

# HVLP Sprayers

Take finishing to the next level with a top-performing system.

**B**rushing or wiping finish or spraying from a rattle can yields great results on most small projects. But when you're tackling large furniture projects or cabinetry, spraying finish with a high-volume, low-pressure (HVLP) spray system gets the job done easier and with less overspray than a compressed-air sprayer.

An HVLP unit consists of an air-generating turbine, an air-supply hose, and a gun that mixes finish with the air—simple in theory, yet complex in implementation. (See “Get to know an HVLP system” next page.) Luckily, manufacturers of these systems have managed the tricky part, so you just need to spend time spraying finish on practice workpieces (plywood works well) until you get a good feel for it. Soon you'll have the confidence to spray all of your projects.

To find out which HVLP system to buy, we tested six three-stage models head-to-head, and also threw in a few two- and four-stage units for perspective. A three-stage system best balances the oomph it takes to spray most finishes with an affordable price.

**Note:** An HVLP turbine is rated by the number of fans it uses to pressurize the air; a three-stage unit has three fans, and so on. Typically, the more stages, the more heavy-bodied the finishes it can spray without thinning.

## Get to know an HVLP system

Think of an HVLP turbine as a reverse vacuum pump: It sucks air through filters, then condenses and blows it through a hose to the gun. In order to be classified as HVLP, its air pressure cannot exceed 10 psi.

■ Because a turbine motor spins at about 20,000 rpm, it generates heat, which unavoidably warms the pressurized air. Although this warmed air all but eliminates moisture in the line, it also can cause finishes to flash-dry too quickly. To offset this, most turbines have separate filtered intakes for spraying air and motor-cooling air.

■ Spray guns come in two styles: *Bleeder* guns pass air constantly, even when you stop the flow of finish. *Nonbleeder* guns, our favorite,

cut off both air and finish flow when you release the trigger. (We tested all the systems with nonbleeder guns.)

■ You can get both gun styles with either gravity-fed cups (mounted on top of the gun) or pressurized cups (beneath the gun). Pressure in the latter cup forces finish into the gun's airstream via the fluid tube, where it gets sprayed through the nozzle. Both work equally well when spraying, but we prefer the flat-bottom pressure cups for their smaller footprint and ease of filling with finish. And these cups prove easier to set down when not spraying, although you might have to disconnect the hose on some models.

## It all starts with the air

The turbine is the heart of an HVLP system. All the models we tested run on 110 volts, so you can plug one in just about anywhere. That's convenient, but turbines do generate two main complaints: noise and hot air.

In our tests, some turbines ran quieter than others. The Fuji Q4 Platinum, despite having four fans, proved quietest in the group. (Spraying from 10' away produced 72 decibels of noise, about the same noise level as a drill press.) The others ranged from an acceptable 76 decibels (Graco FinishPro 7.0, quietest of the three-stage units) to an annoying 84 (Earlex Spray Station 5500). Confined spaces make the noise seem louder, but a long hose that puts distance between you and the turbine can make the noise more tolerable.

As for the warm air, most of the tested models keep their cool by using two separate air intakes: One supplies the air for spraying, and the other cools the motor. Single-intake turbines (Earlex Spray Station, Graco, and Fuji Q4 Platinum) use the same air to cool the motor and spray finish. Dual-intake units eventually shoot warm air, too, so turn off the turbine when you're not spraying, such as when repositioning a project. (You also can prevent flashoff—finish drying too quickly to properly blend overlapping areas on large projects—by pumping more finish through the gun, but you'll need to move the gun quicker to avoid runs and drips on your project.)

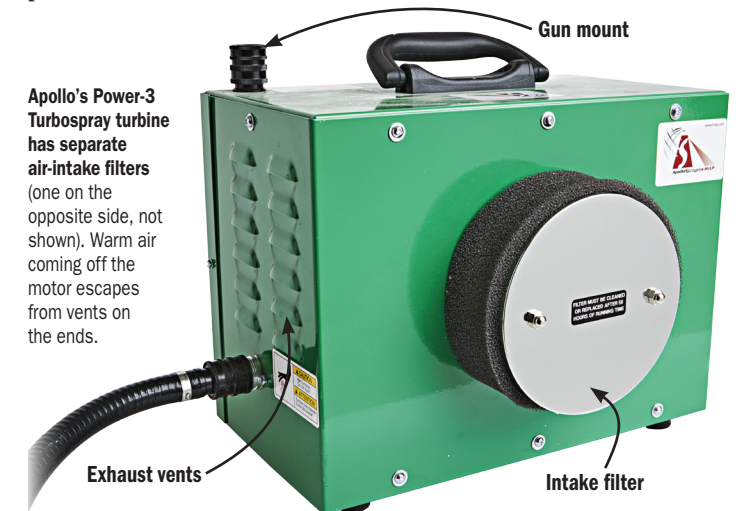
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## Turbine notes:

► All the turbines provide a place to hold the spray gun upright when not in use—to avoid spilling finish—but it's best to disconnect the hose from the gun first. That's required with the Apollo and Fuji units, because their guns store on their air-intake couplers.

► The Graco and Titan Capspray 75 units include storage compartments for wrenches or extra spray-nozzle sets. That's handy, given the small size of some of those parts.

► Over time, all filters need to be cleaned or replaced to maintain proper airflow. Filters on the Earlex Spray Station and the Graco proved difficult to access and remove.



**Apollo's Power-3 Turbospray turbine has separate air-intake filters** (one on the opposite side, not shown). Warm air coming off the motor escapes from vents on the ends.



**Apollo Eco-3 Turbospray, \$650**  
888-900-4857, [hvlp.com](http://hvlp.com)



**Apollo Eco-4 Turbospray, \$750**

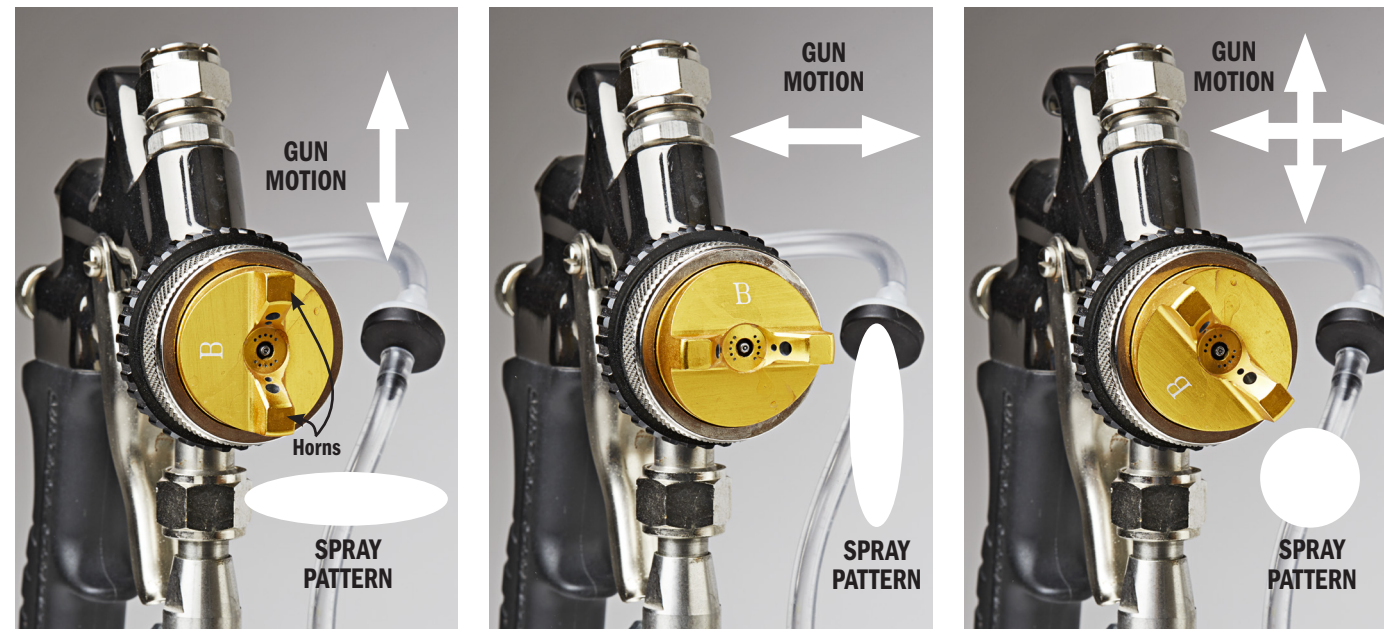
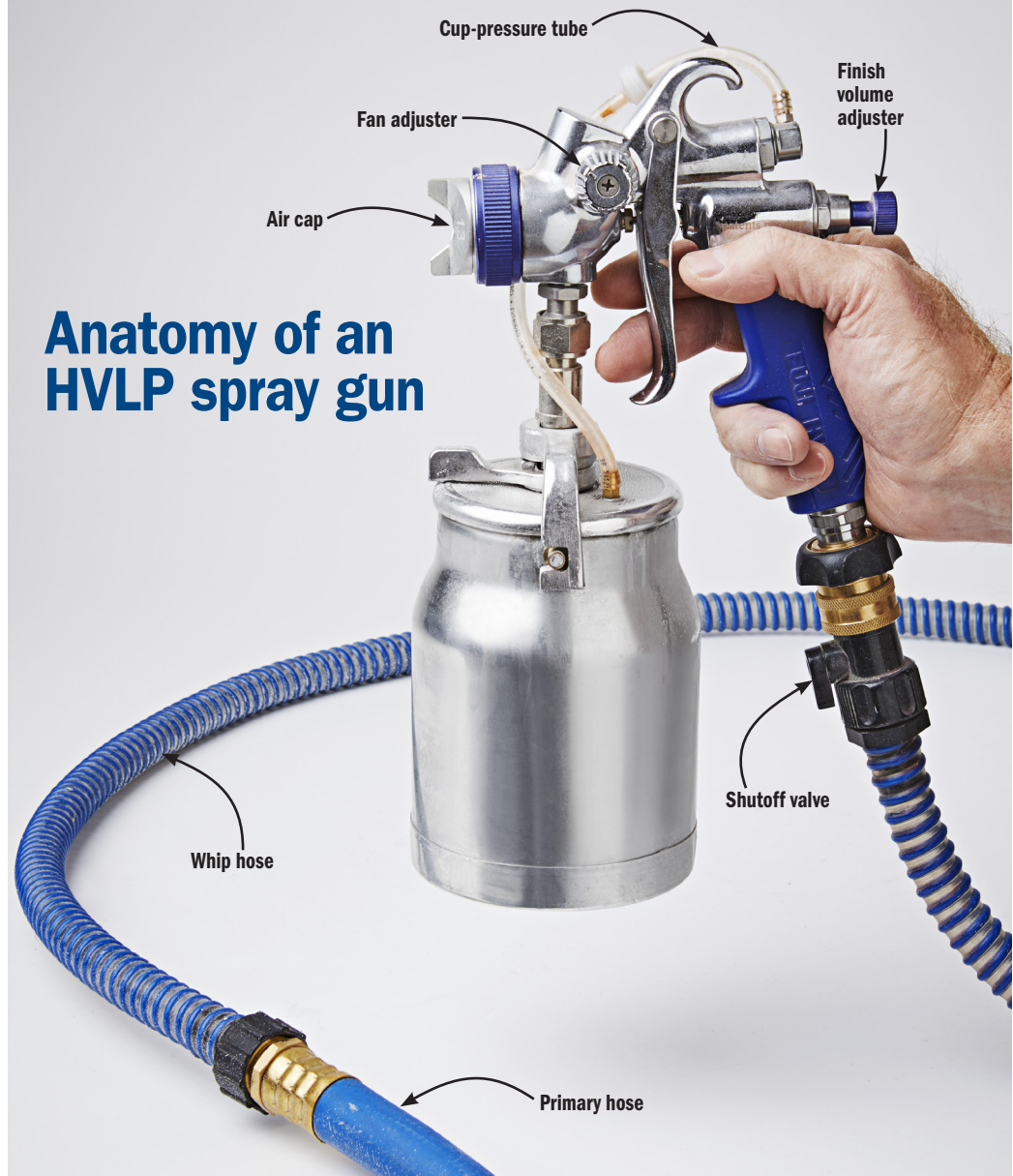
## Have gun, will spray

Here's where things get more complicated, because all spray adjustments—including atomization and spray pattern—happen at the gun. Atomization involves injecting finish into the airstream and converting it into tiny droplets that, when applied onto a project surface, blend together nicely for a smooth, even coat. That atomized mixture of air and finish exits the gun at a rate and in a pattern that you adjust for the best finish.

The first adjustment pairs your finish of choice with the appropriate nozzle. We tested each gun with the nozzle set (nozzle, needle, and air cap) that comes with the system. That's a 1.3mm-diameter nozzle for all but the Apollo Power-3, which comes with a 1.0mm nozzle, and the Earlex Spray Station's 2.0mm nozzle. (You can buy optional nozzle sets for each system, as shown in the chart on page 73.) Each system comes with a chart that pairs the viscosity of a finish with a particular nozzle set, or tells how much to thin a finish so it will work with the factory-supplied nozzle. All systems except Apollo and Graco include a viscosity cup for determining the flowability of a finish, but you can buy these as accessories.

**Tip!** When spraying latex paint, add a flow enhancer, such as Floetrol, for best results.

## Anatomy of an HVLP spray gun



You can change the fan pattern on an HVLP spray gun by turning the air cap. Position the horns on the air cap opposite the direction you want to fan the spray pattern. Then move the gun in the same direction the horns point.

With the finish and nozzle matched, you next adjust the mixture of finish and air. You control finish flow by turning a knob (shown right) that limits how far the needle retracts from the nozzle when you pull the trigger. Next, adjust the airflow by turning a knob or ring on the gun: Fully open creates a wide fan pattern; close it down for a smaller circular shape. Experiment with these adjustments until you like the results. Rotating the air cap also adjusts the spray pattern, as shown above.

Finally, to apply the best coating without runs or drips, you adapt the speed of the gun's movement (side to side or up and down). This comes naturally through practice and repetition.

We prefer the guns supplied with the Apollo Power-3 and both Fuji systems. Adjustments are easy, they have perfectly tensioned trigger pulls, they're balanced well, and they felt good in our hands. The Apollo Eco systems also come with nice guns. By contrast, Titan's gun, with finicky



Graco's gun has an intuitive finish adjuster: The higher the number, the more finish flows into the airstream.

adjustments and a too-stiff trigger, detracted from its quality turbine.

We sprayed lacquer, water-based polyurethane, and latex paint with each system, using the factory-supplied nozzle sets. The Apollo, Fuji, and Earlex SprayPort units sprayed unthinned lacquer and poly with excellent results. Paint, though, was a different challenge, with some sprayers having to



Apollo Power-3 Turbospray, \$900



Earlex Spray Station 5500, \$300  
888-783-2612, earlex.com



Earlex SprayPort 6003-P, \$550



Fuji Mini-Mite 3 T-Series, \$625  
800-650-0930, fujispray.com



**Note:** Latex paints vary in viscosity—the better the quality, the thicker the paint—so be prepared to thin as needed to match your sprayer's nozzle.

work noticeably harder to get the job done using the supplied nozzles. Others sprayed it easily, straight from the can. Our advice: If you plan to spray paint regularly, get a nozzle set specifically recommended for paint.

**Spray gun notes:**

- ▶With most guns, you turn off the turbine and pull the trigger to relieve pressure inside the cup—but that also squirts finish! The Apollo guns have valves to release pressure with no splatter, the only tested models with this feature.
- ▶We like Fuji's splash guard, shown right. But the guns have lots of small internal parts, requiring great care when cleaning.
- ▶We were disappointed with the Earlex SprayPort gun's limited fan-width range and backlash in the adjuster; nonetheless, it sprayed well enough overall.
- ▶With no airflow adjustment, you control the flow rate on the Graco and Earlex Spray Station guns by adjusting viscosity, finish volume, and nozzle only.
- ▶Apollo's Power-3 gun comes in a case with storage for extra nozzle sets.
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**The missing link: the hose**

A good hose must be firm enough to resist crushing should you step on it, but supple and nimble enough to allow maximum maneuverability with the gun. To achieve these seemingly opposite goals, our favorite systems employ a two-part hose: a durable one connected to the turbine and a short, pliable "whip hose" at the gun end. The Earlex SprayPort's hose is large in diameter (about 1¼"), but very flexible and lightweight. By contrast, we found the Graco and Titan hoses too bulky and awkward.

All models except the Earlex Spray Station come with at least a 20' hose. That's important because the farther you locate the turbine from your spray area, the less clogging overspray gets sucked into the filters (and noise pumped into your ears).



Splash guard

The Fuji T-70 spray gun has a plastic splash guard on the underside of the cup lid to prevent finish from getting into the nooks and crannies of the cast lid, making cleaning easier.

**Hose notes:**

- ▶The hoses on all three Apollo units lack a supportive boot at the turbine end, resulting in a slight kink as the hose sags after warming up. To combat this, position these turbines on the floor, rather than a bench, during use.
- ▶The hose on the Earlex Spray Station, despite being lightweight, proved stiff and inflexible, compromising gun movement.
- ▶Both Fuji hoses have a shutoff valve at the gun end, letting you stop airflow without turning off the turbine, or reduce airflow if you're getting too much overspray. Also, we found that the quick-connect fitting at the gun end of these hoses disconnected easily through incidental contact during use.

Graco FinishPro 7.0, \$950  
844-241-9497, graco.com



Titan Capspray 75, \$900  
800-526-5362, titantool.com



**HVLP Systems: Spray finishing for any shop**

MODEL	PERFORMANCE RATINGS (1)								TURBINE	SPRAY GUN				HOSE		NOISE LEVEL, DECIBELS (10' FROM TURBINE)	VISCOSITY CUP INCLUDED? (YES, NO)	WARRANTY, YEARS (3)	COUNTRY OF ASSEMBLY (4)	SELLING PRICE (5)			
	PRIMARY				SECONDARY					MODEL	INCLUDED NOZZLE/NEEDLE SIZE, MM	OPTIONAL NOZZLE/NEEDLE SIZES, MM	STRAINER/FILTER ON SIPHON TUBE? (YES, NO)	LENGTH, FEET	WHIP HOSE? (YES, NO)								
	EASE OF ADJUSTING AIRFLOW	EASE OF ADJUSTING FAN WIDTH	QUALITY OF GUN CONSTRUCTION	EASE OF USE	LACQUER	WATER-BASED POLYURETHANE	LATEX PAINT	AIR FILTRATION													HOSE QUALITY/EASE OF USE	SPRAY GUN/HOSE ERGONOMICS	EASE OF CLEANING SPRAY GUN
EARLEX SPRAY STATION 5500	A	N/A	B-	C	C	B	B	C	B-	A	2	C	L0150	2.0	1.0, 1.5, 2.5	N	13'	N	84	Y	1	P	\$300
APOLLO ECO-3 TURBOSPRAY	A	A	A	A-	A-	A-	A	B+	A	A	3	D	E7000	1.3	1.0, 1.8	N	20'	N	79	N	2	U	\$650
APOLLO POWER-3 TURBOSPRAY	A	A	A	A	A	A-	A	A-	A	A	3	D	A7500QT	1.0	.8, 1.3, 1.5, 1.8, 2.0, 2.5	Y	24'	Y	79	N	2*	U	\$900
EARLEX SPRAYPORT 6003-P	A	B-	A	A-	A-	B+	A	B+	B+	A	3	D	PRO 8	1.3	.8, 1.0, 1.5, 1.8, 2.0, 2.5	Y	25'	N	79	Y	2	U	\$550
FUJI MINI-MITE 3 T-SERIES	A	A	A	A	A	B+	A	A	A	A	3	D	T-SERIES	1.3	.8, 1.0, 1.5, 1.8, 2.0, 2.5	Y	31'	Y	78	Y	2	C	\$625
GRACO FINISHPRO 7.0	A	N/A	B	B	B	A	B+	C-	B-	C+	3	C	EDGE	1.3	.8, 1.8, 2.2, 2.5, 2.8	Y	30'	N	76	N	1	U	\$950
TITAN CAPSPRAY 75	A	D	B-	B	B	A	A	C	C	C	3	D	MAXUM II	1.3	.8, 1.8, 2.2, 2.4, 2.6	N	25'	N	77	Y	4	U	\$900
APOLLO ECO-4 TURBOSPRAY	A	A	A	A	A	A-	A	B+	A	A	4	D	E7000	1.3	1.0, 1.8	N	20'	N	81	N	2	U	\$750
FUJI Q4 PLATINUM	A	A	A	A	A	A	A	A	A	A	4	S	T-SERIES	1.3	.8, 1.0, 1.5, 1.8, 2.0, 2.5	Y	31'	Y	72	Y	2	C	\$1,050

- A Excellent
  - B Good
  - C Fair
  - D Poor
  - N/A No adjustment on this model
- (C) Combination filter: single filter for spray and cooling air  
(D) Dual filters: separate filters for spray and cooling air
- (\*) 3 years upon online registration
- (C) Canada  
(P) Poland  
(U) United States
- Prices current at time of article production and do not include shipping, where applicable.

**What to pay to spray**

When keeping a strictly apples-to-apples comparison among three-stage HVLP systems, two models rose above the field: the Apollo Power-3 Turbospray (\$900) and the Fuji Mini-Mite 3 T-Series (\$625). They share Top Tool honors. Both systems performed superbly in nearly every test, and either would make a great finishing partner in your shop. The Mini-Mite also wins our Top Value award for being a top performer for the second-lowest price among three-stage models.

But if you should need the added power of a four-stage system—especially for paint—spend a little extra and get the Fuji Q4 Platinum system (\$1,050). (Although we did not test Fuji's Q3 Platinum system [\$900], Fuji's Mark Rosin said it's exactly the same as the Mini-Mite 3, but with the quiet performance of the Q4 turbine.)

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