

## Does Water Do the Job On Its Own? Session Questions and Answers

**Q: What is the smallest gap height that DI water can penetrate?**

**A:** It depends on the cleaning parameters. Bio cleaning temperature helps to reduce surface tension a little bit, but not a lot. The combination of spray pressure and the type of spray nozzles will decide whether its able to get into specific air pipe. In general, coherent nozzle with high spray pressure will help a lot. We have tested DI water cleaning on 25 mils gap height in our lab. It could still get in, but the cleaning rate is very slow and not able to meet costless product requirements.

**Q: Is it okay to add surfactant into DI water to fix the gap height challenge?**

**A:** It is good for the first fresh bath, but the cleaning process with any spray-in-air machine is a very dynamic cleaning process. You have high loss from exhaust so the wash bath should be repressed by fresh DI water very often to keep the cleaning capability. It's harder for you to monitor and maintain the concentration of surfactant in the wash bath; that also means you won't have a stable cleaning performance.

**Q: What is the typical spray pressure for cleaning flux residue with less than 2 mils gap height by DI water?**

**A:** For fan-jet nozzle, typically the spray pressure is spraying from 80 PSI to 100 PSI. For coherent, it is from 60-80 PSI. These are very common spray pressures that are used in the field for the tiny gap height cleaning.