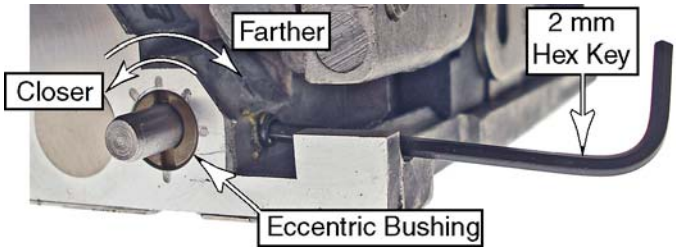
1. Blow off the exterior of the machine with compressed air to remove sawdust, but do not blow air directly into the air cooling vents on the back of the motor as this can drive debris into the motor.
2. Blow out impacted sawdust from the mortising bit area.
3. Do not remove the fence body from the motor housing when the joiner is coated with sawdust.
4. With the exterior of the joiner free from sawdust, remove the fence body from the motor housing and clean the linear slides:
   a. With a soft cotton cloth, wipe down the linear rails.
   b. With compressed air, blow out any dust from inside the linear bores.
   c. With a soft cotton cloth, wipe down the interior of the bronze linear bearings.
5. With a clean cotton cloth (not the same cloth used previously), apply a coating of light-weight machine oil to the linear rails.
   - Use a lightweight machine oil such as “sewing machine” oil or pneumatic tool oil.
   - Do not use a penetrating oil as these may contain solvents and detergents that can remove the impregnated lubricant from the bronze bearings.
   - Do not use a rust inhibiting fluid/oil as these have limited lubrication properties, and can also remove the impregnated lubricant from the bronze bearings.
6. With the plunge depth set to maximum, plunge the joiner in and out several times to spread the lubricant into the internal bronze bearings.
7. Remove the fence body from the motor housing and wipe off the excess oil from the linear rails.
8. Replace the fence body onto the motor housing.
9. Never store the joiner with the fence body separated from the motor housing, as this can permit dust and debris to enter the linear slide.

Calibrating the Locating Pins

It is important that the two locating pins are perfectly spaced from the center of the mortise hole for properly aligned mortises. The factory default setting is in the neutral position.

1. Using the procedure described in "Using the Locating Pins" on page 11, plunge a left-hand and right-hand mortise into two blocks of scrap wood. Make sure the mortise width dial (see page 8) is set to the smallest setting.
2. Insert a Domino tenon into the resulting mortise and fit the two pieces together without glue.
3. Examine the alignment of the ends of the two blocks of wood. Note that you are only concerned about the ends where the locating pins were used.
   - If the two ends are flush, no adjustment is necessary.
   - In the example shown to the right, the adjustable pin is too close to the mortise; increase the distance of the pin as described below.
4. If an adjustment is necessary:
   a. Loosen the bushing's setscrew using a 2 mm hex key.
   b. Using a large screwdriver, rotate the eccentric bushing to move the adjustable pin closer to or farther from the mortise slot.
      - The factory default (neutral) setting is shown in the lower right photograph. The screwdriver slot is in the vertical position.
      - Each hash mark represents 0.25mm (0.010 inch).
      - Don't turn the bushing any farther than ¼-turn to the left or ¼-turn to the right from the neutral position.
   c. Retighten the setscrew.
5. Repeat the process to verify that the adjustment is correct.



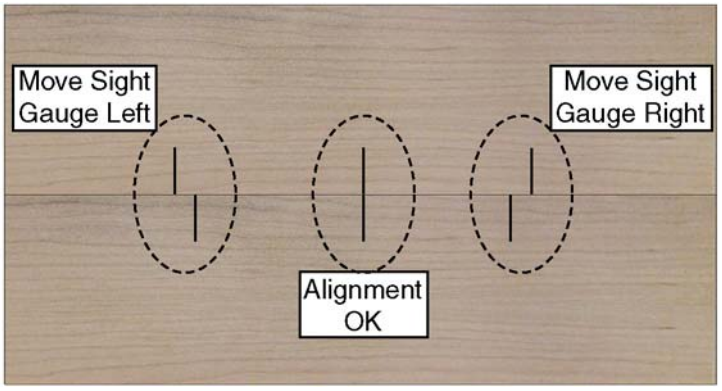


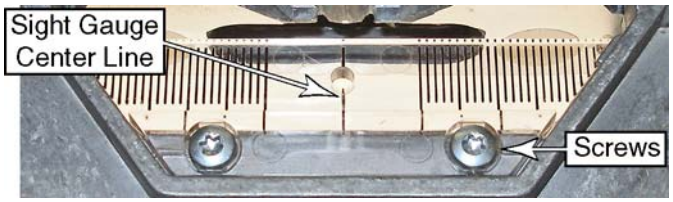
Calibrating the Horizontal Position Gauge

The horizontal position gauge (also called the sight gauge) is used for aligning Domino tenons to a pencil mark on the workpiece. If the gauge is not perfectly centered over the mortising slot, the two workpieces will not be aligned when the joint is assembled.

Calibration Procedure

1. Take two pieces of scrap wood, and draw a thin line on each piece where a tenon is to be placed.
2. Set the mortise slot width to the narrow setting (page 8).
3. With the middle line of the sight gauge lined up on the pencil line, plunge a mortise slot into each piece of wood.
4. Join the two pieces of wood together without glue, and examine the alignment of the original pencil lines.
5. If the pencil lines are not aligned, loosen the two screws on the sight gauge and slide the gauge sideways as noted in the upper image.





Accessories

Mortising Bits:

Carbide Tipped. Sold separately or in a set of all four.

Sizes

- 5 mm
- 6 mm
- 8 mm
- 10 mm

Domino Tenons:

Sold separately or in an assortment.

Sizes

- 5 mm x 30 mm
- 6 mm x 40 mm
- 8 mm x 40 mm
- 8 mm x 50 mm
- 10 mm x 50 mm

The assortment Systainer includes:

- 5 mm x 30 mm - 600 pieces
- 6 mm x 40 mm - 190 pieces
- 8 mm x 40 mm - 130 pieces
- 8 mm x 50 mm - 100 pieces
- 10 mm x 50 mm - 85 pieces
- Set of 4 mortising bits
- Systainer – size #2

Narrow Frame Fence:

The narrow frame fence (also called the Cross Stop) is used to firmly hold smaller frame pieces while milling Domino mortises.

Outrigger Guides:

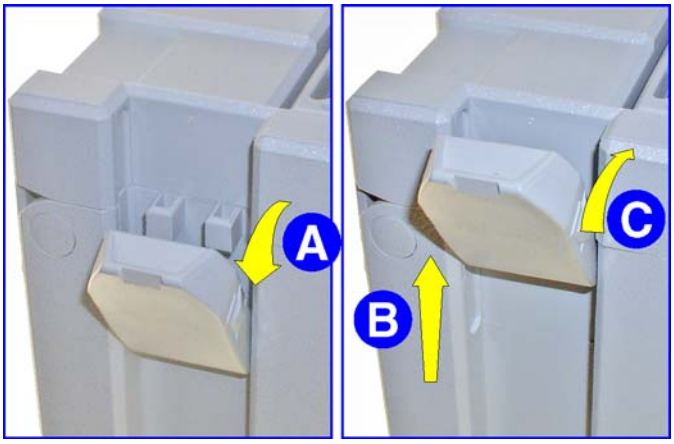
The outrigger guides (also called the Trim Stop) are used to extend the distance of the locating pins for positioning Domino mortises without needing to draw marking lines.

Systainer (System Container)

Each Festool product is shipped in its own unique system container, called a "Systainer." This provides protection and storage for the tool and accessories. All Systainers are stackable and can be interlocked together, including stacking and locking atop Festool dust extractors.

Parts of the Systainer

- **Carrying Handle.** The carrying handle folds flat when not in use.
- **Cover Latches.** The two green latches on the front of the Systainer secure the cover. (These are also used for stacking Systainers, as described below.)
- **Stacking Latches.** The two gray latches on the sides of the Systainer are used for stacking one or more Systainers together.
- **Stacking Tabs.** The stacking tabs are used to lock two Systainers together. There are four sets of tabs (two on the front and two on the sides) of each Systainer.

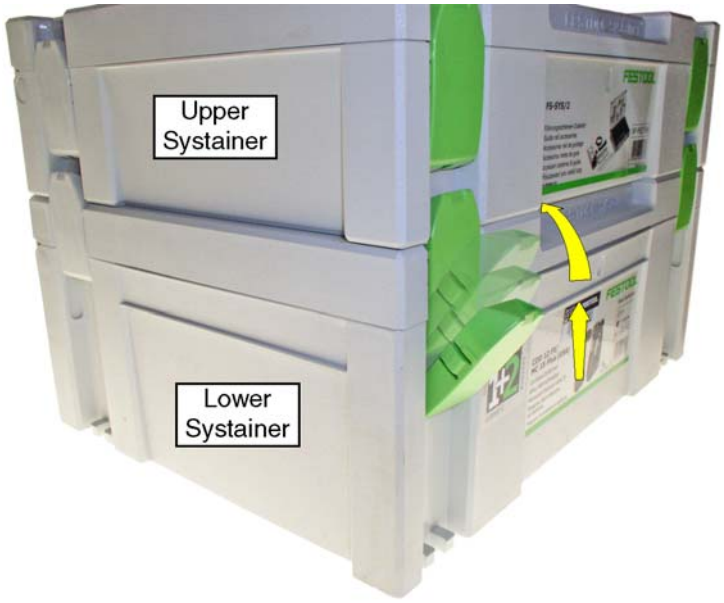


Stacking Systainers

For convenience in transporting Festool tools and accessories, the Systainers can be stacked and locked together. The Systainers are locked together using the stacking tabs and latches.

1. Place one Systainer on top of the other.
2. Release all four latches on the lower Systainer by pulling back at their top edges (step A to the right).
3. Slide all four latches upward (step B) as depicted by the two views.
4. Snap all four latches back to their flat position (step C) so they engage the stacking tabs of the upper Systainer.

The image to the right shows two accessory Systainers stacked together.



Troubleshooting

Symptom	Possible Causes
Motor does not start	1. Check that the cord is properly plugged into an outlet. 2. Make sure the outlet has power. Check the circuit breaker or try another outlet. 3. If used with a Festool dust extractor, make sure the selector switch is pointing to "Auto". The auxiliary outlet on the dust extractor has power only when the selector is at Auto. 4. Inspect the power cord (including extension cords) for damage or missing prongs. 5. The motor brushes may have worn and need replacement.
Plunging action is not smooth	▸ Clean the linear rails and bronze bearings of the plunge slide, and make sure they are properly lubricated (refer to the Routine Maintenance instructions on page 20). ▸ Inspect the bronze linear bearings for damage. Improper insertion of the fence body onto the motor housing can damage the linear bearings.
Domino tenons are too loose	▸ Make sure you hold the Domino joiner firmly in position while plunging the mortise slot. ▸ Make sure the mortise width setting is correct. ▸ Make sure you are using the correct mortising bit for the size of the Domino tenon. ▸ The Domino tenons may have shrunk in an overly dry or warm environment. This is normal wood movement. ▸ Check the mortising bit to ensure it is not bent. A bent bit will make a thicker and wider mortise slot than desired.
Domino tenons are too tight	▸ The most common cause for this is that the tenons are stored in a humid environment, and they have swelled from moisture absorption. Store the tenons in a cool dry environment. ▸ The mortising bit may have been improperly sharpened or sharpened too many times. Replace the bit.
Workpiece joints are misaligned horizontally	▸ Check the calibration of the locating pins. ▸ Check the calibration of the Horizontal Position Gauge (sight gauge). ▸ Don't plunge the mortising bit into the work too fast. This may cause the joiner to move during the plunge. ▸ Make sure the friction pads on the front of the joiner are not worn, damaged, or missing.
Workpiece joints are misaligned vertically	▸ If the mortise slots were registered from the bottom of the baseplate, make sure there is no dust or debris under the joiner. ▸ Make sure the fence is properly locked at the desired height setting. ▸ Inspect the height adjustment lock to ensure it is not broken (slipping).
Tilted or misaligned mortise slots	▸ Make sure the fence is set to the correct angle (e.g. 90 degrees). ▸ Make sure to hold the Domino joiner firmly to the work surface.
Workpiece joint won't close (gaps between pieces)	▸ Make sure the proper plunge depth is set. ▸ Make sure the joiner is tight to the face of the workpiece. ▸ The mortising bit may have been sharpened too many times and is too short. ▸ Excessive dust may be present inside the linear slide.
Tearout or rough mortise slots	▸ Plunging speed too fast. Slow down the rate of your plunge. ▸ Low-grade materials and plywoods will tear out more than solid woods. Decreasing your plunging speed will improve the results but may not eliminate the problem completely. ▸ Dull mortising bit.
Tapered mortise slot. The Domino tenon fits only part way into the slot	▸ The plunge speed is too fast and the bit is not cutting the sides properly. Slow down the plunge speed.