

Don't Be Afraid to Spray



COMPONENTS

- Motor
- Manifold filter
- Pressure control
- Bypass/prime valve
- Pump/fluid section
- Bypass hose



The basic setup, operation, and maintenance of this versatile, labor-saving tool is a lot easier than you think

BY PHILIP HANSELL

During the more than 20 years I've been a painter, I've used an airless sprayer to apply thousands of gallons of paints and coatings of all types. Compared to brushing and rolling, spraying saves time on both interior and exterior projects, lays down a perfect coat of paint, and has helped my company build a reputation for high-quality work.

For a novice, using an airless sprayer conjures thoughts of a huge mess, unreasonably long cleanup, and a poor finish, but using a sprayer efficiently and with minimal mess is not that hard. It just takes somebody more experienced to walk you through the process of how to set up, operate, and maintain an airless sprayer to produce a smooth finish. With these lessons in mind, there is no reason to keep from spraying on your next painting project.

Picking the right type

Although my crew and I also have HVLP (high-volume, low-pressure) and air-assisted sprayers, we mostly use airless sprayers because of their speed, the wide range of coatings they can apply, and their reliability. Airless sprayers pressurize the paint with a pump that forces it through the hose until it's atomized by the spray tip as it exits the gun. Although I've tried all the pro-quality airless spray rigs, I've had the best luck with Graco sprayers. They're widely available in my area, too, so it's easy to get tips and repair parts.

For a professional painter like me, spending several hundred to several thousand dollars on a sprayer is an easy business decision, but for GCs, remodelers, and DIYers, spending that much money on a tool for occasional use might not make sense (see "Cost and quality," p. 54). But you can rent sprayers such as the Graco 695 for about \$100 per day at home centers, paint stores, and rental yards. A sprayer like that can spray almost any residential coating short of foundation tar, high-build drywall primers, and concrete-block fillers.

Whether buying or renting, you need to match the sprayer to the coating you'll be applying. Smaller sprayers don't have enough power to spray through the largest tips. Heavy exterior latex, which requires a 0.019 tip, and high-build primers (0.027 tip) pose the greatest difficulty (see "Choosing tips," right). These paints have a high percentage of solids, which makes them more viscous and more difficult to spray than oil paints and varnishes. Most residential water-based paints require at least 2000 psi and a 0.019 or smaller tip. To know the exact tip size and spraying pressure for a specific product, go to the paint manufacturer's website and look for the product data sheet. There you'll find the recommended tip size and spraying pressure, as well as special handling or safety precautions. If you're renting a sprayer, it probably makes sense to buy your own tip, because you can't tell the condition of a tip just by looking at it. There's more than one style of

Choosing tips



Spray tips are the key to airless spraying. They are sized by a three-digit code that indicates spray pattern and orifice size. Doubling the first digit tells you the width of the spray pattern, while the second and third digits are the size of the orifice in thousands of an inch. For example, a 311 tip has a 6-in. spray pattern and an orifice that's 0.011 in. dia. Small orifices atomize the coating into smaller droplets for a fine finish, but small tips build the coating thickness slower and clog more easily than larger tips.

Many tips can be turned backward for clearing clogs. I consider these so-called reversible tips a must. After turning the tip so the arrow on the tip handle is facing the gun, spray into a waste container until the tip is cleared,

and then return the tip to the spray position. You can find the proper tip size for a specific coating by referring to the product data sheets, which you'll find on the coating manufacturer's website.

When the spray pattern has diminished to 75% of its original size, it's time to replace the spray tip, because at this point you're spraying more paint over a smaller area. With latex coatings, this could be necessary every 30 to 50 gal. If you continue to use the tip, more and more paint will be applied to a smaller and smaller area, yielding an inconsistent finish. To minimize tip wear, filter your paint through a mesh strainer bag before spraying, spray at the lowest pressure that still produces a full pattern, and clean the tips and all the filters after every use.

MATCH THE TIP SIZE TO THE FINISH

Lacquer, clear coat	.009-.011
Shellac	.009-.013
Stain	.011-.013
Water-borne lacquer	.012-.014
Acrylic latex (interior)	.013-.015
Polyurethane	.013-.015
Solid stain	.013-.015
Interior latex	.013-.017
Exterior latex	.015-.019
Latex primer	.015-.017
Oil primer	.017-.019
Heavy latex	.021-.025
High-build drywall primer	.025-.039



GET SPRAYING

Start each job by completely unrolling the hose and checking it for nicks, cuts, and abrasions. Also, make sure the power cord isn't damaged and that it's fully grounded to prevent severe shocks from static electricity. Don't use the sprayer if any parts are broken or missing. Confirm that the pressure-control switch is turned all the way down and the power switch is off before plugging in the machine.



Flush with solvent. Fill the pump with a solvent compatible with the coating you're spraying. Spray it through the line at low pressure until it's running clear and smells clean (without traces of the previous coating or nonwater-based solvent).



Stir and strain. Fully mix the paint in accordance with the product instructions, and strain it through a mesh strainer bag into a clean container. Add more paint than you think you'll need. You can pour any excess back during clean up.



Prime the pump. Place the suction tube into the paint, and put the bypass hose into an empty can or bucket. Turn the bypass valve to the prime setting, and turn the pressure-control switch all the way down. Turn on the sprayer and slowly increase the pressure, but no more than halfway. When a steady stream of paint comes out of the bypass hose, turn the pressure back down to zero. Turn the bypass valve to the spray setting. The pump is now primed.

CLEAN UP

Sprayers save time and money, but improper cleanup and storage can negate any savings through downtime and repairs. Fully flush the coating from the pump, the hose, and the gun after every use. Filters must be fully cleaned during wash up and replaced if they're damaged or are more than 20% clogged. The tip and guard should also be fully cleaned before breaks and at day's end. Always lock the trigger when you're not spraying.



Relieve the pressure. Without touching the bypass valve, turn the pressure all the way down. Remove the tip and guard, and place them in a container of appropriate solvent. Slowly pull the trigger to release the pressure.



Pump out the paint. Place the suction tube into a clean bucket of solvent, and turn the bypass valve to the bypass setting. Slowly turn up the pressure to flush the pump with solvent. Paint will come out of the bypass tube, which can be put back in the can. Once solvent starts coming out, collect it in a waste container.



Flush with solvent. Turn the bypass valve to the spray position, and turn up the pressure while pulling the trigger. Aim the flow into the paint can. Once the paint is emptied from the hose and solvent starts coming out of the nozzle, move the stream to a waste bucket. Continue running solvent through the system until it's nearly clear.



Fill the hose. The gun should not have the tip guard and spray tip installed yet. Unlock and pull the trigger while aiming the gun into an empty can. Slowly turn up the pressure. When a steady stream of paint starts coming out of the gun, switch the flow into the fresh-paint container for several seconds to clear air from the hose. Turn the pressure all the way down again, and lock the trigger on the spray gun.



Install the tip. Install the tip into the tip guard so that the arrow is pointing away from the gun. Screw the tip assembly onto the gun, and align the guard to choose a vertical or horizontal spray pattern. Make the connection hand tight.



Adjust the pressure. Use the lowest pressure that fully atomizes the paint. Make a test spray on the masking materials, and gradually increase the pressure until there are no small lines, called "fingers," at the top and bottom of the spray pattern. If you see fingers, increase the pressure until the spray pattern shows full and even coverage across its width.



Clean the filters. Remove the inlet strainer, manifold filter, and gun filter, and shake them in a bucket of solvent to clean them. Reassemble the sprayer without the filters, and run solvent through the sprayer and bypass hose until it's nearly clear. You can reuse the solvent later.



Clean the tip and the guard. Shake the tip and the guard in the pail of solvent to clean them. You can use a toothbrush to remove stubborn residue. Don't leave water in the sprayer in freezing temperatures and never for more than a day or two. Instead, fill the pump with RV antifreeze prior to storage to prevent corrosion and freezing.

Cost and quality

Internet retailers and home centers have an assortment of airless sprayers in stock with prices ranging from about \$200 to about \$700. Even the most expensive consumer model costs about half what my cheapest pro sprayer costs. So are these inexpensive sprayers worth considering for folks who are painting only a few times a year? In many cases, the more expensive airless sprayers (\$500 or more) available at home centers can do a good job for oil-based and light latex coatings. The most expensive models, such as the Graco ProX9 below, may be able to spray exterior latex, but less expensive models will struggle to spray latex paint without thinning because they have smaller pumps and motors. If you're considering one of these sprayers, research what tip sizes you'll need for the coatings you intend to spray, and see if the tool you're considering is up to the job. Consumer sprayers have lower-quality components compared to pro models, so they may not hold up if they're used beyond their capabilities. Also, they're loud.



Graco
Magnum
ProX9 (\$600)

tip and tip guard, so be sure everything fits the gun that comes with the sprayer before leaving the store.

Airless sprayers can be rated by how many gallons of paint they can spray weekly. It's an easy way to match the pump and motor to the size of the jobs you'll be doing. For remodelers and hardcore DIYers, a small sprayer like the Graco 390 (\$800) or 395 (\$1100), which are rated for 25 to 30 gal. of paint a week, would be a good fit. If you spray between 30 to 50 gal. a week, you'll want a midrange sprayer like Graco's 695 (\$2600) or 795 (\$3700). If you're painting over 50 gal. a week, you'll need a model like Graco's 1095 (\$4500) or larger.

The gallons per minute (GPM) rating is another useful way to compare sprayers. For example, Graco's 390, which is their smallest contractor sprayer, has a GPM rating of 0.47, a maximum psi of 3300, and a maximum tip size of 0.021. For comparison, a Graco 1095 (the largest sprayer we regularly use) has a GPM rating of 1.2, a maximum psi of 3300, and a maximum tip size of 0.035. Even though the 1095 and the 390 have an equal psi rating, the smaller 390 can only sustain a consistent finish at that pressure for a short amount of time. How long depends on the paint being applied and the tip size.

Picking the right model

If you're considering a purchase and will be moving the sprayer by yourself, get a small model. Two people are needed to get a medium or larger sprayer into a vehicle. If you're considering a particular model, find out if there's a local supplier for spray tips and filters. The best spray guns cost a little more, but their consistent paint delivery makes it easier to get a smooth finish.

If you are regularly spraying trim or built-ins (which commonly have a glossy finish), then you'll want a sprayer with a computer-controlled pressure regulator. Without computer control, the pressure is regulated by a mechanical pressure switch. With a mechanical switch, the spray pulses as the pressure switch cycles the pump on and off. Sometimes described as deadband, this pulsating affects spray uniformity and may be visible in the finish, depending on the paint's sheen. The higher the level of gloss, the more it will be obvious.

I have found that a Graco 695 Ultra Max II is the right sprayer for most jobs we do. We usually buy the upgraded pro-contractor

models, which have computerized controls, a sturdy cart, and a nice hose reel. We also have a couple of 1095s for spraying thick paints that require a large tip, and we use some 395s for residential repaints and small jobs. One of our favorite features of Graco sprayers is the easy-to-remove fluid section on the pump. If there's a problem, it can be swapped without tools, so we keep backup fluid sections in our vans to minimize downtime. Another nice feature of this sprayer is the "WatchDog" pump-protection system, which turns off the pump when the paint runs out or if there's a leak in the hose.

Getting ready to spray

Before any spraying begins, I cover the floor with a heavy butyl-backed drop cloth for extra floor protection around the sprayer. I put on a cartridge respirator and a Tyvek suit, and I cover my head with a spray sock. I put a little Vaseline on my eyelashes, which makes it easy to wipe off any overspray. While I unravel the hose, I inspect it carefully for scuffs, kinks, bubbles, cuts, or pinches. This is important because a damaged hose not only makes a mess, but it can seriously injure someone if it breaks. When paint is injected under the skin, the resulting injury is very serious, even if it only looks like a scratch. If you or someone in the vicinity gets hit with a sprayer's high-pressure stream, go to the ER immediately and tell the staff you have a "fluid-injection injury." Bring a paint-can label or the material safety data sheet to help the medical staff administer the right treatment.

When spraying ceilings or walls, keep the gun 12 in. to 15 in. away from the surface, and overlap the spray pattern by 50%. The product data sheet will tell you how thick the coating should be when wet. You can check the wet thickness with simple tool called a wet-film thickness gauge, which you can find at most paint stores. Work from the top down and from the back of the room toward the exit. If you are spraying a small area such as a closet, begin with the corners and then fill in the bare areas.

Once you go through the setup and cleanup process two or three times, spraying becomes second nature, and you'll be amazed at how fast and easy it is to get a great finish. □

Philip Hansell is the owner of Hansell Painting in Durham, NC. Photos by Patrick McCombe.