# GLSV Isro Rocket

[[ Launchers Home /Activities/Launchers , Launchers or Launch Vehicles are used to carry spacecraft to space. India has three active operational launch vehicles: Polar Satellite Launch Vehicle (PSLV), Geosynchronous Satellite Launch Vehicle (GSLV), Geosynchronous Satellite Launch Vehicle Mk-III (LVM3). , Overview , PSLV is configured with four variants like 6,4,2 solid rocket strap-on motors& core alone versions. Variants will be chosen based on the payload weights & orbit to be accomplished. PSLV has been a versatile launch vehicle deployed for launching all the three types of payloads viz. Earth Observation, Geo-stationary and Navigation. It has got highest success rate and considered as work horse of ISRO. , GSLV with indigenous Cryogenic Upper Stage has enabled the launching up to 2 tonne class of communication satellites. , The LVM3 is the next generation launch vehicle capable of launching 4 tonne class of communication satellites and 10 tonne class of payloads to LEOs. The vehicle was developed with completely indigenized technologies including the C25 cryo stage. The launch vehicle has a track record of all successful launches even from the first development flight. The Human rated LVM3 is identified as the launch vehicle for Gaganyaan mission, which is named as HRLV. , The Small Satellite Launch Vehicle (SSLV) is being developed with complete indigenous technologies to meet the small satellite lunch market on demand driven basis , In order to achieve high accuracy in placing satellites into their orbits, a combination of accuracy, efficiency, power and immaculate planning are required. ISRO's Launch Vehicle Programme spans numerous centres. Vikram Sarabhai Space Centre, located in Thiruvananthapuram, is responsible for the design and development of launch vehicles. Liquid Propulsion Systems Centre and ISRO Propulsion Complex, located at Valiamala and Mahendragiri respectively, develop the liquid and cryogenic stages for these launch vehicles. Satish Dhawan Space Centre, SHAR, is the space port of India and is responsible for integration of launchers. It houses two operational launch for launching ISRO’s launch vehicles. , , Launchers under usage: , Polar  
 Satellite Launch Vehicle (PSLV) , Geosynchronous  
 Satellite Launch Vehicle  
 (GSLV) , Geosynchronous Satellite Launch Vehicle Mark III (LVM3) , Sounding Rockets , Launchers under development: , Human Rated Launch Vehicle (HRLV) , Small Satellite Launch Vehicle (SSLV) , Reusable  
 Launch  
 Vehicle – Technology Demonstrator (RLV-TD) , Scramjet Engine – TD , Launchers, Retired: , SLV-3 , ASLV ], ' ', [ GSLV MkIII-D2 successfully launches GSAT-29 Home /Media/ Archives/ GSLV MkIII-D2 successfully launches GSAT-29 , India’s GSAT-29 communication satellite was successfully launched by the second developmental flight of Geosynchronous Satellite Launch Vehicle MarkIII (GSLV MkIII-D2) on Wednesday from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota. , GSLV MkIII-D2 lifted off from the Second Launch Pad of SDSC SHAR at 17:08 hours (IST), carrying the 3423-kg GSAT-29 satellite. About 17 minutes later, the vehicle injected the satellite into the Geosynchronous Transfer Orbit (GTO) as planned. , After injection, ISRO’s Master Control Facility at Hassan has assumed the control of the satellite. In the coming days, three orbit raising manoeuvers will be executed to position the satellite in the Geostationary Orbit at its designated location. , GSLV Mk III is a three-stage heavy lift launch vehicle developed by the Indian Space Research Organisation (ISRO). , Two massive boosters with solid propellant constitute the first stage, the core with liquid propellant form the second stage and the cryogenic engine completes the final stage. , GSAT-29 is a multiband, multi-beam communication satellite, intended to serve as test bed for several new and critical technologies. Its Ku-band and Ka-band payloads are configured to cater to the communication requirements of users including those from remote areas especially from Jammu & Kashmir and North-Eastern regions of India. , In addition, the Q/V-Band communication payload onboard is intended to demonstrate the future high throughput satellite system technologies. Geo High Resolution Camera will carry out high resolution imaging. Optical Communication Payload will demonstrate data transmission at a very high rate through optical communication link. , After the successful launch, ISRO Chairman Dr K Sivan said: “India has achieved significant milestone with our heaviest launcher lifting off the heaviest satellite from the Indian soil. The launch vehicle has precisely placed the satellite in its intended orbit. I congratulate entire ISRO team for this achievement.” , Declaring GSLV MKIII operational, Dr Sivan announced that Chandrayaan-2 and Gaganyaan missions will be launched by this heavy-lifter. , Jayakumar B, Mission Director, GSLV Mark III said it is the guidance of the Mentors at ISRO that helped the team to march ahead while facing obstacles. “The industry partners too played a key role in this mission,” he said. , K Pankaj Damodar, Project Director, GSAT-29 said the launch will help to bridge the digital divide. He also said several next generation payload technologies will be demonstrated with this mission soon. , The success of GSLV MkIII-D2 marks an important milestone in Indian space programme towards achieving self-reliance in launching heavier satellites. The success of this flight also signifies the completion of the experimental phase of GSLV Mark III. , The first successful mission of GSLV Mark III was an experimental suborbital flight in 2014. Subsequently, GSLV Mark III-D1 launched GSAT-19, a high throughput communication satellite, with a lift-off mass of 3150 kg, into GTO (Geosynchronous Transfer Orbit) on June 5, 2017. , ], ' ', [ Login Register ], ' ', [ Polar Satellite Launch Vehicle (PSLV) and Geosynchronous Satellite Launch Vehicle (GSLV) are two operational launch vehicles of India. They are used to carry spacecraft into space. Read more about the launchers in this article for the IAS Exam preparation. , This section is covered in the UPSC Mains GS 3 (Science and Technology). Prepare better for paper-3 with the UPSC Mains GS 3 strategy mentioned in the linked article. , Aspirants should read science and technology-related articles linked below: , , As mentioned above, the full form of PSLV is the Polar Satellite Launch Vehicle. It is a launcher that is used to carry spacecraft into space. Some important salient features of PSLV are mentioned below: , There have been 52 launches by PSLV. The launches of 2019 and 2020 are given in the table below: , Launcher Type/Title , Description , Get the list of space centres and space agencies in the linked article. , Increase your knowledge about the list of India Satellites from 1975 to 2022 in the linked article. , GSLV-Mk II is the largest launch vehicle developed by India. The salient features of this launch vehicle are mentioned below: , Aspirants can read about GSLV Mk-III in the linked article. It will launch the Chandrayaan-2 spacecraft. , , Some more related links that can be beneficial for Science and Technology preparation for GS 3 are mentioned below: , Your Mobile number and Email id will not be published. Required fields are marked \* , Request OTP on Voice Call , Website , Post Comment , Last Updated: 10-01-2023 ], ' ', [ Successfully Launched 319 international customer satellites from 33 countries , ISRO has been providing Launch services for customer satellites since 1999 onboard ISRO’s Polar Satellite Vehicle (PSLV). Till June 2019, 319 customer satellites from 33 countries have been launched onboard PSLV on commercial basis through its commercial arm . In September 2016, PSLV C-37 has successfully injected 104 satellites into orbit – the highest number of satellites launched in a single mission so far. PSLV is a versatile vehicle, capable of launching satellites into LEO, SSO, Sub-GTO, GTO Orbits. , With ISRO operationalising its Geosynchronous Satellite Launch Vehicle (GSLV) and GSLV Mk-III and building Small Satellite Launch Vehicle (SSLV), as a launch on demand Vehicle, NSIL is in a position to offer and expand its launch services. The launches will be accomplished from Satish Dhawan Space Centre (SDSC), India’s Spaceport, located at Sriharikota, near Chennai. , Geosynchronous Satellite Launch Vehicle (GSLV) employing cryogenic stage is intended to carry heavier satellites of the order of 2200 kg into the Geosynchronous Transfer Orbits (GTO). The heavy lift launcher GSLV MkIII (alias LVM3) is intended to enhance the GTO capability to 4000 kg and is currently under development. The Small Satellite Launch Vehicle (SSLV) is intended to carry 500 kg satellite to 500km LEO Orbit. , With the suite of launch vehicles developed and operationalised by ISRO, NSIL offers comprehensive launch solutions – for both Ride Sharing and Dedicated Missions – with a wide variety of flight proven payload separation systems and adaptors developed in-house for all category of satellites. For more details on payload separation system Click here . , Though primarily designed for SSPO mission, PSLV, touted as the "Workhorse" of ISRO, is an extremely versatile vehicle with missions successfully accomplished to Low inclination LEO, Sub-GTO and GTO. , With an indigenously developed Cryo Stage in addition to 2 other stages and 4 liquid strap-ons, GSLV is primarily used for missions to GTO. , The newest addition to ISRO Fleet, Mk-III is capable of lifting 4t class satellites to GTO and about 10t to LEO. This is a 3 stage vehicle with a 5m heatshield, which has helped to improve the payload accommodation volume. , Getting built on a completely commercial, Launch on Demand Philosophy, SSLV is all set for a maiden flight in the second half of 2019. This 33m tall, 2m diameter vehicle can carry up to 500Kg to a 500km circular orbit. SSLV is a 3 stage all solid vehicle with an Upper Velocity Trimming module for precise Orbit insertion. Please click here for SSLV Brochure , Polar Satellite Launch Vehicle (PSLV) is the third generation launch vehicle of India. It is the first Indian launch vehicle to be equipped with liquid stages. After its first successful launch in October 1994, PSLV emerged as the reliable and versatile workhorse launch vehicle of India with 42 successful missions by Dec 2018. During 1994-2018 period, the vehicle launched 53 Indian satellites and 269 satellites for international customers. , Besides, the vehicle successfully launched two space crafts – Chandrayaan-1 in 2008 and Mars Orbiter Spacecraft in 2013 – that later travelled to Moon and Mars respectively , Geosynchronous Satellite Launch Vehicle Mark II (GSLV Mk II) is a launch vehicle developed by India and is currently in operation for launching 2t class communication satellites. This fourth generation launch vehicle is a three stage vehicle with four liquid strap-ons. The indigenously developed cryogenic Upper Stage (CUS), which is flight proven, forms the third stage of GSLV Mk II. From January 2014, the vehicle has achieved four consecutive successes. , GSLV Mk III is a three-stage heavy lift launch vehicle developed by ISRO. The vehicle has two solid strap-ons, a core liquid booster and a cryogenic upper stage. , GSLV Mk III is designed to carry 4t class of satellites into Geosynchronous Transfer Orbit (GTO) or about 10t to Low Earth Orbit (LEO), which is about twice the capability of GSLV Mk II. , The two strap-on motors of GSLV Mk III are located on either side of its core liquid booster. Designated as ‘S200’, each carries 205 tons of composite solid propellant and their ignition results in vehicle lift-off . S200s function for 140 seconds. During strap-ons functioning phase, the two clustered Vikas liquid Engines of L110 liquid core booster will ignite 114 sec after lift -off to further augment the thrust of the vehicle. These two engines continue to function after the separation of the strap-ons at about 140 seconds after lift -off. , The first experimental flight of LVM3, the LVM3-X/CARE mission lifted off from Sriharikota on December 18, 2014 and successfully tested the atmospheric phase of flight. Crew module Atmospheric Reentry Experiment was also carried out in this flight. The module re-entered, deployed its parachutes as planned and splashed down in the Bay of Bengal. , The first developmental flight of GSLV Mk III, the GSLV-Mk III-D1 successfully placed GSAT-19 satellite to a Geosynchronous Transfer Orbit (GTO) on June 05, 2017 from SDSC SHAR, Sriharikota. , To cater to emerging global small satellite launch service market, ISRO has taken up the development of Small Satellite Launch Vehicle (SSLV). Manufacturing of SSLV through Indian Industry partners will be the responsibility of NSIL. , SSLV has been designed to meet “Launch on Demand” requirements in a cost-effective manner. It is 3 stage all solid vehicle with a capability to launch upto 500 kg satellite mass into 500 km LEO. , The vehicle would help in , After the initial developmental flights, ISRO, through its commercial arm, NSIL, is planning to manufacture SSLV through Indian Industries. , Please click here for SSLV Brochure , Satish Dhawan Space Centre, Sriharikotta, commonly known as SHAR, situated on the Eastern coast of the country 80km off Chennai, is the Space port of India. SHAR is located just above the equator on the Northern latitude bounded by the vast Indian coast line, making it one of the most ideal launch sites in the world today. The centre has 2 launch complexes – First Launch Pad (FLP) and the Second Launch Pad (SLP)- both possessing state of the art assembly and clean room facilities. SHAR has had a humble beginning in 1971 with the launch of an RH-125 sounding rocket and the centre has come a long way ever since. It currently has Solid Motor Production and Testing facilities that are among the biggest in the world, Propellant Filling and Servicing facilities and state-of-the-art Range Operations for providing reliable Launch Services to the customers. The island has housing facilities for the employees and also has a fully functional Guest house for the customers who visit the island for launch operations. , SHAR has 2 launch complexes, each capable of providing complete support for vehicle assembly, check out and launch operations for any kind of missions – LEO, GEO, Sub-GTO or GTO. The centre also has facilities that can support launch of sounding rockets. First Launch Pad Second Launch Pad , SDSC, SHAR provides world class launch infrastructure and has an array of facilities aimed at providing simultaneous preparation and launch of multiple launch vehicles, over the year. The launch complex has end to end support facilities for vehicle assembly. , A Spindle shaped barrier island, Sriharikotta is situated off the coast of Bay of Bengal, in the state of Andhrapradesh on the South eastern side of India. The island separates Pulicat lake, which is the second largest lagoon in India, from the Bay of Bengal , FLP was built in the early 1990’s following the concept of Integrate on the Pad, wherein, after assembling the rocket, a 3200ton Mobile Service Tower (MST), moves backward to it’s parking place.The facility is well equipped to handle the storage, transport and servicing of both earth storable and cryo propellants.FLP was built in the early 1990’s following the concept of Integrate on the Pad, wherein, after assembling the rocket, a 3200ton Mobile Service Tower (MST), moves backward to it’s parking place.The facility is well equipped to handle the storage, transport and servicing of both earth storable and cryo propellants. , First Launch 20th September 1993, PSLV/IRS-P1 , SLP, which became operational in 2005 was conceived and implemented as a facility upgradation to support for the increasing launch demands that ISRO was facing. Built by Mecon Limited, a Govt of India enterprise located at Ranchi, Jharkhand, the SLP follows the Integrate, Transfer and Launch (ITL) concept, wherein, the vehicle after getting assembled on a Mobile Launch Pedestal in the Vehicle Assembly Building(VAB) is moved to the launch pad in a vertical position, on a rail track.The facility can well support Cryogenic and earth storable propellant storage, servicing and transport , First Launch 5th May 2005, PSLV/Cartosat-1 , Room No. F01, HSFC Building, ISRO HQ, New BEL Road, Bengaluru – 560 094 , NewSpace India Ltd ISRO HQ, Campus, New BEL Road, Bengaluru, Karnataka – 560 094 , Visitor Count 1307636 ], ' ']