

Essential Clamp Kit

What clamps to have and why you should have them

BY JEFF MILLER

The old chestnut is true—you can never have too many clamps. But which clamps you need depends on the type of work you're doing. As a general rule, you should buy the clamps best suited for the primary work you do, but you'll also need a more general selection of clamps for the wide range of projects and shop tasks you'll encounter. Assuming a finite budget, you'll need to make some choices to build an appropriate clamp kit for your shop.

After years of building custom furniture, I've come to learn what makes one clamp really shine, and what causes others to collect dust in the corner. Here's a roundup of the clamps I use every day that allow me to tackle any project or task quickly and efficiently, and some pointers on where to start if you're just beginning to outfit your shop.

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Bar clamps

Bar clamps are the shop workhorse. They excel at gluing up panels, assembling carcasses, building chairs, clamping up large laminations, and even serving as a vise when working on shaped legs. They come in a variety of lengths and are capable of exerting a great deal of pressure, or of clamping gently if needed. Bar clamps also come in a variety of forms and prices, each with corresponding benefits and drawbacks. No matter which type of bar clamp fits your budget and needs, they will form the core of your clamp kit.



WHERE TO START

A stable of 36-in. and 48-in. clamps will be enough to tackle most jobs, but you'll need a few shorter ones for gluing up small tables and panels where the larger clamps can be cumbersome. For long glue-ups, such as tabletops, benches, and beds, a few 72-in. clamps will be vital.

6 at 24 in. long 6–8 at 36–48 in. long 2–4 at 72 in. long

I-BEAM CLAMPS ARE HEAVY-DUTY

These are the most expensive bar clamps but also the most heavy-duty, with cast-iron heads and a bar styled after steel girders. All this metal gives them incredible rigidity and lots of clamping power. Rigidity is one of the main reasons these clamps are so potent. A super-rigid bar not only allows more pressure to be applied but also keeps the clamping pressure directly in line with the clamp heads—exactly where you want it. I-beam clamps are typically equipped with plate clutches and heavy-duty screw mechanisms, both of which make setting up a clamp on the work as painless as possible.



ALUMINUM CLAMPS ARE LIGHTWEIGHT

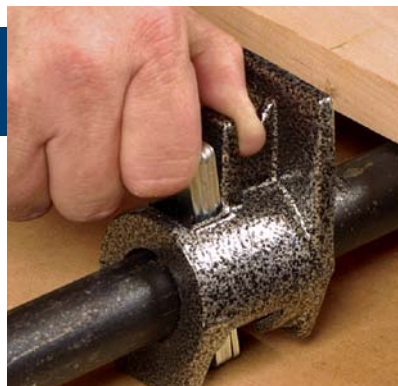
Aluminum bar clamps are a far less expensive option than I-beam clamps. The tradeoff with these lightweight clamps is that they exert less pressure, flex more, and are generally more cumbersome to adjust. However, the lighter weight can be a tremendous benefit when you're working alone on a tabletop or case glue-up. Unlike cast-iron clamps, the aluminum won't react with the water in glues and the tannins in wood to stain your work. Clamps with wing-type handles are the best, but those with a sliding pin work fine as well.

Online Extra

For a video on how to use clamps to keep your glue-ups flat, go to FineWoodworking.com/extras.

PIPE CLAMPS ARE INEXPENSIVE

Pipe clamps are less expensive than aluminum bar clamps, and can be found at most hardware stores. Pipes can't match I-beam bars for rigidity, and some brands of pipe clamps don't have the jaw depth found on the other bar clamps. But even in a shop well equipped with bar clamps, pipe clamps are good to have around for unusual clamping situations. With a handful of lengths and a few couplers, you can easily create clamps of any size to tackle projects the others can't reach. I recommend getting $\frac{3}{4}$ -in. pipe clamps if you can. They are more rigid and have better handles compared with the fittings for $\frac{1}{2}$ -in. pipe.



Cheap and versatile. The head of the pipe clamp threads onto the end of the pipe, while the tail (above) slides on and retains its position with a plate clutch. The pipe comes threaded at both ends, so all you need to create a longer clamp is an inexpensive coupler and another length of pipe (right).



Protect your work

Many bar clamps come with plastic or rubber pads from the factory (left). If yours don't, attaching some $\frac{1}{4}$ -in. plywood and leather pads will keep your work from getting dinged. Miller uses silicone adhesive to attach the pads (right); it's flexible and easy to remove when the pads need changing.



F-style clamps

F-style clamps, sometimes referred to as steel bar clamps, are great for most smaller tasks, such as gluing up drawers and boxes, and clamping narrower stock together. Larger versions are useful for holding work or jigs on a bench, for smaller lamination work, and for persuading joints to close on smaller pieces. It's important to align them well, because if the bar isn't parallel to the intended direction of pressure (usually perpendicular to the surfaces being glued), they can cause parts to slip as pressure is applied. Two of the most important features to look for are smooth adjustment and adequately sized handles.

Parallel-jaw clamps are a popular variation on the F-style clamp. But I don't use them because I find them cumbersome to adjust, which makes glue-ups more difficult.



Pinpoint clamping. F-style clamps are great for smaller jobs that don't need high pressure or large clamps, such as gluing up a drawer (above). Versions with an extra-deep throat make it easy to clamp jigs to benchtops and work surfaces (left).

WHERE TO START

2-4 at 12 in. long 2-4 at 18 in. long
2-4 at 12 in. long, deep throat

Quick-Grip clamps



WHERE TO START
2-4 at 12 in. long

A few of these are terrific to have because they are easy to use with one hand and provide a quick and easy hold. They can exert a lot of pressure, but there is little fine control of that pressure. They're great for getting something in clamps easily, whether it is a part in a jig, a glue-up where you have only one hand free, or a quick patch-and-repair job.

C-clamps



WHERE TO START
2 each at 2 in. and 4 in. long
1 at 6 in. long

C-clamps are always useful to have around, mostly because of their good functionality and low level of fussiness. They're small but strong and are unlikely to distort under pressure. They are used for a variety of tasks, but are especially useful for clamping down stops on tablesaw sleds and other jigs with a fence, or any small jobs where an F-style clamp would be unwieldy.

Hand-screw clamps

They may seem like a throwback, but hand screws are great for a number of jobs. Use them for holding odd-shaped pieces safely when cutting on the bandsaw or when drilling on the drill press. They are also good as a vise for holding small parts on the bench or in a bench vise. Hand screws are easy to find and even easier to modify. If you find yourself trying to get a firm grasp on oddly shaped parts, modify the jaws to fit your need. For example, adding V-notches across or along the jaws makes clamping round parts much easier.



A helping hand for big glue-ups. Use a hand screw to align the ends of boards while gluing tabletops, benchtops, or panels.



Perfect for small or odd-shaped parts. Getting a steady hold on turned or round work can be tricky. Adding notches to hand screws is an easy and secure way to hold round stock at the bandsaw (above) or upright in a bench vise (left).

Spring clamps

These are generally cheap and useful for holding parts in jigs, for holding templates in place when marking out parts, and even for light-duty gluing. One big drawback is that there is little to no control over the amount of clamping pressure they provide. In general, the bigger ones apply more pressure. They can be found cheaply in sets and are worth having in the shop.

