12 Common HVLP Questions

How does HVLP differ from conventional air spray?
HVLP utilizes the volume of air available at the air cap rather than pressure to atomize. You will notice that all the orifices in an air cap are larger in an HVLP air cap in order to allow the volume to pass. HVLP air pressures are lowered internally in the spray gun air passages. Conventional air spray gun will normally have the same pressure at the air cap that was input to the spray gun.

If HVLP means High Volume Low Pressure, why am I using High Pressure (40 to 80 psig) at the gun inlet?
When using compressed air, the lower the pressure, the smaller the volume of air available. For example, air compressed to 40 psi contains 5 times the original amount of volume. Air compressed to 100 pounds contains 8 times the original volume. Obviously at 10 psi to the spray gun inlet, very little volume would be available for atomization.

Is HVLP available for all fluid feed systems (suction, gravity & pressure)?
Yes. Keep in mind that a suction feed gun depends on pressure at the fluid tip/air cap junction to create a negative pressure in relation to the cup atmospheric pressure. When using HVLP with 10 psi or less at the air cap, very little suction is created. Use only low viscosity materials with an HVLP suction feed gun

Are other HVLP technologies available?
Yes. Industrial HVLP guns are commonly called conversion HVLP guns. They use higher pressure air and convert it inside the spray gun. Another form of HVLP is the turbine unit. Turbines are more typically used in architectural or commercial applications. (Think of a shop vacuum in reverse)

Is HVLP required in all industries?
Not at this point in time. Even though some federal regulations restrict the use of conventional air spray guns, it is typically only required for "major emitters" as defined by the enforcing agency. Keep in mind that any local jurisdiction may have their own requirements (ie. Southern California)

Is it possible to exceed 10 psi at the air cap?
Yes. HVLP air caps are typically rated for a maximum gun inlet pressure to achieve 10 psi at the air cap. For example if 50 psi inlet achieves 10 psi measured at the air cap, then an inlet pressure of 60 psi would exceed 10 psi at the air cap.

How can I be sure I do not exceed 10 psi at the air cap?
1. Operator training
2. Use an air cap test kit to measure the pressure at the air cap

Do I need to use 10 psi at the air cap in order to atomize?
Not necessarily. Use only enough air pressure (determines atomization quality) and fluid pressure (determines production capability) to do the job. Any pressure higher than that will increase over spray and lower gun efficiency

Are all HVLP guns the same?
No. Just like conventional guns, HVLP guns are available in different feed methods, production and atomization capabilities.

Can I interchange air caps on HVLP guns?
Yes and no. It depends on the manufacturer and gun model

What are some reasons HVLP might not work?
Not enough air supplied. Restrictive quick disconnects and small inside diameter air hose are the common culprits. Additionally undersized compressors and low cfm regulators may cause problems. Another problem is not matching the equipment to the application. For example, trying to use a lower cfm air cap to spray high volumes of coatings.

Is operator technique different for HVLP
Spray gun to part distance typically is reduced to 6"-8" for HVLP compared to 8"-10" for conventional air spray guns