

Troubleshooting Edge Quality

The purpose of this document is to provide the user with a quick means of deciphering cutting problems and offering potential solutions to resolve them. The pictures shown below represent some of the more common cut-quality related problems that the typical user may encounter. There are many variables in laser cutting and it would be difficult to list all possible resolutions to the vast array of cutting issues that come up. However, shown below are groups of pictures that depict particular problems, followed by what variable is set incorrectly. With the exception of the (1) improperly set variable, all other settings are correct, and were used to produce the quality shown in the pictures entitled "Good edge".

Mild Steel [Good edge - .500 mild steel](#)

[Good edge - .250 mild steel](#)

[Focus too shallow - .250 mild steel](#)

[Focus too shallow - .500 mild steel](#)

[Focus too deep - .250 mild steel](#)

[Focus too deep - .500 mild steel](#)

[Gas pressure too low - .375 mild steel](#)

[Gas pressure too high - .375 mild steel](#)

[Cutting speed too slow - .375 mild steel](#)

[Cutting speed too fast - .375 mild steel](#)

[B/O value too low - .375 mild steel](#)

[B/O value too high - .375 mild steel](#)

[Oxygen runaway - .500 mild steel](#)

Stainless Steel [Good edge - .250 stainless](#)

[Good edge - .375 stainless](#)

[Gas pressure low - .250 stainless](#)

[Gas pressure high - .250 stainless](#)

[Cutting speed too slow - .250 stainless](#)

[Cutting speed too fast - .250 stainless](#)

[B/O value too low - .250 stainless](#)

[B/O value too high - .250 stainless](#)

[Nozzle too small - .250 stainless](#)

[Focus settings - .125 stainless](#)

Aluminum [Good edge - .125 aluminum](#)

[Good edge - .250 aluminum](#)

[Good edge \(dross removed\) - .250 aluminum](#)

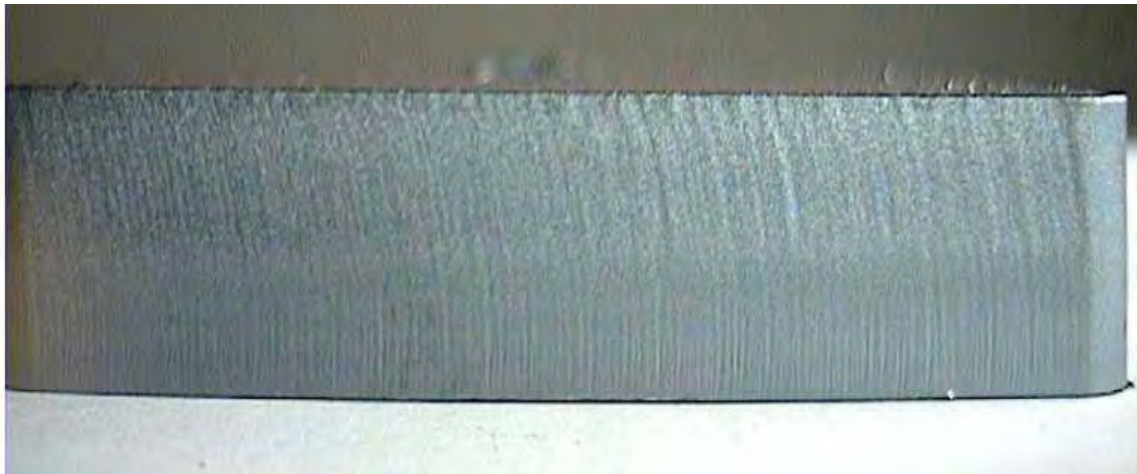
[Focus too shallow - .250 aluminum](#)

[Focus too deep - .250 aluminum](#)

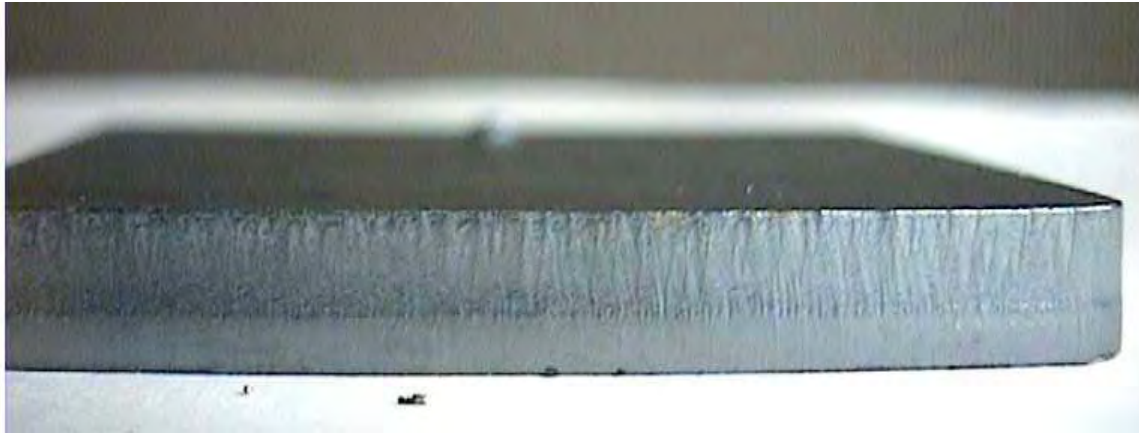
[Gas pressure too low - .250 alum](#)

[Cut speed too slow - .250 alum](#)

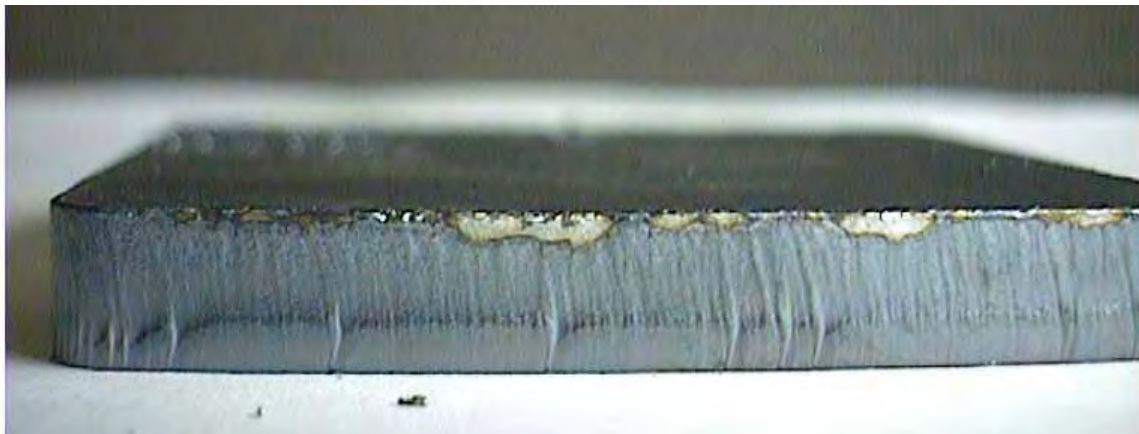
[Nozzle too small - .250 alum](#)



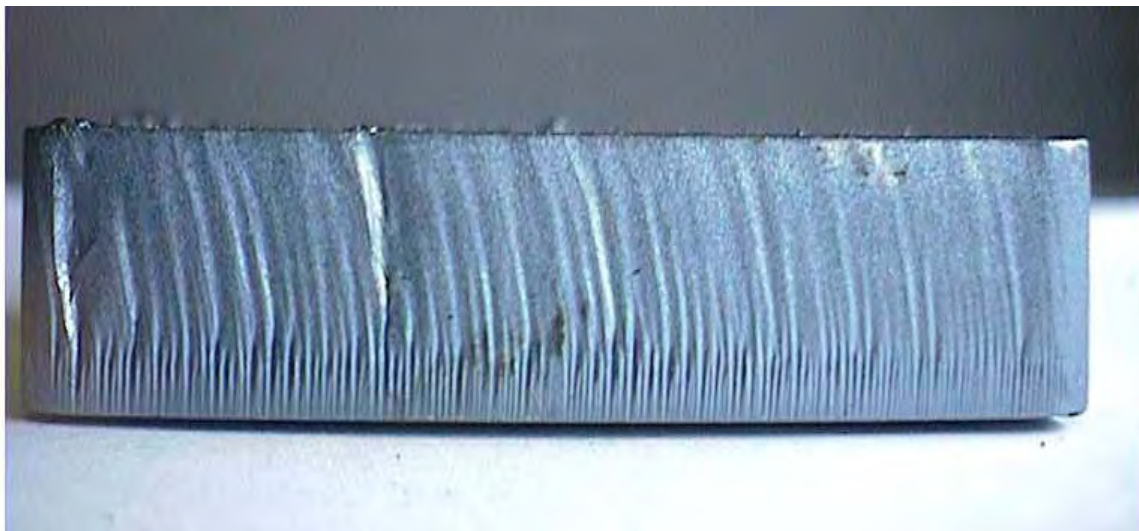
Good edge - .500 thick (double nozzle)



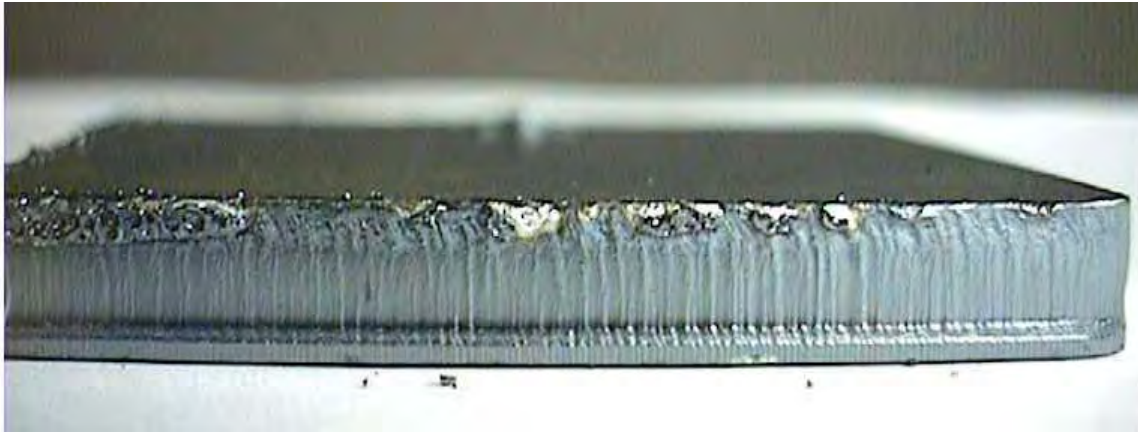
Good edge - .250 thick (1.2mm nozzle)



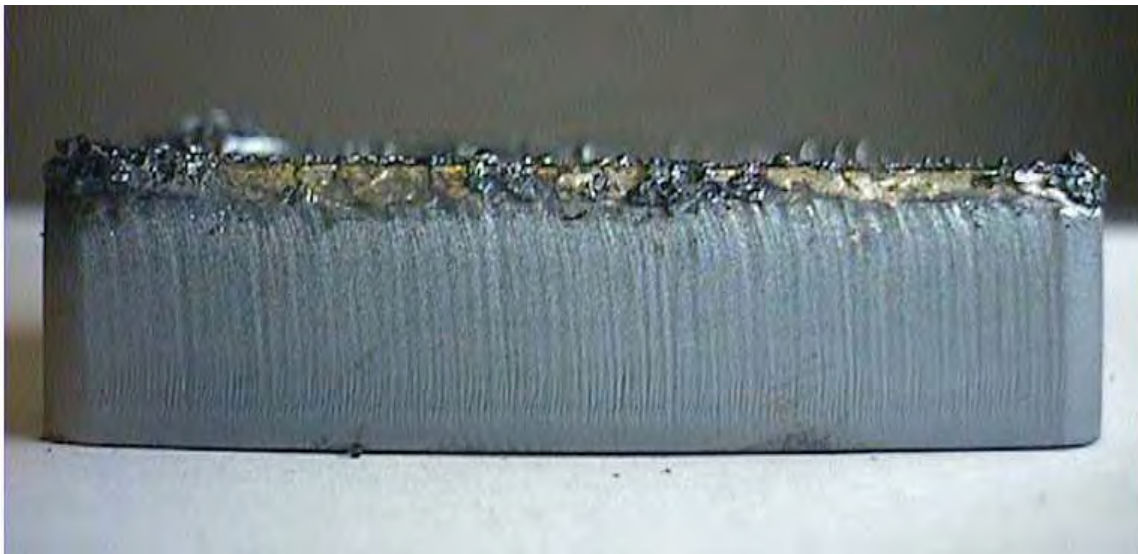
Focus too shallow - .250 thick (1.2mm nozzle)



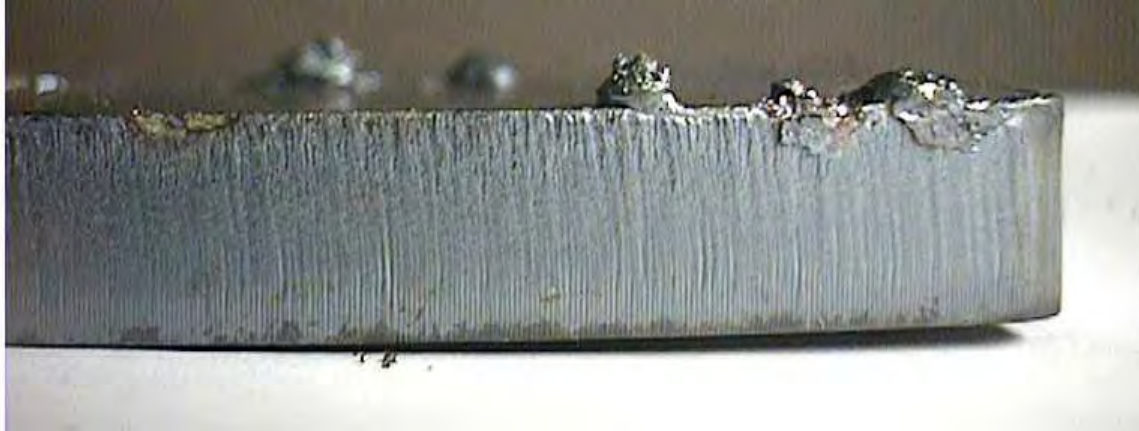
Focus too shallow - .500 thick (double nozzle)



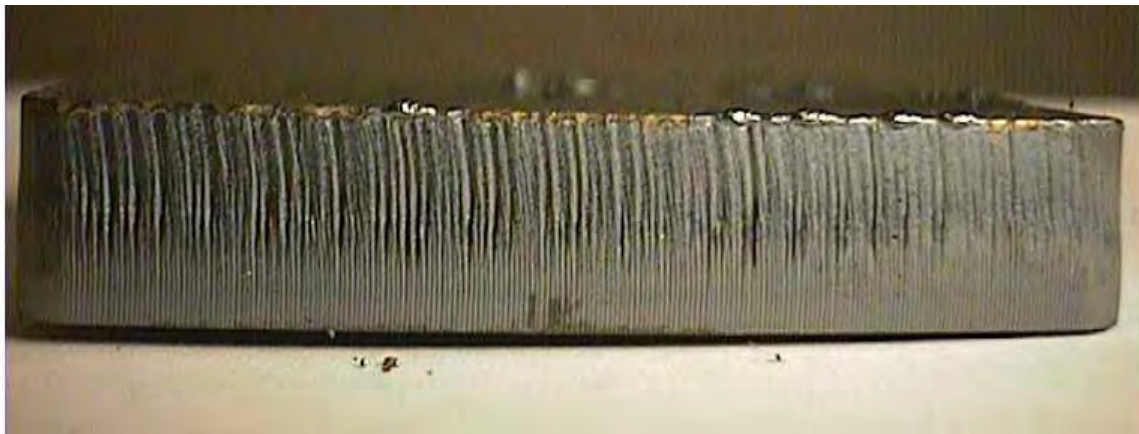
Focus too deep - .250 thick (1.2mm nozzle)



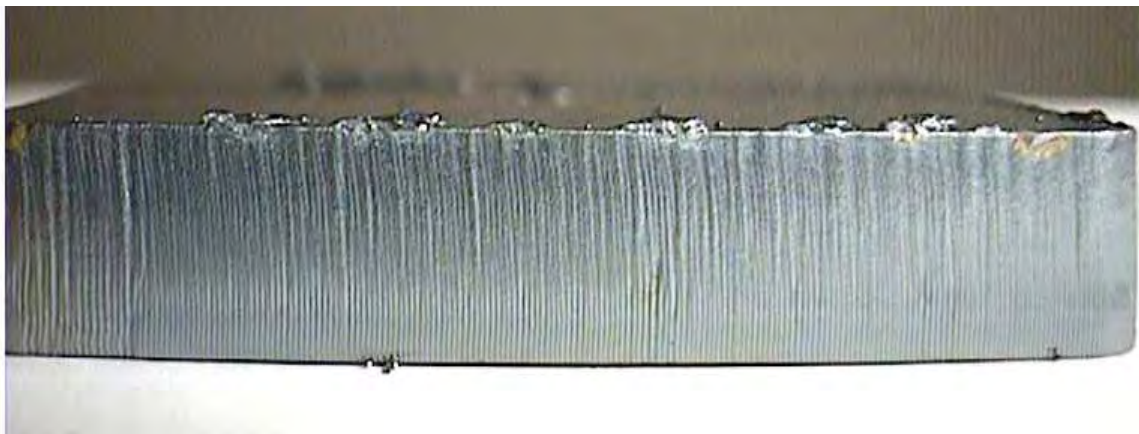
Focus too deep - .500 thick (double nozzle)



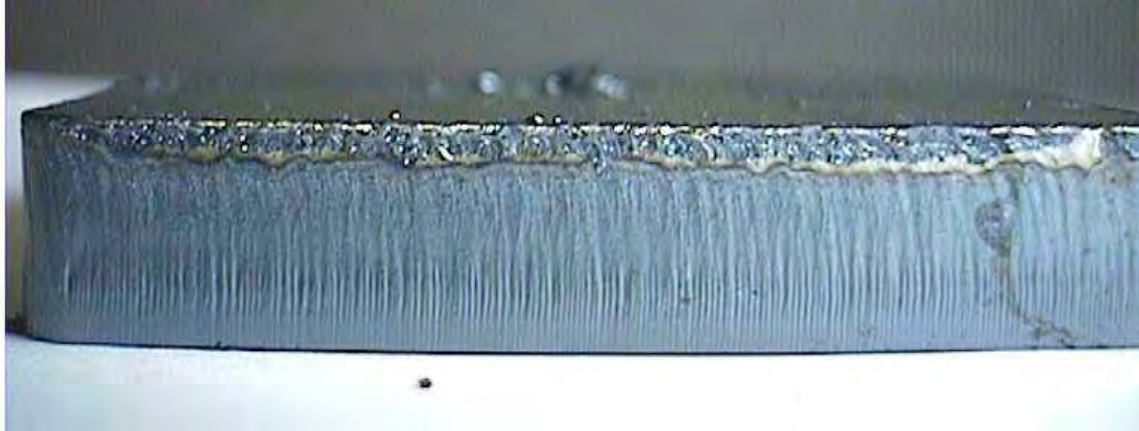
Gas pressure too low - .375 thick (1.2mm nozzle)



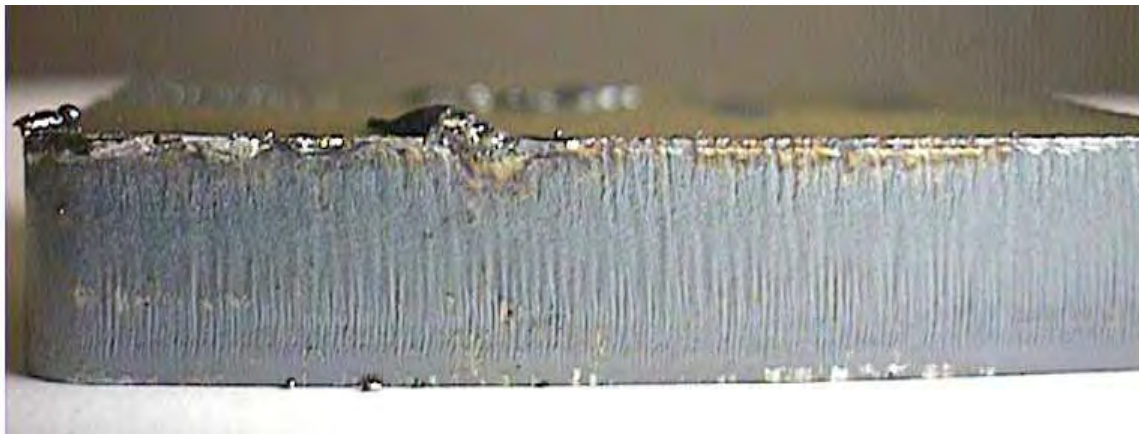
Gas pressure too high - .375 thick (1.2mm nozzle)



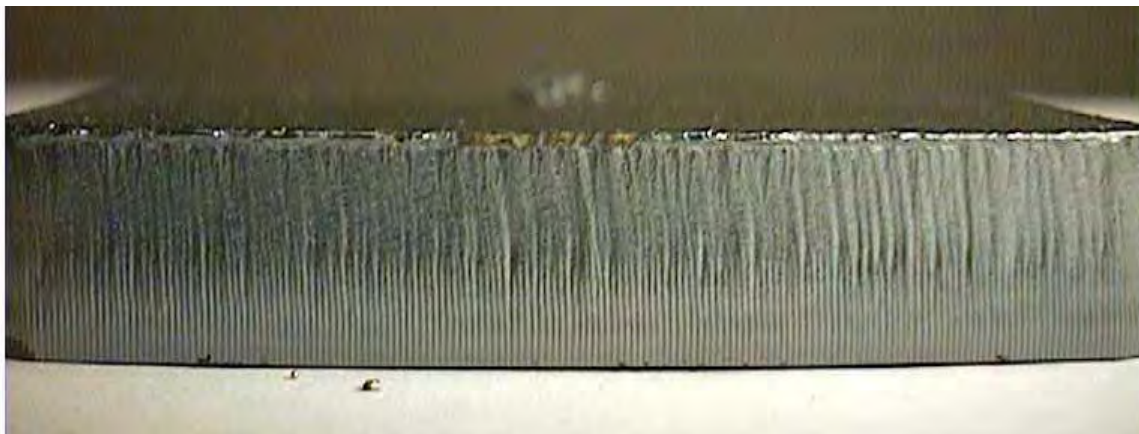
Cutting speed too slow - .375 thick (1.2mm nozzle)



Cutting speed too fast - .375 thick (1.2mm nozzle)



B/O value too low - .375 thick (1.2mm nozzle)



B/O value too high - .375 thick (1.2mm nozzle)



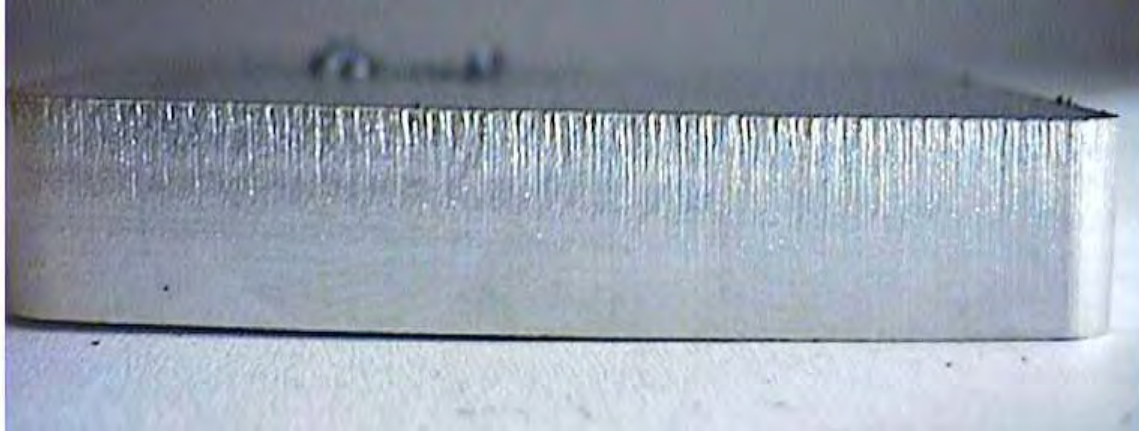
Oxygen runaway – nozzle too large or gas pressure too high (.500 thick - double nozzle)



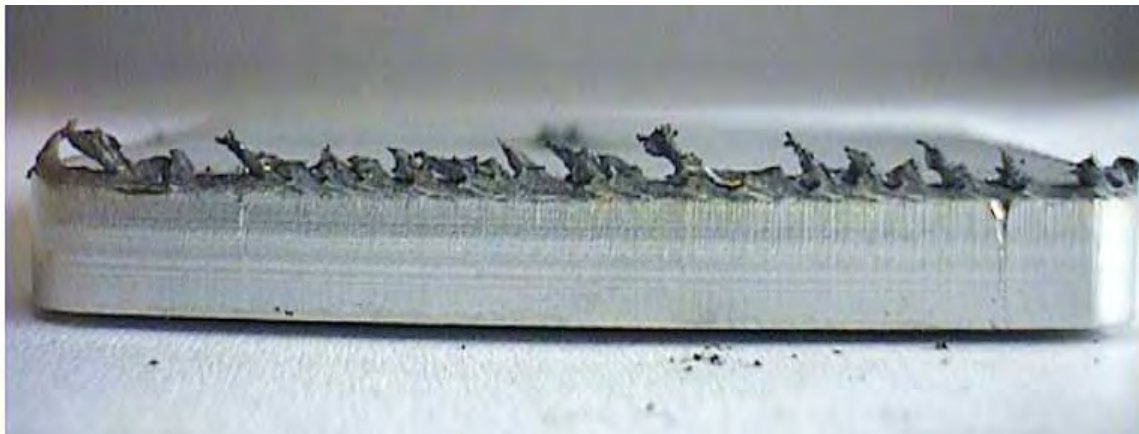
STAINLESS STEEL



Focus just right - .250 thick



Focus just right - .375 thick



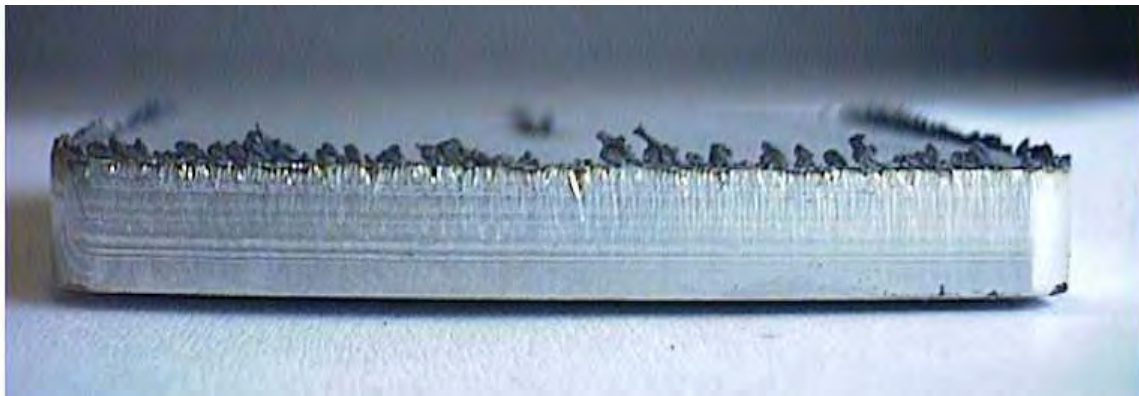
Gas pressure low - .250 thick



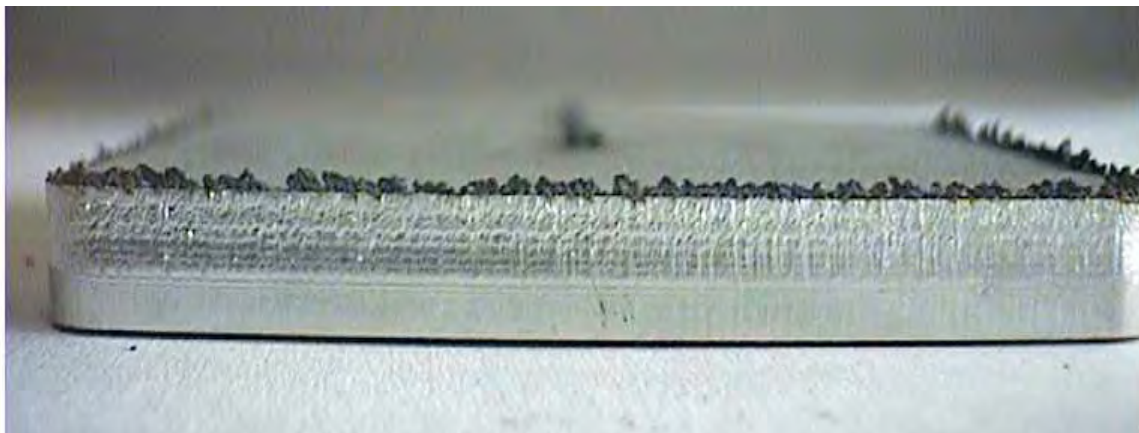
Gas pressure too high - .250 thick



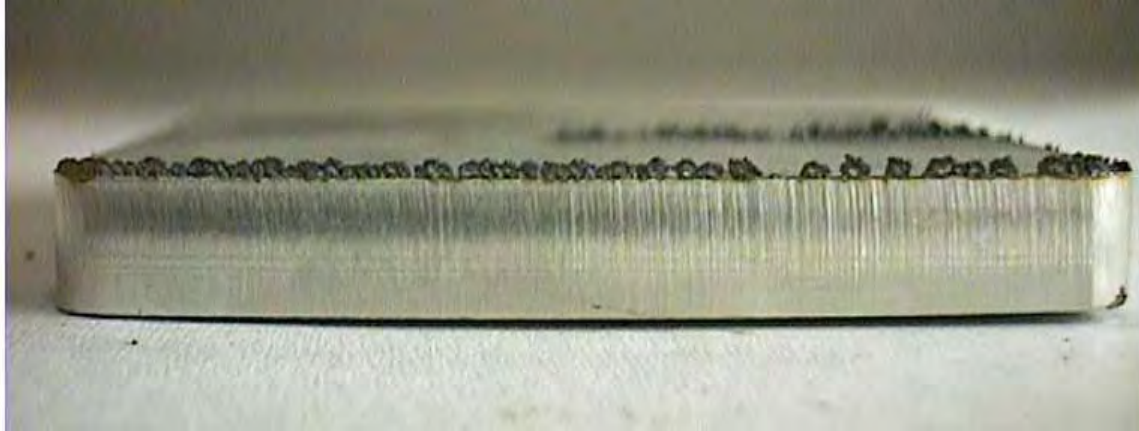
Cutting speed too slow - .250 thick



Cutting speed too fast - .250 thick



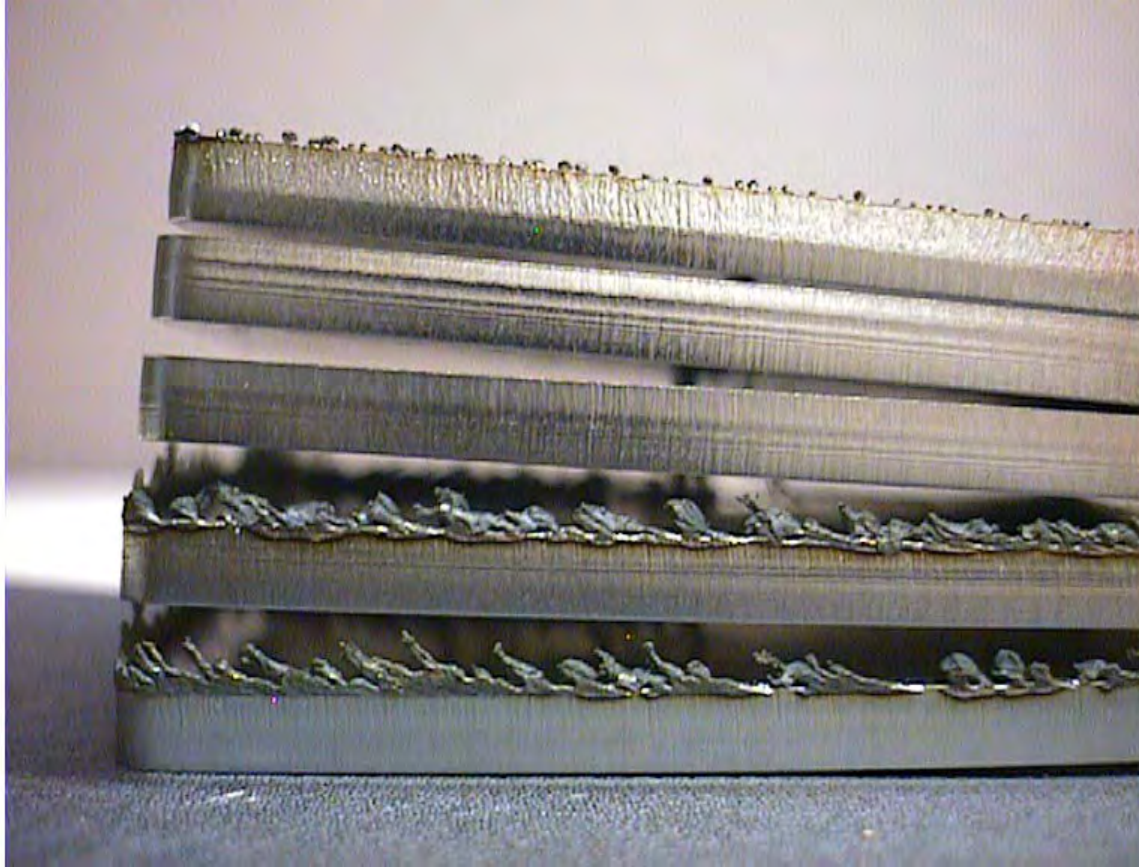
B/O value too low - .250 thick



B/O value too high - .250 thick



Nozzle too small - .250 thick



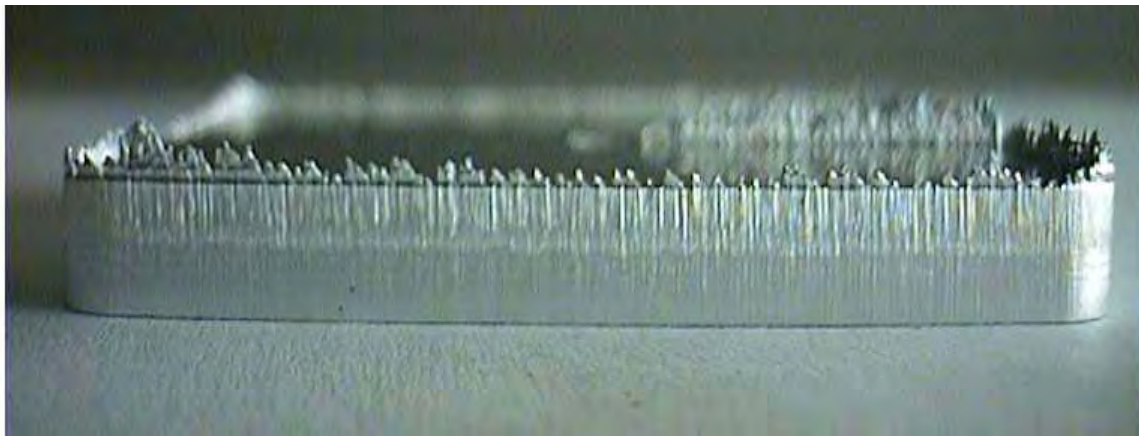
Focus settings - .125 thick. From top of pile to bottom:

- Focus: -.270
- Focus: -.200 (good)
- Focus: -.170 (best)
- Focus: -.135
- Focus: -.100

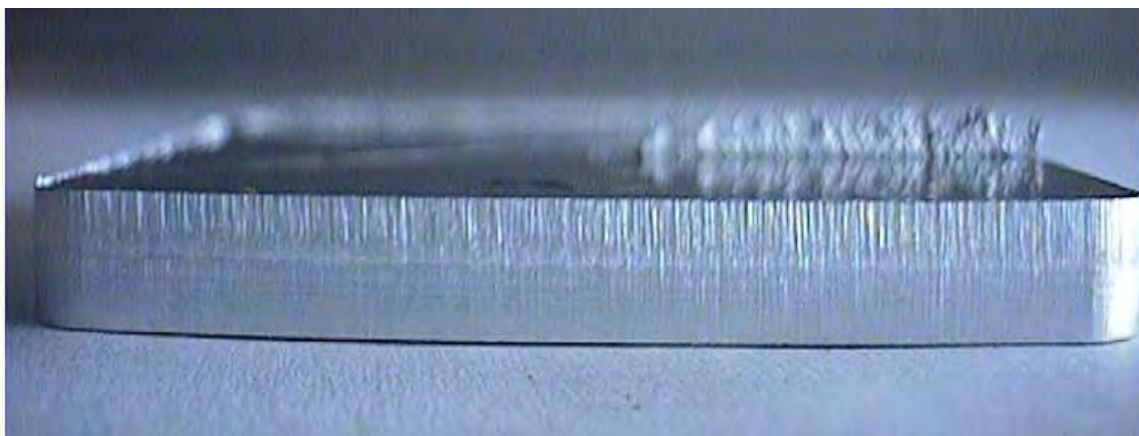
ALUMINUM



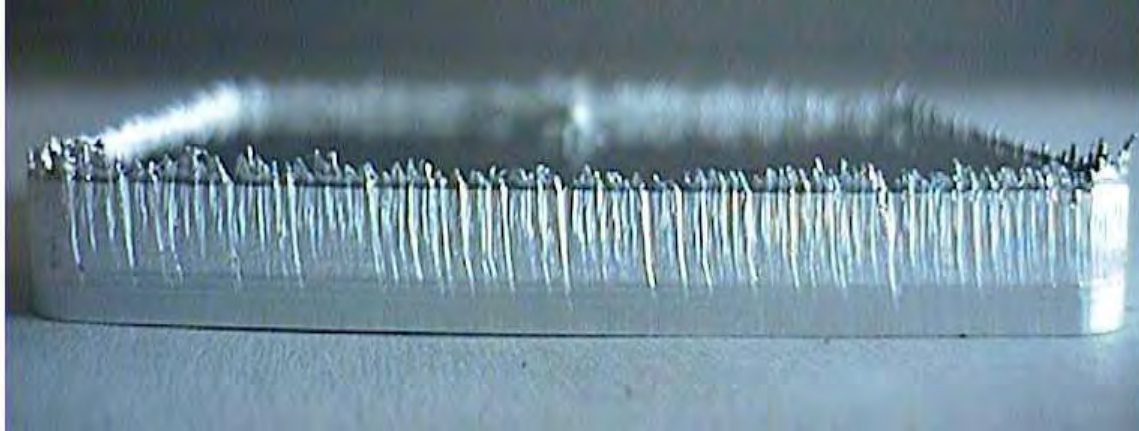
Focus just right - .125 aluminum



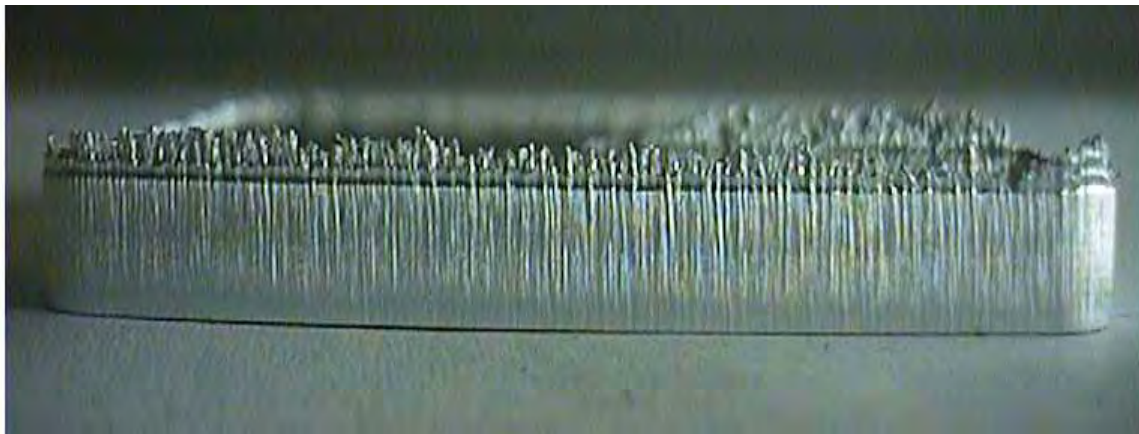
Focus just right - .250 aluminum



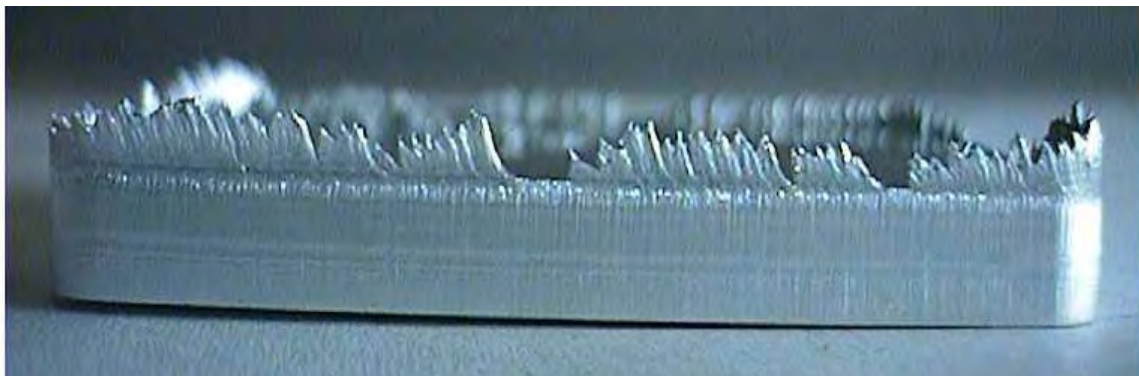
Focus just right (dross removed) - .250 aluminum



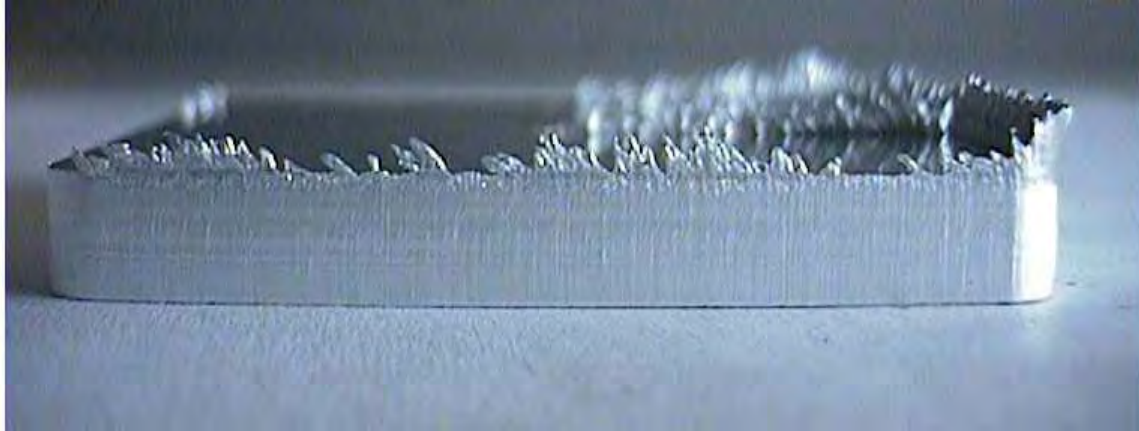
Focus too shallow - .250 aluminum



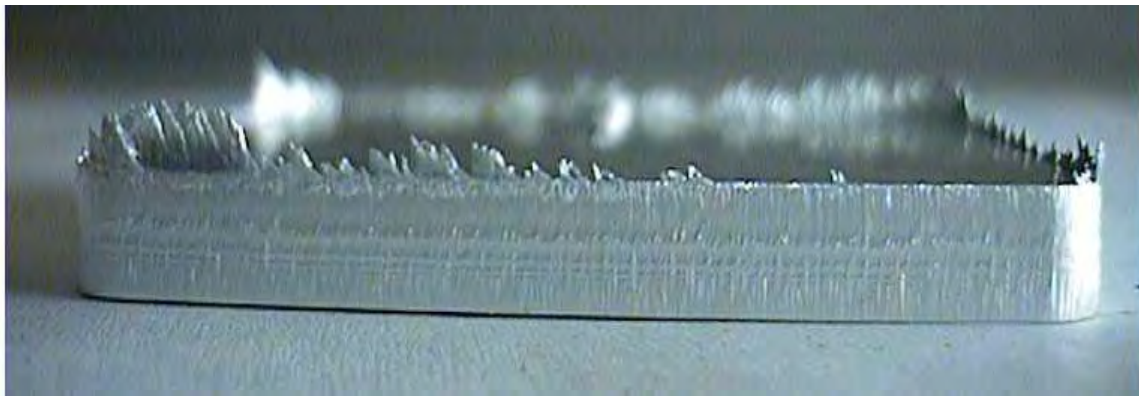
Focus too deep - .250 aluminum



Gas pressure too low - .250 aluminum



Cutting speed too slow - .250 aluminum



Nozzle too small - .250 aluminum