



FlightControl
P R O P U L S I O N

FLIGHT CONTROL PROPULSION PRODUCTS

OUR LIQUID ROCKET ENGINES

SS3 engine

The SS3 is a launch vehicle 1st stage engine.



Parameter	Value
Propellants: <ul style="list-style-type: none">• oxidizer• fuel	LOX Jet A-1
Engine power cycle	Staged combustion, oxidizer-rich
Propellants feed system	Turbopump
Nominal thrust, at sea level/in vacuum, tf	2.3/2.8
Nominal specific impulse, at sea level/in vacuum, s	269/327
Number of burns	1
Burn time, s	500
Thrust vector control is provided by engine gimbaling in two planes by means of electric actuators: <ul style="list-style-type: none">- gimbal angle, angular deg.	±6
Engine controller availability	+

OUR LIQUID ROCKET ENGINES

SV3 engine

The SV3 is a launch vehicle upper stage engine.



Parameter	Value
Propellants: <ul style="list-style-type: none">• oxidizer• fuel	LOX Jet A-1
Engine power cycle	Staged combustion, oxidizer-rich
Propellants feed system	Turbopump
Nominal thrust, tf	3
Nominal specific impulse, s	355
Number of burns	5
Burn time, s	500
Thrust vector control is provided by engine gimbaling in two planes by means of electric actuators: <ul style="list-style-type: none">- gimbale angle, angular deg.	±6
Engine controller availability	+

OUR LIQUID ROCKET ENGINES

SS75 engine

The SS75 is a launch vehicle 1st stage engine.

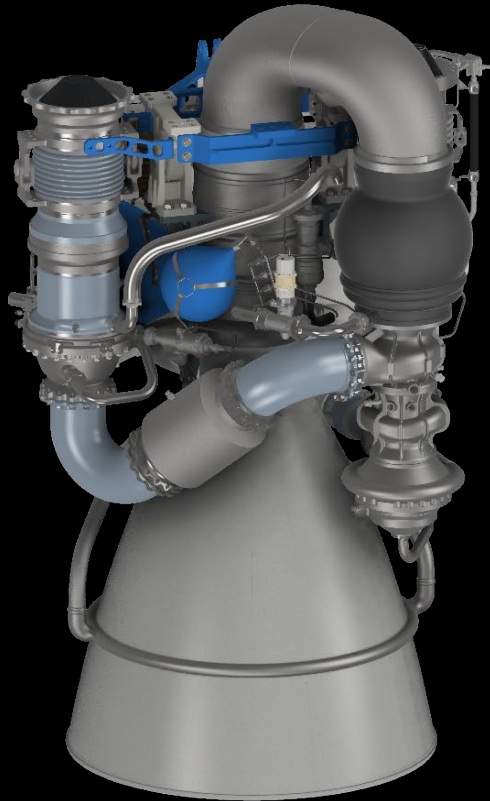


Parameter	Value
Propellants: <ul style="list-style-type: none">• oxidizer• fuel	LOX RP-1
Engine power cycle	Staged combustion, oxidizer-rich
Propellants feed system	Turbopump
Nominal thrust, at sea level/in vacuum, tf	79.3/88.5
Nominal specific impulse, at sea level/in vacuum, s	297.8/332.4
Burn time, s	500
Thrust vector control is provided by engine gimbaling in one plane by means of hydraulic actuator: <ul style="list-style-type: none">- gimbaling angle, angular deg.	±6
Engine controller availability	+

OUR LIQUID ROCKET ENGINES

SS100 engine

The SS100 is a launch vehicle 1st stage engine.

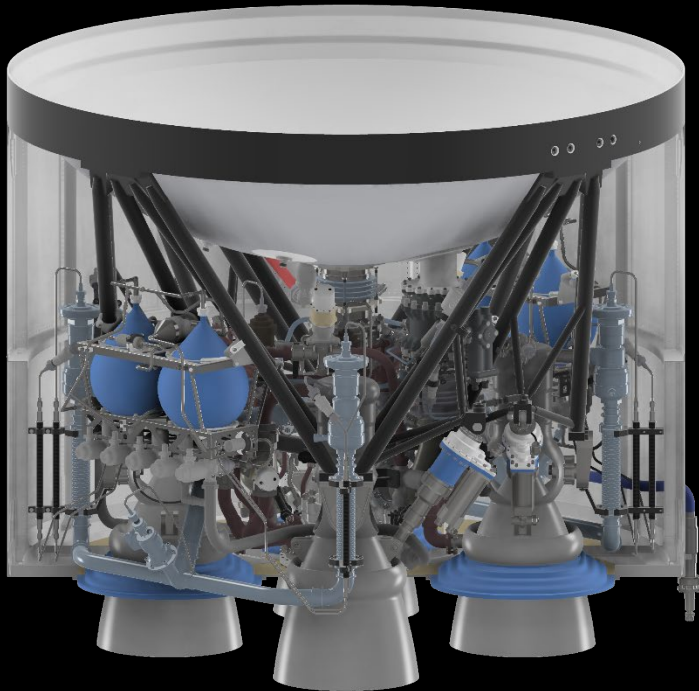


Parameter	Value
Propellants: <ul style="list-style-type: none">• oxidizer• fuel	LOX RP-1
Engine power cycle	Staged combustion, oxidizer-rich
Propellants feed system	Turbopump
Nominal thrust, at sea level/in vacuum, tf	100/111.2
Nominal specific impulse, at sea level/in vacuum, s	306.5/340.4
Chamber pressure, kgf/cm ²	250
Mixture ratio	2.65
Area ratio	45.83

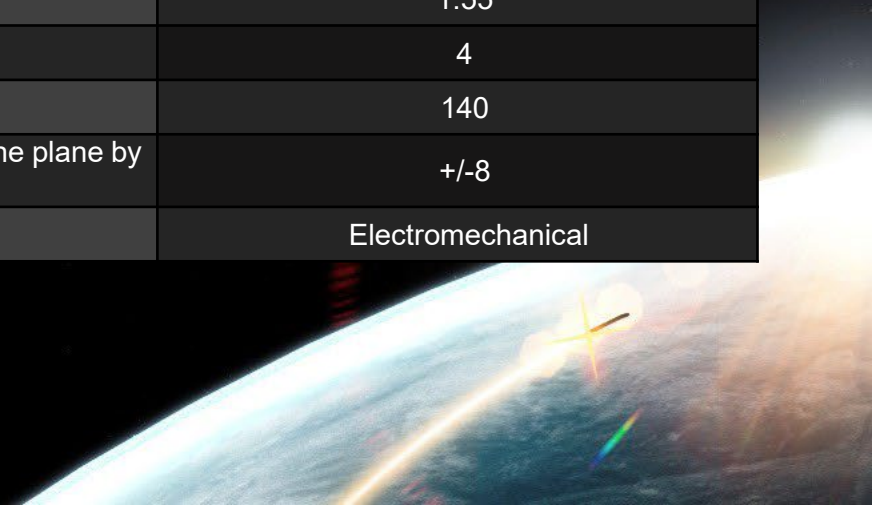
OUR LIQUID ROCKET ENGINES

GS35 engine

The GS35 is a launch vehicle 1st stage engine.



Parameter	Value	
	Mode I	Mode II
Propellants: <ul style="list-style-type: none"> oxidizer fuel 	LOX Ethanol (95%)	
Propellants inlet temperature, °C: <ul style="list-style-type: none"> oxidizer fuel 	Minus 200 Plus 20	Minus 182 Plus 20
Engine power cycle	Gas generator	
Propellants feed system	Turbopump	
Nominal thrust, at sea level, in vacuum, tf	33.69/38	30.69/35
Nominal specific impulse, at sea level, in vacuum, s	274.9/310	272.0/310.1
Absolute chamber pressure, bar	150	138.1
Mixture ratio	1.55	
Number of engine combustion chambers	4	
Cumulative operation time, s	140	
Thrust vector control is provided by chambers gimbaling in one plane by the angle, deg	+/-8	
Gimbaling actuators	Electromechanical	



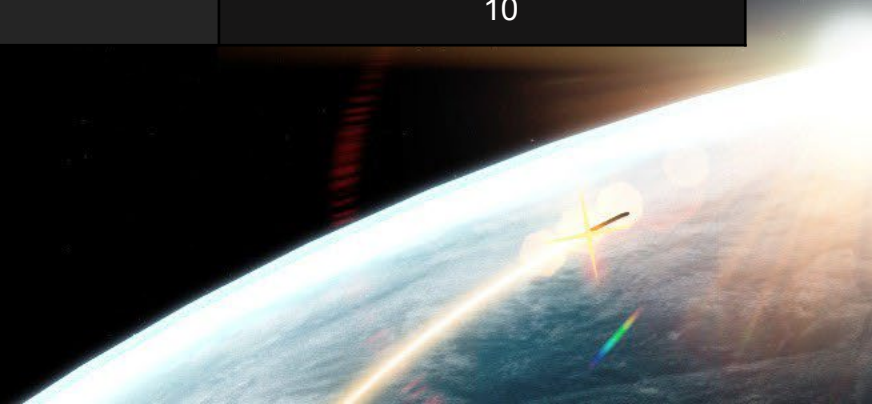
OUR LIQUID ROCKET ENGINES

ML250 engine

The ML250 is a main engine for upper stages of launch vehicles, landing modules and spacecrafts.



Parameter	Value
Propellants: <ul style="list-style-type: none">• oxidizer• fuel	NTO UDMH
Engine cycle	Pressure fed
Nominal thrust, kgf	251.4
Nominal specific impulse, s	316
Number of burns	12
Burn time, s <ul style="list-style-type: none">• min.:• max.:	2 1100
Dry mass, kg	10



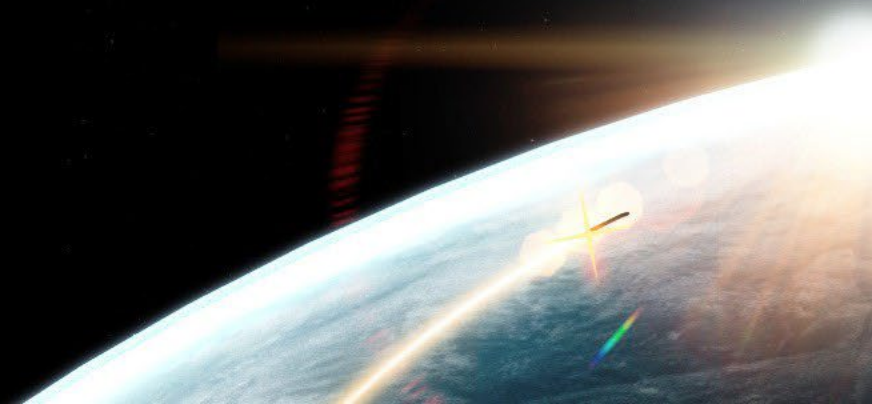
OUR LIQUID ROCKET ENGINES

ML125 engine

The ML125 is a main engine for upper stages of launch vehicles, landing modules and spacecrafts.



Parameter	Value
Propellants: <ul style="list-style-type: none">• oxidizer• fuel	NTO UDMH
Engine cycle	Pressure fed
Nominal thrust, kgf	126.2
Nominal specific impulse, s	317
Number of burns	12
Total burning duration, s	1100
Dry mass, kg	7



OUR LIQUID ROCKET ENGINES

ML20 thruster

The ML20 is a thruster for attitude control for upper stages of launch vehicles, landing modules and spacecrafts.



Parameter	Value
Propellants: <ul style="list-style-type: none">• oxidizer• fuel	NTO UDMH
Engine cycle	Pressure fed
Nominal thrust, kgf	20.4
Nominal specific impulse, s	270
Number of burns	3000
Total burning duration, s	1100
Dry mass, kg	2

