



Spray Finishing with HVLP

Finishing is often the “make it or break it” part of the project. Many of us have a fear of ruining the piece that we just spent hours completing. Let’s try and find a way to save time, get a better professional finish, and enjoy the process.

Welcome to spraying with high volume, and low pressure: HVLP

What is High Volume , Low Pressure? First we have to differentiate between an HVLP conversion gun that attaches to a compressor, and an HVLP system that comes with its own air supply turbine.

If you try and use an HVLP conversion gun for your compressor, you will have to deal with the **moisture issue** that is created when air is compressed. The last thing you want with finishing is a water contamination, particularly if your spraying a solvent based product. With a conversion gun you will have to operate at a higher pressure (10-25 psi) than is allowable with an **HVLP system** (2 -6 psi). The higher the pressure, the more overspray! One of the best features of an HVLP system is the **minimal overspray**. Minimal overspray means you can spray indoors, in almost any shop setting without a spray booth!

Another factor to address is volume of air that is required to operate a conversion gun for a compressor. Some guns require more air than your compressor can provide, whereas an HVLP system has the optimum air volume already supplied with the accompanying turbine.

THE AIR TURBINE:

When shopping for an HVLP system, you will see that the different models have different “stages”. There are two stage, three stage, four stage etc. What are the stages? The air turbine will have a fan blade that spins to provide the air. If there are two sets of fan blades, then it is a two stage system, and if there are three fan blades, then it is a three stage system ..etc...The more stages generally means that the unit can supply more air to the gun by spinning at a lower rpm. This means the units will run quieter and probably last longer. The more air in CFM (cubic feet per minute) also means that you can spray thicker material.

Getting started: once the piece has been sanded and prepared for finishing, ensure that the spray material is the right thickness or viscosity.

THICKNESS or Viscosity! This is perhaps the most important factor in the spraying process. If the spray material does not drain through the viscosity cup in the appropriate time, then the material will come out blotchy and the gun will spit and sputter, making a mess.

ALWAYS check the viscosity first! Generally speaking, stains, urethanes, lacquers, varnishes, and dyes are ready to spray right out of the container, however they must be checked first. If the manufacturer of the HVLP system says the optimum viscosity is 60 seconds, then the material **MUST** drain through the viscosity cup (from full to empty) in 60 seconds or less.

Setting the Gun: I like to have the flow control turned completely off, and open it slightly as I apply pressure to the gun trigger. You can then see how much material begins to spray. Adjust according to how much material you want to apply and the type of spray pattern you want.

PAINT: generally paint will have to be thinned. If you’re spraying an industrial enamel, they make require as little as 5% thinning, however, once you venture into water based (latex) paints, you may have to thin 15-20%.

With water based paints, you can thin with water, however you may find you get a better finish using an actual thinning agent specifically made for water based paints. Eg (Flotrol)

Finishes and Air Cap/ Needle and tip

Depending on the material you are spraying, you may want to change the needle and tip in your gun. A gun will often times be equipped with a all purpose needle that can spray both paint and varathane. If you want a finer atomization (smaller droplets) then you will need to obtain a smaller gauge or finer needle and tip. They come as a matched set, so when you change the needle, you will have to change the tip also. Most HVLP manufacturers will give a guide as to what tip is recommended for the variety of material being sprayed.

Water based vs solvent based products:

Pros:

- Non-hazardous
- Lower commercial insurance
- No fire suppression
- Lower VOC emissions
- Better for employee health
- Easier storage
- No solvent for cleanups
- Easier to strip or repair

Cons:

- Requires heat to dry fast
- Cures slower
- Not as durable in some cases
- More labour sanding
- Much harder to sell (to solvent fanatics)

Sources: John E. Goudey (Toronto) available through Herrs in Kitchener and Clancy's Rainbow (London)

Spraying Techniques: Practice first. Prior to spraying the "Grand Piano", practice on some sheets of scrap wood or a piece of cardboard to make sure that the flow rate and spray pattern are appropriate.: **arm movement:** use your arm, not your wrist. Keep the gun moving and release the trigger after each pass, past the piece you're spraying

Distance from material 6-8inches.....sometimes you can get orange peel if you are too far away.....come in to the 6" distance

Wood Types: remember that different woods will absorb the finish at various rates. Oak will absorb much differently than the tight grained maple. It takes practice to get a piece of maple to absorb the stain evenly!

Turntable: if you can lay a piece that you're spraying on a turntable or Lazy Susan, you'll find you can spray much faster and easier.

Light: always have a bright a light source as possible shining upon the piece that you're finishing. This comes in particularly handy when you're putting on a second coat, or if you're spraying white on white. Sometimes it's difficult to see how much is being applied unless you have lots of light.

Resources: check out these links for finishing tip:

- www.finishwiz.com/viscosityand wetmils
- www.ronbryze.com/spray_application
- www.finishwiz.com/orangepeel.htm