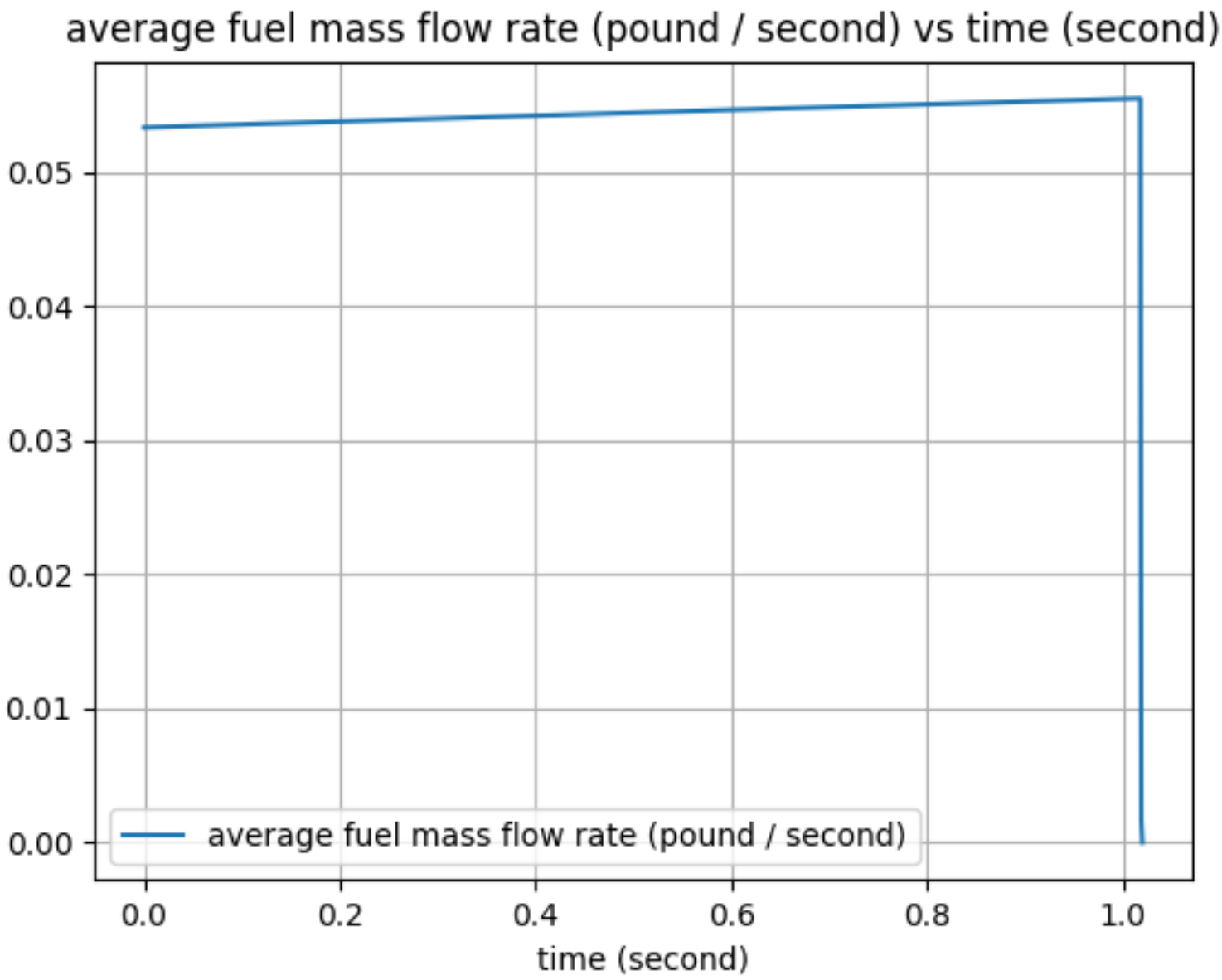
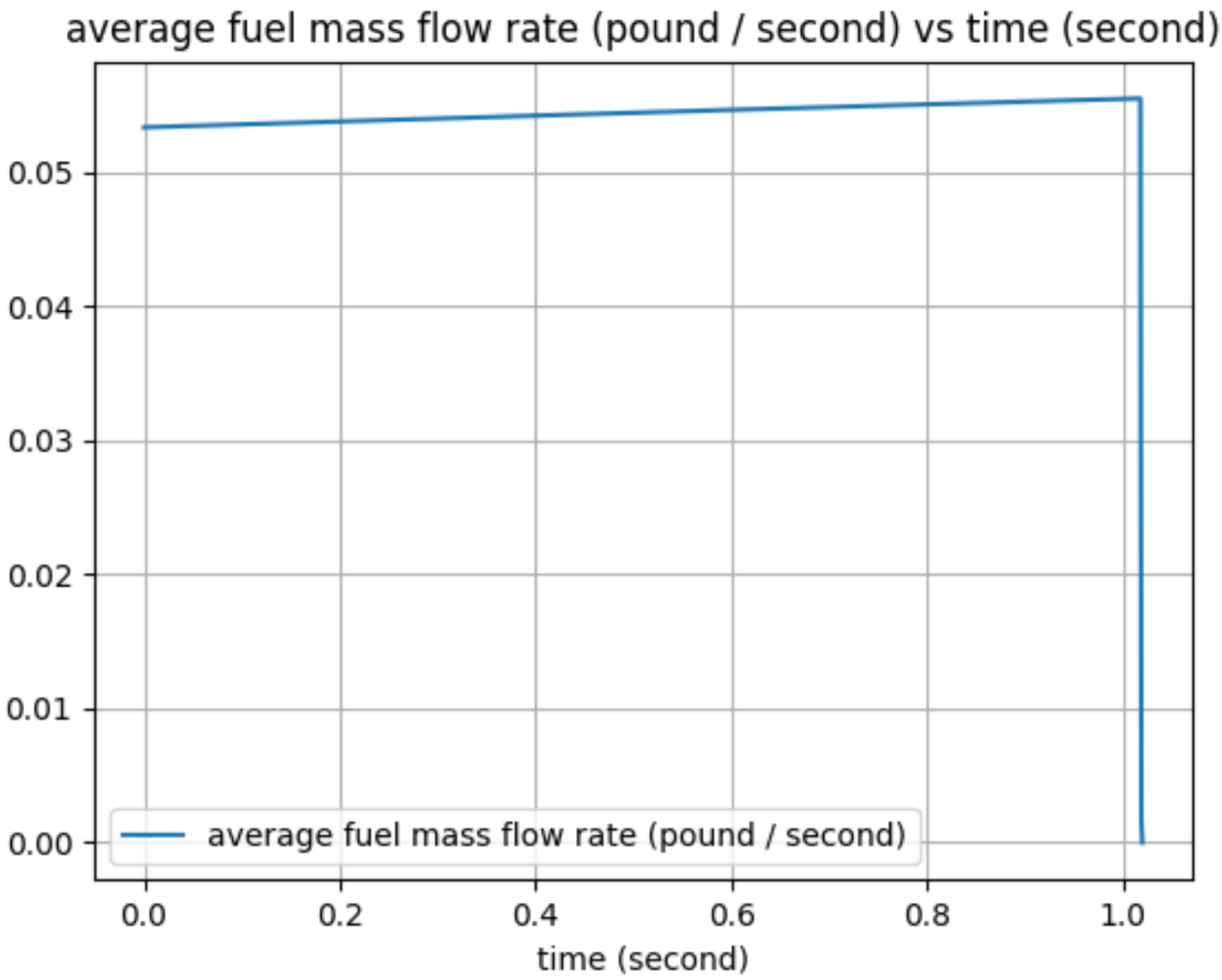
Simulation Inputs:

a: 35.1535 inch ** 2 / pound
n: 0.65
m: -0.2
Initial Oxidiser Volume: 1 liter
External Temp: 85 degF
Grain Diameter: 1.7500 inch
Initial Port Diameter: 1.2 inch
Port Length: 15 inch
Fuel Density: 0.000143 pound / inch ** 3
Injector Mass Flow Rate: 0.3307 pound / second
Number of Injectors: 1
Ideal O/F Ratio: 4.83
Time Step: 0.001 second

Simulation Results:

Total Burn Time: 1.021 second
Impulse: 521.19 newton * second
Average Thrust: 510.47 newton
Motor Code: I
Motor: I510


average fuel mass flow rate (pound / second) vs time (second)
0.05
0.04
0.03
0.02
0.01
0.00
average fuel mass flow rate (pound / second)
0.0
0.2
0.4
0.6
0.8
1.0
time (second)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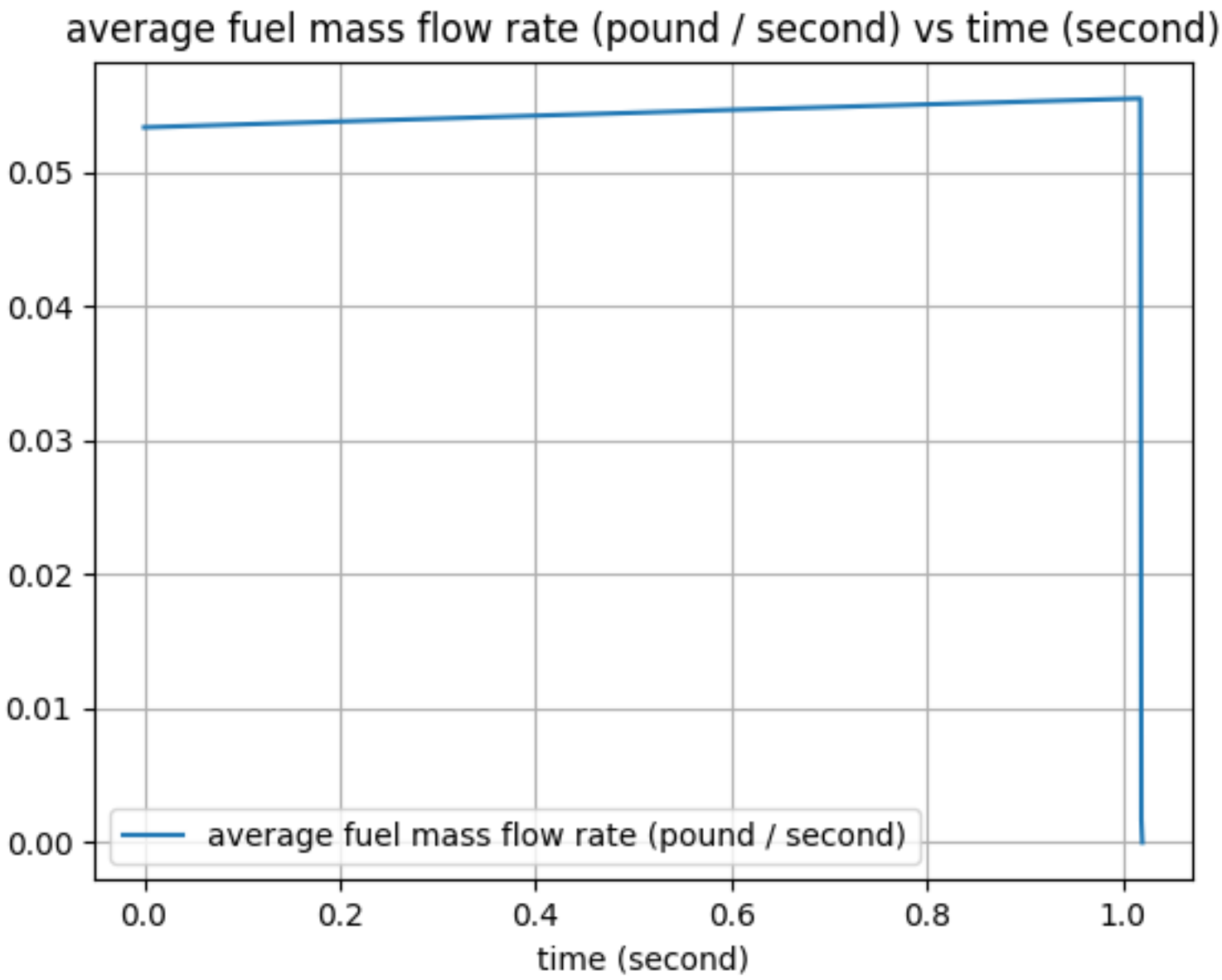
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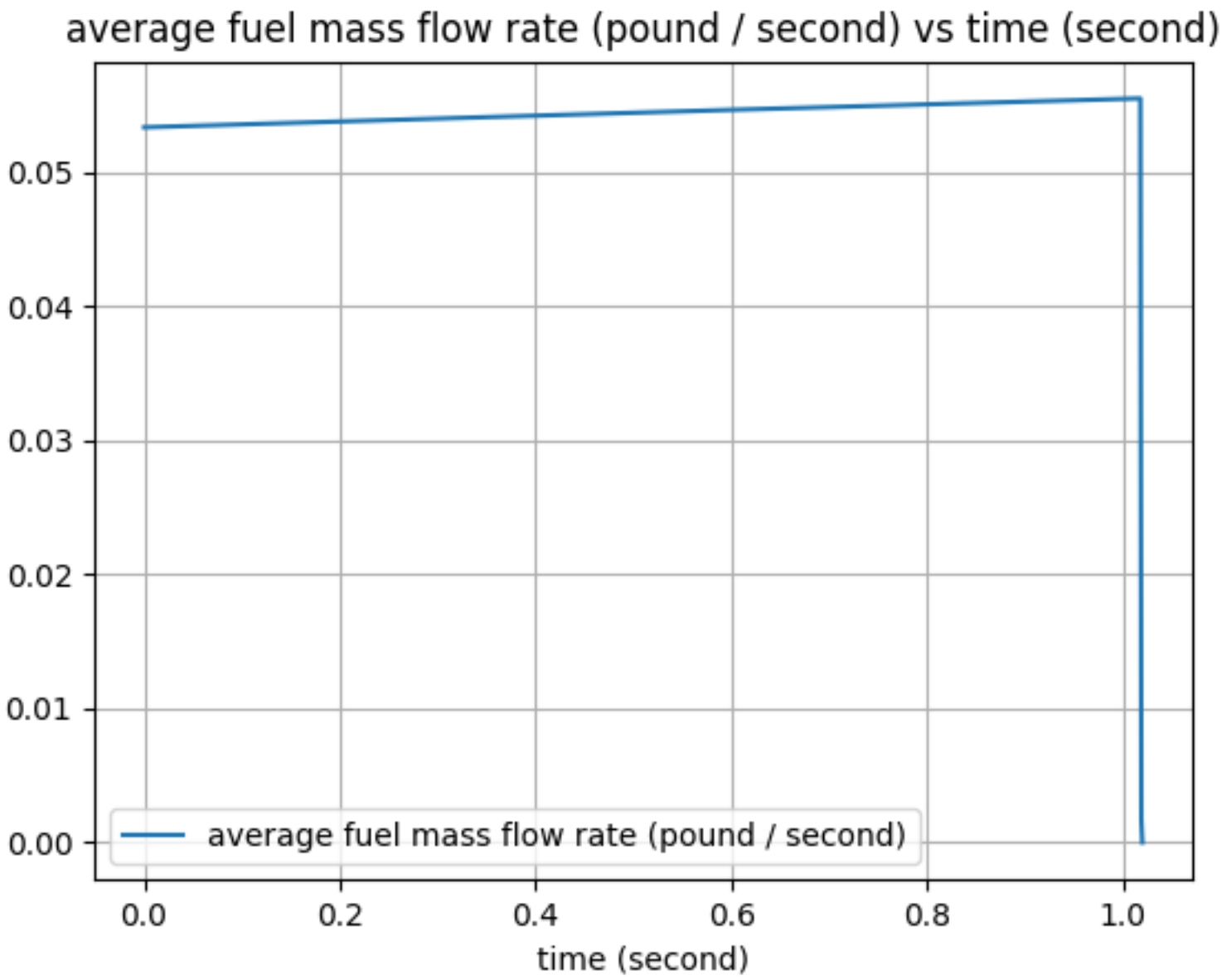
0.6
0.8
1.0
time (second)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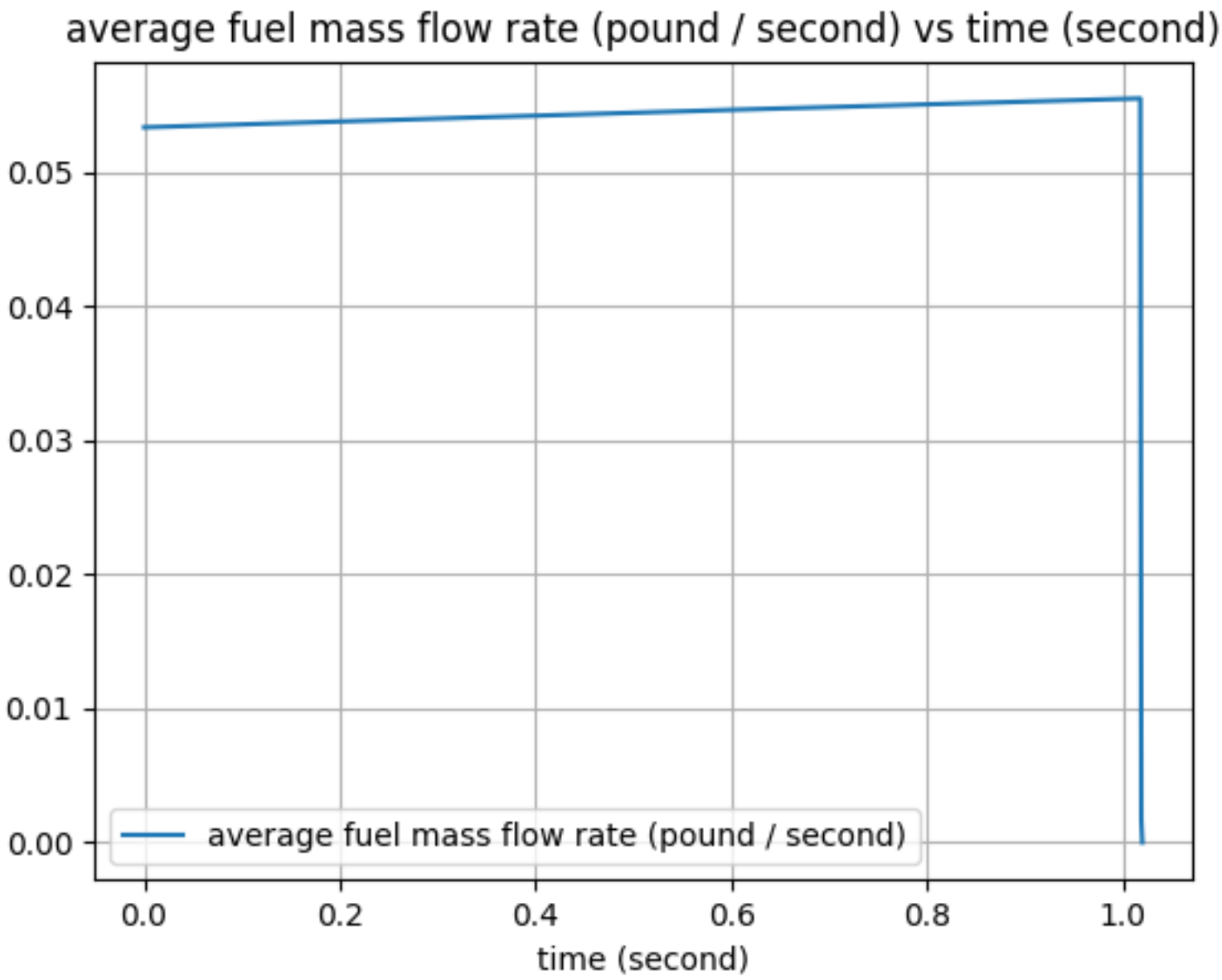
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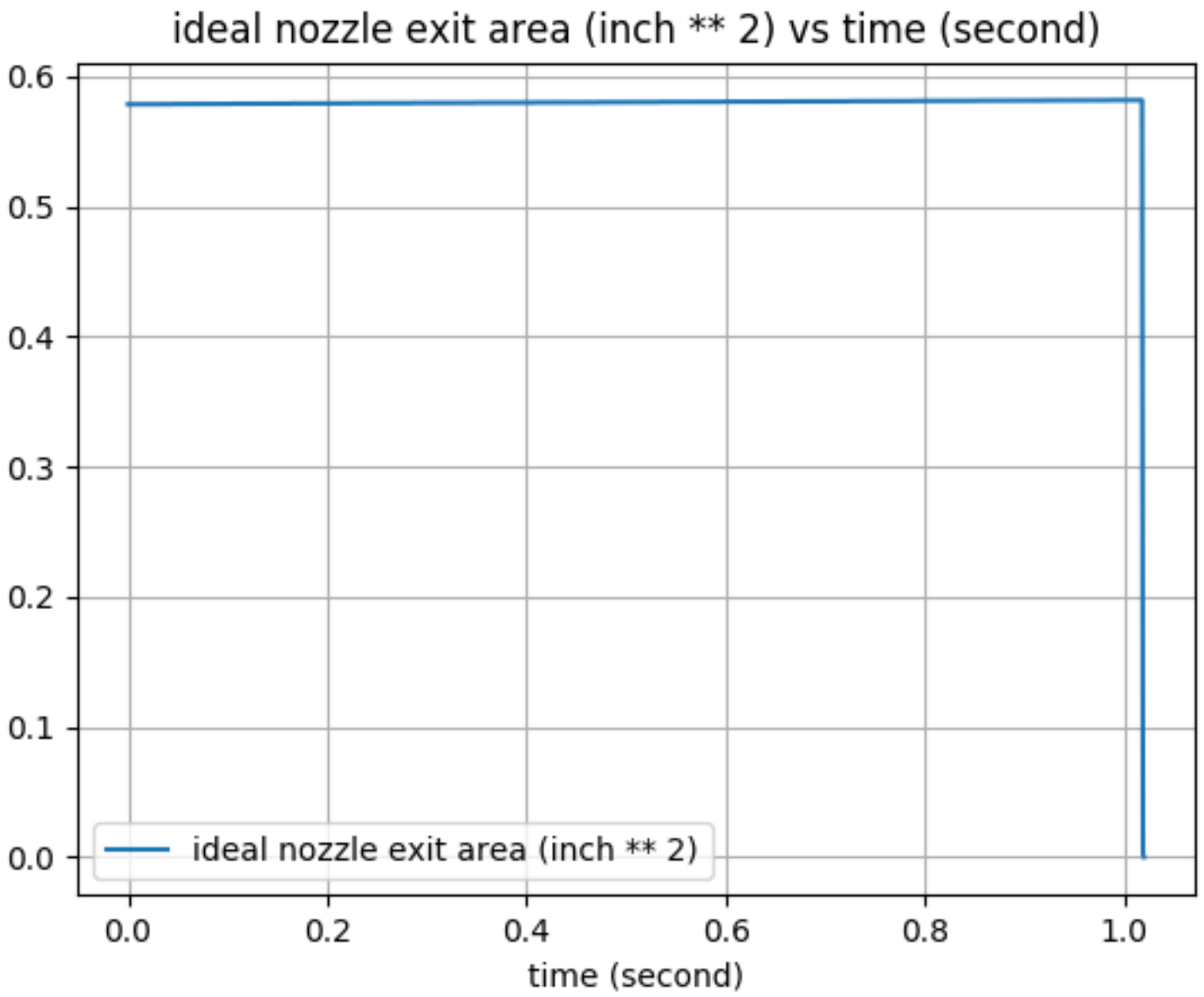
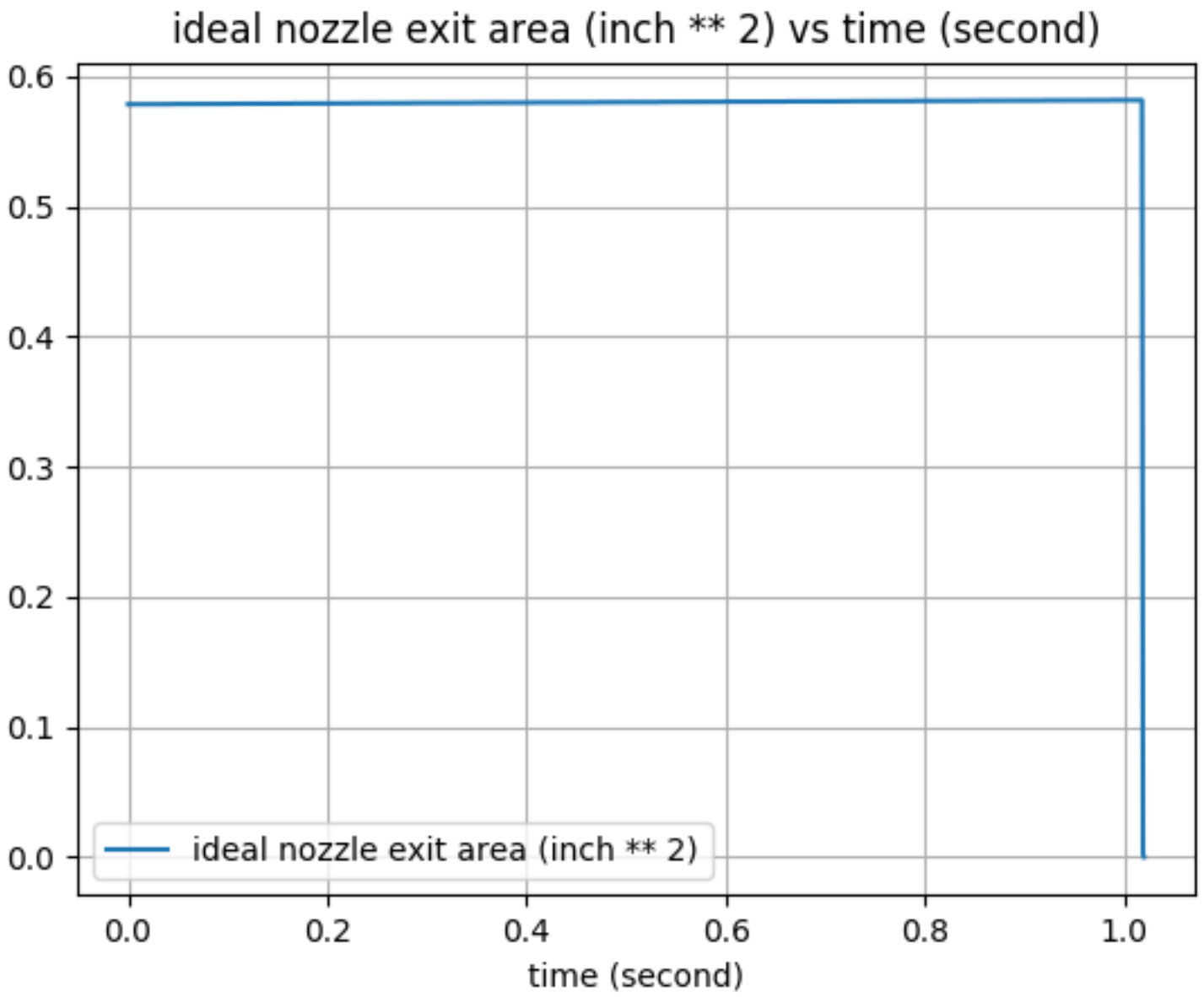

ideal nozzle exit area (inch ** 2) vs time (second)
0.6
0.5
0.4
0.3
0.2
0.1
0.0
ideal nozzle exit area (inch ** 2)
0.0
0.2
0.4
0.6
0.8
1.0
time (second)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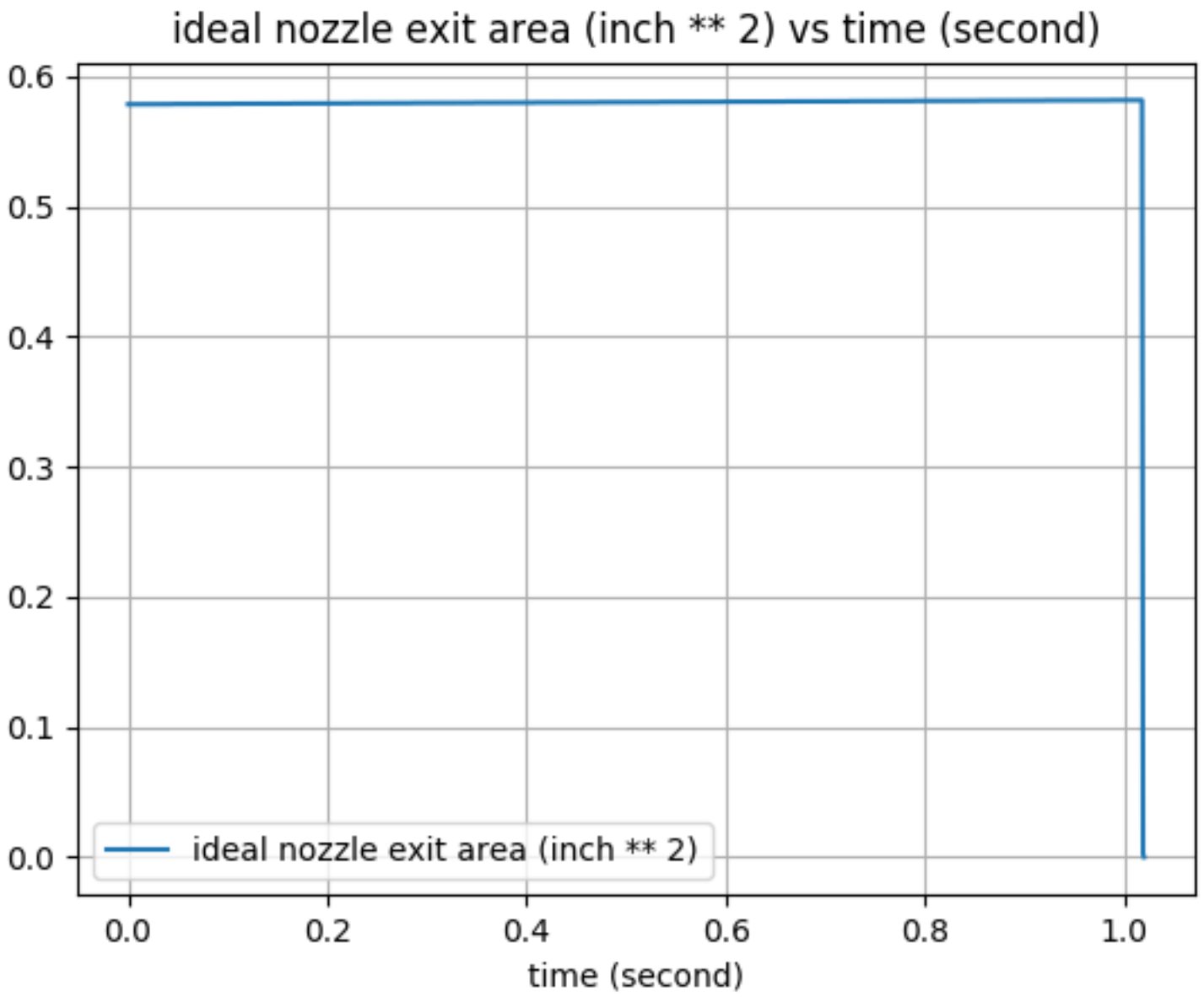
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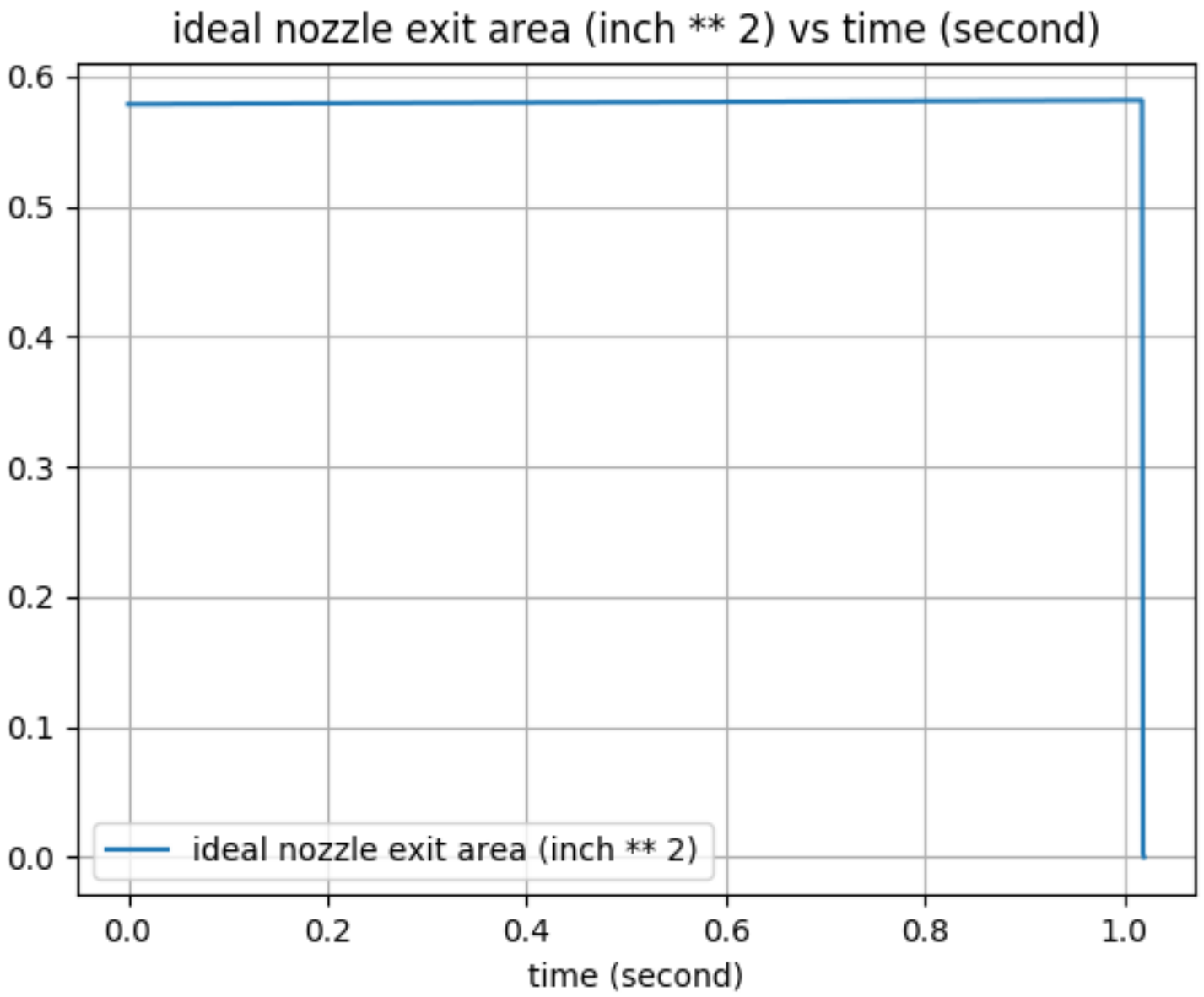
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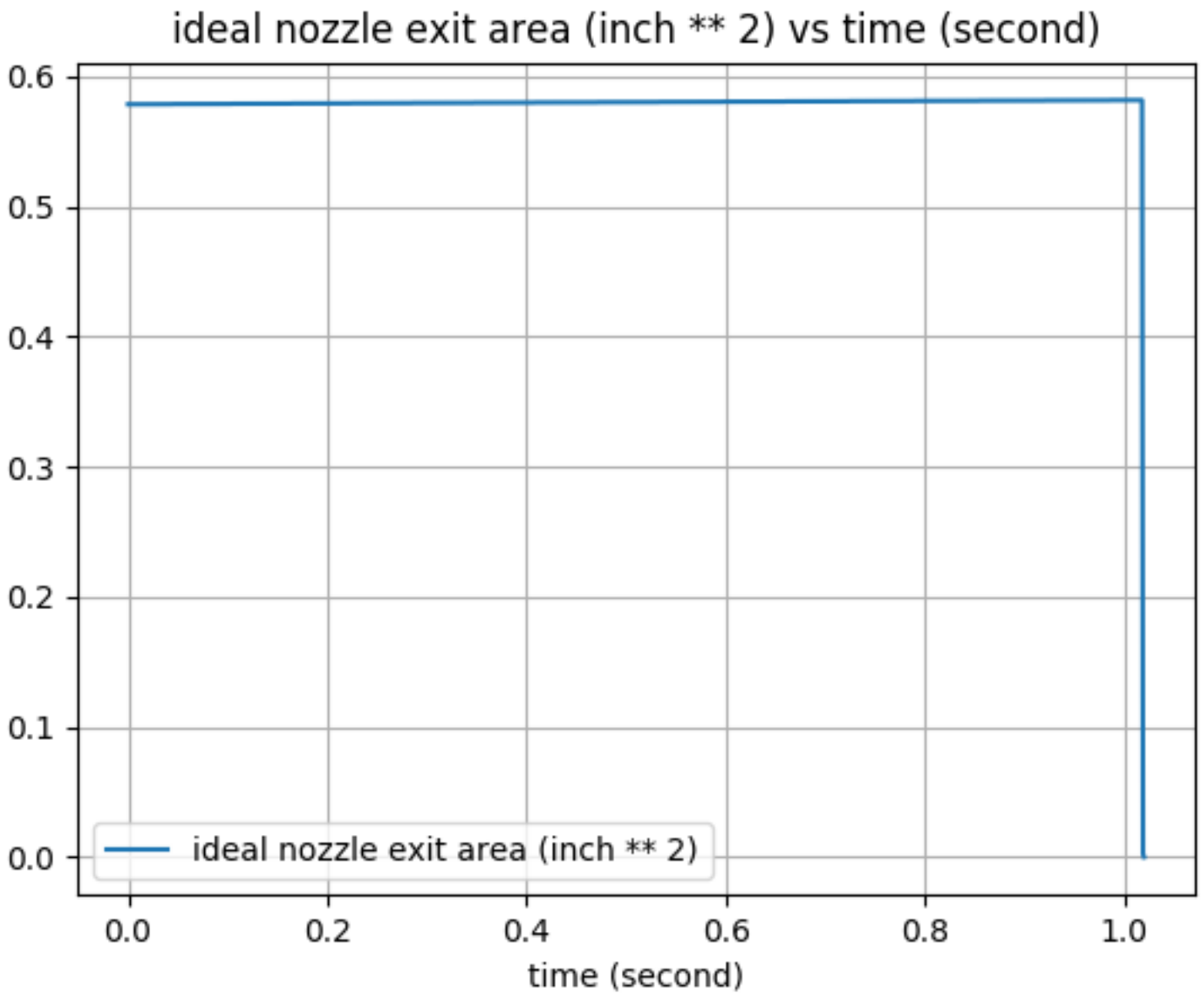
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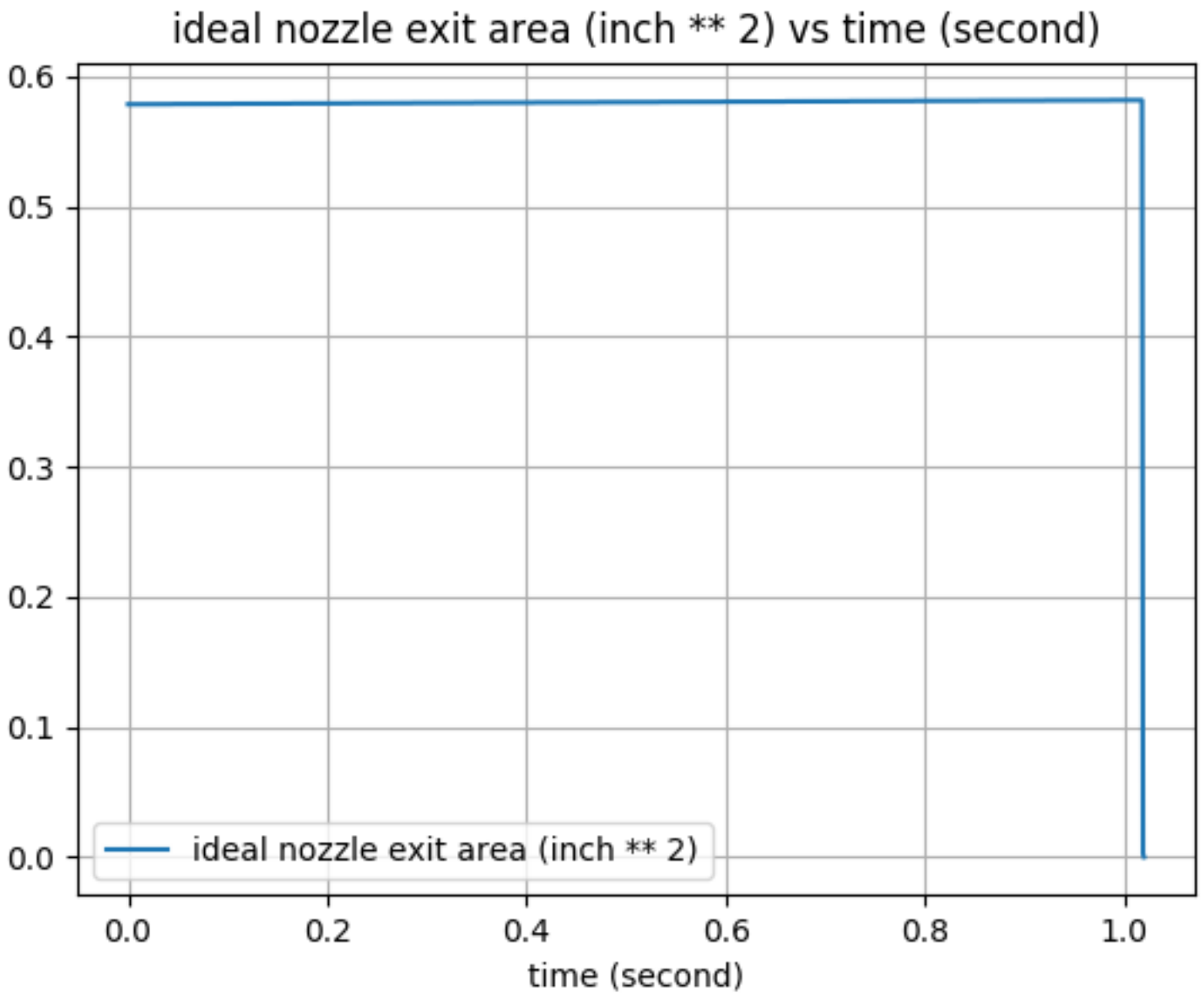
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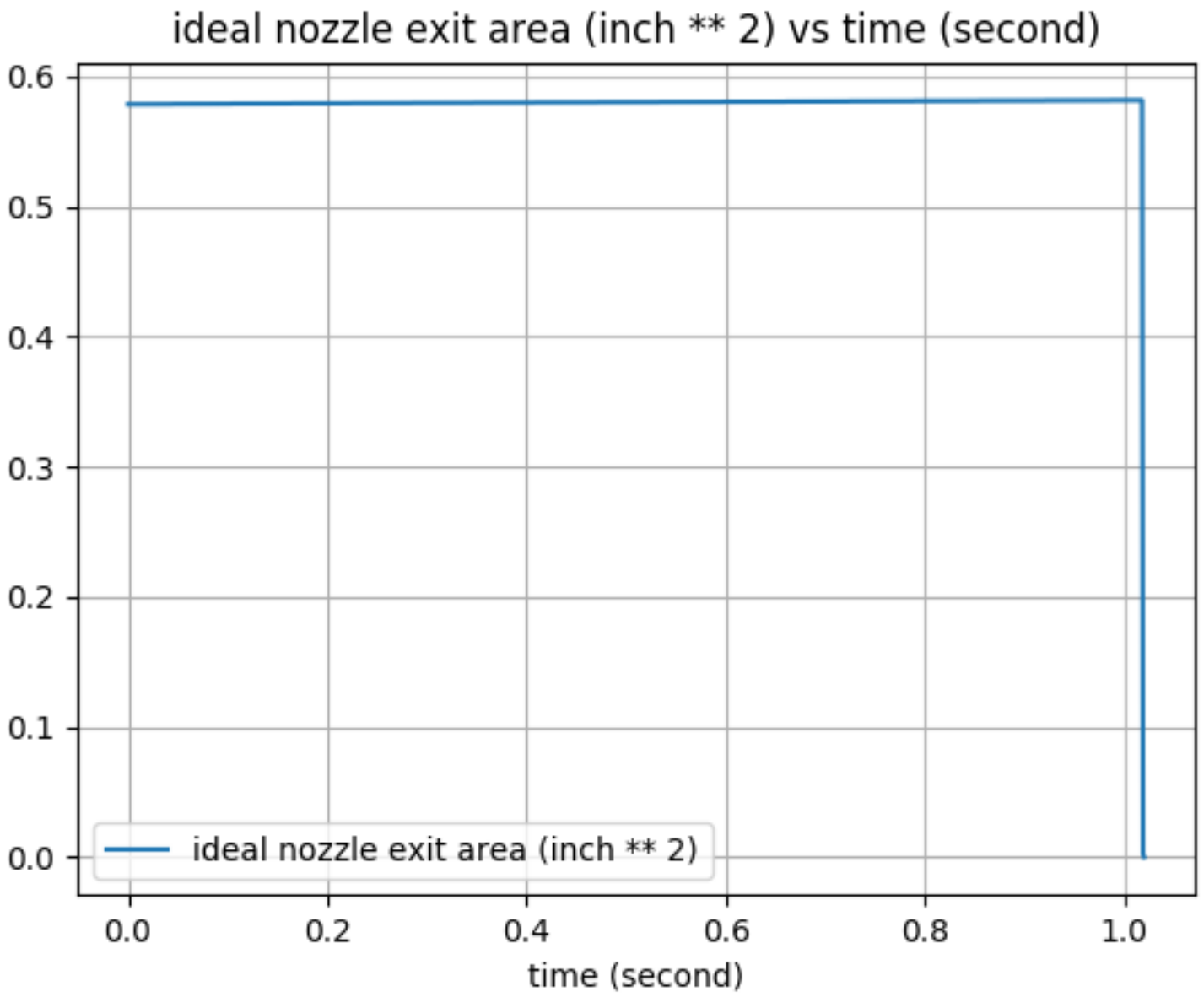
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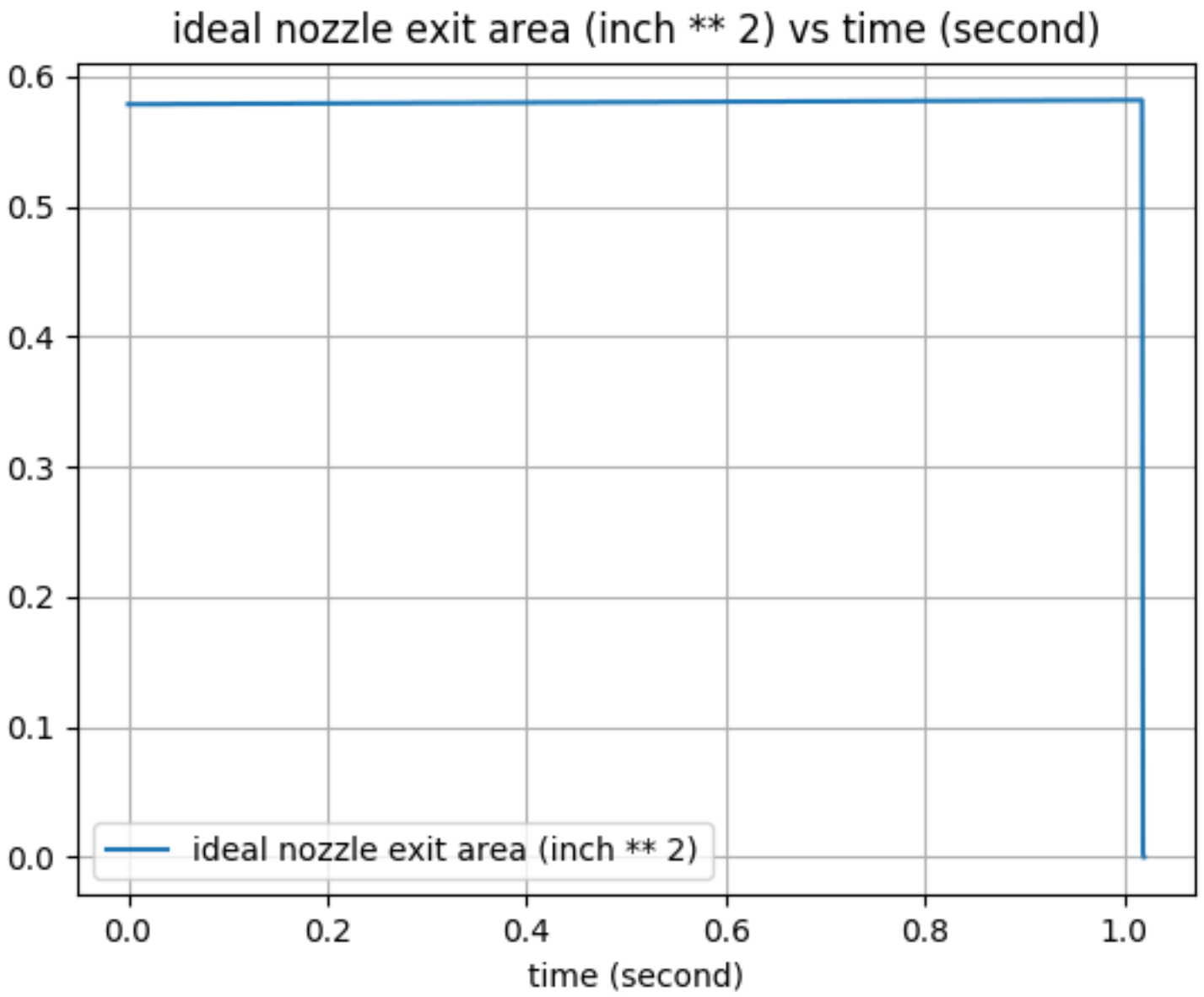
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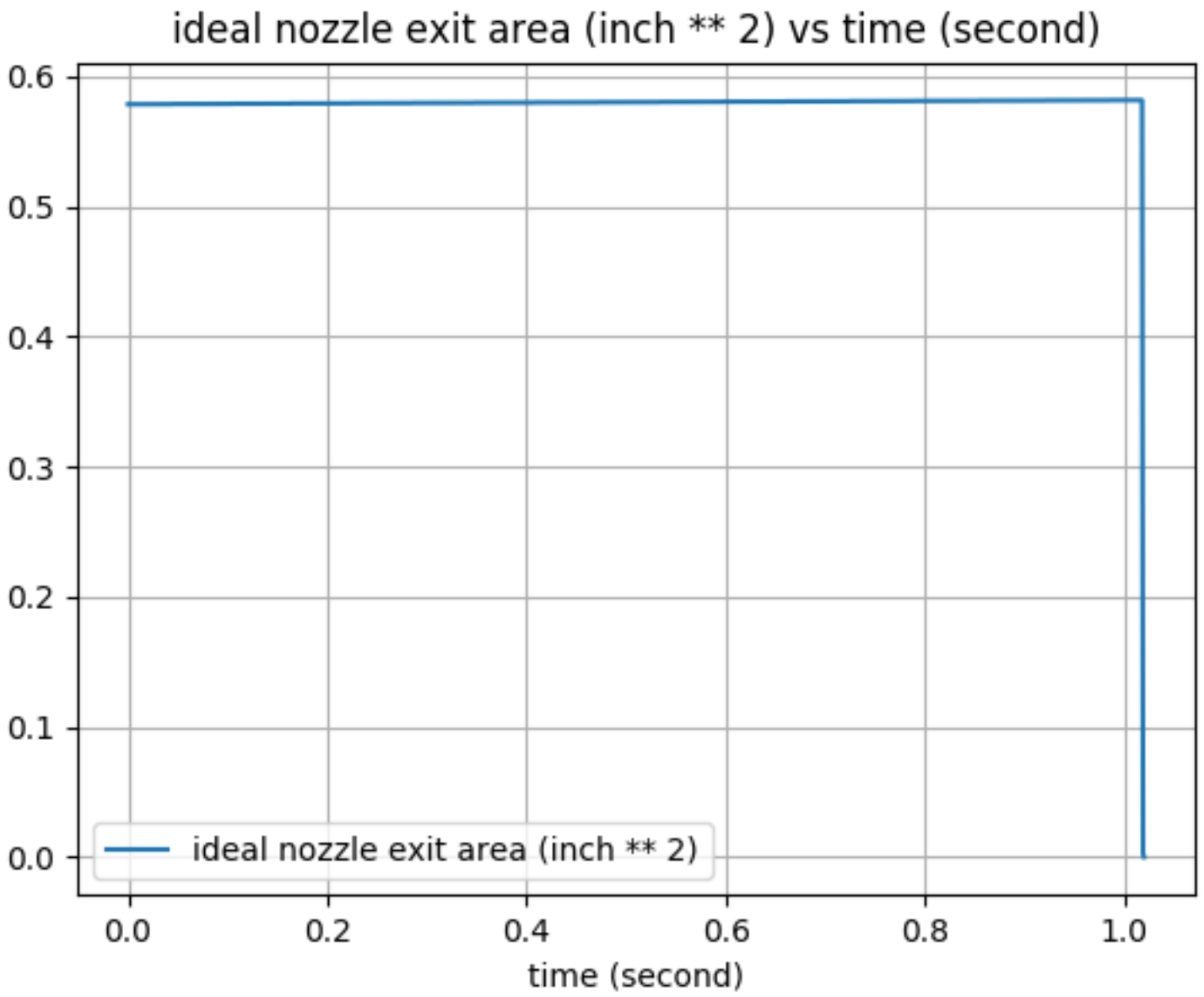
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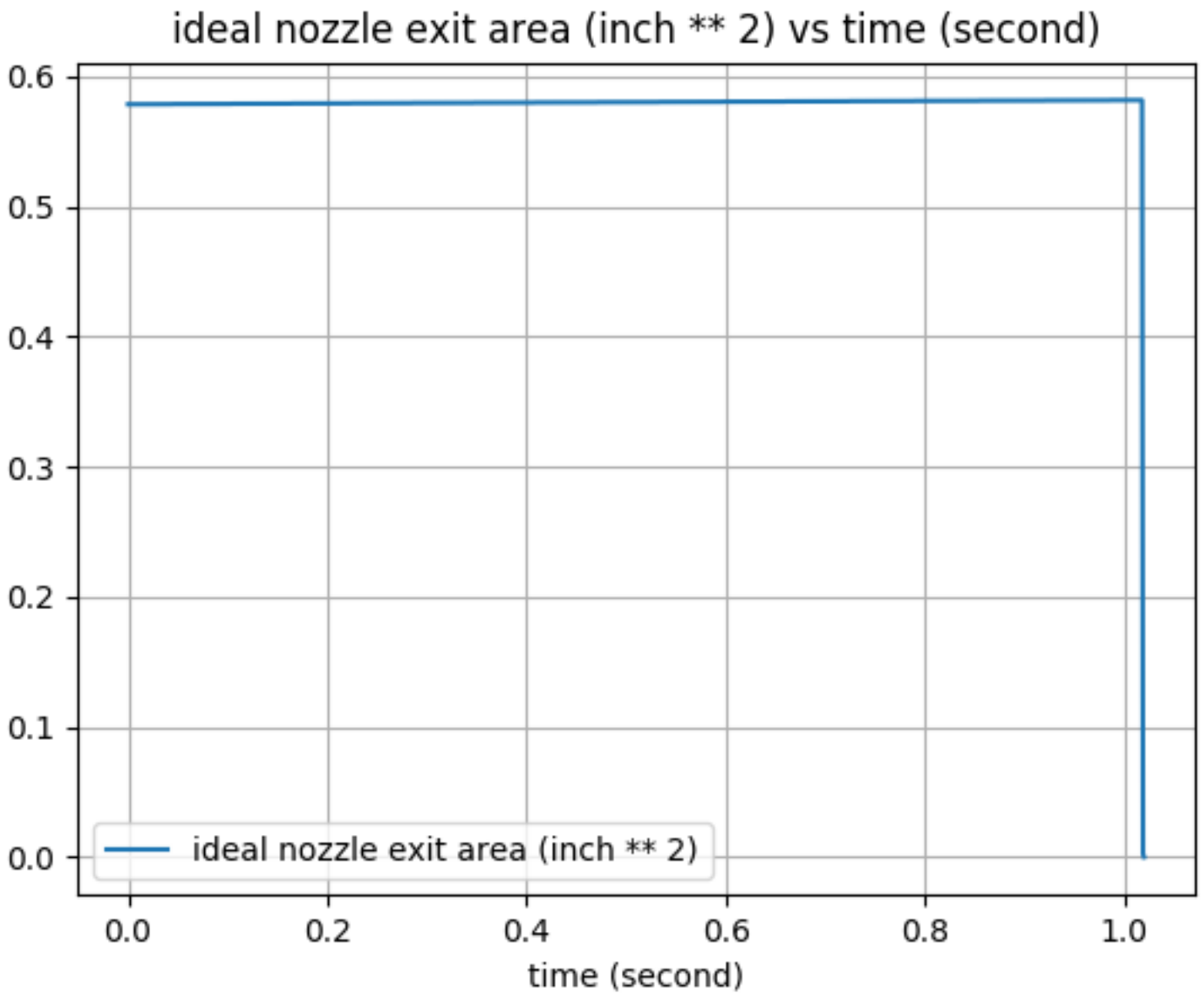
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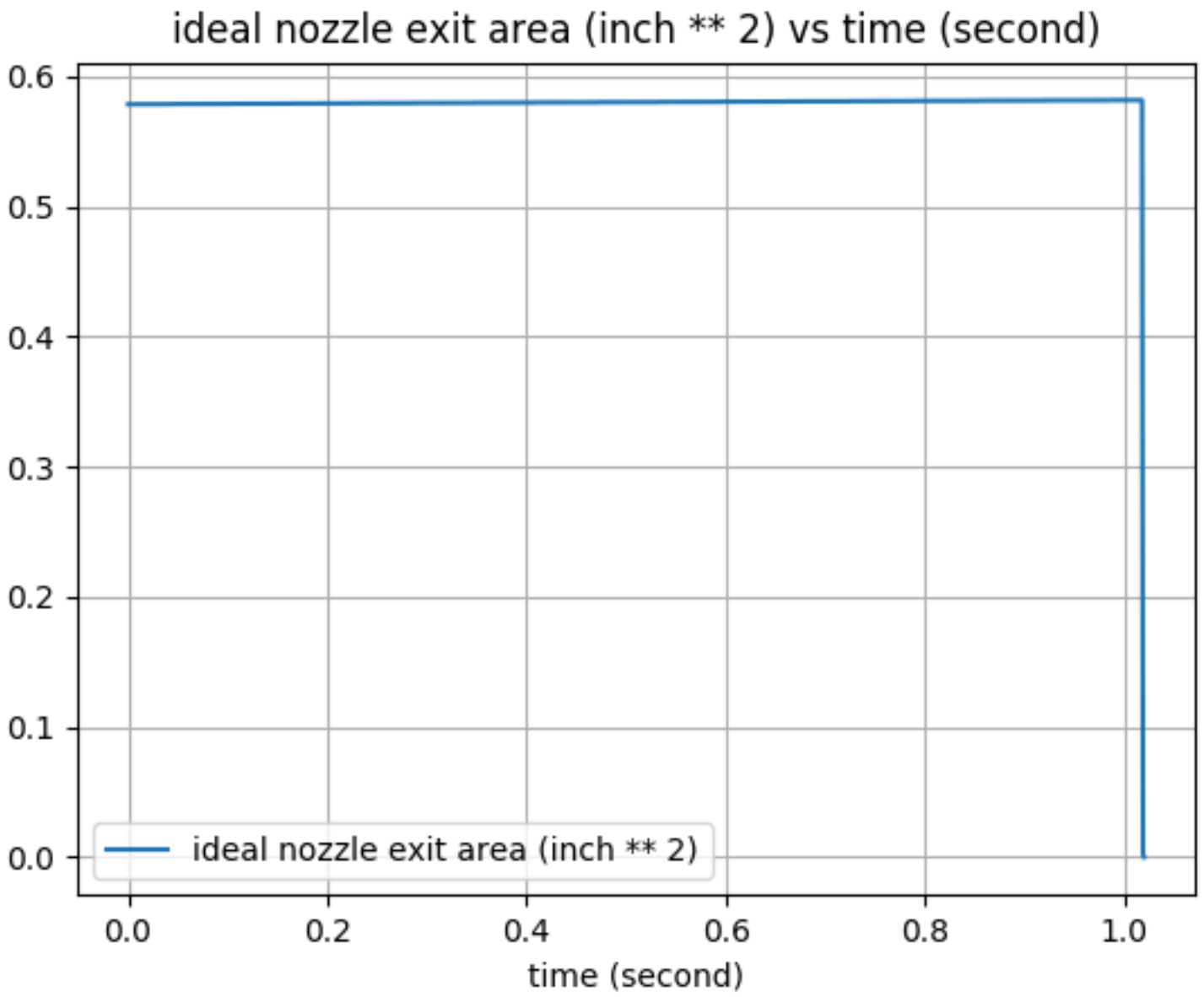
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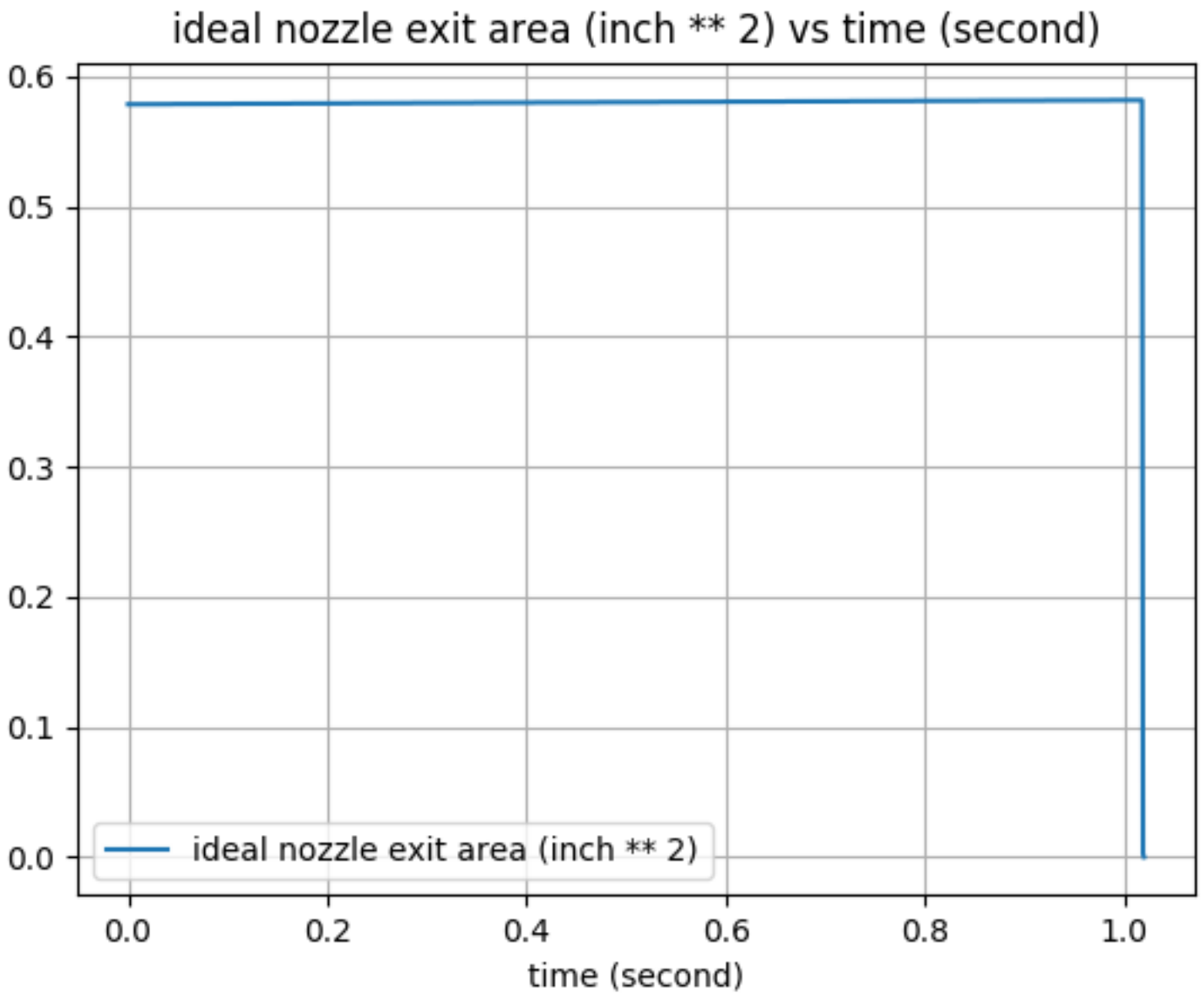
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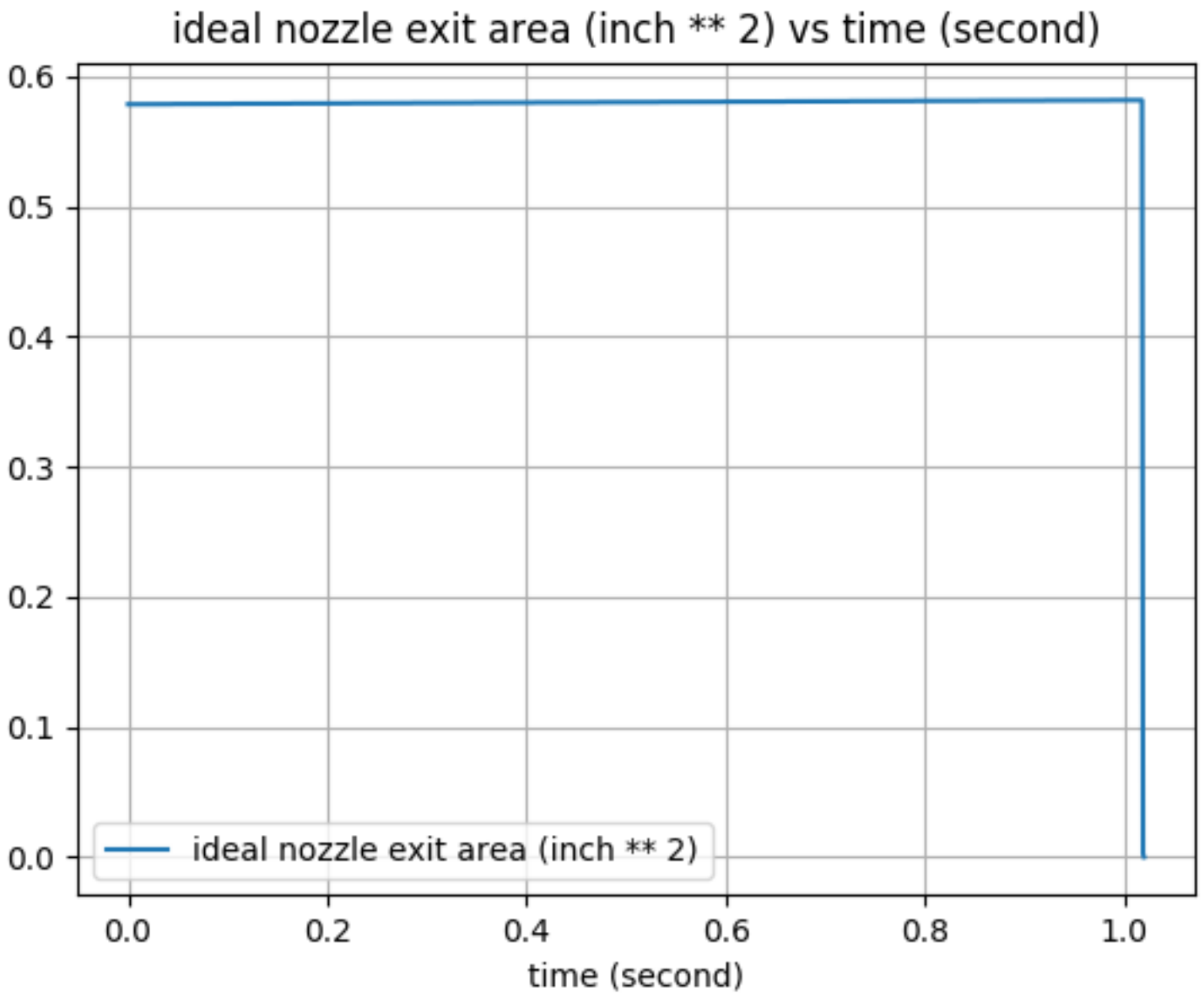
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0.8
1.0
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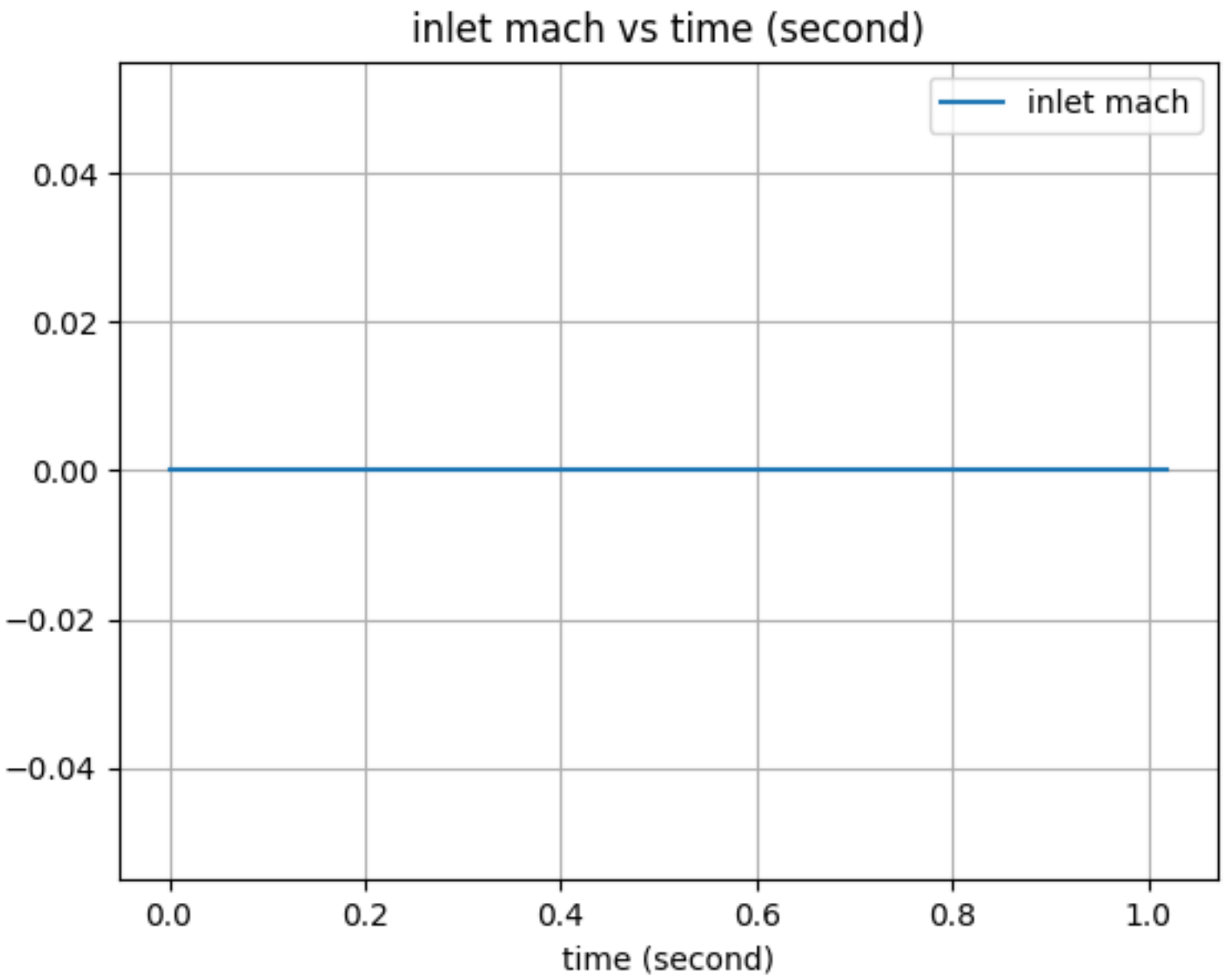
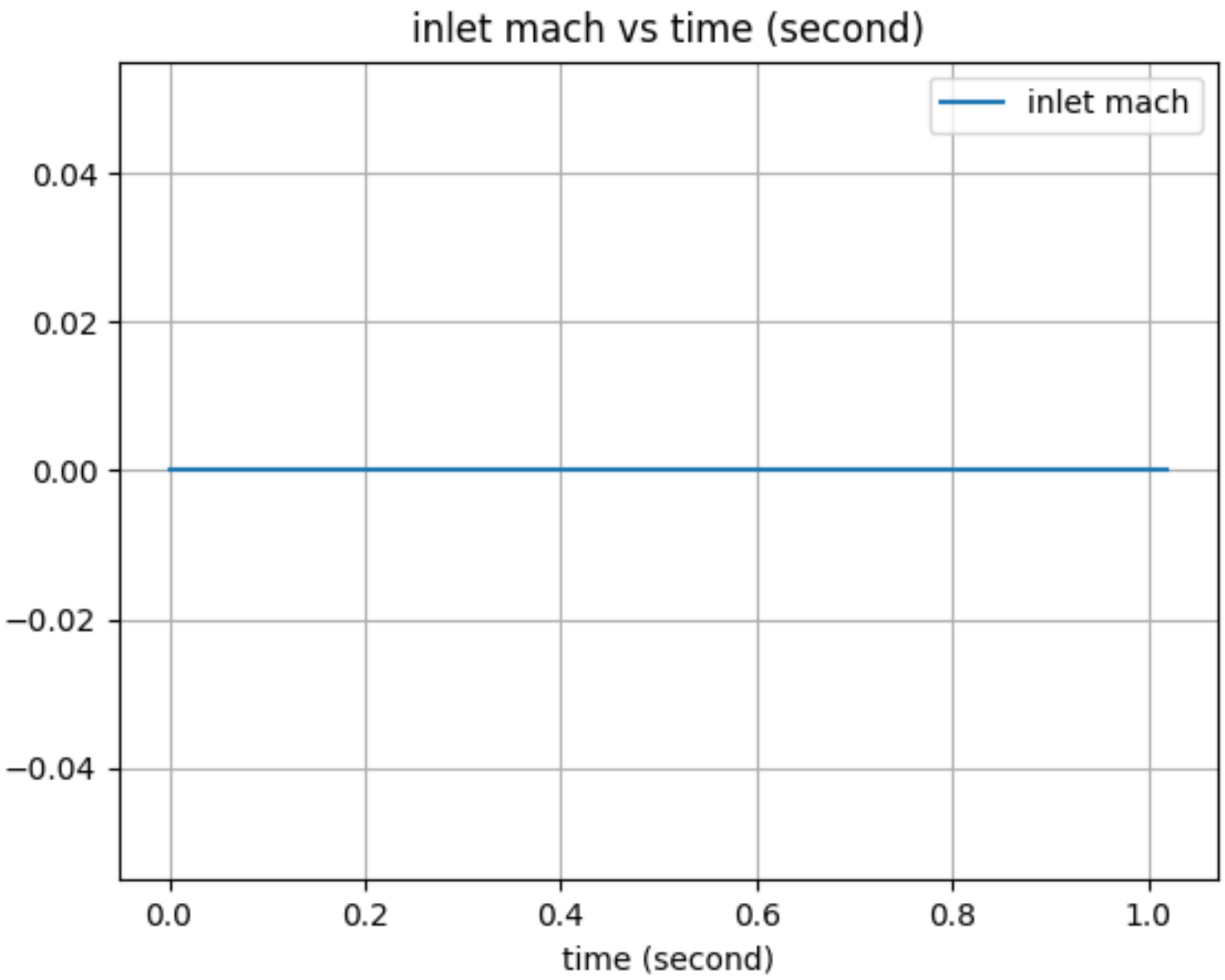

inlet mach vs time (second)
inlet mach
0.04
0.02
0.00
−0.02
−0.04
0.0
0.2
0.4
0.6
0.8
1.0
time (second)


inlet mach vs time (second)
inlet mach
0.04
0.02
0.00
−0.02
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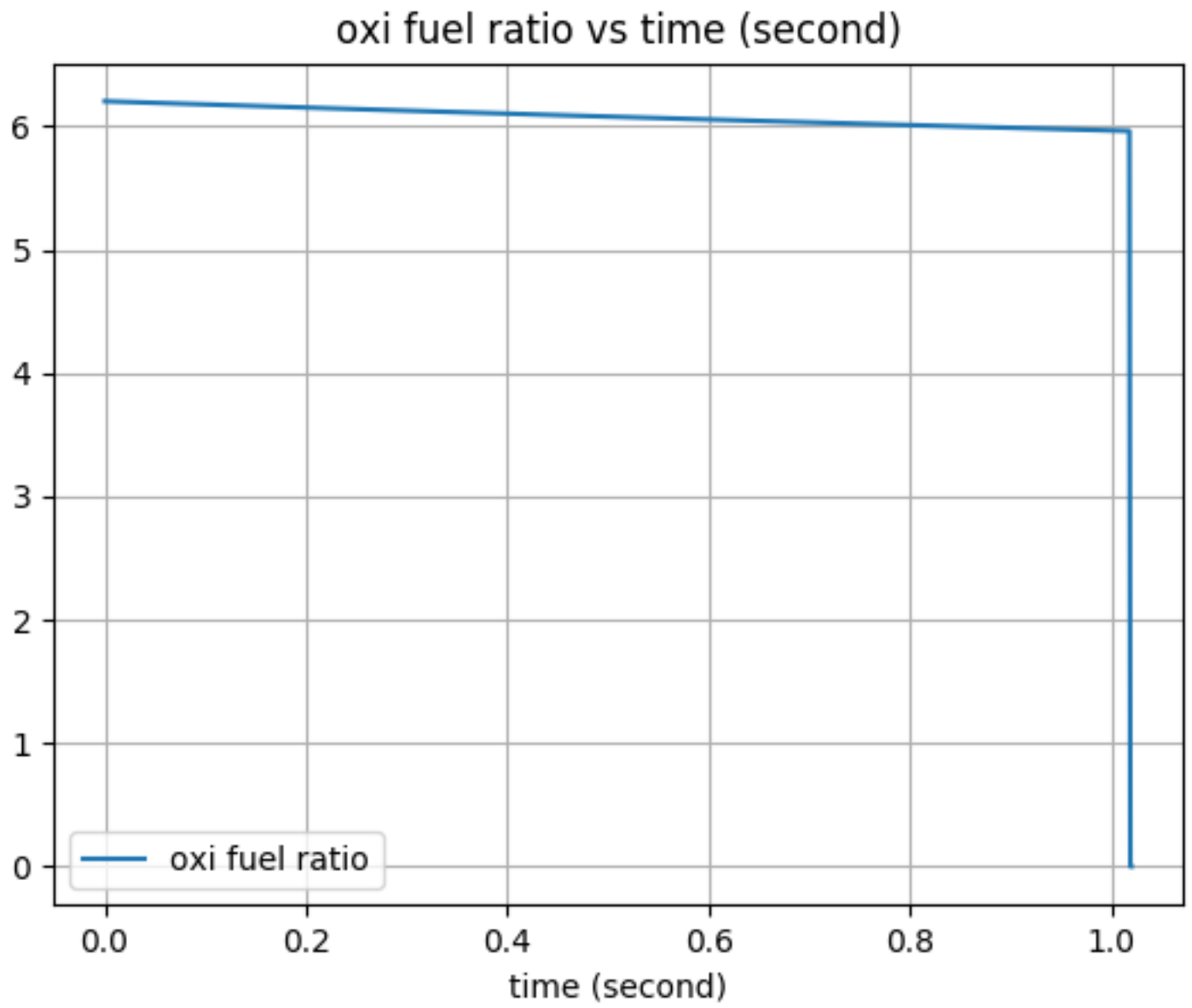
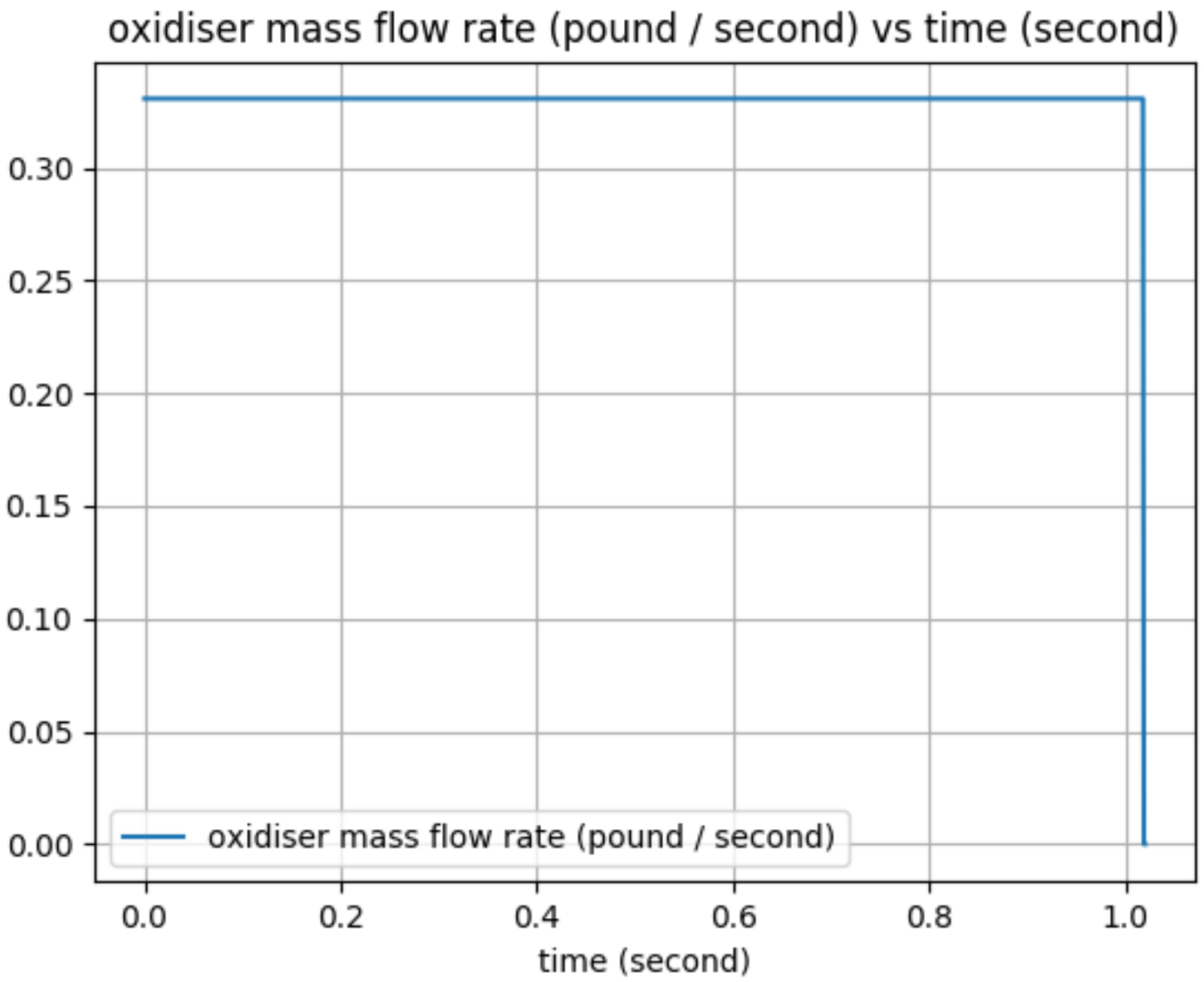
0.0
0.2
0.4
0.6
0.8
1.0
time (second)


oxi fuel ratio vs time (second)
6
5
4
3
2
1
0
0.0
0.2
0.4
0.6
0.8
1.0
time (second)
oxi fuel ratio


oxidiser mass flow rate (pound / second) vs time (second)
0.30
0.25
0.20
0.15
0.10
0.05
0.00
oxidiser mass flow rate (pound / second)
0.0
0.2
0.4
0.6
0.8
1.0
time (second)