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## WHAT CLAMPS DO YOU REALLY NEED?

The old saying is you can't have too many clamps. As a woodworker grows from "I don't have any" to "I almost have enough," what clamps are the most useful, which ones should be purchased first if you're on a limited budget, and which ones can you realistically live without?

Of course you'll have to make your own decisions based on the work you do and the resources you have. This article looks at a basic selection that any decently equipped shop ought to have. Consider this a starting point – a place to learn what the different clamps can do and how they do it. I developed this list by asking "what clamps would I buy if I had to start over?"

I would need an assortment, because while clamps seem simple, there are a variety of different tasks for them, and no one type of clamp will work in all situations. The first thought that comes

to mind when you think of clamps is gluing two pieces of wood together permanently.

But many times, clamps are used as a temporary means of attachment – holding parts together while you work, holding parts to a jig or fixture, or holding a stop or guide to a machine. Different types of clamps work better in some situations than they do in others. Let's start our list with the simple and the cheap, and work our way up from there.

### The Basics

Spring clamps don't have much holding power, but for temporarily holding parts together for marking, or for gluing small parts, these can't be beat for ease of use. They work like a giant clothespin or binder clip, which can also be useful in the shop. There are four sizes available, and the sizes indicate the maximum opening.

The two sizes to consider are the 2" and 3". The smaller one is easy to open with one hand but is limited in what it can hold. The larger has more capacity, but can be difficult to open one-handed. Start with a pair of each and decide which you prefer. I keep four of each size near my bench, at \$3.25 each and \$5.35 each for Jorgensens (model #s 3202HT and 3203HT) that's \$34.40 well spent.



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F-style sliding bar clamps are next on my list. I use the smallest ones (4" and 6") the most, usually for grouping parts together during layout, attaching jigs and hold-downs to the fence on the table saw or router table, and for holding parts and subassemblies to the bench. In these smaller sizes, the light-duty models are more than adequate, and at \$5-\$6 each,

\$20.00 will add nicely to your arsenal.

### The Workhorses

Eventually you'll want some longer F-style clamps. The sizes between 12" and 24" are great for assembling drawers and panels. You don't need to generate a lot of clamping pressure if your joints fit well, and many times a heavier clamp can distort a small assembly by its weight.

The longer sizes, 30" and up, aren't quite as useful as the bar tends to bend when pressure is applied. This doesn't mean that they won't develop enough pressure; the problem is they tend to throw parts out of alignment. Instead of pushing straight into the joint, they push up or to one side.

Don't be fooled by "quick-grip" or "one-handed" clamps. These alleged timesavers actually take longer to use, and are a pain to properly tighten. You can make gross



adjustments with the standard F-clamps with one hand by putting your thumb on the sliding part of the clamp at the bar and pushing or pulling. Stay with the basic ones – you don't even need the ones with the clutch plates; they will only slow you down.

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These clamps are also available with different reaches. Unless you have a compelling need to reach more than an inch or two from the edge, stick with the smallest-reach clamps. This will save money but won't diminish your ability. As I write this, Amazon.com has an assortment of 30 Bessey clamps for \$300. That's a deal that will meet most of your needs for a long time.

### Clamping the Big Ones

Moving on to larger clamps, you need several for assembling cabinets and furniture, and for gluing up wide tabletops. At the head of the class are parallel-jaw clamps. Though originally made by Bessey, other manufacturers have introduced similar clamps, most notably Jet. The Jet clamps are more user-friendly than the Bessey clamps. These are very nice clamps, but they have two drawbacks: They are

very heavy and they are expensive, costing \$35-50, each depending on length.

The big advantage to them is that the jaws will stay parallel (or nearly so) as the clamps are tightened. You still need to take care that the threaded portion of the handle is in line with what you are clamping together, however. The question I have is, are they worth the cost?



For most jobs I think they're overkill. If you're building a lot and have the cash, I would recommend a dozen or two dozen. If those aren't your circumstances, I think

you're better off buying pipe clamps at about one third the cost.



The pipe clamp heads are about \$10 each, and you can buy various lengths of black pipe at the local hardware store for about \$5 each. Three-foot lengths will be the most useful, but a few at 4' will be needed eventually. One of the best things about pipe clamps is that for the price of a few pipe couplings you can make clamps of nearly any length by joining shorter

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lengths of pipe end-to-end.

When you're stocking up on pipe and clamp heads, be happy with what you're saving compared to parallel-jaw clamps and don't let your frugal side get the better of you. Buy black iron pipe rather than galvanized pipe, and don't even think about using electrical conduit. Stick with the 3/4" size; the few dollars you save by going with 1/2" will only buy you frustration and regret.

The caution with the pipe clamps is to make sure that the threaded part of the clamp is in line with what you are gluing. When putting tabletops together, you can rip some strips to rest the wood parts on that will keep the clamps in line. It's also a good idea to alternate clamps top and bottom to keep the boards being glued together flat and in line.

If you're working with oak, be careful to keep the pipe from contacting wood

and water-based glue at the same time. Tannic acid in the wood will react with the iron and leave a dark stain.

There are also a number of inexpensive aluminum bar clamps on the market, and if you find a deal on them, take advantage of it. You don't need to generate tons of pressure to glue a tabletop or hold a cabinet together, and these also work well.

### Beyond the Basics

The clamps listed will meet almost all your needs for a minimal investment, but there are several more kinds of clamps that

are nice to have in certain situations.

The first of these are wooden hand-screws. I use them in situations similar to those where I use small F-style clamps, and in combination with them.

The smallest three sizes ( #0, #1,







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and #2) are the most useful. These are available in much larger sizes, but unless you are laminating huge blocks, or making wide bent laminations, the big ones aren't needed.

The wonderful thing about handscrews is that they are incredibly adaptable. You can turn the jaws out-of-parallel to hold an odd shape, or to focus pressure on a small area at the ends of the jaws. Keeping



them parallel, you can exert even pressure along the length of the jaws.

Pinch dogs, pictured at lower left, can take the place of a bar clamp when gluing edge to edge. As you drive them in with a hammer, the wedge shaped points pull the pieces snugly together. The holes they leave need to be trimmed off, but I generally make parts for panels a couple inches longer than the finished size anyway.

The Bessey corner clamps pictured at right don't pull parts together, but they do hold them at a right angle while you snug the joint with other clamps or drive a fastener. When making an assembly, putting corners together squarely goes a long way to reducing frustration later on in the project.

Miters joints can be one of the most difficult and exasperating joints to clamp. The problem is that as you apply pressure



to the joint, the two parts tend to slide apart. Picture-framer's clamps will hold two mitered parts in place, but like the corner clamps, they don't pull the joint together. What you need is a way to squeeze the joint together, applying force at a right angle to the joint.



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The small wire clamps above do just that, and they do it very well. The downside is that the pointy ends will leave a mark in the wood, about the size of the hole made by a headless pin. But the hole is easy enough to sand away or fill, and joints stay together so easily, that it's a fair tradeoff to make. There are some different versions of these, some of which require

special pliers to help open and release the spring wire clips.

The one in the picture at left is made by a small company founded by a trim carpenter. It works great, and is a real bargain.

Another trick for keeping miters tight while glue dries is also shown in the photo. Clear packing tape, wrapped around the joint keeps thing together, and lets you see what is happening at the glue line.



A new variation of the F-style clamp is shown in the middle picture below. Called a Kliklamp, this tightens with a ratcheting lever instead of the traditional threaded handle. It's quick to use and generates just the right amount of pressure. It's a welcome addition to our shop.

