

Constants	Units	Description
$C_{L_{w,max}}$	[-]	Max lift coefficient, wing
$\alpha_{w,max}$	[-]	Max angle of attack
$\cos(\Lambda)$	[-]	Cosine of quarter-chord sweep angle
η_w	[-]	Lift efficiency (diff b/w sectional, actual lift)
$\lambda_{w_{min}}$	[-]	Minimum wing taper ratio
ρ_{fuel}	$[\frac{kg}{m^3}]$	Density of fuel
$\tan(\Lambda)$	[-]	Tangent of quarter-chord sweep angle
$b_{w,max}$	[m]	Max allowed wingspan
f_{L_o}	[-]	Center wing lift reduction coefficient
$f_{L_{total/wing}}$	[-]	Total lift divided by wing lift
f_{L_t}	[-]	Wing tip lift reduction coefficient
$f_{aileron}$	[-]	Aileron added weight fraction
f_{flap}	[-]	Flap added weight fraction
$f_{fuel,usable}$	[-]	Usability factor of max fuel volume
$f_{fuel,wing}$	[-]	Fraction of total fuel stored in wing
f_{lete}	[-]	Lete added weight fraction
f_{ribs}	[-]	Wing rib added weight fraction
f_{slat}	[-]	Slat added weight fraction
$f_{spoiler}$	[-]	Spoiler added weight fraction
f_{tip}	[-]	Induced drag reduction from wing tip devices
f_{watt}	[-]	Watt added weight fraction
g	$[\frac{m}{s^2}]$	Gravitational acceleration
y_{eng}	[m]	Engine moment arm
W_{engine}	[N]	Engine weight
$W_{S_{max}}$	$[\frac{N}{m^2}]$	Maximum wing loading
WingBox		
N_{lift}	[-]	Wing loading multiplier
ρ_{cap}	$[\frac{kg}{m^3}]$	Density of spar cap material
ρ_{web}	$[\frac{kg}{m^3}]$	Density of shear web material
$\sigma_{max,shear}$	[Pa]	Allowable shear stress
σ_{max}	[Pa]	Allowable tensile stress
r_h	[-]	Fractional wing thickness at spar web
w	[-]	Wingbox-width-to-chord ratio