

PVC Pipe Cutting Guide

a FORMUFIT field manual



PVC Pipe Cutting Guide

Welcome.

This guide is designed to be friendly, knowledgeable and to provide options for different people from all settings and backgrounds. Whether you're a first time PVC builder, who has never picked up any type of tool, or a seasoned PVC enthusiast or maker who uses PVC in everyday ideas and activities, this guide should provide a general manual to cutting PVC pipe products.

First, we'll cover all the basics, like general safety instructions. Then we'll get into what types of tools are available to use to cut PVC pipe, then we'll show examples of how to use each tool or method to cut PVC pipe. Finally, we'll talk about some additional PVC manipulation methods for finishing up the cutting process and cleaning up and what tools should never be used.

If your questions are not addressed here, feel free to contact our support team at info@formufit.com. We'll be glad to help.

About the Second Edition

We previously put all of our PVC tips online, in a basic HTML Web page format, however, we found that many of our users needed a printable copy that could be taken to the garage, workshop or a location where the cutting, assembling or pipe painting was being performed, away from a PC. This latest edition solves that problem, giving our end-users a printable 'field manual' that can be taken along with them to wherever they choose to construct their creations.

Additionally, we address some additional questions that have been raised about PVC pipe cutting since the development of our original online-only tips.

Cutting PVC Summary

Compared to wood and metal, PVC has a many different methods available to cut it into manageable and necessary sizes for a project.

PVC cuts extremely easy. Other materials take an extremely long time to cut when using standard hand tools. PVC on the other hand does not. This is because PVC only requires that, like metal, you cut the outside diameter of the pipe.

While wood and metal leave behind splinters or metal filaments which can be come cumbersome, PVC only leaves behind small traces of plastic particles which can easily be cleaned up by hand without injury.

Necessary Legal Jargon

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Safety First.

As with any manual that involves tools, especially involving cutting or drilling, safety needs to be discussed.

Cutting tools can be dangerous.

Every method to cut PVC pipe involves tools that use a blade of some type. Each of these tools can cause serious harm to an individual if not used properly. Be sure to read, understand, and follow all the safety rules that come with your hand or power tools. Failure to do so could cause bodily harm.



HANDS

Always be aware of where your hands are when cutting PVC pipe with any tool, be it manual or power. Always clamp, never hold PVC pipe when cutting with a saw.



EYES

Wear safety glasses, goggles or other eye protection when cutting PVC pipe, as fragments of pipe can be ejected from the area being cut. This is particularly important when using power tools.



MOUTH & LUNGS

Wear a mask or respirator. PVC pipe, when cut, can emit small particles that can irritate the lungs or throat. PVC, when heated to its melting point, can also emit chlorine gas, which with long-term exposure, can be dangerous.

PVC Cutting Tools Explained

PVC pipe is one of the most versatile and useful structural building materials available, but you still need a method to reduce it down to the right size. We've provided a few methods and tools, shown below, to cut PVC pipe easily and safely.

Hacksaw / Back Saw

The hacksaw or back saw are the most common methods to cut lengths of PVC pipe, as most individuals already have either one in their toolbox or garage. Hacksaws and back saws work well, but are somewhat time consuming and can cause additional work to de-burr the edges of the cut pipe. A hacksaw or backsaw is the ideal tool to use if you only need to cut one or several pieces of pipe. Back saws usually come with a miter box, and can be used together to make straight, even cuts.



Scissor-Style Pipe Cutter



The scissor-style pipe cutter is inexpensive and easy to use. They are available at most hardware stores or home improvement centers in the plumbing section. They are, however, limited in their cutting capability and can add stress to the hands. Scissor-style plastic pipe cutters should only be used for 1" or smaller sizes of PVC.

Ratchet-Style Pipe Cutter

The ratcheting-style pipe cutter is slightly more expensive than the scissor style pipe cutter; however, you can do larger pieces of PVC with less effort (up to 1-1/2" pipe in some cases). The ratcheting plastic pipe cutters are available at your local hardware store, or home improvement center, usually in the plumbing section. Over time, they can cause stress on the hands and forearm, when performing frequent cuts.



Power Miter Saw



A power miter saw is ideal when you need to cut large quantities of PVC pipe. Power miter saws are however, expensive. If you already own one, or have access to one and you know how to safely use it, you can use the existing wood blade to cut PVC pipe without buying a special blade. Be sure to read and understand the instructions that are included with the miter saw.

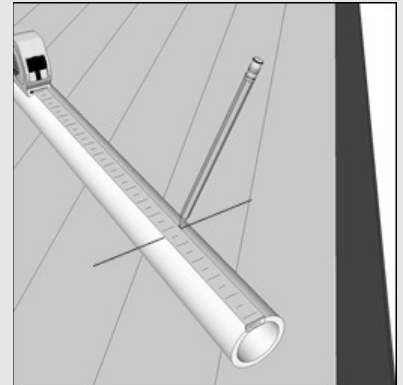
Cutting PVC Pipe with a Hacksaw or Back Saw

CAUTION: Be sure to clamp all PVC pipe with a vise, C-clamps or quick-release clamps. Do not attempt to hold the pipe steady with your hands as injury may result.

Hacksaw / Back Saw Cutting Steps

STEP 1

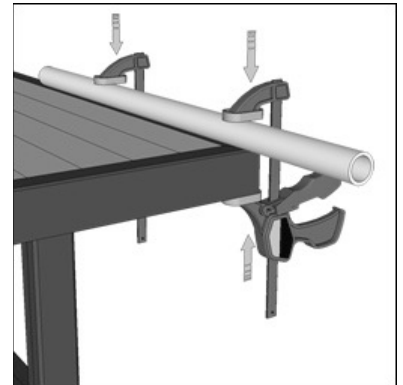
Using a tape measure and a marking tool such as a pencil, mark the point at which you want to cut the pipe.



STEP 2

As mentioned before, clamp the pipe to a solid surface such as a table. If using a miter box, be sure the box itself is secured to a table.

You can use a vice, C-clamps or quick release clamps to secure the pipe to either the table or the miter box.



STEP 3

Before you begin sawing, make sure that the adjustment nut(s) on the hacksaw are hand-tight. Do not over-tighten.

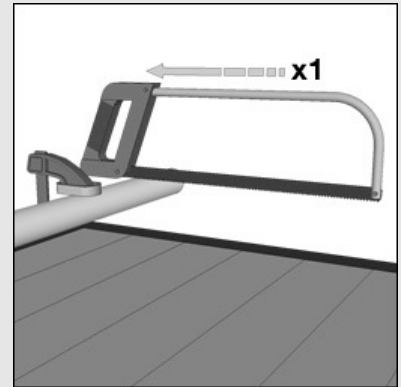
A loose blade will cause the cut to wander and not make a straight, even cut down the diameter of the pipe.



STEP 4

Place the rear of the hacksaw blade on the cut mark, then draw it backwards to create a notch in the PVC pipe. This can be repeated until there is a defined, but clean, notch in the pipe.

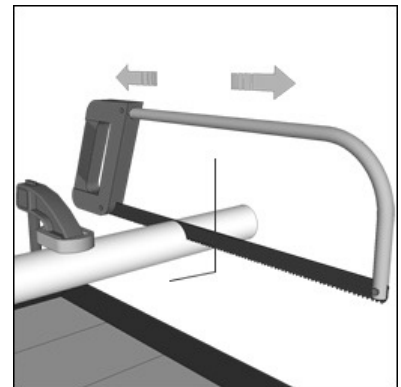
This notch will act as a guide for all subsequent movements and make it easy to glide the saw back and forth, without bouncing along the surface of the pipe.



STEP 5

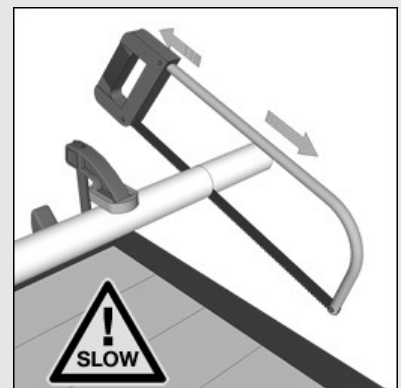
Begin cutting with a back-and-forth motion SLOWLY; making sure that the cut is straight as the hacksaw cuts further into the pipe.

Let the saw do the cutting. Cutting too quickly at this point will make the saw wiggle and take you off course of a clean cut.



STEP 6

When you begin to reach the bottom of the pipe, slow down on the sawing motion and complete the cut smoothly and easily at an angle to avoid 'blowout' of the edge of the pipe.



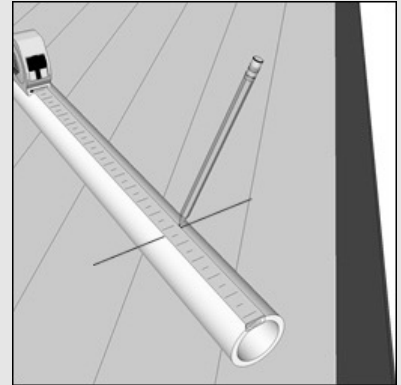
Cutting PVC Pipe with a Scissor-Style Pipe Cutter

CAUTION: Be sure to take breaks between frequent cutting to avoid hand fatigue.

Scissor-Style Cutting Steps

STEP 1

Using a tape measure and a marking tool such as a pencil, mark the point at which you want to cut the pipe.



STEP 2

Hold the pipe in one hand with the mark you made facing up, and place the pipe inside the pipe cutter mechanism.

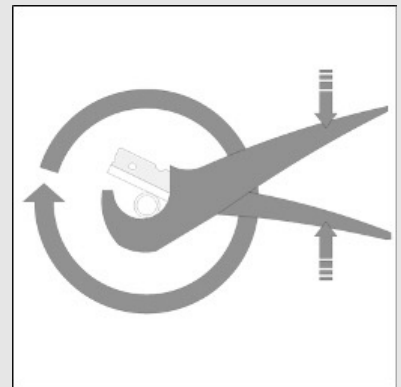
Be sure that the blade of the cutter is on the cut mark you previously made.



STEP 3

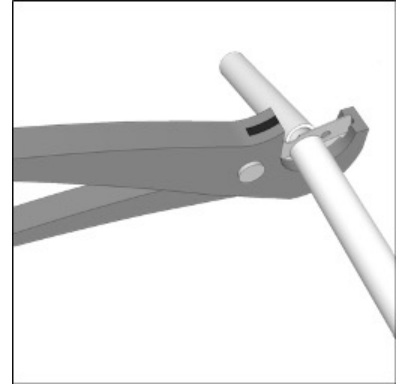
Grasp the handle with pressure, then slowly rotate the pipe cutter around the pipe, making sure that you remain straight.

If the pipe cutter begins to make a 'spiral' and go off to the left or right, restart the cut, and attempt to keep it straight (this is usually caused by gripping too hard).



STEP 4

Once you have made one pass around the entire pipe, apply additional pressure and repeat the rotations around the pipe until it is cut through completely.



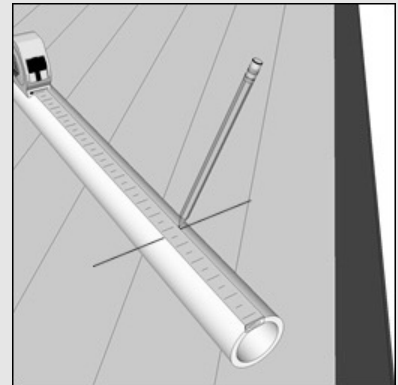
Cutting PVC Pipe with a Ratchet-Style Pipe Cutter

CAUTION: Be sure to take breaks between frequent cutting to avoid hand fatigue.

Ratchet-Style Cutting Steps

STEP 1

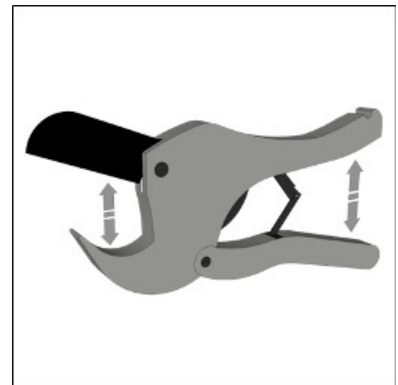
Using a tape measure and a marking tool such as a pencil, mark the point at which you want to cut the pipe.



STEP 2

As you open the handles of the ratchet-style pipe cutter, the blade will also lift.

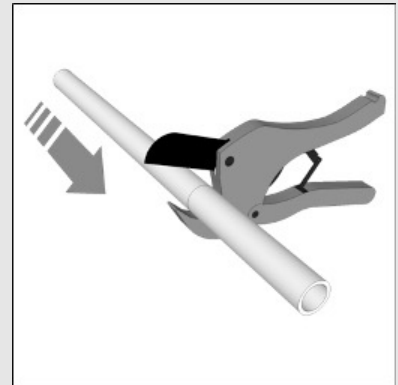
Open the pipe cutter handles completely, so that you can fit your pipe in between the blade and the jaw of the pipe cutter.



STEP 3

Hold the pipe one hand with the mark you made facing up, and slide the pipe between the blade and lower jaw.

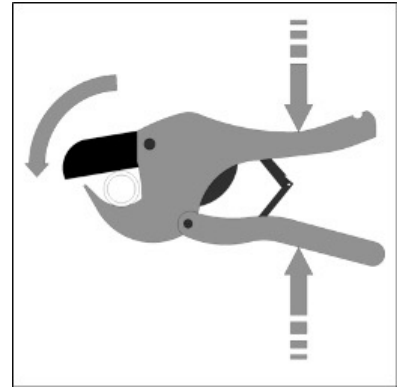
Place the blade of the pipe cutter on the mark and squeeze the handles until they come into contact.



STEP 4

Grasp the handle with pressure until the blade meets the mark, then release the handle and repeat to use the ratcheting action.

Continue ratcheting down onto the pipe until you are completely through the pipe and it separates into two segments.



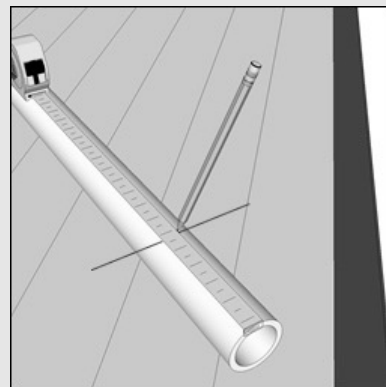
Cutting PVC Pipe with a Miter Saw

CAUTION: Miter saws can be extremely dangerous and can cause fatal injuries if improperly used. Be sure to read and understand the instructions that came with your miter saw. Failure to do so could cause bodily harm, or even death.

Miter Saw Cutting Steps

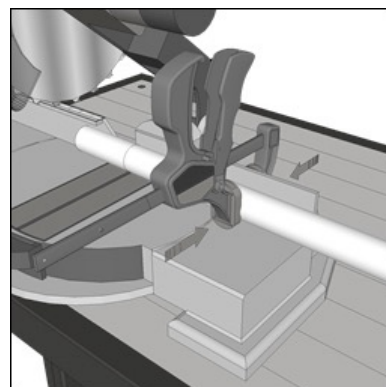
STEP 1

Using a tape measure and a marking tool such as a pencil, mark the point at which you want to cut the pipe.



STEP 2

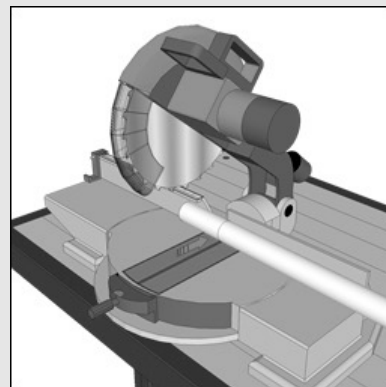
Line up your cut mark you made in the previous step on the miter saw throat plate.



STEP 3

Secure the pipe to the miter saw table with clamps to the miter saw fence (NEVER use your hands).

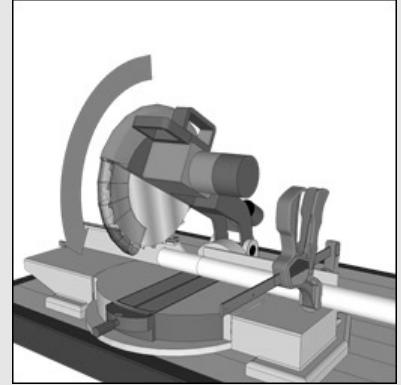
It may be more practical to use a pipe clamp that has a curved face to it, to properly hold the pipe in place.



STEP 4

Pull the switch trigger and slowly bring the miter saw arm down into and through the pipe.

Bring the miter saw down through the entire pipe, then release the switch trigger. Allow the blade to stop spinning before removing the pipe or raising the blade.



Wrap Up

Post-cutting Pipe Cleanup

DE-BURRING

When using hand saws, such as hacksaws, the back and forth motion of the saw will often create blowout at the end of the inside of the pipe, known as burrs. These are small bits of PVC plastic that are created when the sawing action is performed.

The burrs can be annoying and can scratch and make a mess when handling the PVC pipe. You can remove the burrs to alleviate any post-cutting mess and to keep things clean.

To de-burr the end of the cut pipe, you can use one of three methods:

1. Buy a de-burring tool, which has a tapered cone that spins in a back and forth motion inside the end of the pipe to remove the burrs.
2. Use a sharp construction knife, box knife or pocket knife, and run it along the inside edge of the pipe.
3. Use a heavy grade sandpaper and run it along the interior of the pipe. This will assist in loosening the burrs and cause them fall off.

PVC Cutting Avoidances

The right tool for the right job.

There are several methods that are not recommended to cut PVC pipe. Despite the obvious, many people believe that cutting PVC is just like cutting wood, and that PVC can be cut using the same tools, and in the same manner. This is far from true, as wood and PVC have completely different characteristics.

FOR POWER TOOLS, ALWAYS USE A TOOL WHERE THE PVC IS CLAMPED.

It is not recommended to use any type of power cutting tool where the user moves the pipe INTO the blade, also known as static or fixed blade tools. This is due to the curvature of PVC pipe, and the difficulty in successfully maintaining a secure hold onto the curved pipe. Additionally, the curvature causes the saw to come into contact at different points on the curved pipe, and may make the blade 'bounce' off the pipe, producing undesirable results or injury.

Some examples of non-recommended power tools are **table saws** (the PVC pipe can cause kickback) or **band saws** (bandsaws are notorious for chipping pipe that is old and brittle).

It is recommended to use power tools where you secure the PVC pipe to a surface with clamps and move the blade into the pipe, such as **miters saws**, or in some cases even **jigsaws** or **circular saws**.

DON'T USE TOOLS MADE FOR WOOD.

Standard wood saws are not recommended as they don't produce the accurate results that a hacksaw does. Hacksaws have a much thinner blade and cut more precise, whereas wood saws have large teeth and a thick blade.

The larger teeth of the wood saw do not properly allow a good perforation into the pipe, and can cause more work than necessary.

FORMUFIT Support

If you've read through this guide and still have questions, feel free to contact us. We are constantly revising our documents and website with information provided from users just like you.

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We've got a lot more guides where this one came from, which are available at formufit.com/guides/