

Laser Cutting

sheriff 2020

Three (3) Variables

- Power (P)

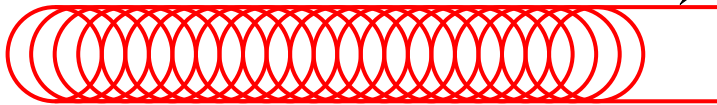
User defined % of the laser wattage used

- Speed (V) for velocity

- Pulsing (Hz)

< Speed and Hz relate to each other

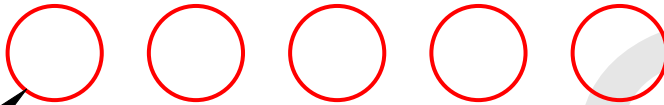
Good



Laser cut line (Kerf)

75% over lapping pulses = desired for clean cutting
Speed is slow enough OR Hz is set high enough

Bad



Single laser pulse

Result is a dotted line
Speed too high OR Hz is too low

Rule of Thumb for Beginners:

1% speed or less = 1,000 Hz

2% speed = 2,000 Hz

3% speed = 3,000 Hz

4% speed = 4,000 Hz

5% or higher = 5,000 Hz

Note:

Hz range is 1,000 Hz to 60,000 Hz

Lower Hz = more Peak Power = (piercing and cutting)

Higher Hz = more pulsing = more burning

Where to Start :

80 watt laser

2" lens

small hole nose cone with max air flow

.125" material - 90% power, .5% speed, 1,000 Hz

.25" material = 90% power, .35% speed, 1,000 Hz, Z offset -0.1"

Result:

If too much burning - Increase Speed OR Reduce Power

If not cut through - Decrease Speed OR Increase Power