

SPRAY TECHNIQUES

From *The College of Wood Finishing Knowledge* by Ron Bryze

There are two parts to a perfect finish, product and application. Assuming that you have selected the best finish for the job and adjusted its viscosity, now all you need to do is get it onto the wood.

The desired effect is a thin even film on the surface of the wood. You spray a wet edge and then move it across the surface, keeping it wet enough so that everything flows together without excessive build up that could lead to runs or sags. The amount of material coming out of the gun, the distance you hold it from the wood surface and the speed that you move it will combine to determine how much finish you lay down. A situation could arise that you may find the need to vary one of these elements, and yet compensate with the other two and get good results. For the most part you want to leave 4-5 wet mils of finish on the wood.

You can adjust the width of the fan to determine how long of a wet edge you want to create, and also the amount of material that flows out into that fan shape at any given time. The wider the fan the more material that needs to flow out of the gun. The greater the flow, the faster you have to move the gun. Keep in mind that a spray gun is a precision tool. Material comes out very evenly across the length and width of that fan. If you tilt or arc the gun as you move across the wood you will not be applying an even coat. You have to keep the gun at a right angle to the work, horizontally as well as vertically. For any given flow of material, wet film thickness is determined by the distance of the gun and speed that you move it across the surface.

When spraying you lock your wrist so that the gun addresses the wood at the correct angle and then use your elbow, shoulder, trunk and legs to move the gun over the surface at the correct distance from the wood. A major problem that finishers have to overcome is that the angle that you have to hold the gun at is un-natural and can put a strain on the wrist and forearm. You have a normal tendency to want to swing the gun from your shoulder. This windmill action will result in less coating being applied at the beginning and end of a pass.

Always start spraying closest to your body and move the wet edge from left to right and advance it towards the booth; that way any overspray that lands on the wood is re-dissolved by the new wet edge. Spray your edges first so that any overspray that lands on the face and gets re-melted. Some people make a pass around the perimeter of the face of the piece before spraying the surface. This is called "boxing". As you spray overlap your passes by 50%.

When spraying a flat piece some like to use a "box coat". This is where you make your first pass across the grain and your second pass with the grain. When you are shooting clears I don't think it makes a difference if you use a box coat or just spray both passes either with or against the grain. When spraying a color it does help you avoid stripes. Sometimes you simply have no choice in how to spray a piece as there may be only one way that you can get at it.

The triggers on Conventional and HVLP guns have two positions. As you start to pull the trigger, only air comes out the tip. As you continue to pull the trigger the material flows and gets atomized by the air stream. As you spray an object pull the trigger to the first position and let the air flow. Right before the gun comes to the edge of the object pull the trigger to position number two and let the material flow. Right after the gun reaches the end of the object let off the trigger until you only have air flow again. Throttling the material on and off saves material and helps to keep the material from building up on the air cap. By letting the air continue to run thru the tip you blow off any build up on the tip help keep it clean. This technique takes a little getting used to, but after a while it becomes second nature.

SOME THINGS TO CONSIDER

- Before you pull the trigger, consider how the work is presented to you for spraying.
- Always figure out where you are going to begin and most importantly, where you are going to end.
- For three dimensional items choose your spray sequence so as to get the least amount of overspray on an already sprayed surface.
- For a very complex piece you may actually have to spray certain sections and then mask them off before spraying other areas. Just make sure that the sections are thoroughly dry before masking them off and then carefully remove the masking right after spraying to avoid pulling the finish off.
- For smaller parts and doors generally most people use a turntable. Is it at a comfortable height so you don't have to hold your arm in an even more un-natural position than normal?
- Some people use two turntables. The finisher moves between the two turntables spraying the parts, while an assistant loads and unloads them with parts. Once the two people synchronize their movements they can spray a large amount of parts in a relatively short time this way.
- Larger pieces are usually placed on carts or dollies and rolled in and out of the booth. Wheels also make it easier to spin the piece to avoid having any overspray being dragged by the draw of the booth across an already wet surface.
- When spraying large or long pieces, watch the placement of your hoses. I find it best to feed the hoses from the spot where I am going to end up at. That way you know you have enough hose length before you start and don't run out in the last two feet. I think it also makes it a little less likely that a hose will get snagged and causing you stall in one spot. This leads to a very wet spot and probably a run.
- Sometimes you have to set larger pieces, or long mouldings, up on saw horses to be sprayed. Try to get as much of the piece into the booth to help contain your overspray.
- I have seen people set parts up on tables or saw horses all over their spray room and the walk around the room and spray them in place. This is a very fast way of doing things, but you run a much greater risk of getting dirt or overspray on your finished parts. Your overspray falls onto the floor or other pieces in the room and is not contained by the booth. Not only do you run the risk of kicking it back up into the air when you move around or hit it with air currents, you can easily overload the room with vapor and make it a pretty dangerous place. Spray in the booth, that's what it's for.
- If you are spraying a wide piece, try to make sure it is placed low enough so that you can bend from the waist to stretch over it. Watch your hoses so they don't droop onto the surface. Always hold your hoses with your free hand. Wipe the dust off of them before holding them over a piece about to be finished.
- When spraying a large piece make sure you have enough material in the gun or tank so you don't run out before you reach the end.
- Spray dyes and washcoats at 10-30 psi, just enough pressure to atomize the product.
- The higher the viscosity the material, the larger the fluid tip.
- As you decrease the size of the fan, decrease the material flow.
- To avoid runs when spraying a vertical surface, spray on a light coat first giving it 30-40 seconds to tack before applying a second heavier coat.
- To reduce the possibility of bubbles spray thin coats and avoid drafts.
- To clean, loosen the air cap and spray thinner through the gun at about 5psi.
- Normal cleaning does not require the removal of the needle valve.
- Leave thinner in your hose after you clean the tank to keep any material left lining the hose from drying out and then flake off when you put in your next batch of finish.
- Never soak the entire gun in thinner. The first inch of the head is all you need to get wet.
- Soak your air caps in some thinner when you are not using them for any length of time. Blow out with some air before re-installing on the gun.
- A one gallon paint can fits nicely inside a two gallon tank. Pull it out and put a lid on it when you are done. Makes clean up easy. Keep clean up thinner in another can; drop it in and blow out the line.

THE DANCE

I have had the opportunity to watch many great finishers work and it is a thing of beauty. There is a sublime economy of motion and touch of grace in their movement. When you have a team of people in a finish room and they get into the flow of what they are doing, I liken it to a dance. You see a constant state of motion, none of it wasted. Each member feeding off the others cues; a point of a finger, a nod of the head, nary a word spoken for none can be heard over the roar of the booth and the hiss of the gun. Parts moving in, parts moving out. A well tuned machine whirling in purposeful, fluid movement.