ISRO's Geosynchronous Satellite Launch Vehicle (GSLV)

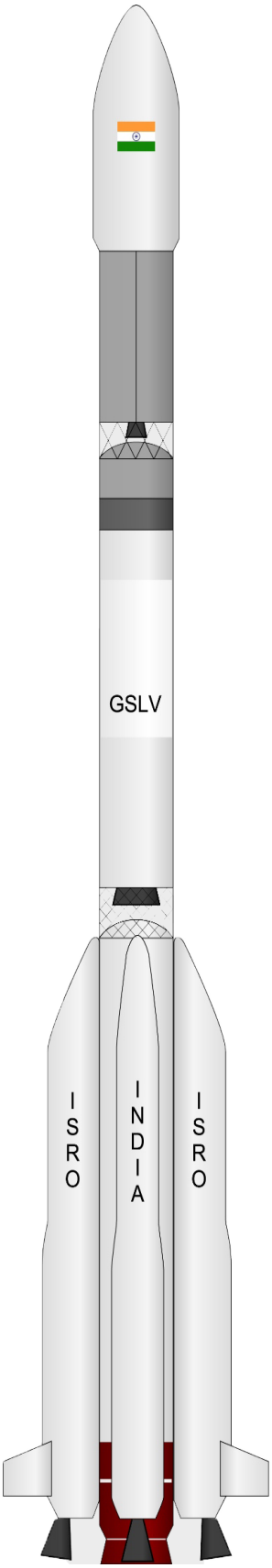
About the GSLV Launch Vehicle

The Geosynchronous Satellite Launch Vehicle was primarily developed to launch INSAT class of satellites into Geosynchronous Transfer Orbits. GSLV is being used for launching GSAT series of satellites. GSLV is a three-stage launcher that uses one solid rocket motor stage, one Earth storable liquid stage and one cryogenic stage. GSLV has been used in ten launches to date, since its first launch in 2001. The most recent flights of GSLV, the GSLV-D5, placed GSAT-14 into its planned orbit and marked the first successful flight of the indigenous cryogenic stage and the fifth with INSAT-3DR on September 8th, 2016. Earlier, GSLV had launched various communication satellites among which EDUSAT is notable, being India's first satellite built exclusively to serve the educational sector through satellite based distance education.

Vehicle Specifications

Height	: 49.13 m
Number of Stages	: 3
Lift Off Mass	: 414.75 tonnes
First Flight	: April 18th, 2001

source: www.isro.gov.in www.wikipedia.org



TECHNICAL SPECIFICATIONS GSLV

Payload to GTO: 2,500 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: 5,000 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
Fuel	: LOX + LH2
Max. Thrust	: 75 kN
Burn-time	: 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
Burn-time	: 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
Burn-time	: 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
Burn-time	: 160 sec