

Rocket Nozzle Equations

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Contents

Nomenclature	2
1 Thermodynamic Relations [1]	3
1.1 Isentropic Total To Static Temperature Relation	3
References	4

Nomenclature

A	Area
C_f	Vacuum thrust coefficient
c_s	Speed of sound
\dot{m}	Mass flow rate
M	Molar mass
Ma	Mach number
$mol\%$	Mole percentage
P	Pressure
R	Gas constant
R_s	Specific gas constant
T	Temperature
v	Velocity
ϵ	Nozzle area ratio
γ	Ratio of specific heats
ρ	Density

Subscripts

a	Ambient
c	Chamber
e	Exit
t	Throat
x	Current Position
0	Stagnation

1 Thermodynamic Relations [1]

1.1 Isentropic Total To Static Temperature Relation

References

- [1] O. B. George P. Sutton, *Rocket Propulsion Elements*, 9th ed. Wiley, 2017.