
Geostationary Satellite Launch Vehicles of India
TECHNICAL SPECIFICATIONS
GSLV
Payload to GTO : 2500 kg
GSLV's primary payloads are INSAT class of communication satellites that operate from Geostationary orbits and hence are placed in Geosynchronous Transfer Orbits by GSLV.
Payload to LEO : 5000 kg
Further, GSLV's capability of placing up to 5 tonnes in Low Earth Orbits broadens the scope of payloads from heavy satellites to multiple smaller satellites.
Third Stage : CUS
Developed under the Cryogenic Upper Stage Project (CUSP), the CE 7.5 is India's first cryogenic engine developed by the Liquid Propulsion Systems Centre. CE-7.5 has a staged Combustion Operating Cycle.
Fuel : LOX + LH2
Max. Thrust : 75 kN
Burntime : 720 sec
Second Stage : GS2
One Vikas Engine is used in the second stage of GSLV. The stage was derived from the PS2 of PSLV where the Vikas Engine has proved its reliability.
Engine : Vikas
Fuel : UDMH + N2O4
Max. Thrust : 800 kN
Burntime : 150 sec
First Stage : GS1
The first stage of GSLV was also derived from the PSLV's PS1. The 138 tonne Solid Rocket Motor is augmented by 4 liquid strap-ons.
Engine : S139
Fuel : HTPB
Max. Thrust : 4700 kN
Burntime : 100 sec
Strap-on Motors
The four liquid engine strap-ons used in GSLV are heavier derivatives of PSLV's PS2 and use one Vikas Engine each.
Fuel : UDMH + N2O4
Max. Thrust : 680 kN
Burntime : 160 sec
GSLV Mk-III
Payload to GTO : 4000 kg
GSLV Mk-III will be capable of placing the 4 tonne class satellites of the GSAT series into Geosynchronous Transfer Orbits.
Payload to LEO : 8000 kg
The powerful cryogenic stage of GSLV Mk-III enables it to place heavy payloads into Low Earth Orbits of 600 km altitude.
Cryogenic Upper Stage : C25
The C25 is powered by CE-20, India's largest cryogenic engine designed and developed by the Liquid Propulsion Systems Centre.
Cryo Stage Height : 13.5 m
Cryo Stage Diameter : 4.0 m
Engine : CE-20
Fuel : 28 tonnes of LOX + LH2
Solid Rocket Booster : S200
GSLV Mk-III uses two S200 solid rocket boosters to provide the huge amount of thrust required for lift-off. The S200 was developed at Vikram Sarabhai Space Centre.
Booster Height : 25 m
Booster Diameter : 3.2 m
Fuel : 205 tonnes of HTPB (nominal)
Core Stage : L110 Liquid Stage
The L110 liquid stage is powered by two Vikas Engines designed and developed at the Liquid Propulsion Systems Centre.
Stage Height : 21 m
Stage Diameter : 4 m
Engine : 2 x Vikas
Fuel : 110 tonnes of UDMH + N2O4
GSLV
GSLV Mk-III
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