



THE WORLD'S SPACEPORT

Ideal location

The Guiana Space Center (CSG) offers ideal conditions for launching any payload to any orbit at any time. Located at 5 degrees North latitude, its proximity to the equator provides an extra boost of energy due to the Earth's rotation – a slingshot effect that is greater here than at most other launch sites.

State-of-the-art facilities

The CSG provides modern Payload Preparation Facilities that are recognized for their high quality in the space industry. The facilities are capable of processing several spacecraft from different customers simultaneously, thanks to vast clean-rooms and commodious infrastructure. Designed to support the rockets' multiple launch capability and high launch tempo, the preparation facilities meet the needs of customers using any of the three vehicles in the Ariane family.

Strict security

The French government, the CSG, and Arianespace follow strict security measures that meet the most rigorous international and national agreements and requirements. They apply to the three launch systems: Ariane 5, Soyuz, and Vega, and strictly limit access to spacecraft. The security regimen is also compliant with US DOD requirements governing the export of US manufactured satellites or parts, and has been audited through a compliance survey by the U.S. government (e.g., within the framework of ITAR).

Safety mission

The CSG applies strict Safety Rules during every launch campaign: this includes authorization of equipment use, operator certification, and permanent operation monitoring. Any potentially dangerous activity is to be reported to the CSG, which in turn, makes certain that safety equipment and emergency response teams are poised to deal with any hazard.

Environmental protection

For many years, all CSG actors have been committed to protecting the environment, through strict measures during spacecraft preparation, launch, and flight. The impact of the launch vehicle in flight on the environment and the careful disposal of hazardous waste are carefully monitored.

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TECHNICAL OVERVIEW

SOYUZ

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The medium-lift Soyuz – which started operations from the Guiana Space Center (CSG) in 2011 and carried out more than twenty launches – is the industry's longest-operating launcher with more than 1,900 manned and unmanned missions performed to date.

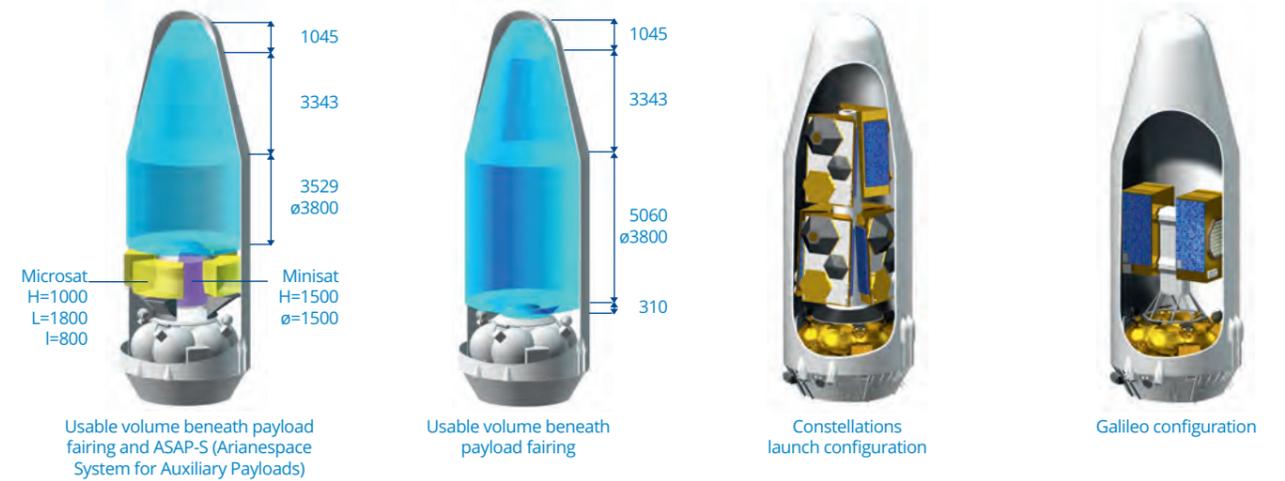
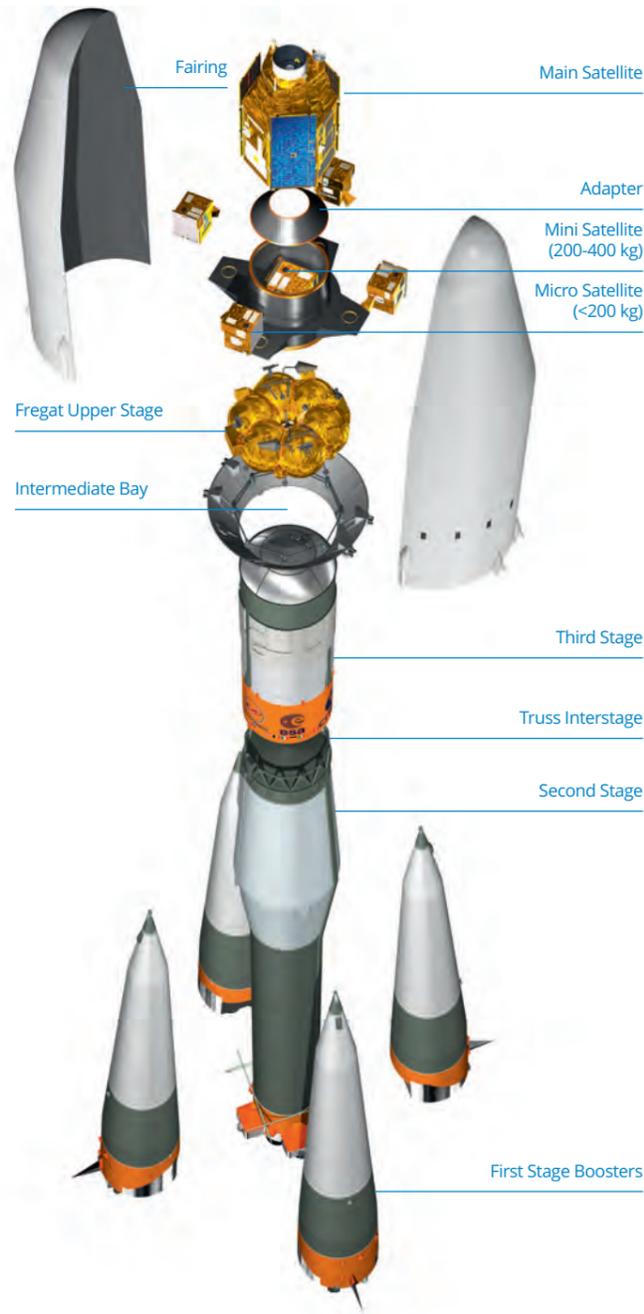
Soyuz launches from CSG give Arianespace the flexibility needed to orbit satellites that are not suited to Ariane 5 or Vega. Offering a payload capacity of 5 metric tons into low Earth orbit, or 3 metric tons into geostationary orbit, Soyuz at CSG is intended for the medium satellite market, including Earth observation, science missions and satellite constellation boom.

The successful Soyuz at CSG program carries on a long-standing collaboration between Europe and Russia, in particular commercial launches of Soyuz from Baikonur, managed by the Starsem joint venture since 1996. The two launch pads, in Baikonur and at CSG, are operated concurrently, for the greatest benefit of Arianespace's governmental and commercial customers.

The Soyuz currently offered by Arianespace is a four-stage launch vehicle. The vehicle consists of four boosters (first stage), a central core (second stage), a third stage, and the restartable Fregat upper stage (fourth stage). Each vehicle also includes a payload adapter/dispenser and fairing.

Unsurpassed flexibility

The Soyuz is a reliable, efficient, and cost effective solution for a full range of missions from LEO to Mars. In its unequalled flight history, the Soyuz has already performed almost every mission profile, including orbiting satellites for telecommunications, Earth observation, weather monitoring, scientific missions and manned flights. It is a highly responsive and flexible launch vehicle.



Restart capability and access to all orbits

Fregat is an autonomous and flexible upper stage that extends the capability of the lower three stages of the Soyuz vehicle to provide access to a full range of orbits (LEO, SSO, MEO, GTO, GEO and escape). The stage can be restarted up to 6 times in flight, thus enabling it to carry out complex mission profiles.

Payload fairing for a full range of spacecraft passengers

The Soyuz fairing has a diameter of 4.11 meters and an overall length of 11.4 meters – enabling it to accommodate the full range of payloads in the launch vehicle's performance category.

Ideal solution for launching constellations and multiple spacecraft

Thanks to a large variety of available dispensers, adapters and specific carrying structures, Soyuz can carry up to 6 spacecraft and auxiliary passengers, thus making it a great solution for satellite constellations.

Back-up capabilities for 3-ton-class satellites

The advent of Soyuz launches at CSG provides additional capacity to adjust the launch offering for geostationary satellites. The Arianespace back-up policy allows the 3-ton-class satellites to be launched either on Ariane 5 in a dual launch configuration or on Soyuz as a dedicated launch. Therefore, Arianespace increases the flexibility of its offer and the added value for the customer.

Performance	GTO	SSO	LEO	MEO	HEO	Earth escape
Payloads, kg (including adapters)	3,250	4,400	4,850	1,645	2,250	2,000
Inclination (i), deg	6		52	56		
Altitude of perigee (Zp), km	250	820	920	23,222		
Altitude of apogee (Za), km	35,950		920	23,222	800,000	
Argument of perigee (Wp), deg	178					

Soyuz mission profile for multiple launch in a circular orbit

