

Air Hoses: The Lifeline of Your Pneumatic Tools

The right one should fit your tools, your budget, your work, and even the weather outside

BY JUSTIN FINK

Of all the tools I use, I can't think of any more finicky than my air hose. My tablesaw has been rained on, my nail guns are dented, and I've dropped my chalkline more times than I can count. Still, every one of those tools continues to perform without trouble. But the slightest change in temperature, the subtlest twist of my wrist, or the smallest of obstacles in its path, and my air hose becomes a problem.

To me, air hoses are the perfect illustration of the saying that there are no solutions, only compromises. I've worked with every hose style that's on the market—rubber, PVC, nylon, and polyurethane. I've researched the materials, and studied the pros and cons. I've talked to builders in different parts of the country and to a number of experts from several of the major toolmakers, all to find out which hose is the ideal choice. I'll save you the suspense: There's no such thing as a perfect air hose. Your choice will depend on your budget, your work habits, the work-

ing environment, and the type of tool that you have connected to the business end of the hose.

The original, and still a strong contender

Rubber air hoses have been around for decades, and they are still favored for their low price and high durability. A 50-ft.-long, $\frac{3}{8}$ -in.-inside-diameter (I.D.) rubber hose sells for \$20 to \$40 and typically offers years of service, even under daily use. Rubber doesn't mind cold weather, tolerates contact with oil and finishing products, and lies flat on the floor. Plus, when the workday is over, it coils up as easily as an extension cord.

The biggest complaint about rubber hose is that it's heavy; a 50-ft. hose weighs from 6 lb. to 8 lb. If the majority of your work is done while you're standing on the ground, then the weight isn't problematic. But if you're installing clapboards, nailing roof shingles, or working from an extension ladder, that free-hanging dead weight can be a drag.

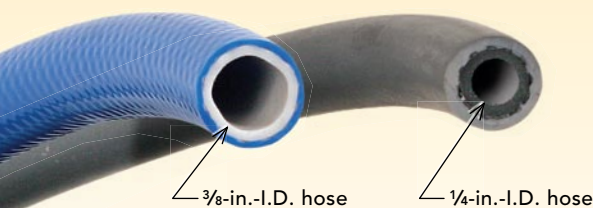
Because the outer sheathing of a rubber hose is soft and porous, it also holds dirt and isn't really cleanable. The hose you use on the roof shouldn't be dragged through the living room to install crown molding; it could leave scuff marks on trimwork.

By nature, rubber products dry out over time, making them prone to cracking, especially when they are used outside in the sun all day. The most common failure point is where the metal fitting attaches to the end of the hose. This intersection of hard metal and soft rubber endures constant stress while you work and often is the first place to leak.

Not all rubber hoses are created equal, but unfortunately, there is no easy way for buyers to confirm quality, other than price. When it comes to rubber, Campbell Hausfeld engineer Bobby Lawrence suggests that a higher price tag usually means better quality.

Because of their weight and their tendency to crack around stress points, rubber hoses are often used as trunk lines that run between

LENGTH AND DIAMETER SHOULD MATCH THE TOOL AND THE TASK



The length and inside diameter of your air hose should be based on three factors: the type of tool you're using, the way you use that tool, and your distance from the air compressor.

Air hoses are designated by their inside diameters; the greater the diameter, the more air the hose will hold. Think of an

air hose as an extension of your air compressor: an additional reservoir. A high-volume tool, such as a framing nailer, requires a larger volume of air than a low-volume tool, such as a brad nailer. A high-volume tool attached to a long, skinny hose either forces the compressor to run continuously or simply



RUBBER

Cost of 3/8-in.-I.D. by 50-ft.-long hose:
\$20 to \$40



Regardless of the task, if you want a hose without a learning curve, get rubber. Although it's the heaviest hose material, it stays flexible in a wide range of temperatures, lies flat on the floor, isn't likely to kink, and is as easy to coil as an extension cord. Rubber traditionally comes in 3/8 in. I.D., but some manufacturers now make 1/4-in. hoses, too.



the compressor and a lighter, more flexible hose attached to the tool.

An affordable option

When PVC air hoses hit the market, they seemed to be a good answer to complaints about rubber hoses. They are lighter—a 3/8-in.-I.D. by 50-ft.-long hose weighs 4 lb. to 6 lb.—and their hard, smooth outer sheathing is nonmarring and easy to clean with a soapy rag, making them suitable for finished interiors. These hoses also are sold at lower prices than rubber and polyurethane, making them popular among first-time buyers or those who use air tools only occasionally. If you buy a compressor, the kit will more than likely include a PVC hose.

The major trade-off with PVC is a loss of flexibility, which is especially noticeable when the hose is used in temperatures below 50°F. "If you live in South Florida, PVC hoses are no problem," says Fred Mowczan of Coilhose Pneumatics. "Trust me, if it's 40°F in Miami, nobody's framing houses." But for

PVC

Cost of 3/8-in.-I.D. by 50-ft.-long hose:
\$10 to \$20



If you are only an occasional tool user and aren't looking to spend much money, PVC hoses are worth a look. They won't mar interior trimwork, and they can be repaired with hose clamps (just like rubber hoses). Be aware that PVC's stiff composition makes these hoses a bit more difficult to work with, especially in cold temperatures.



Weak spots should be reinforced.

Regardless of material, don't buy a hose that doesn't have strain relief near the fittings.

doesn't provide enough air to trigger the tool or to sink nails consistently.

The pace of work matters, too. If you are sporadically firing a brad nailer, a 1/4-in.-I.D. hose will be adequate. If you are bounce-firing a framing nailer, you typically need a 5/16-in.-I.D. or 3/8-in.-I.D. hose to provide a sufficient air re-

serve to the tool. Then again, if your compressor is only 10 ft. away and you are firing your framing nailer only a few times every few minutes, a 1/4-in.-I.D. hose could be fine.

Long distances don't necessarily require dragging around a thicker hose, though. Many contractors combine hoses of dif-

ferent diameters, which lets them play up the strengths of different materials. A common setup is a 3/8-in.-I.D. rubber hose for the first 20 ft. or 30 ft. from the compressor, and then a smaller 1/4-in.-I.D. polyurethane hose (for its lighter weight and all-weather flexibility) connecting to the rubber hose and running to the tool.

NYLON

Cost of ¼-in.-I.D. by 50-ft.-long recoil hose:
\$10 to \$30

Although their lower durability and tendency to kink make them a poor choice for heavy job-site use, nylon hoses—which are sold almost exclusively in springlike recoil configurations—are a nice option for use in the shop. Most commonly available in ¼ in. I.D., nylon hoses are a fine choice if most of your work involves low-volume air tools, such as pin, brad, and finish nailers. Combined with these smaller tools, a nylon hose's extremely light weight can provide excellent freedom of tool movement. However, these hoses are not repairable.



Swivel at will. Swivel fittings help to prevent twisted hoses and allow more maneuverability.

POLYURETHANE

Cost of ¾-in.-I.D. by 50-ft.-long hose:
\$30 to \$70

It's not the bargain choice, but polyurethane is the favorite of a wide variety of tradespeople. It's lighter than rubber and PVC, which makes it great over long distances and when working from ladders or scaffolding. It's also a favorite of framing contractors and roofers for its mix of durability and excellent cold-weather flexibility. Finish carpenters appreciate its nonmarring surface and easy cleanability. Polyurethane can also be repaired quickly without the need for hose clamps. The trade-offs are a higher price and a tendency to kink, twist, and curl. Its tacky surface also causes it to snag on itself and on other objects.



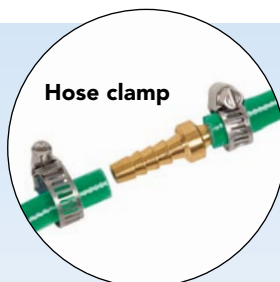
REPAIRS ON THE GO

If your hose is damaged in the middle of a long run, you can either split the hose into two shorter lengths—which means adding two new quick-connect fittings—or you can cut out the damaged section and rejoin the two lengths with a splicer.

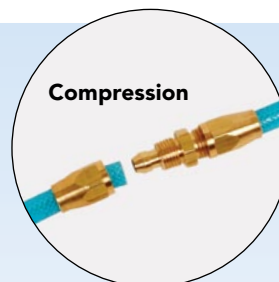
Some hose-repair kits are listed as universal fixes, but one ¼-in.-I.D. air hose might be slightly different from another. If you are using anything other than a simple hose clamp, it's best to buy a repair kit from the hose manufacturer to ensure a safe fix.

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Visit the Magazine Extras section of our home page for a video of each hose-repair option.



As close to universal as repairs get, hose clamps slide over the outer sheathing of the hose and are tightened over a barbed fitting. Although wrapping the clamp with tape helps, these fittings are bulky and can scratch surfaces and get snagged easily.



For a more streamlined fix, some manufacturers sell fittings that slip inside the hose and are secured in place with a threaded compression fitting. These fittings must be tightened with a wrench and are typically used only with polyurethane hoses.



Some newer rubber hoses have replacement connectors and splicers with more aggressive barbs, eliminating the need for a hose clamp or compression fitting. The locking barb simply slides inside the hose; no tools are necessary.

Metal fittings seal the deal

Choosing the hose material is only half the battle. The male plugs and female couplers that are used to connect air hoses to tools and compressors are sold in many sizes and styles. The most commonly used styles of industrial air fittings are denoted with an abbreviation—*I/M*, *M*, or *D*—all of which are compatible with each other. To eliminate confusion, some companies also sell universal fittings, which are labeled with a *U*. Although fitting styles differ, most air tools and hoses are designed with a 1/4-in. fitting to accept the same-size couplers.

Coupler and plug materials vary as well. Steel fittings are the strongest option, but once the zinc or chrome coating wears off, they are susceptible to rust, which causes fittings with moving parts to seize. Brass fittings weigh slightly more than steel and cost a bit more as well. Their advantage is rust resistance. Often, builders combine steel male fittings with brass female fittings to play on the strengths of each type of metal. Aluminum fittings are the newest variety and weigh about half as much as steel and brass. Aluminum won't rust, and because it's anodized, the surface is more durable than brass. Still, some believe aluminum is too soft and is prone to bending out of shape if abused on the job site.

Swiveling male plugs are commonly available and help to reduce the strain that normally occurs near the end of an air hose.



Brass fittings



Steel fittings



Aluminum fittings



Swiveling male plugs

Minnesota woodworker Roland Johnson cold temperatures can be a problem. "It can get to 30°F below zero here in the winter; a PVC hose lying on the floor of my shop will stiffen up like a frozen rope," Johnson says.

A hose for your shop

Although their susceptibility to kinks that lead to leakage makes them poorly suited for daily use on a job site, nylon hoses can be a fine choice for shop use. Typically sold as springlike recoil hoses, a 2-ft.-long nylon air hose can uncoil to about 50 ft. But if you stretch the hose to fire some brads, then set your nail gun on the workbench, the hose could recoil and take the gun with it. Nylon's extremely light weight—a 50-ft.-long recoil hose weighs less than 1 lb.—makes these hoses ideal for permanent setups, where they can be stored overhead and pulled down for use. They are most commonly sold in 1/4 in. I.D., which limits their use to low-volume air tools or the intermittent use of a larger tool.

Newest to the market

First released in the 1990s, polyurethane is the newest addition to the air-hose market. Its biggest selling point is its light weight, a category in which it has little competition. According to Mowczan, polyurethane hoses are about 30% lighter than PVC and 60% lighter than rubber. If you frequently work overhead or from a ladder, a polyurethane hose won't wear out the fittings that con-

nect your hose and gun—or the muscles that connect your arm and shoulder. It also has the same nonmarring and easy-to-clean benefits found in PVC hoses but stays flexible in below-zero temperatures.

The most significant trade-off with polyurethane hoses is added cost. A 3/8-in.-I.D. by 50-ft.-long hose can cost as much as \$70, which is \$30 to \$50 more than a rubber hose of the same size.

Because polyurethane is an inherently sticky compound, this type of hose is known to stick to itself and can snag on other objects. This tackiness can come in handy in some situations, such as when tossing the end of an air hose onto a roof. But when trim carpenters set up compressors in the living room and weave their way through the kitchen to install baseboard, the hose can drag defiantly at every corner, a problem that some users claim is worse in hot weather.

Polyurethane doesn't react well to solvents, so it's not the best choice if you frequently work with finishing products. It's also more susceptible than other hose varieties to melting, an issue that should be considered if your job site is often littered with cigarettes.

Polyurethane also tends to have a memory, which makes the uncoiled hose want to return to a coiled shape. This memory can cause the hose to twist, tangle, and lie in a spiral on the floor during use, all of which can create a trip hazard on the job site. Manufacturers willing to acknowledge the drawback say that the

memory fades with time. Contractors often trade tips for getting their polyurethane hoses to lie flat, but according to finish carpenter Kit Camp, success varies. "I've stretched the hose tight; I've laid it out in the sun. Nothing seems to make it behave," Camp says. Rhode Island builder Mike Guertin says that the unruliness of polyurethane stems from twisting the hose during coiling and uncoiling: "I avoid the problem by storing the hose on a reel to keep it from twisting. Once it lies flat, it stays flat."

According to Coilhose Pneumatics, maker of the popular Flexeel brand of polyurethane hoses, some manufacturers have come close to solving the memory problem, but it usually involves a trade-off in cold-weather flexibility.

Buyer's guide

Many people shop for tools based on brand, but I shop for air hoses based on material. If brand loyalty is important to you, many major pneumatic compressor and tool manufacturers—Senco, Bostitch, Ridgid, Porter-Cable, Campbell Hausfeld, and Hitachi, for example—also sell air hoses. I've found that many independent tool stores and online retailers also carry quality hoses from makers like Coilhose Pneumatics, Goodyear, and PUR-Hose, which generally aren't available at large home centers. □

Justin Fink is an associate editor. Photos by Dan Thornton, except where noted.